ELMWOOD PRESERVE

850 DOBBS FERRY ROAD

TOWN OF GREENBURGH, WESTCHESTER COUNTY, NEW YORK

DRAFT Remedial Action Work Plan

NYSDEC BCP Number: C360239

Prepared for:

Ridgewood Elwood Owner, L.L.C
25A Hanover Road, Suite 310
Florham Park, New Jersey 07932

Prepared by:

Carson Voci Engineering and Geology, D.P.C
An affiliate of Terraphase Engineering Inc.
1100 East Hector Street, Suite 400
Conshohocken, Pennsylvania 19428
(215) 297-3502

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CERTIFICATION STATEMENT

I, Nicholas Krasnecky, P.E., 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-10 / Technical Guidance for Site Investigation and Remediation and DER-31 / Green Remediation.

Engineering Seal to be applied to Final, NYSDEC-approved document.

NYS Professional Engineer #100006	08/06/26	
	Date	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.

Remedial Action Work Plan

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LIST OF ACRONYMS

Acronym	Definition
µg/m^3	micrograms per cubic meter
Applicant	Ridgewood Elmwood Owner, L.L.C., LLC
AWQS	ambient water quality standards
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	below ground surface
BMP	best management practice
CAMP	*Community Air Monitoring Plan*
Carson Voci	Carson Voci Engineering and Geology, D.P.C.
C/D	construction and demolition
ConEd	Consolidated Edison Company of New York, Inc.
COC	Certificate of Completion
COPC	contaminants of potential concern
CSM	conceptual site model
CQAP	Construction Quality Assurance Plan
CVA	Climate Vulnerability Assessment
DER	Division of Environmental Remediation
DER-10	DER 10 / Technical Guidance for Site Investigation and Remediation
DER-31	DER-31 / Green Remediation
DOT	United States Department of Transportation
DMM	Division of Materials Management
DPT	direct-push technology
DUSR	data usability summary report

Eastern Parcel	Site property east of the Consolidated Edison Company of New York, Inc. parcel
EE	environmental easement
EC	engineering control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
EPA	United States Environmental Protection Agency
ESA	environmental site assessment
FER	final engineering report
FW	freshwater
FWRIA	*Fish and Wildlife Resources Impact Analysis*
GSR	Green and Sustainable Remediation
GZA	GZA GeoEnvironmental Inc.
HAP	Historically Applied Pesticide
HASP	*Health and Safety Plan*
HAZWOPER	Hazardous Waste Operations and Emergency Response
HHEA	human health exposure assessment
IC	institutional control
IDW	investigation-derived waste
mg/kg	milligrams per kilogram
MSA	material staging area
NYCRR	New York Codes, Rules, and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OER	Office of Environmental Remediation

OSHA	Occupational Safety and Health Administration
PAH	Polycyclic aromatic hydrocarbons
Participant	Ridgewood Elmwood Owner, L.L.C., LLC
PCB	polychlorinated biphenyl
PEcoSCOs	Protection of Ecological Resources soil cleanup objectives
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PID	photoionization detector
PGWSCOs	Protection of Groundwater (soil cleanup objectives)
PM-10	particulate matter with a diameter of 10 micrometers or less
PPE	personal protective equipment
ppm	parts per million
QAPP	*Quality Assurance Project Plan*
QA/QC	quality assurance/quality control
QEP	Qualified Environmental Professional
RAO(s)	remedial action objective(s)
RAWP	remedial action work plan
RI	remedial investigation
RIR	*Remedial Investigation Report*
RIWP	*Remedial Investigation Work Plan*
Roux	Roux Environmental Engineering and Geology, D.P.C
RSCO	residential soil cleanup objective
SCG	standards, criteria, and guidelines
SCO	soil cleanup objective
SCQ	Standards, Criteria and Guidelines
SEFA	*Spreadsheets for Environmental Footprint Analysis*

SEQRA	State Environment Quality Review Act
SGV	sediment guidance value
SMP	site management plan
SMMP	soil/materials management plan
Site	Site No. C203162 identified as Elmwood Preserve at 850 Dobbs Ferry Road, White Plains, New York
SRI	Supplemental remedial investigation
SV	soil vapor
SVOC	semivolatile organic compound
SWPPP	Storm Water Pollution Prevention Plan
TAL	Target Analyte List
TCL	target compound list
TOGS	Technical and Operational Guidance Series
TOGs 1.1.1	Technical and Operational Guidance Series Memorandum 1.1.1, "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations"
USCS	Unified Soils Classification System
USGS	United State Geological Survey
UST	underground storage tank
UUSCO	unrestricted use soil cleanup objective
VOC	volatile organic compound
Western Parcel	Site property west of the Consolidated Edison Company of New York, Inc. parcel
XRF	X-ray fluorescence

EXECUTIVE SUMMARY

Ridgewood Elmwood Owner, L.L.C entered into a Brownfield Cleanup Agreement (BCA) with the New York State (NYS) Department of Environmental Conservation (NYSDEC) in April 2023 to investigate and remediate the Elmwood Preserve Site, a 106.8-acre property comprised of two parcels at 850 Dobbs Ferry Road in the Town of Greenburgh, Westchester County, New York (the Site). Ridgewood Elmwood Owner, L.L.C is a Participant in the Brownfield Cleanup Program. The Site was assigned NYSDEC Brownfield Cleanup Program Site Number C360239.

This *Remedial Action Work Plan* (RAWP) summarizes the nature and extent of contamination as determined from data gathered during the remedial investigation and evaluates and presents the selected remedy that is protective of human health and the environment and consistent with the proposed future use of the Site.

SITE DESCRIPTION/PHYSICAL SETTING/SITE HISTORY

The Site is located in the County of Westchester, Town of Greenburgh, New York, and is identified as Parcel IDs 7.530-320.1.SG and 7.530-320-1.SE on the Town of Greenburgh Geographic Information System Tax Map. The Site is situated on an approximately 106.8-acre area bounded by residential development to the north, Dobbs Ferry Road to the south, recreational development (Frank Jazzo Field) to the east, and residential and institutional development (Fairview Fire Department – Station 2) to the west (see Figure 1).

The Site was first developed in 1924 as the Pelhamhurst Golf & Country Club golf course. In 1946, ownership transferred from John C. Von Glahn, a Trustee, to Elmwood Country Club Inc. The property continued to operate as a private club and golf course from 1946 until its closure in 2017. The Site was improved with an 18-hole golf course, a main clubhouse, and associated maintenance and storage buildings, as well as several tennis courts and a pool area. The Participant purchased the property in 2017. The buildings, formerly located on the southwest portion of the Site, were demolished in 2022. The Site is currently vacant and undeveloped.

The past use of the Site as a golf course and country club included historical applied pesticide operations for regular maintenance of the golf course and the presence of historical fill around the prior infrastructure, both of which have caused environmental impacts at the Site.

SUMMARY OF THE REMEDIAL INVESTIGATION

Data collected during the remedial investigation was used to develop a conceptual site model. The model incorporated the Site's history; source, magnitude, fate, transport of contaminants of concern (COPCs); potential exposure pathways; as well as site-specific geology,

hydrogeology, and both current and proposed future land use. The COPCs at the Site include pesticides, metals, and polyaromatic hydrocarbons, which do not readily biodegrade and therefore persist in environmental media unless actively remediated. Based on the soil, groundwater, soil vapor, sediment, and surface water results, soil is the primary impacted environmental medium at the Site.

Based on the vertical profiles of pesticides and metals in Site soil, these COPCs are attributed to legacy pesticide applications associated with the historical use of the Site as a golf course and country club. Soils containing pesticides and metals at concentrations exceeding the applicable soil cleanup objectives (SCOs) are found primarily in the upper 0.5 feet of soils, with impacts in some areas extending to 2 feet below ground surface. A limited number of locations demonstrated impacts below 2 feet below ground surface, primarily isolated to individual pesticides or metals. The occasional exceedances of polychlorinated biphenyls and semivolatile organic compounds above the applicable SCOs are not indicative of known historical Site operations and are likely due to historical fill material identified on the portion of the Site that previously contained the clubhouse and surrounding infrastructure.

The Site groundwater does not contain COPCs at levels exceeding the ambient water quality standards (AWQS), except for the per- and polyfluoroalkyl substances (PFAS) COPCs. PFAS was detected at most groundwater monitoring wells at concentrations exceeding the AWQS. Groundwater sampling results indicate the concentrations of pesticides and metals in the Site soils are not impacting groundwater.

PFAS compounds were also detected in soil at levels above the unrestricted use SCOs. However, there is currently no indication of an on-site source of PFAS and/or impacts stemming from known historical Site operations. Therefore, the presence of PFAS at the Site is likely attributable to background levels from diffuse anthropogenic deposition common to the greater New York City metropolitan area, as evidenced by PFAS detections at multiple Brownfield Cleanup Program sites throughout Westchester County.

Soil vapor is not a medium of concern at the Site since regulated soil vapor compounds are not present above applicable standards, criteria, and guidance in any other environmental medium, and detected soil vapor concentrations at the Site do not indicate a requirement for further monitoring or mitigation.

Site surface water does not contain COPCs at concentrations exceeding the AWQS, except for dieldrin at three sampling locations within the small stream channel located in the eastern part of the Site.

The sediment sample results indicated slight to moderate contamination (i.e., Class B sediment) or highly contaminated sediments (i.e., Class C sediment) when compared to the

ecologically based freshwater screening guideline values. Exceedances of chlordane (total) and/or various metals were primarily detected in the pond, with minor impacts identified in sediment samples collected in the small stream channel in the eastern part of the Site. Based on the surface water sampling results, impacts to the soil and sediment at the Site do not appear to be readily impacting surface water. The concentrations of pesticides and metals in sediment appear to be related to the impacts in soil, consistent with historical legacy pesticide application at the Site.

QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

The following table summarizes the human health exposure assessment.

Environmental Media and Exposure Route	HHEA
Direct contact with soil (dermal contact and incidental ingestion; inhalation of fugitive dust)	Current: Potential trespassers can come in contact with exposed surface soil at the Site. Future: • Utility workers, construction workers, and trespassers could be exposed to contaminated surface or subsurface soil via dust inhalation, incidental ingestion, and dermal contact. Passers-by, off-site residents of neighboring residential properties, and off-site recreational users in the vicinity of the work could be exposed to contaminated soil via dust inhalation. Implementation of the *Health and Safety Plan*, *Community Air Monitoring Plan*, and dust control measures during remedial action and any future ground intrusive activities will mitigate potential exposures. • Implementation of the *Remedial Action Work Plan* will mitigate potential soil-related exposures to residents of the proposed single-family housing and recreational users on the eastern parcel. Off-Site: With the potential exception of dust generation, off-site soil migration via erosion is not expected to have occurred given the known sources of contaminants, historical practices, site vegetation, and general site topography. Erosion of soils is expected to have been limited by the presence of dense vegetation and paved/covered areas of the Site. Stormwater runoff historically was managed through stormwater management features.
Ingestion of /dermal contact with groundwater used as drinking water	Not complete. Groundwater is not currently used, nor is it expected to be used, as a source of drinking water at the site or in adjacent areas off-site. Groundwater ingestion is therefore not a complete exposure pathway for on- or off-site receptors.
Dermal contact with shallow groundwater	On- or off-site future construction/utility workers excavating into shallow groundwater potentially could be exposed to COPCs through dermal contact. Incidental ingestion is considered unlikely during excavation. The only constituents detected in groundwater from

Environmental Media and Exposure Route	HHEA
	perimeter wells were PFAS, which are assumed related to regional conditions rather than to site-related releases.
Inhalation of air (exposures related to soil vapor intrusion)	• There are currently no occupied buildings at the Site and no identified COPCs in soil vapor. • While soil vapor data at the Site do not show concentrations posing an exposure risk that would require mitigation, numerous compounds were detected in soil vapor, with some at elevated detections in several on-site areas that may impact indoor air following redevelopment. Therefore, soil vapor intrusion is a potential concern for future on-site redevelopment and occupancy and will be further evaluated to determine if the remedy has addressed this concern • It is not expected that soil vapor would migrate off-site to nearby buildings, if present.
Dermal contact with surface water	• Current: Bodies of water at the Site are not intended for recreational use, such as swimming. Trespassers could contact COPCs in surface water through dermal contact while wading along the banks. Incidental ingestion is not expected since swimming is unlikely to occur. Any exposure to surface water is expected to occur only sporadically, given that Site access is restricted. • Future: Bodies of water at the Site will tie into the overall stormwater system proposed as part of the Site development and are not intended nor anticipated for recreational use. Trespassers and incidental recreational users could potentially have dermal contact with COPCs in surface water via wading. Incidental ingestion is not expected since swimming is unlikely to occur. Any exposure to surface water is expected to be minimal, and occur only sporadically. • Off-Site: The stream runs off-site into other waterbodies and wetlands that are not recreational areas. While off-site receptors could potentially encounter COPCs in surface water downstream of the Site, exposure is expected to be limited by thick vegetation and soft marsh soils.
Dermal contact with and incidental ingestion of sediment	• Current: The bodies of water are not intended for recreational use. Trespassers could come in contact with contaminated sediment through dermal contact and incidental ingestion while wading, although this exposure is expected to be minimal, and occur only sporadically. • Future: The bodies of water at the Site will tie into the overall stormwater system proposed as part of the development and are not intended nor anticipated for recreational use. Trespassers and incidental recreational users could potentially come in contact with contaminated sediment through dermal contact and incidental ingestion, although this exposure is expected to be minimal, and occur only sporadically. • Off-Site: The stream runs off-site into other waterbodies and wetlands that are not recreational areas. While off-site receptors could potentially encounter COPCs in sediment downstream of the

Environmental Media and Exposure Route	HHEA
	Site, exposure is expected to be limited by thick vegetation and soft marsh soils.

FISH AND WILDLIFE IMPACT ANALYSIS

As summarized in the *Fish and Wildlife Resource Impact Analysis* (FWRIA; provided under separate cover), the Site's vacant, undeveloped condition currently offers suitable habitat for a variety of wildlife, in contrast to its historical use as a golf course and country club from 1924 until 2022.

Currently, complete exposure pathways exist for fish and wildlife based on detected COPCs in soil and sediment. Groundwater is not considered a medium of concern for ecological receptors, due to the unlikely potential for exposure to occur. Part 1 of the FWRIA determined that a Part 2 may be warranted. However, in lieu of completing a Part 2, pond sediments will be cleaned up to NYSDEC Freshwater (FW) Class A Sediment Guidance Values (SGVs; NYSDEC 2014).

SUMMARY OF THE REMEDY

A remedial program will be implemented to define the requirements for its construction, operation, optimization, maintenance, and monitoring. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy in accordance with NYSDEC Division of Environmental Remediation's Program Policy "DER-31 / Green Remediation." The major green remediation components 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 which 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;
- Integrating the remedy with the end use where possible and encouraging green and sustainable redevelopment; and
- Incorporating green remediation principles and techniques to the extent feasible in future Site development. Any future on-site buildings shall be constructed, at a minimum, to meet the *2020 Energy Conservation Construction Code of New York* (or most recent edition) to improve energy efficiency as an element of construction.

As part of the remedial program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis will be completed. The environmental footprint analysis will be completed using an accepted environmental footprint analysis calculator such as SEFA ("Spreadsheets for Environmental Footprint Analysis," United States Environmental Protection Agency), SiteWise™ (available in the Sustainable Remediation Forum [SURF] library) or similar NYSDEC-accepted tool. Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use will be estimated, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, will be incorporated into the remedial program, as appropriate. The project will include detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report, including a comparison to the goals established during the remedial program.

Additionally, the remedial program will include a climate change vulnerability assessment to evaluate the impact of climate change on the project site and the proposed remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise will be identified, and the remedial program will incorporate measures to minimize the impact of climate change on potential identified vulnerabilities.

The remedial program will include the following activities:

1. Conduct site preparation activities consisting of utility investigation and mark-outs; mobilization of equipment for the specific remedial activities; installation of soil erosion and sediment controls (as needed); site clearing, grubbing, and tree removal; preparation of staging and material stockpile areas; and set-up of community air monitoring equipment in accordance with the *Community Air Monitoring Plan*.

2. Excavation of soil/fill exceeding Track 2 SCOs for both the western and eastern parcels to a depth of 15 feet bgs or top of bedrock, whichever is shallower.
3. Temporary dewatering of the pond (and treatment if necessary), excavation, stabilization (if necessary), and off-site removal of all sediments exceeding FW Class A SGVs, estimated to be approximately 4,600 cy as shown on Figure 16. Restoration of the pond and adjacent wetlands upon completion of sediment removal, as needed. An RD containing further details regarding the sediment remediation will be submitted for review and approval by the NYSDEC prior to initiating sediment remediation.
4. Screening for indications of contamination (by visual means, odor, monitoring with photoionization detector and/or X-ray fluorescence analyzer) of all excavated soil during any intrusive Site work.
5. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of Track 2 SCOs and sediment FW Class A SGVs.
6. Appropriate off-site disposal of all material removed from the Site in accordance with all federal, state, and local rules and regulations for handling, transport, and disposal.
7. Clean material movement, site regrading, and temporary stabilization of excavated areas.
8. Completion of a soil vapor intrusion desktop evaluation following implementation of the soil remedy to determine if there is a complete or potentially complete exposure pathway for vapor intrusion of VOCs, and if further actions are needed to address potential exposures.
9. Demobilization of all remedial equipment and removal of erosion and sediment control measures that are not scheduled to be used during redevelopment activities.
10. All responsibilities associated with the remedial action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable federal, state, and local rules and regulations.

Remedial Action Work Plan

1.0 INTRODUCTION

Ridgewood Elmwood Owner, L.L.C entered into a Brownfield Cleanup Agreement (BCA) with the New York State (NYS) Department of Environmental Conservation (NYSDEC) in April 2023 to investigate and remediate a 106.8-acre Site comprised of two parcels at 850 Dobbs Ferry Road in the Town of Greenburgh, Westchester County, New York. Ridgewood Elmwood Owner, L.L.C is a Participant in the Brownfield Cleanup Program. Residential and recreational use is proposed for the property. When completed, the Site will contain 113 private (single-family) residential homes. Refer to the Brownfield Cleanup Program (BCP) application for additional details.

This *Remedial Action Work Plan* (RAWP) summarizes the nature and extent of contamination as determined from data gathered during the remedial investigation (RI), performed between May 2024 and June 2025. It provides an evaluation of a Track 1 cleanup and other applicable remedial action alternatives, the associated costs, and the recommended and preferred remedy. The remedy described in this document is consistent with the procedures defined in NYSDEC Department of Environmental Remediation (DER) procedures set forth in the 2010 Program Policy "DER-10 / Technical Requirements for Site Investigation and Remediation" (DER-10), "DER-31 / Green Remediation" (DER-31), and complies with all applicable standards, criteria, and guidance. The remedy described in this document also complies with all applicable federal, state, and local laws, regulations, and requirements. The NYSDEC and NYS Department of Health (NYSDOH) have not yet determined whether this Site does/does not pose a significant threat to human health and the environment. The RI for this Site did identify fish and wildlife resources.

Per DER-10 Section 3.10, a *Fish and Wildlife Resources Impact Analysis* (FWRIA) has been performed and can be found in Section 2.6.2. This RAWP includes appropriate measures for delineating and protecting the identified resource and for monitoring construction related impacts consistent with DER-10 and the FWRIA, Part 3. These resources are identified on remedial drawings. The NYSDEC Division of Fish and Wildlife and the NYS Natural Heritage Program will be contacted, as defined in DER-10, and, at a minimum, all substantive technical requirements for applicable resource related permits (e.g., 6 NYCRR Parts 608, 661, 663) will be met.

A formal remedial design document will not be prepared.

1.1 SITE LOCATION AND DESCRIPTION

The Site is in the County of Westchester, Town of Greenburgh, New York, and is identified as Parcel IDs 7.530-320.1.SG and 7.530-320-1.SE on the Town of Greenburgh Geographic Information System Tax Map. A United States Geological Survey (USGS) topographical quadrangle or other suitable type map (Figure 1) shows the Site location. The Site is situated on an approximately 106.8-acre area bounded by residential development to the north, Dobbs Ferry Road to the south, recreational development (Frank Jazzo Field) to the east, and residential and institutional development (Fairview Fire Department – Station 2) to the west (see Figure 2). A boundary map is attached to the BCA as required by Environmental Conservation Law (ECL) Title 14, Section 27-1419.

1.2 CONTEMPLATED REDEVELOPMENT PLAN

The remedial action to be performed under the RAWP is intended to make the Site protective of human health and the environment consistent with the contemplated end use. The proposed redevelopment plan and end use is described here to provide the basis for this assessment. However, the remedial action contemplated under this RAWP may be implemented independent of the proposed redevelopment plan.

The planned redevelopment of the Site includes the construction of approximately 113 private (single-family) residential homes on the western parcel as shown on Figure 3. Each residential lot is proposed to be approximately 0.5 acres and developed with a two-story home featuring a basement upon completion of the redevelopment. The eastern parcel is proposed to be transferred to the Town of Greenburgh for future proposed use as a recreational area. The redevelopment plans are provided as Appendix A.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The Site is bounded to the north by residential development, to the east by Landers Road with recreational development (Frank Jazzo Field) beyond, to the south by Dobbs Ferry Road with commercial development (Carlson Farm Nursery & Greenhouses) and recreational development (Game on Golf Center) beyond, and to the west by residential and institutional development (Fairview Fire Department – Station 2). No sensitive receptors were identified in the immediate vicinity of the Site.

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The Site was investigated in accordance with the scope of work presented in the NYSDEC-approved *Remedial Investigation (RI) Work Plan* (RIWP) completed by Roux Environmental

Engineering and Geology, D.P.C (Roux) dated August 2024 and Carson Voci's 2025 work plans *Supplemental Remedial Investigation Work Plan - Soil Investigation,* dated [January 31]; *Supplemental Remedial Investigation Work Plan-Groundwater,* dated [March 26]; *Supplemental Remedial Investigation Work Plan-Surface Water and Sediment,* dated [Month 28]; and the *Supplemental Remedial Investigation Work Plan-Additional Soil Delineation and Soil Vapor,* dated [June 20]. The investigation was conducted between May 2024 and June 2025. Carson Voci's *Remedial Investigation Report* (RIR) and RIR Addendum were submitted to NYSDEC in July and September, 2025, respectively, and approved by NYSDEC on [insert date].

2.1 SUMMARY OF REMEDIAL INVESTIGATIONS PERFORMED

The RI activities conducted between May 2024 and July 2025 included the following scope of work:

- Delineation of horizontal and vertical nature and extent of contamination in all media (soil, groundwater, surface water, sediment, and soil vapor) at or emanating from the Site;
- Confirmation and/or determination of the surface and subsurface characteristics of the Site (i.e., topography, geology, and hydrogeology, including depths to groundwater and bedrock);
- Identification of potential sources of contamination, migration pathways, and actual or potential receptors of contaminants in or through air, soil, groundwater, and utilities at the Site; and
- Collection of sufficient data to perform a qualitative human health exposure assessment (HHEA) for on- and off-site receptors.

The following subsections provide summary details of the RI and supplemental RI (SRI) activities completed at the Site.

2.1.1 Borings and Wells

During the RI and SRI activities, Roux and Carson Voci conducted sampling of various media throughout the Site including soil, groundwater, soil vapor, sediment, and surface water.

Roux advanced 115 soil borings to characterize soil. A grid system was developed based on prior environmental investigations, which indicated that contamination exceeding the applicable soil cleanup objectives (SCOs) was not biased to specific land-use areas associated with the former golf course (e.g., tees and greens). The boring locations corresponded to the center of each approximately 200- by 200-foot grid, with 16 additional borings collected from a potential area of historical fill. In February 2025, Carson Voci conducted SRI activities to further

characterize contaminant distribution throughout the Site. Carson Voci installed an additional 80 soil borings to refine the vertical contamination depths identified during the initial RI and provide sufficient resolution of contaminant distribution from historical surficial pesticide applications. In April 2025, Carson Voci advanced 11 shallow soil borings at each of the overburden monitoring well locations proposed in the RIWP to further characterize per- and polyfluoroalkyl substances (PFAS) in shallow soils at the Site. In June 2025, Carson Voci returned to the Site to advance 19 soil borings to delineate previously identified lithologic inconsistencies that may have contributed to analytical exceedances in soil, with the goal of refining soil characterization and reducing the estimated volume of impacted soil requiring removal from the Site as part of the anticipated remedial action. Ten additional soil borings were advanced in this mobilization to complete a visual assessment and delineation of areas with historical fill material.

During the initial RI activities, Roux installed six overburden monitoring wells via direct-push technology (DPT) drilling methods to characterize shallow groundwater at the Site. During the subsequent sampling event, only monitoring well RMW-10 contained water. Based on the lack of overburden groundwater and the presence of shallow bedrock, Carson Voci installed a network of three shallow bedrock wells at least 5 feet into competent rock via hollow-stem auger and air rotary drilling methods in April 2025 to evaluate the groundwater table quality at the Site.

In July 2024, Roux mobilized to the Site to collect three surface water samples and three collocated sediment samples from the surface water body in the southern portion of the Site as part of the RIWP implementation. Carson Voci conducted additional surface water and sediment sampling in the previous Roux locations, two additional locations at the freshwater pond, and three locations within the small creek at the northeastern portion of the Site to further evaluate the nature and extent of potential impacts in these media at the Site.

To investigate soil vapor at the Site, Roux installed 11 soil-vapor points throughout the Site. In June 2025, Carson Voci installed an additional eight soil-vapor points to further evaluate soil vapor site wide.

2.1.2 Samples Collected

The following subsections summarize the samples collected during RI activities at the Site.

2.1.2.1 Soil Samples

As part of the RIWP implementation, Roux collected and analyzed 362 soil samples from 115 soil borings advanced in a grid system. The samples were collected from 0–0.2, 0.2–2, 0–1, 2–4, 4–6, 6+ foot intervals for the analyses listed below. Soil borings were geologically logged

in accordance with Unified Soils Classification System (USCS) nomenclature, with evidence of contamination noted through visual and olfactory inspection. Boring were also continuously field screened for volatile organic compounds (VOCs) using a photoionization detector (PID) equipped with a 10.6-electron volt lamp.

During the SRI, Carson Voci collected and analyzed 243 soil samples from 101 soil borings. Samples were collected on a nominal, continuous basis using a track-mounted GeoProbe® DPT drill rig to advance a 5-foot-long, stainless-steel macrocore sampler from the surface to the targeted termination depth. Each macrocore sampler was equipped with factory-decontaminated, plastic acetate liners. Soil borings were inspected and classified in accordance with the USCS. Soil borings were field screened for impacts using a PID, along with visual and olfactory inspection. A graphic log of each soil boring was prepared with appropriate stratification lines, lithologic descriptions, sample identifications, PID readings, sample depth intervals, and dates. Representative soil samples were collected from the proposed sampling interval and/or the sampling interval exhibiting a PID reading and/or visual and olfactory indication of impacts. The appropriate soil sample volume was transferred to laboratory-supplied glassware (the VOC aliquot was placed in En Core® samplers per United States Environmental Protection Agency [EPA] Method 5035A) and immediately placed in an ice-filled cooler. Samples for PFAS were collected in accordance with NYSDEC's 2023 *Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS)* guidance document, which requires ensuring that all materials in contact with the sampled soil are compatible. Carson Voci advanced soil borings throughout the Site based on:

- RI sample locations on the western parcel with 2-foot sampling depth intervals exceeding the residential SCOs (RSCOs).
- RI sample locations on the eastern parcel with 2-foot sampling depth intervals exceeding the unrestricted use SCOs (UUSCOs).
- Vertical delineation of RI sample locations with 2-foot sampling depth intervals exceeding the UUSCOs for soils above bedrock, without a demonstrated clean sample at a deeper interval.
- Investigation of fill material associated with the screening sample IDs denoted as TS-##, and vertical delineation below the fill material.
- Horizontal delineation of RI sample location A04 containing PFAS concentrations exceeding the UUSCOs.
- Six boring locations in the vicinity of former underground storage tanks (USTs), aboveground storage tanks, and septic tank.

The sample intervals and laboratory analyses varied at each boring location based on field inspection and screening and the prior Roux RI data. Shallow soil samples collected in February 2025 were collected using a stainless-steel hand trowel below vegetation.

In June 2025, Carson Voci advanced soil borings in select locations that were identified as having lithologic and/or analytical inconsistencies during the RI and SRI. Samples were collected based on visual observations made by a Carson Voci field geologist; in the absence of previously identified lithologic inconsistencies, a soil sample was collected to refine larger sampling intervals previously identified to be in exceedance of the applicable SCOs.

2.1.2.2 Groundwater Samples

Development of the overburden wells was attempted in the six monitoring wells installed by Roux. Of the six monitoring wells, only well RMW-10 located adjacent to the pond in the south-central portion of the Site contained water and was developed. This well was subsequently sampled by Roux as part of its RI.

All bedrock monitoring wells installed by Carson Voci were developed with the pump and surge method. Each well was sampled at least 2 weeks after the completion of well installation and development except for a well that was dry (RMW-01D).

In April 2025, Carson Voci collected samples from two of the three bedrock monitoring wells (RMW-09D and RMW-11D) and three of the overburden wells (RMW-03, RMW-07, RMW-10) using EPA low-flow sampling techniques[1] in accordance with protocols provided in the *Quality Assurance Project Plan* (QAPP). A stainless-steel submersible pump was lowered into the groundwater, setting the pump intake within the wells' screened intervals, and the pump discharge tubing was attached to a calibrated water quality meter. Groundwater quality parameters and the depth to groundwater were recorded during the well purge. Once the groundwater parameters had stabilized, a groundwater sample was collected directly from the pump effluent into the appropriate sample containers for analysis (detailed in Table 1) and immediately placed on ice. Wells were sampled for PFAS in accordance with NYSDEC's 2023 *Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS)* guidance document. Sampling tubing (e.g., high-density polyethylene) compatible with both VOC and PFAS sample collection was used. Groundwater samples were collected to evaluate groundwater conditions throughout the Site.

[1] https://www.epa.gov/sites/default/files/2017-10/documents/eqasop-gw4.pdf

2.1.2.3 Surface Water and Sediment Samples

As part of the RI activities, Roux collected three surface water samples and three collocated sediment samples from the banks/shallows of the surface water body present at the southern portion of the Site. Carson Voci conducted additional collocated surface water and sediment sampling in the previous Roux locations, two additional locations at the freshwater pond, and three locations within the small creek at the northeastern portion of the Site, to further evaluate the nature and extent of potential impacts in these media at the Site.

Surface water at the pond banks and stream sampling locations were collected with a high-density polyethylene bailer or jar and transferred into appropriate sample containers. Surface water samples from the middle of the pond were collected with a Kemmerer Bottle at the midpoint of the water column and transferred into appropriate sample containers. Sediment samples from the pond banks and within the stream were collected on a nominal continuous basis by advancing a minimum 2-foot-long, stainless-steel barrel equipped with a slambar device from the surface to the targeted 24-inch below ground surface (bgs) termination depth. Each barrel sampler was equipped with factory-decontaminated, polyethylene core liners. Sediment samples from the middle of the pond were collected from a Jon boat on a nominal continuous basis by advancing a minimum 2-foot-long pushcore with a long pole from the pond bottom to a depth of 24 inches. Each sample was placed in laboratory-supplied bottleware and placed immediately on ice. Each pushcore sampler was equipped with factory-decontaminated, rigid plastic acetate liners and an affixed nose cone. Sediment cores and samples were inspected and classified in accordance with the USCS, and field screened using a PID as well as visual and olfactory inspection. A graphic log of each sediment core was prepared with appropriate stratification lines, lithologic descriptions, sample identifications, PID readings, sample depth intervals, and dates.

2.1.2.4 Soil-Vapor Samples

Soil-vapor points were installed by Roux and Carson Voci to facilitate soil-vapor sampling at the Site. Prior to sampling, a helium tracer gas test was conducted on each soil-vapor point. The tracer gas test verified the integrity of the soil-vapor point installation and that infiltration of ambient air was not occurring. Upon passing the tracer gas test, soil-vapor samples were collected using laboratory-evacuated, certified-clean, 6-liter Summa canisters with 2-hour laboratory-calibrated flow regulators provided by a NYSDEC Environmental Laboratory Approval Program (ELAP) certified analytical laboratory. All sampling flow rates were less than the maximum flow rate of 0.2 liters per minute. Summa canisters were completely evacuated to negative pressure (30 inches of mercury vacuum) by the laboratory prior to use.

2.1.3 Chemical Analytical Work Performed

The following table provides the laboratory analyses conducted on each sampled media. A comprehensive summary of the samples collected in each matrix/media is presented in Table 1.

Matrix/Media	Analytical Parameters
Soil	• Target Compound List (TCL) VOCs using EPA Method 8260C/D, with representative total solids analysis using EPA Method SM2540G; • TCL semivolatile organic compounds (SVOCs) using EPA Method 8270C; • TCL pesticides using EPA Method 8081B; • TCL herbicides using EPA Method 8151A; • TCL polychlorinated biphenyls (PCBs) using EPA Method 8082A; • Target Analyte List (TAL) metals and mercury using EPA Method 6010; • Total cyanide using EPA Method 9010C/9012B; and • Emerging contaminants including 1,4-dioxane and PFAS using EPA Methods 8270E-SIM and 1633, respectively.
Groundwater	• TCL VOCs using EPA Method 8260C/D; • TCL SVOCs using EPA Method 8270C; • TCL pesticides/herbicides using EPA Method 8081B/8151A; • TCL PCBs using EPA Method 8082A; • TAL metals and mercury using EPA Methods 6010D/7471B; and • Emerging contaminants including 1,4-dioxane and PFAS using EPA Methods 8270E-SIM and 1633, respectively.
Surface Water and Sediment	• TCL VOCs using EPA Method 8260D; • TCL SVOCs using EPA Method 8270E; • TCL pesticides/herbicides using EPA Method 8081B/8151A; • TCL PCBs using EPA Method 8082A; • TAL metals and mercury using EPA Methods 6010D/7471B; • Total organic carbon using EPA Method 9060A; and • Emerging contaminants including 1,4-dioxane and PFAS using EPA Methods 8270E-SIM and 1633, respectively.
Soil Vapor	VOCs using EPA Method TO-15

2.1.4 Best Management Practices

Green and sustainable remediation (GSR) principles and techniques were implemented to the extent feasible in the design, implementation, and site management of the remedial investigation per DER-31.

Best management practices (BMPs), as defined by the EPA, aim to reduce the environmental footprint of activities associated with assessing and remediating contaminated

sites. RI BMPs involved specific activities to address the core elements of greener cleanups per DER-31, including (1) reducing total energy use and increasing the percentage of energy from renewable resources, (2) reducing air pollutants and greenhouse gas emissions, (3) reducing water use and preserving water quality, (4) conserving material resources and reducing waste, and (5) protecting land and ecosystem services.

BMPs for the RI included:

- Selecting service providers, product suppliers, and analytical laboratories from the local area;
- Identifying the nearest non-hazardous and/or hazardous waste disposal facility;
- Reducing travel through increased teleconferencing;
- Integrating sources of on-site renewable energy to power hand-held devices, portable equipment, and stationery monitoring systems;
- Using non-invasive or minimally invasive technologies such as portable vapor/gas detection systems using photoionization for screening purposes.
- Choosing products, packing material, and equipment that have reuse or recycling potential;
- Minimizing the need for disposable single-use items, such as plastic bags; and
- Choosing fixed laboratories demonstrating a strong commitment to environmental performance, such as routine use of management practices identified by the International Institute for Sustainable Laboratories.

The following metrics were tracked throughout the RI to validate assumptions and assess progress towards the GSR goals:

- Materials management, including off-site disposal and on-site material import quantities;
- Greenhouse gas emissions and air pollutants; and
- Total energy use.

2.1.5 Documentation

All RI activities were documented with field notes, associated activity logs (i.e., boring logs, groundwater purge logs, etc.), and daily reports, with tables and figures created to document and summarize the results of the RI. All documentation of RI activities is included in the RIR and RIR Addendum.

2.2 SIGNIFICANT THREAT

A significant threat determination to human health and the environment has not yet been made. Upon determination, notice will be provided for public review.

2.3 SITE HISTORY

The background of the Site and the surrounding properties has been evaluated by others and detailed in several environmental assessment reports, as summarized in the following subsections.

2.3.1 Past Uses and Ownership

The Site was first developed in 1924 as the Pelhamhurst Golf & Country Club. In 1946, ownership transferred from John C. Von Glahn, a Trustee, to Elmwood Country Club Inc. The property continued to operate as a private club and golf course from 1946 until its closure in 2017. The Site was improved with an 18-hole golf course, a main clubhouse, and associated maintenance and storage buildings, as well as several tennis courts and a pool area. The Participant purchased the property in 2017. The former buildings, located at the southwest portion of the Site, were demolished in 2022. The Site is currently vacant and undeveloped.

2.3.2 Phase I and Phase II Reports

GZA GeoEnvironmental Inc. (GZA) completed a Phase I and limited Phase II environmental site assessment (ESA [2017]) and supplemental site investigation (2020) for the Site. Roux completed a Phase II ESA at the Site in May 2022 to further characterize potential and existing environmental impacts to soil based on turf management practices from the Site's historical use as a golf course and country club. The results and conclusions of the previous investigation activities completed by GZA and Roux are summarized below.

GZA Phase I and Limited Phase II ESA (2017)

The following were identified during the 2017 Phase I and limited Phase II ESA and documented in the report prepared by GZA:

- The Site was listed in the NY SPILLS database for two release events dating back to 1998. Additionally, the Site was listed in the LUSTS database for five tank test failures dating back to 1988 that were eventually addressed in accordance with applicable requirements.

- Based on Environmental Data Resources Inc. records, there were, at one point, 10 petroleum bulk storage tanks on the property.
- The documented closures and removal of USTs (Tanks 1, 2, 4, 6, 8, and 10) at the Site resolved the spills and tank test failures to the satisfaction of applicable regulatory agencies.

The listings of previous spills/releases and tank testing failures constituted a recognized environmental condition at the Site.

During Phase I of the ESA, GZA identified multiple data gaps regarding potential release areas, indicating that if the future use of the Site changes from a golf course, soil, sediment, and potentially groundwater would need to be characterized for residual impacts. As part of its limited Phase II ESA at the Site, GZA collected three soil samples, one surface water sample, and one bedrock groundwater sample to further evaluate the potential for environmental impacts around two active USTs and the former septic system. The soil sampling results indicated that VOC, SVOC, metal, pesticide, and herbicide concentrations in soil were either below the detection limits or below the UUSCOs and RSCOs per 6 NYCRR Part 375-6.8.[2] The surface water sample concentrations for VOCs, SVOCs, metals, and PCBs were either below detection limits or below the NYSDEC Division of Water Technical Operational Guidance Series Memorandum 1.1.1, "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (TOGS 1.1.1). Dieldrin was detected slightly above the ambient water quality standards (AWQS) in surface water. No compounds in the groundwater sample were above the AWQS.

GZA Supplemental Site Investigation (2020)

In September 2019 and March 2020, GZA conducted supplemental site investigation activities to characterize shallow soil at the Site to assess the environmental quality of key golf course features in support of the State Environmental Quality Review Act for the proposed rezoning and redevelopment.[3] GZA collected samples from 30 soil boring locations consisting of 9 tee boxes, 18 greens, 1 pesticide storage shed, 1 pond outlet, and 1 golf cart storage area. Two soil samples were collected from each soil boring at two intervals, where feasible: one surface and one subsurface sample from 0–6 and 6–24 inches bgs, respectively. Soil samples were analyzed for pesticides, herbicides, total arsenic, and total lead.

[2] "375-6.8 Soil cleanup objectives tables." https://govt.westlaw.com/nycrr/375-6.8,

[3] https://dec.ny.gov/regulatory/permits-licenses/seqr

Analytical results indicated that arsenic was detected in 12 borings at concentrations above the UUSCO and/or RSCO. Lead was detected in 10 borings at concentrations above the UUSCO and/or RSCO. Various pesticides (i.e., 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, cis-chlordane, dieldrin) were detected in 23 borings at concentrations above the UUSCOs and/or RSCOs. Herbicide concentrations in soil were either below the detection limits or below the UUSCOs. GZA concluded that special handling of elevated soil concentrations may be required during redevelopment.

Roux Limited Phase II ESA (2022)

In May 2022, Roux conducted a limited Phase II ESA to further characterize potential and existing environmental impacts to soil based on the Site's historical use as a golf course and country club. The ESA activities consisted of collecting 20 shallow soil samples from 20 borings outside the tee/green areas but within the proposed development footprint, and 20 soil samples from 10 borings within the tee/green areas. Soil samples were analyzed for TCL pesticides, lead, and arsenic.

Analytical results indicated that soil contained arsenic and pesticide impacts, specifically dieldrin, at concentrations above the RSCOs, both within and outside of the tee/green areas. Arsenic was found at concentrations above the RSCOs in both shallow and deeper soil samples. Pesticides were found at concentrations above the RSCOs in shallow soil samples only. Lead was not detected at levels above the RSCOs in any of the soil samples.

2.3.3 Sanborn Maps

All Sanborn® maps available for this Site were reviewed prior to preparation of the RAWP and were included in the Phase I ESA report provided as an appendix to the RIWP.

2.4 GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

According to the Natural Resources Conservation Service Web Soil Survey website,[4] the dominant soil composition in the vicinity of the Site is classified as Charleton fine sandy loam with 3–8, 8–15, 15–25, and 25–35 percent slopes; Charleton-Chatfield Complex with 0–15 percent slopes; Paxton fine sandy loams with 3–8 and 8–15 percent slopes; Sutton loam with 3–8 percent slopes; and Urban Land, which is characterized by a non-homogenous distribution of soil

[4] https://websoilsurvey.nrcs.usda.gov/app/

and fill types. The Site is underlain by the Fordham Gneiss formation, which consists of a garnet-biotite-quartz-plagioclase gneiss.

Soil borings from prior investigations and RI activities indicated a non-homogenous distribution of soil, primarily consisting of fine- to coarse-grained sands and silty sands, and gravels. Historical United States Geological Survey topographic maps of the Site show minimal change in elevation before and after the golf course was constructed, indicating the majority of soils currently at the Site are native or have been in place since at least 1924 when the golf course and country club were developed. Gravels consisting of concrete and other materials consistent with historical fill were commonly observed in the soil borings installed in the southwestern portion of the Site in the vicinity of the former clubhouse and associated structures. Bedrock encountered during the installation of bedrock monitoring wells was observed to be a micaceous garnet biotite gneiss. A geologic section is shown on Figure 4a and 4b.

During water level gauging conducted in July 2024 as part of the RI, groundwater was encountered in one overburden well, RMW-10, at 5.04 feet bgs. In April 2025, groundwater was encountered from 3.5–10.4 and 10.3–20.0 feet bgs in the overburden and bedrock monitoring wells, respectively. A potentiometric surface map for overburden and bedrock monitoring wells, based on well gauging conducted during the RI, implied that groundwater in the overburden flows toward the northeast, and groundwater in the bedrock flows to the northwest. The hydraulic gradient of the overburden and bedrock groundwater is 0.025 and 0.017 feet per foot, respectively. Groundwater flow maps are shown on Figures 5a and 5b.

2.5 CONTAMINATION CONDITIONS

The following subsections detail the contamination conditions that exist at the Site in soil, groundwater, surface water and sediment, and soil vapor based on remedial investigation findings.

2.5.1 Conceptual Model of Site Contamination

A conceptual site model (CSM) was developed based on the Site history and the source, magnitude, fate, transport, and potential exposure pathways of contaminants of potential concern (COPCs), in conjunction with site-specific geology and hydrogeology and the current and proposed future use. COPCs do not readily biodegrade and therefore persist in environmental media unless actively remediated. Based on the soil, groundwater, soil vapor, sediment, and surface water sample results, soil is the primary impacted environmental medium at the Site.

Based on the vertical profiles of pesticides and metals in Site soil, these COPCs are attributed to legacy pesticide applications associated with the historical use of the Site as a golf

course and country club. Pesticides and metals at concentrations exceeding the applicable SCOs were primarily detected in the upper 1 foot of soils, with some areas exhibiting impacts up to 2 feet bgs. A small number of locations demonstrated impacts below 2 feet bgs and were primarily isolated to individual pesticides or metals. The occasional exceedances of PCBs and SVOCs) primarily polycyclic aromatic hydrocarbons [PAHs]) above the applicable SCOs are not indicative of known historical Site operations and are likely due to historical fill material identified on the portion of the Site that previously contained the clubhouse and surrounding infrastructure.

Groundwater at the Site does not contain COPCs at levels exceeding the AWQS, except for PFAS in most groundwater monitoring wells. The groundwater sample results indicate the concentrations of pesticides and metals in the Site soils are not impacting groundwater.

PFAS compounds were also detected in soil at levels above the UUSCOs. However, there is currently no indication of an on-site source of PFAS and/or impacts stemming from known historical Site operations. Therefore, the presence of PFAS is likely due to background levels of these compounds in New York due to diffuse anthropogenic deposition consistent with the greater New York City metro area as evident by the presence of PFAS in multiple BCP sites throughout Westchester County.

New York State currently does not have standards or criteria relating to compounds found in soil vapor. Soil vapor data is reviewed in conjunction with analytical data from other sampled environmental media. Soil vapor is not a medium of concern at the Site since regulated soil-vapor compounds are not present above applicable standards, criteria, and guidance (SCGs) in any other environmental medium. Although soil vapor compounds were not present above correlating standards, criteria and guidance values in soil and groundwater samples, detected concentrations of soil vapor exist in several on-site areas. Therefore, the potential for soil vapor intrusion will be evaluated further, as discussed in Section 3.2.8.

Site surface water does not contain COPCs at concentrations exceeding the AWQS, except for dieldrin at three sampling locations collected from the small stream channel in the eastern part of the Site.

The sediment results indicated slight to moderate or highly contaminated sediments (Class B or C sediments, respectively) when compared to the ecologically based NYSDEC Freshwater (FW) Class A Sediment Guidance Values (SGVs; NYSDEC 2014). Exceedances of chlordane (total) and/or various metals were primarily detected in the pond, with minor impacts identified in sediment samples collected from the small stream channel in the eastern part of the Site. Based on the surface water results, impacts to the soil and sediment at the Site do not appear to be readily impacting surface water. The concentrations of pesticides and metals in sediment

appear to be related to the impacts in soil consistent with historical legacy pesticide application at the Site.

The areal and vertical extent of COPCs in all media are shown on Figures 6 through 10.

2.5.2 Description of Areas of Concern

Based on the results of the RI and the conceptual site model, four areas of concern (AOC) were identified as shown on Figure 11:

1. Eastern Parcel – Historical Applied Pesticide (HAP) Soil Impacts. Comprises the entire eastern parcel and consists of surface soil impacted with pesticides and metals from HAPs during former golf and country club operations.
2. Western Parcel – HAP Soil Impacts. Comprises the majority of the western parcel and consists of surface soil impacted with pesticides and metals from HAPs former golf and country club operations.
3. Western Parcel – Historical Fill. Comprises the southwestern portion of the Site where the former clubhouse, parking areas, tennis courts, maintenance buildings, and other associated infrastructure were located and consists of historical fill primarily impacted with PAHs in the upper 4 feet of soils.
4. Western Parcel – Pond Sediment Impacts. Encompasses the pond on the western parcel and the pesticide and metals impacts in a portion of the sediments above ecological sediment screening criteria from HAPs during former golf and country club operations.

The areas of concern and details of the respective contaminated media are presented in Sections 2.5.4 through 2.5.7.

2.5.3 Identification of Standards, Criteria and Guidance

Based on the proposed use of the Site, data generated during the RI were compared to SCGs, that if met, would provide no use restrictions on the currently proposed future uses of the property as designated below other than the site-wide restriction on the use and extraction of groundwater imposed by county and municipal ordinance(s) or prohibitions under the NYS Environmental Conservation Law[5] (i.e., no engineering control [EC] and no environmental easement or deed restriction or other institutional control [IC]). The proposed redevelopment of the Site is as follows:

[5] https://www.nysenate.gov/legislation/laws/ENV

- The property west of the ConEd parcel ("Western Parcel") will consist of single-family housing.
- The property east of the ConEd parcel ("Eastern Parcel") is proposed for transfer to the Town of Greenburgh for a future recreational area.

The following presents the SCGs for each environmental media at the Site based on the proposed future land uses, with no restrictions other than the site-wide restriction on the use and extraction of groundwater imposed by county and municipal ordinance(s) or prohibitions:

- **Soil.** The applicable SCGs and SCOs for soil at the Site are presented in 6 NYCRR Part 375. The RI results were compared and evaluated against UUSCOs, as required by DER-10 and the BCP to determine the nature and extent of contamination, and the following applicable 6 NYCRR Part 375-6.8 SCOs:
    - RSCOs
    - Protection of Groundwater SCOs (PGWSCOs)
    - Protection of Ecological Resources SCOs (PEcoSCOs)
- **Groundwater.** Groundwater at the Site was evaluated against the Class GA groundwater AWQS and guidance values in TOGS 1.1.1. Although groundwater is not currently used—and is not anticipated to be used—for drinking water since the Site is and will remain connected to the public water supply, the Class GA AWQS will still be used as the comparison criteria.
- **Surface Water and Sediment.** Surface water samples were evaluated against applicable AWQS SCGs provided in TOGS 1.1.1. Sediment samples were evaluated against the *Screening and Assessment of Contaminated Sediment* (NYSDEC 2014).
- **Soil Vapor.** SCGs for independent (e.g., no collocated indoor air sample) soil-vapor samples do not currently exist. Therefore, soil-vapor samples were not directly evaluated against SCGs and were reviewed in conjunction with analytical results from other environmental sampling media.

2.5.4 Soil/Fill Contamination

A summary of soil and fill contamination is presented in the subsections below.

2.5.4.1 Soil Contamination - Historical Applied Pesticides

A total of 115 soil borings were advanced at the Site, and 362 samples analyzed during the RI activities conducted by Roux between May and June 2024. Carson Voci conducted an SRI between February and May 2025 with the objective of refining the vertical extent of soil

contamination identified by Roux in 2024. The 2-foot sampling intervals collected by Roux, in particular the 0.2 to 2-foot bgs interval, did not provide sufficient resolution of the distribution and concentration of contaminants from a historical surficial application of pesticides when compared to the applicable SCOs.

The objectives of the 2025 soil-based supplemental RI also included complete vertical and horizontal delineation of soils where required and confirmation that the UST/aboveground storage tank and septic tank locations have not caused an impact since the 2017 limited Phase II ESA was conducted.

2.5.4.2 Summary of Soil Data – Historical Applied Pesticides

The COPCs identified and attributed to the soils impacted by HAP (AOC 1 and 2) are pesticides, arsenic, and mercury. A summary of the RI and SRI soil data exceedances of these analytes when compared to the applicable SCOs is presented below. The summary tables demonstrate the CSM of soil impacts from HAP to be primarily detected in the upper 1 foot of soils, with some areas exhibiting impacts up to 2 feet bgs. Exceedances of the RSCOs do not extend below 2-feet bgs, except for one location (A13) that was further investigated. A portion of soils at deeper intervals contain mercury and pesticides concentrations exceeding the PEcoSCOs only. Additional detail regarding soil data can be found in the RIR.

Arsenic - Soil

Parcel	Start Depth (ft)	End Depth (ft)	Min Detected Conc (mg/kg)	Median Detected (mg/kg)	Maximum Detected (mg/kg)	Location of Max Detect	# Analyzed	# UUSCO Exceeds	# RSCO Exceeds	# PEco SCO Exceeds
Western	0	0.2	0.268	29	218	C10	98	74	**69**	74
	0.2	2	0.333	7.98	121	D11	98	31	**23**	31
	0.5	1	1.53	20.15	98.6	I10R	20	11	**11**	11
	1	1.5	0.719	13	76.7	I10R	17	8	**7**	8
	1.5	2	2.47	6.62	46	I10R	8	3	**2**	3
	2	2.5	6.29	6.29	6.29	A13SS	1	0	0	0
	2.5	3	0.742	0.742	0.742	A13SS	1	0	0	0
	3	3.5	3.44	3.44	3.44	A13SS	1	0	0	0
	3.5	4	3.11	3.11	3.11	A13SS	1	0	0	0
	2	4	0.331	2.49	12.3	D12	42	0	0	0
	4	6	0.25	1.054	9.38	G4	9	0	0	0
	6	8	0.859	1.5695	2.28	TEI-SB-02	2	0	0	0

Parcel	Start Depth (ft)	End Depth (ft)	Min Detected Conc (mg/kg)	Median Detected (mg/kg)	Maximum Detected (mg/kg)	Location of Max Detect	# Analyzed	# UUSCO Exceeds	# RSCO Exceeds	# PEco SCO Exceeds
	7	9	2.1	2.1	2.1	A13	1	0	0	0
	9	11	2.57	2.57	2.57	G12	1	0	0	0
	11	13	2.34	2.34	2.34	C13	1	0	0	0
	13	15	1.89	1.89	1.89	G5	1	0	0	0
Eastern	0	0.2	4.74	21	193	I13	17	12	**12**	**12**
	0.2	2	1.38	4.34	134	I13	17	3	**3**	**3**
	0.5	1	44.8	67	138	I13R	3	3	**3**	**3**
	1	1.5	12	12.7	154	I13R	3	1	**1**	**1**
	1.5	2	8.78	8.78	8.78	I13R	1	0	0	0
	2	4	0.984	1.89	5.99	I13	5	0	0	0
	6	8	1.54	1.54	1.54	I15	1	0	0	0

Mercury - Soil

Parcel	Start Depth (ft)	End Depth (ft)	Min Detected Conc (mg/kg)	Median Detected (mg/kg)	Maximum Detected (mg/kg)	Location of Max Detect	# Analyzed	# UUSCO Exceeds	# RSCO Exceeds	# PEco SCO Exceeds
Western	0	0.2	0.057	0.5905	75.9	E6	98	79	**63**	79
	0.2	2	0.049	0.154	49.8	E6	98	30	**23**	30
	0.5	1	0.13	1.3285	12.4	C11R	12	10	**9**	10
	1	1.5	0.104	2.305	9.53	A04S	12	11	**11**	11
	1.5	2	0.2	0.7035	3.38	A04S	11	10	**7**	10
	2	2.5	0.136	0.4245	0.713	A13SS	3	1	**1**	1
	2.5	3	0.061	0.061	0.061	A13R	3	0	0	0
	3	3.5	1.05	1.275	1.5	A13R	6	2	**2**	2
	3.5	4	ND	ND	ND	--	3	0	0	0
	2	4	0.047	0.104	3.15	A13	44	7	**5**	7
	4	6	0.055	0.22	0.694	G4	10	3	**1**	3
	7	9	ND	ND	ND	--	1	0	0	0
	9	11	ND	ND	ND	--	1	0	0	0
	11	13	ND	ND	ND	--	1	0	0	0
	13	15	ND	ND	ND	--	1	0	0	0
Eastern	0	0.2	0.062	0.731	3.91		17	14	**13**	**14**
	0.2	2	0.058	0.132	1.01		17	5	**3**	**5**
	0.5	1	0.084	0.336	0.734		5	4	**3**	**4**
	1	1.5	0.078	0.216	0.658		4	2	**1**	**2**
	1.5	2	0.067	0.067	0.067	I13R	2	0	0	0
	2	4	0.048	0.048	0.048	I12	5	0	0	0
	6	8	ND	ND	ND	--	1	0	0	0

Pesticides - Soil

Parcel	Start Depth (ft)	End Depth (ft)	# Analyzed	# UUSCO Exceeds	# RSCO Exceeds	# PEco SCO Exceeds
Western	0	0.2	98	89	**44**	89
	0.2	2	98	67	**23**	67
	0.5	1	14	12	**6**	12
	1	1.5	6	6	**4**	6
	1.5	2	4	3	**2**	3
	2	4	67	21	**2**	20
	2	2.5	2	2	0	2
	4	6	21	8	**2**	8
	6	8	7	1	0	1
	7	9	1	0	0	0
	9	11	1	0	0	0
	11	13	1	0	0	0
	13	15	1	0	0	0
Eastern	0	0.2	17	17	**9**	**17**
	0.2	2	17	8	**4**	**8**
	0.5	1	8	7	**5**	**7**
	1	1.5	7	6	**4**	**6**
	1.5	2	6	5	**3**	**4**
	2	4	9	3	0	**2**
	2	2.5	2	0	0	0
	2.5	3	2	0	0	0
	4	6	2	2	**1**	**2**
	6	8	2	0	0	0

2.5.4.3 Fill Contamination

Soil samples were collected from 15 boring locations in support of an investigation of the historical fill material at the Site. The soil samples collected within the historical fill material by Roux could only be used for informational purposes as that scope of work was not included in the RIWP.

Soil borings at each location were advanced into the fill material (where present) and at least 6 inches into the underlying native soils. Samples from within the historical fill and the underlying native 6-inch interval were collected and submitted for laboratory analysis to delineate the vertical extent of the fill material. The results from the samples collected from the historical fill show SVOCs, primarily PAHs as the indicator of the presence of historical fill.

In June 2025, Carson Voci conducted an additional visual assessment and delineation of areas with historical fill material, concluding that this material was only located around the former clubhouse and associated structures in the immediate vicinity. Soil borings were advanced to a maximum 8 feet bgs with a Geoprobe DPT drill rig and logged in accordance with the procedures outlined above. Visual observations were made by a Carson Voci field geologist to determine the presence of historical fill material in each soil boring.

2.5.4.4 Summary of Fill Data

The COPCs identified and attributed to the historical fill at the Site are SVOCs (primarily PAHs) and PCBs. A summary of the RI and SRI soil data exceedances of these analytes when compared to the applicable SCOs is presented below. Additional detail regarding soil data can be found in the RIR.

SVOCs and PCBs – Fill

Chemical	Min Detected Conc (mg/kg)	Median Detected (mg/kg)	Maximum Detected (mg/kg)	Location of Max Detect	# Analyzed	# UUSCO Exceeds	# RSCO Exceeds	# PEco SCO Exceeds
Benzo(a)anthracene	0.024	1	15	F2_0.2-2	18	8	**8**	0
Benzo(a)pyrene	0.072	1.085	16	F2_0.2-2	18	8	**8**	5
Benzo(b)fluoranthene	0.09	1.4	20	F2_0.2-2	19	9	**9**	0
Benzo(g,h,i)perylene	0.056	1.045	8.8	F2_0.2-2	16	7	**7**	0
Benzo(k)fluoranthene	0.094	1	5.8	TS-08R-0-3.5	17	7	**5**	0
Chrysene	0.05	1.3	14	F2_0.2-2	19	9	**9**	0
Dibenz(a,h)anthracene	0.034	0.35	2.2	F2_0.2-2	17	7	**7**	0
Dibenzofuran	0.031	0.28	2.8	TS-11R-0-1.5	16	2	0	0
Indeno(1,2,3-cd)pyrene	0.05	0.525	9.3	F2_0.2-2	18	8	**8**	0
Phenanthrene	0.042	2.25	30	TS-08R-0-3.5	16	7	**7**	0
PCBs (total)	0.00824	0.242	3.69	F2_0.2-2	8	4	**4**	4

2.5.4.5 Summary of Soil Data in Wetlands Buffer Zone

The COPCs identified and attributed to the surface soils (i.e., upper 2-feet) within the wetlands buffer zone are select pesticides and metals. These COPCs were identified in the 100-foot wetland buffer zones presented in Figure 6. A summary of the RI and SRI soil data exceedances of these analytes when compared to the PEcoSCOs is presented below. Additional detail regarding soil data can be found in the RIR.

Chemical	Min Detected Conc (mg/kg)	Median Detected (mg/kg)	Maximum Detected (mg/kg)	Location of Max Detect	# Analyzed	# UUSCO Exceeds	# RSCO Exceeds	# PEco SCO Exceeds
4,4'-DDD	0.00108	0.00509	0.0321	H8_0.2-2	24	**3**	0	**3**
4,4'-DDE	0.000662	0.0222	0.303	D12_0-0.2	24	**19**	0	**19**
4,4'-DDT	0.00249	0.01125	0.123	D12_0-0.2	24	**16**	0	**16**
Dieldrin	0.00118	0.01955	0.274	I7_0-0.2	24	**15**	**10**	**15**
Endrin	0.0437	0.0437	0.0437	I7_0-0.2	24	**1**	0	**1**
Heptachlor epoxide	0.00212	0.0184	0.281	E12_0-0.2	24	**9**	**2**	**2**
Arsenic	2.47	15	176	E12_0-0.2	27	**15**	**13**	**15**
Lead	6.32	32.4	180	B13_0-0.2	24	**8**	0	**8**
Mercury	0.064	0.27	6.45	B13R-0.5-1	26	**15**	**11**	**15**
Zinc	28.2	54.95	130	I6_0-0.2	24	**3**	0	**3**

2.5.4.6 Comparison of Soil/Fill with SCGs

A detailed comparison of soil/fill sample data compared to applicable SCGs can be found in the RIR. Tables 2a, 2b, and 2c show exceedances from Track 1 UUSCOs and Track 2 SCOs for all soil/fill at the Site. Figures 6a through 6f are spider maps that show the location and summarize exceedances from Track 1 UUSCOs and Track 2 SCOs for all soil/fill.

2.5.5 On- and Off-Site Groundwater Contamination

2.5.5.1 Summary of Groundwater Data

The groundwater investigation conducted by Roux in July 2024 included installation of six overburden wells (RMW-03, RMW-05, RMW-07, RMW-08, RMW-10, and RMW-11), which was supplemented by the installation of three bedrock groundwater monitoring wells in April

2025 by Carson Voci. Well construction, water level gauging, and groundwater flow details are provided in Table 3 and on Figures 5a and 5b.

The groundwater monitoring wells with sufficient groundwater were sampled in July 2024 by Roux and in April and May 2025 by Carson Voci. Analytical data was compared to the AWQS as the applicable SCGs to evaluate the site-wide groundwater quality and determine the nature and extent of contamination. If applicable, analytes in soil exceeding the PGWSCOs were compared to detections in groundwater to evaluate whether, and to what extent, Site soils may be impacting groundwater quality. However, note that groundwater beneath the Site is not currently nor is it anticipated to be used for potable (i.e. drinking water source) or non-potable means.

Documentation of field parameters collected during the low-flow groundwater sampling activities are provided on the groundwater purge logs included as Appendix C to the RIR. The field parameter data was reviewed and no potential anomalies were identified in the groundwater chemistry that could influence sampling results.

2.5.5.2 Comparison of Groundwater with SCGs

A summary of the groundwater data compared against the AWQS are presented below.

Groundwater Data Summary

Compound/ Compound Group	RMW-03	RMW-07	RMW-10 (Roux)	RMW-10 (Carson Voci)	MW-09D	MW-11D
VOCs	ND	ND	ND	--	< AWQS	< AWQS
SVOCs	ND	ND	ND	--	ND	ND
PCBs	ND	ND	**1.14**	ND	ND	ND
PFOS	0.00416	< AWQS	**0.011**	< AWQS	0.00783	< AWQS
PFOA	< AWQS	**0.0113**	**0.0115**	**0.00832**	**0.0175**	**0.00917**
PFAS (all others)	< AWQS	< AWQS	< AWQS	< AWQS	< AWQS	< AWQS
Herbicides	ND	ND	ND	--	ND	ND
Pesticides	ND	ND	ND	ND	ND	ND
Metals	< AWQS	< AWQS	< AWQS	< AWQS	< AWQS	< AWQS

Note:

All concentrations are reported in ug/L

-- = Sample not analyzed for the specified compound group

< AWQS = All compounds in analyte group were below the AWQS (some with detections)

ND = All compounds in analyte group were non-detect

PFOA = Perfluorooctanoic acid

PFOS = Perfluorooctane sulfonate

The laboratory analytical results for the groundwater investigation are presented in Table 4 and depicted on Figure 7.

As indicated above, all VOCs, SVOCs, metals, pesticides, and herbicides listed were either non-detect or detected at concentrations below the respective AWQS. Although the groundwater sample collected at RMW-10 in July 2024 was found to have a PCBs (total) concentration above the AWQS, PCBs were found to be non-detect in the sample collected at this location in May 2025. As the Site has no documented historical use of PFAS, the presence of PFOA and PFOS is likely consistent with background levels of these compounds in NYS.

Based on these results, further action is not warranted with respect to these compounds in groundwater.

2.5.6 On- and Off-Site Soil-Vapor Contamination

The soil vapor investigation conducted by Roux in July 2024 included installation and sampling of 11 soil vapor points. In June 2025, eight soil vapor points spanning the Site were installed and sampled by Carson Voci. In November 2025, six temporary soil vapor points were installed at previous sampling locations to further evaluate the accuracy of previous soil vapor data. As the results of the November 2025 sampling event were not accepted by NYSDEC and NYSDOH due to detections of tetrachloroethene (PCE) in four of the six samples. Carson Voci believes the detections were caused by contamination in the batch of tubing used at these sampling locations and with the equipment blank. As a result, another soil vapor sampling event was conducted in April 2026 to determine the presence or absence of PCE in soil vapor and intended to supersede the rejected November 2025 data. All samples were submitted for laboratory analysis using EPA Method TO-15.

2.5.6.1 Comparison of Soil Vapor with SCGs

The soil vapor investigation results do not have SCGs to evaluate against as they are not paired soil-vapor/indoor air samples; therefore, investigation results are evaluated in conjunction with analytical results from other environmental sampling media at the Site. All EPA Method TO-15 compounds were not detected above applicable SCGs in any other environmental media at the Site.

A table of soil vapor data collected prior to the remedy is shown in Table 5. A spider map denoting the location(s) of soil-vapor points and summarizing soil vapor data prior to the remedy is shown on Figure 8. The soil vapor samples collected in April 2026 confirms the conclusion

that the PCE results of the November 2025 sampling were likely impacted by contaminated tubing. PCE was not detected in any of the April 2026 samples.

2.5.7 Surface Water and Sediment

RI activities conducted by Roux in 2024 included a sediment and surface water investigation. Three collocated sediment and surface water locations were sampled from the surface of the water body present at the southern portion of the Site in accordance with the RIWP. All samples were submitted for laboratory analysis of TCL pesticides and herbicides, and TAL metals.

Carson Voci conducted a supplemental sediment and surface water investigation in May 2025 to further evaluate the nature and extent of potential impacts in these media at the Site. This effort included five collocated surface water and sediment samples from the small FW pond in the south-central portion of the Site, three bank samples from the locations similar to those sampled during the RI, and two samples from the center of the pond. Three collocated surface water and sediment samples were collected from the small stream channel identified in the eastern part of the Site. The sediment boring logs are provided in Appendix E of the RIR.

Comparison of Surface Water and Sediment with SCGs

The analytical results for the surface water samples indicate that only dieldrin was found at concentrations in surface water above the AWQS at the three sampling locations (i.e., SW-06, SW-07, and SW-08) collected from the small stream channel in the eastern part of the Site. Table 6 and Figure 9 present the data and location of these samples.

As shown in Table 7 and on Figure 10, supplemental sediment samples collected by Carson Voci contained concentrations of metals and/or pesticides exhibiting slightly to moderately (Class B) or highly contaminated (Class C sediments relative to the ecologically based FW SGVs. All samples exhibiting Class B or C sediments were collected from the pond with the exception of SS-08, which contained mercury concentrations of 0.207 and 0.227 mg/kg, which are only slightly above the Class B Sediment lower bound concentration of 0.20 mg/kg.

A summary of the sediment data compared against the FW SGVs is presented below.

Pesticides

Chemical	Min Detected (mg/kg)	Max Detected (mg/kg)	Location of Max Detect	# Analyzed	Class A FW SGV (mg/kg)	# Class A Samples	Class B FW SGV (mg/kg)	# Class B Samples	Class C FW SGV (mg/kg)	# Class C Samples
Chlordane (total)	0.002258	1.887	SS-04-1-2	25	< 0.068	17	0.068	**8**	38	0

Note: mg/kg = milligrams per kilogram

Metals

Chemical	Min Detected (mg/kg)	Max Detected (mg/kg)	Location of Max Detect	# Analyzed	Class A FW SGV (mg/kg)	# Class A Samples	Class B FW SGV (mg/kg)	# Class B Samples	Class C FW SGV (mg/kg)	# Class C Samples
Arsenic	1.28	37.9	SS-04-1-2	25	< 10	18	10	**6**	33	**1**
Cadmium	0.063	1.78	SS-04-0-0.5	25	< 1.0	20	1.0	**5**	5.0	0
Copper	3.57	132	SS-04-1-2	25	< 32	15	32	**10**	150	0
Lead	2.48	132	SS-04-0-0.5	25	< 36	17	36	**7**	130	**1**
Mercury	0.07	5.23	SS-01R-0-0.5	25	< 0.20	15	0.20	**4**	1.0	**6**
Nickel	3.69	40.2	SS-05-0-0.5	25	<23	19	23	**6**	49	0
Zinc	7.85	2330	SS-05-0-0.5	25	< 120	17	120	**3**	460	**5**

Note: While zinc concentrations exhibit Class B and C sediments, zinc is not considered a COPC as it was not present in other environmental media above applicable SCOs and is not a known constituent of HAP.

2.6 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS

2.6.1 Qualitative Human Health Exposure Assessment

A qualitative HHEA was performed following the collection of all RI data in accordance with Section 3.3(c)4 and Appendix 3B of DER-10. Additional information regarding impacts to fish and wildlife is discussed in the FWRIA (provided under separate cover) and summarized below.

The following table summarizes the HHEA.

Environmental Media and Exposure Route	HHEA
Direct contact with soil (dermal contact and incidental ingestion; inhalation of fugitive dust)	Current: Potential trespassers can come in contact with exposed surface soil at the Site. Future: • Utility workers, construction workers, and trespassers could be exposed to contaminated surface or subsurface soil via dust inhalation, incidental ingestion, and dermal contact. Passers-by, off-site residents of neighboring residential properties, and off-site recreational users in the vicinity of the work could be exposed to contaminated soil via dust inhalation. Implementation of the *Health and Safety Plan*, *Community Air Monitoring Plan*, and dust control measures during remedial action and any future ground intrusive activities will mitigate potential exposures. • Implementation of the *Remedial Action Work Plan* will mitigate potential soil-related exposures to residents of the proposed single-family housing and recreational users on the eastern parcel. Off-Site: With the potential exception of dust generation, off-site soil migration via erosion is not expected to have occurred given the known sources of contaminants, historical practices, site vegetation, and general site topography. Erosion of soils is expected to have been limited by the presence of dense vegetation and paved/covered areas of the Site. Stormwater runoff historically was managed through stormwater management features.
Ingestion of /dermal contact with groundwater used as drinking water	Not complete. Groundwater is not currently used, nor is it expected to be used, as a source of drinking water at the site or in adjacent areas off-site. Groundwater ingestion is therefore not a complete exposure pathway for on- or off-site receptors.
Dermal contact with shallow groundwater	On- or off-site future construction/utility workers excavating into shallow groundwater potentially could be exposed to COPCs through dermal contact. Incidental ingestion is considered unlikely during excavation. The only constituents detected in groundwater from perimeter wells were PFAS, which are assumed related to regional conditions rather than to site-related releases.
Inhalation of air (exposures related to soil vapor intrusion)	• There are currently no occupied buildings at the Site and no identified COPCs in soil vapor. • While soil vapor data at the Site do not show concentrations posing an exposure risk that would require mitigation, numerous compounds were detected in soil vapor, with some at elevated detections in several on-site areas that may impact indoor air following redevelopment. Therefore, soil vapor intrusion is a potential concern for future on-site redevelopment and occupancy and will be further evaluated to determine if the remedy has addressed this concern • It is not expected that soil vapor would migrate off-site to nearby buildings, if present.

Environmental Media and Exposure Route	HHEA
Dermal contact with surface water	• Current: Bodies of water at the Site are not intended for recreational use, such as swimming. Trespassers could contact COPCs in surface water through dermal contact while wading along the banks. Incidental ingestion is not expected since swimming is unlikely to occur. Any exposure to surface water is expected to occur only sporadically, given that Site access is restricted. • Future: Bodies of water at the Site will tie into the overall stormwater system proposed as part of the Site development and are not intended nor anticipated for recreational use. Trespassers and incidental recreational users could potentially have dermal contact with COPCs in surface water via wading. Incidental ingestion is not expected since swimming is unlikely to occur. Any exposure to surface water is expected to be minimal, and occur only sporadically. • Off-Site: The stream runs off-site into other waterbodies and wetlands that are not recreational areas. While off-site receptors could potentially encounter COPCs in surface water downstream of the Site, exposure is expected to be limited by thick vegetation and soft marsh soils.
Dermal contact with and incidental ingestion of sediment	• Current: The bodies of water are not intended for recreational use. Trespassers could come in contact with contaminated sediment through dermal contact and incidental ingestion while wading, although this exposure is expected to be minimal, and occur only sporadically. • Future: The bodies of water at the Site will tie into the overall stormwater system proposed as part of the development and are not intended nor anticipated for recreational use. Trespassers and incidental recreational users could potentially come in contact with contaminated sediment through dermal contact and incidental ingestion, although this exposure is expected to be minimal, and occur only sporadically. • Off-Site: The stream runs off-site into other waterbodies and wetlands that are not recreational areas. While off-site receptors could potentially encounter COPCs in sediment downstream of the Site, exposure is expected to be limited by thick vegetation and soft marsh soils.

2.6.2 Fish & Wildlife Remedial Impact Analysis

As summarized in the FWRIA (provided under separate cover), the Site's vacant, undeveloped condition currently offers suitable habitat for a variety of wildlife, in contrast to its historical use as a golf and country club from 1924 until 2022. Prior to 2022, the Site was improved with an 18-hole golf course, a main clubhouse, and associated maintenance and storage buildings, as well as several tennis courts and a pool area. Therefore, while the upland portions of the Site are currently undeveloped and provide habitat for wildlife, this condition

does not reflect the long-term historical use of the Site. Much of the Site is proposed for residential redevelopment, which will provide a much lower quality of habitat than the areas that will remain undeveloped. The pond and stream potentially provide habitat for aquatic and semi-aquatic life tolerant of warm water and/or intermittent water conditions. However, these water features are anticipated to be incorporated into the stormwater management system for the residential redevelopment.

Complete exposure pathways exist for fish and wildlife based on detected COPCs in soil and sediment. Groundwater is not considered a medium of concern for ecological receptors, due to the unlikely potential for exposure to occur. Part 1 of the FWRIA determined that a Part 2 may be warranted. However, in lieu of completing a Part 2, pond sediments will be cleaned up to FW Class A SGVs.

2.7 REMEDIAL ACTION OBJECTIVES

Based on the results of the RI, the following remedial action objectives (RAOs) have been identified for this Site.

2.7.1 Groundwater

RAOs for Public Health Protection:

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for Environmental Protection:

- Restore groundwater aquifer, to the extent practicable, to pre-disposal/pre-release conditions.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

2.7.2 Soil

RAOs for Public Health Protection:

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.

RAOs for Environmental Protection:

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota due to ingestion/direct contact with contaminated soil that would cause toxicity or bioaccumulation through the terrestrial food chain.

2.7.3 Surface Water

RAOs for Public Health Protection:

- Prevent ingestion of contaminated water.
- Prevent contact or inhalation of contaminants from impacted water bodies.
- Prevent surface water contamination that may result in fish advisories.

RAOs for Environmental Protection:

- Restore surface water to ambient water quality standards for each contaminant of concern.
- Prevent impacts to biota due to ingestion/direct contact with contaminated surface water that would cause toxicity or bioaccumulation through the marine or aquatic food chain.

2.7.4 Sediment

RAOs for Public Health Protection:

- Prevent direct contact with contaminated sediments.
- Prevent surface water contamination that may result in fish advisories.

RAOs for Environmental Protection:

- Prevent release(s) of contaminant(s) from sediments that would result in surface water levels in excess of (ambient water quality criteria).
- Prevent impacts to biota due to ingestion/direct contact with contaminated sediments that would cause toxicity or bioaccumulation through the marine or aquatic food chain.
- Restore sediments to pre-release/background conditions to the extent feasible.

2.7.5 Soil Vapor

- Address impacts to public health resulting from existing, or the potential for, soil vapor intrusion into future on- site structures in areas associated with VOC detections in soil vapor.

3.0 DESCRIPTION OF REMEDIAL ACTION PLAN

3.1 EVALUATION OF REMEDIAL ALTERNATIVES

The goal of the remedy selection process is to select a remedy that is protective of human health and the environment, taking into consideration the current, intended, and anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedance of applicable SCGs. A remedy is then developed based on the following criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;
- Cost effectiveness;
- Community acceptance;
- Green and sustainable remediation (including climate resiliency); and
- Land use.

The following SCGs were used to develop and evaluate the remedial alternatives:

- SCOs (6 NYCRR Part 375-6) are used to develop, implement, and establish remedial programs and objectives for soil in the BCP.
- NYSDEC (2014) *Screening and Assessment of Contaminated Sediment* guidance, Freshwater Class A SCGs will be used as the remedial goals for sediment.
- TOGS 1.1.1 provides a compilation of AWQS and guidance values to use to develop and evaluate remedial alternatives for groundwater.
- DER-10 provides an overview of the investigation and remediation process for the NYSDEC remedial programs, including the BCP.

- The rules and regulations of 6 NYCRR Subpart 375-3 apply to the development and implementation of remedial programs for sites enrolled in the BCP.
- NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (October 2006, with updates through February 2024) provides methodology for evaluating soil-vapor intrusion and presents guidance for vapor intrusion mitigation practices.

Two alternative remedies for the Site are summarized below:

- **Alternative 1**, a Track 1 remedy meeting the 6 NYCRR Part 375 UUSCOs, would include the following remedial tasks:
    - Implementation of a Track 1 remedy, where the remedial activities conducted would result in unrestricted future use of the Site.
    - Excavation and off-site removal of all soils above bedrock impacted above UUSCOs. The current estimated volume of soils exceeding the UUSCOs is approximately 390,000 cubic yards (cy) of soil (Table 8) and has been observed at depths ranging from 0.5-feet bgs to 8 feet bgs.
    - Temporary dewatering of the pond (and treatment if necessary), excavation, stabilization, and off-site removal of all sediments exceeding FW Class A SGVs, estimated to be approximately 4,600 cy.
    - Dewatering and treatment, as necessary, to facilitate the removal of soil below the water table may be required as part of this alternative.
- **Alternative 2**, a Track 2 remedy meeting the 6 NYCCR Part 375 RSCOs in the western parcel and the eastern parcel, in addition to the 6 NYCCR Part 375 PEcoSCOs within the wetlands and associated buffer zones would include the following remedial tasks:
    - Implementation of a Track 2 remedy, where the remedial activities conducted would result in future use of the Site consistent with residential, single-family housing.
    - Excavation and removal of soils above the RSCOs in the western parcel and the eastern parcel to a depth of 15 feet bgs or the top of bedrock, whichever is shallower. Within the wetlands buffer zones on the western parcel, surface soil (i.e. the upper 2-feet) exceeding the PEcoSCOs will also be excavated and removed. The current estimated excavation extents consist of the removal of soil across the Site, the majority in the upper 0.5 feet, with select areas up to 4 feet bgs, consisting of approximately 112,000 cy of soil (Table 9). However,

the proposed remedial action discussed in Section 3.2.4 incorporates an iterative excavation approach to ensure all soil exceeding the applicable SCOs will be removed to achieve a Track 2 remedy.

- Temporary dewatering of the pond (and treatment if necessary), excavation, stabilization, and off-site removal of the upper 2 feet of sediments exceeding FW Class A SGVs, estimated to be approximately 4,600 cy.
- Completion of a soil vapor intrusion desktop evaluation following implementation of the soil remedy to determine if there is a complete or potentially complete exposure pathway for vapor intrusion of VOCs, and if further actions are needed to address potential exposures.

The following subsections evaluated the two remedial alternatives against the criteria presented above.

3.1.1 Protection of Human Health and the Environment

This criterion is an evaluation of the remedy's ability to protect public health and the environment, and an assessment of how risks posed through each existing or potential pathway of exposure are prevented, reduced, or controlled through the removal, treatment, and implementation of IC/ECs. Protection of public health and the environment must be achieved for approved remedial actions. The two alternatives proposed will protect human health and the environment by eliminating or reducing levels of contamination, and/or reducing potential pathways of exposure.

Alternative 1 would protect human health and the environment through removal of the contaminants above UUSCOs. Potable groundwater use is restricted at the Site in accordance with Westchester County municipal ordinance,[6] prohibiting exposure and ensuring protection of human health and the environment.

Alternative 2 would protect human health and the environment through removal of contaminants above RSCOs on the western parcel and the eastern parcel to bedrock or a depth of 15 feet bgs, with contaminants above the PEcoSCOs also removed in the upper 2 feet of soil within the wetlands and associated buffer zones. The Westchester County municipal ordinance restricting potable groundwater use at the Site remains applicable.

[6] https://library.municode.com/ny/westchester_county/codes/code_of_ordinances?nodeId=PTXISACO_CH873SACO_ARTVIIWASU

3.1.2 Compliance With Standards, Criteria, and Guidance

The proposed remedies for the Site would conform to relevant and/or applicable SCGs. **Alternative 1** demonstrates conformance by eliminating source areas through removing up to 8 feet of contaminated soils/fill, meeting the UUSCOs and removing sediment exceeding the sediment FW Class A SGVs. **Alternative 2** demonstrates conformance by eliminating source areas through removal of impacted soils at the Site, meeting the RSCOs on the western parcel and the eastern parcel to bedrock or a depth of 15 feet bgs, with contaminants above the PEcoSCOs also removed in the upper 2 feet of soil within the wetlands and associated buffer zones, and removing sediment exceeding the sediment FW Class A SGVs. Potable groundwater use is restricted at the Site in accordance with the Westchester County municipal ordinance.

3.1.3 Short-Term Effectiveness and Impacts

This evaluation criterion assesses the effects of the alternatives during the construction and implementation phase until RAOs are met. Under this criterion, alternatives are evaluated with respect to their effects on public health and the environment during implementation of the remedial action, including protection of the community, environmental impacts, time until RAOs are achieved, and protection of workers during remedial actions.

Alternatives 1 and **2** have similar short-term effectiveness during implementation, as each requires excavation of the contaminated soils. However, **Alternative 1** would take approximately three times longer of active remedial construction due the estimated soil volume to be removed from the Site. Each alternative would result in short-term dust generation impacts associated with soil excavation, handling, and load out, and truck traffic.

An additional short-term adverse impact and risk to the community associated with each remedial alternative is increased truck traffic during construction. Truck traffic will be routed on the more direct course using major thoroughfares where possible, and designated (flag) persons will be used to protect pedestrians at Site entrances and exits.

The potential adverse impact to the community, workers, and the environment for each alternative would be minimized through implementation of control plans including a HASP, CAMP, and a soil/materials management plan (SMMP) during all on-site soil disturbance activities, and would minimize the release of contaminants into the environment. Each alternative provides short-term effectiveness in protecting the surrounding community by decreasing the risk of contact with on-site contaminants. Construction workers operating under appropriate SMMP procedures and a HASP would be provided protection from on-site contaminants by using personal protective equipment, as applicable to the documented risks, within the respective work zones.

3.1.4 Long-Term Effectiveness and Permanence

This evaluation criterion considers the results of a remedial action in terms of its permanence and quantity/nature of waste or residual contamination remaining at the Site after RAOs have been met. It includes evaluating the permanence of the remedial alternative, magnitude of remaining contamination, adequacy and suitability of ECs/ICs for managing residuals, effectiveness of containment systems and ICs in preventing exposure, and long-term reliability of ECs.

Under **Alternative 1**, the contaminants in the soil and sediment at the Site would be permanently eliminated or removed resulting in an effective and permanent long-term remedy for soils at the Site. This alternative includes removal and off-site disposal of on-site impacted soil, thus permanently reducing the amount of impacted soil on Site. Groundwater use is restricted via municipal ordinance, prohibiting exposure and ensuring protection and safety of future residents.

Alternative 2 would likewise remove all contaminants in the soil and sediment at the Site at concentrations that would restrict the proposed future Site uses. No ICs or ECs would be present for the Site, as no residual contamination will remain. Municipal ordinances and zoning restrictions would ensure protection and safety of future residents by groundwater use restricted via municipal ordinance, and ensuring future Site use remains consistent with the requirements dictated by cleanup track.

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

This evaluation criterion assesses the use of remedial technologies that permanently and significantly reduce toxicity, mobility, or volume of contaminants as their principal element. The following is the hierarchy of source removal and control measures that are to be used to remediate a Site, ranked from most to least preferable: removal and/or treatment, containment, elimination of exposure, and treatment of source at the point of exposure. Treatment and/or removal are preferred to reduce contaminants at a Site, reduce the total mass of toxic contaminants, cause irreversible reduction in contaminants mobility, or reduce the total volume of contaminated media.

The proposed remedies reduce toxicity, mobility, and/or volume of contamination via removal. **Alternative 1** provides the greatest reduction of toxicity, mobility, and volume of contaminants in the soil through removal and/or treatment of all impacted soils and sediments at the Site. **Alternative 2** provides a similar reduction of toxicity, mobility, and volume of contaminants in soil through removal of soils above the RSCOs on the western parcel and the eastern parcel to bedrock or a depth of 15 feet bgs, with contaminants above the PEcoSCOs also

removed in the upper 2 feet of soil within the wetlands and associated buffer zones, which are the majority of soils exhibiting the most elevated contaminant impacts. Alternative 2 will also remove the same impacted sediments as Alternative 1.

3.1.6 Implementability

This evaluation criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation, including technical feasibility of construction and operation, reliability of the selected technology, ease of undertaking remedial action, monitoring considerations, administrative feasibility (e.g., obtaining permits for remedial activities), and availability of services and materials.

The techniques, materials, and equipment to implement each alternative are readily available and have been proven effective in remediating the contaminants associated with the Site. Excavation for the remediation of soils is a "low tech" and reliable method, which has a long and proven track record on the remediation of hazardous waste sites.

3.1.7 Cost-Effectiveness

This evaluation criterion addresses the cost of alternatives, including capital costs (such as construction costs, equipment costs, disposal costs, and engineering expenses) and Site management costs (costs incurred after remedial construction is complete) necessary to meet the continued effectiveness of a remedial action. The remedial options identified were quantitatively compared to one another in terms of overall costs including capital costs (e.g., equipment) and long-term operation and maintenance costs (e.g., monitoring and system inspections).

The total costs for **Alternatives 1** and **2** are estimated at $30,800,000 and $11,000,000, respectively. A breakdown of estimated costs is provided in Appendix B.

3.1.8 Community Acceptance

This evaluation criterion addresses community opinion and support for the remedial action. Observations herein will be supplemented by public comment received on the RAWP. Similar remedial actions to the ones proposed in this RAWP have been used elsewhere in NYS and/or at similar sites, with acceptance by local communities and regulatory authorities. No questions regarding the Site have been raised regarding remedial options to date. This RAWP will be subject to a 45-day public comment period to determine if the community has comments on the presented remedial alternatives and selected remedy. If no comments are received regarding

Alternative 1, then **Alternative 2** as the preferred remedy will be considered acceptable to the community.

3.1.9 Green and Sustainable Remediation

GSR principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy per DER-31. The major green remediation components for the Site 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 which would otherwise be considered a waste;
- Fostering green and healthy communities and working landscapes which balance ecological, economic, and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable redevelopment; and
- Incorporating green remediation principles and techniques to the extent feasible in future Site development. Any future on-site buildings shall be constructed, at a minimum, to meet the *2020 Energy Conservation Construction Code of New York* (or most recent edition) to improve energy efficiency as an element of construction.

As part of the evaluation of remedial alternatives, an environmental footprint analysis for each alternative was completed using EPA's "Spreadsheets for Environmental Footprint Analysis" (SEFA) environmental footprint analysis calculator. The SEFA results for both **Alternatives 1** and **2** are included in Appendix C.

The SEFA results indicated **Alternative 1** would utilize approximately 2.5 times more materials and waste, energy, and air emissions compared to **Alternative 2**. The larger environmental footprint of **Alternative 1** results from increased volume of material requiring excavation and off-site disposal.

In addition to the SEFA calculator, GSR BMPs were evaluated for use in both alternatives. Details of the BMPs to be tracked and/or implemented for the selected alternative are provided in Section 3.2.

3.1.10 Compatibility with Land Use

Following remediation, both **Alternatives 1** and **2** would render a Site suitable for redeveloped in accordance with its planned future use as single-family residential and recreational areas. Groundwater use is restricted via municipal ordinance and adherence to this ordinance will prevent future exposure to affected groundwater.

3.2 SELECTION OF THE PREFERRED REMEDY

The preferred remedy is **Alternative 2** based on the evaluation of each alternative relative to the 10 criteria, the current and future use of the Site, the absence and municipal prohibition of current and future use of groundwater, and the potential exposure scenarios for the identified impacts. The detailed remedial action scope of work is presented in the following subsections and the sequencing of activities is presented in Figure 14 and the sub-Figures 14a through 14e. **Alternative 2** will remove all soil from the western parcel exceeding the RSCOs, all soil from the eastern parcel exceeding the RSCOs, and the upper two feet of soil within the wetlands and associated buffer zones in the western parcel exceeding the PEcoSCOs. This will provide a Track 2 cleanup in accordance with the proposed future uses of the Site (i.e., single-family residential houses and a recreational area on the western and eastern parcels, respectively).

This section provides a detailed narrative of the preferred remedy; additional details are provided in Sections 4 and 5.

3.2.1 Green Remediation Principles and Techniques

The selected remedial alternative will implement GSR principles and techniques to the extent feasible in the design, implementation, and site management of the remedy per DER-31. As summarized in Section 3.1.9, a SEFA calculation for Alternative 2 is presented in Appendix C.

Additionally, a climate change vulnerability assessment was conducted to evaluate the impact of climate change at the project site and the proposed remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress, and drought), flooding, and sea level rise were identified, and measures incorporated into the identified remedial program minimize the impact of climate change on identified potential vulnerabilities. The checklist detailing the climate change vulnerability assessment is presented in Appendix C.

A BMP analysis was conducted as part of the SEFA calculation for each component of the proposed remedy. The BMPs identified to be incorporated for each remedy component are presented in the detailed remedial action scope of work section for each component.

The following metrics have been identified to be tracked throughout the environmental cleanup to truth test assumptions and assess progress towards the GSR goals:

- Materials management, including off-site disposal and on-site material import quantities;
- Greenhouse gas emissions and air pollutants; and
- Total energy use.

3.2.2 Site Preparation

Prior to initiating ground intrusive remedial activities, site preparation activities will be conducted consisting of site security assessment; utility investigation and mark-outs; mobilization of equipment for the specific remedial activities; installation of soil erosion and sediment controls (as needed); site clearing, grubbing, and tree removal; preparation of staging and material stockpile areas; and set-up of community air monitoring equipment in accordance with the CAMP. In addition, a pre-construction kick-off call will be conducted with NYSDEC, the Applicant, the Remedial Engineer, and the remedial contractor.

The BMPs to be incorporated during site preparation activities are:

- Minimize the total number of round trips to mobilize equipment to the Site;
- Select work and materials staging areas to minimize the overall footprint, thus limiting the potential for impacted media to migrate out of the work zone(s);
- Utilize haybales and other biodegradable erosion controls where applicable;
- Evaluate the reuse of suitable material from grubbing and clearing (i.e. woodchipped trees) on Site; and
- Evaluate use of solar-powered devices for community air monitoring equipment.

The following subsections detail Site preparation activities. The sequence of Site preparation activities for each remediation phase area is also presented in Figure 14 and the sub-Figures 14a through 14e.

3.2.2.1 Site Security Assessment

To ensure site security, the existing chain link fence will be inspected and upgraded, repaired, or reinforced as necessary prior to commencement of remedial activities. Site access points will be evaluated to confirm adequate control of personnel and equipment entering and exiting the work area.

3.2.2.2 Utility Clearance

Prior to initiating ground intrusive activities, a public and private utility investigation and mark-out will be conducted. The remedial contractor will notify NYS 811 at least 3 business days in advance of ground intrusive and conduct a geophysical survey in the areas of former Site buildings and utility connections. All on-site utilities have been disconnected; however, active utility stubs remain extending from Dobbs Ferry Road to the Site boundary. The NYS 811 notification will be updated as needed throughout the duration of ground intrusive activities.

3.2.2.3 Site Clearing, Grubbing, and Tree removal

To facilitate the remedial excavation activities, trees across the Site will be removed by the remedial contractor. Large above-grade brush will be mulched or ground for on-site reuse or off-site recycling. Felled trees will be managed accordingly by the remedial contractor, either chipped and reused on Site or removed for off-site recycling as chips or cut logs. Tree stumps and the associated root balls will be removed, excess soil shaken off, and temporarily stockpiled. Soil remaining within the root balls will be allowed to dry, shaken off again, and soil free root balls stockpiled for inspection and sampling, as needed, to demonstrate they are non-hazardous and may be chipped for on-site reuse or off-site recycling.

Grubbing will be conducted per remedial phase area, or portion thereof, to limit the total area of ground disturbance at one time. Grubbing is anticipated to be conducted immediately prior to surface end-point sampling and/or remedial excavation activities, except for as needed to facilitate erosion and sediment controls installation.

3.2.2.4 Soil Erosion and Sediment Controls

Soil erosion and sediment controls will be installed in accordance with the *Stormwater Pollution Prevention Plan* (SWPPP), as shown on Figure 12 and detailed in Section 4.3.3, after clearing and grubbing provides access to requisite areas.

3.2.2.5 Mobilization of Remedial Equipment

Mobilization of remedial equipment will occur concurrent with clearing and soil erosion and sediment control installation activities. The southwest portion of the Site contains paved parking and flat gravel areas suitable for temporarily staging remedial equipment while constructing the long-term equipment and material staging area (MSA).

3.2.2.6 Equipment and Material Staging

The remedial contractor will prepare the following to facilitate Site access and equipment and materials staging and loadout:

- A designated area for Site parking and construction trailers in the southwest portion of the Site, either on existing asphalt parking areas or on a surface prepared with a geotextile demarcation layer and clean cover material to provide a barrier from potentially impacted soils.
- An MSA in the southwest portion of the Site that will serve as the location for stockpiling excavated impacted soils for characterization and loadout for off-site disposal. This area will be constructed as detailed in Section 4.3.7.

3.2.2.7 Community Air Monitoring Stations

Community air monitoring stations will be set up and run throughout the duration of remedial ground intrusive and soil disturbance activities in accordance with the CAMP (Appendix D). In addition to the air monitoring stations, dust control and suppression will be implemented throughout the duration of the work as detailed in Section 6.1.13.

3.2.2.8 Survey and Mark-out of Excavation Limits

The proposed excavation grid (Figure 13) will be surveyed by a NYS Licensed Surveyor and the corners and intersection of each grid staked, marked in a similar manner, or entered into the Global Position System (GPS) of the remedial equipment (if used) prior to ground intrusive remedial activities. The grid boundaries will remain readily apparent through physical or digital mark-out until all surrounding excavation grids are determined to be remediated through end-point sampling results.

3.2.3 Surface End-Point Sampling

After clearing, grubbing, and mark-out of the excavation limits, end-point sampling will be conducted within the grids that are not designated for excavation based on the RI data. The end-point sampling will be conducted consistent with Sections 3.2.6 and 5.2. The end-point sampling results will be utilized to confirm that the soil in the grid meets the applicable SCOs. Should end-point samples exceed the applicable SCOs, the area(s) governed by those end-point samples will be added to the proposed excavation areas and soil removed consistent with Section 3.2.4.

The BMPs to be incorporated during surface end-point sampling are:

- Select service providers, product suppliers and analytical laboratories from the local area and consolidate the service and delivery schedules;
- Select facilities with green policies for worker accommodations and meetings;
- Choose products with recycled and biobased contents such as agricultural or forestry waste instead of petroleum-based ingredients;
- Choose products, packing material and equipment that have reuse or recycling potential;
- Choose products manufactured through processes involving nontoxic chemical alternatives;
- Minimize the need for disposable single-use items such as plastic bags;
- Designate collection points for items that are locally recyclable, such as metal, plastic or glass containers and paper or cardboard;
- Select test kits that generate less waste, such as soil samplers with reusable handles for coring syringes;
- Maximize use of environmentally friendly additives such as ascorbic acid to preserve or stabilize collected samples, if compatible with target analytes and anticipated analytical methods;
- Specify EPA analytical methods involving procedures that need relatively low volumes of samples or solvents and generate less waste, such as solid phase micro extraction, pressurized fluid extraction, microwave extraction, and supercritical fluid extraction when possible; and
- Choose fixed laboratories demonstrating a strong commitment to environmental performance, such as routine use of management practices identified by the International Institute for Sustainable Laboratories.

3.2.4 Excavation and Management of Impacted Soil

The excavation grid and proposed excavation depths shown on Figure 13 are based on the RI data presented in Section 2.5, the RAOs, and the applicable SCOs for the western and eastern parcels. In instances where the only individual grid sample exceeding applicable SCOs is from 0 to 0.2 feet bgs (0 to 2 inches), the proposed excavation depth in that grid extends to 0.5 feet bgs. Each grid or associated polygon will be treated as an individual excavation "cell" for the purposes of individual excavation depth and boundary. The estimated volume of material to be excavated from each grid and for the overall remediation is provided in Table 9. In accordance

with CP-51, soils exhibiting petroleum or other VOC odors encountered during excavation will also be removed.

Once material has been removed to the proposed excavation depth, the excavation will be considered clean and access will be restricted from equipment and personnel, except for the Qualified Environmental Professional (QEP), following decontamination procedures detailed in Section 4.3.8, to collect end-point samples. The removal of material impacted above the applicable SCOs in each grid or polygon will be verified with confirmation end-point sampling detailed in Sections 3.2.6 and 5.2. As discussed in the following subsections, additional excavation and sampling will be performed as needed until a Track 2 remedy is achieved.

The excavation and off-site disposal of impacted soil will be conducted by the remedial contractor with traditional construction equipment including bulldozers, front end loaders, excavators, and off-road dump trucks. Impacted soil will be loaded and transported to the MSA along temporary construction roads, where it will be stockpiled, managed, and loaded for off-site disposal as discussed in Section 3.2.5. Excavated soil determined to only exceed the PEcoSCOs will be documented and stockpiled separately for sampling and restoration use, as discussed further in Section 3.2.7, in order to prevent mixing with soils that exceed the RSCOs.

The BMPs to be incorporated during excavation and management of impacted soil are:

- Minimize the total number of round trips to mobilize equipment to the Site;
- Utilize haybales and other biodegradeable erosion controls where applicable;
- Evaluate use of solar-powered devices for community air monitoring equipment.
- Develop advanced schedules for anticipated onsite activities, to minimize traffic between onsite contaminated and clean zones and the days in which work is actively performed in the field;
- Choose service providers with local offices, to minimize the distance of worker commutes and machinery transport;
- Choose equipment and product vendors with nearby production or distribution centers, to minimize delivery-related fuel use;
- Deploy machinery that is suitably sized; use of undersized or oversized equipment can decrease efficiencies considerably;
- Use machine models capable of performing assorted tasks, whenever feasible, to avoid field deployment of multiple types of machines;
- Use solar power packs to recharge batteries in small electronic devices such as cell phones, laptop computers and sensors;
- Limit the speed of trucks and other vehicles traversing the site to 10 miles per hour;

- Spray water onto surfaces of vulnerable work areas, in conjunction with water conservation and runoff management techniques;
- Emplace a fabric cover over excavated material that is loaded into open trucks for onsite or offsite hauling;
- Consider covering soil in work areas with biodegradable cover fabric for dust suppression, instead of periodically spraying water onto exposed surfaces. Use of biodegradable cover fabric will help control erosion and provide a substrate for future plant growth;
- Restrict machinery, vehicle and worker traffic to well-defined corridors that are minimally obtrusive; and
- Inspect equipment left onsite before renewing field activities, to avoid harming animals potentially nesting in the equipment. Operation of equipment with nest debris also could cause equipment inefficiency or breakdown.
- Use a mobile laboratory or portable analytical equipment, particularly for screening purposes and when rapid analytical results are needed.

The overall remedial soil excavation will be conducted in three main components as detailed in the following subsections. The remediation of the pond sediment and associated wetlands detailed in Section 3.2.9, will be performed last to mitigate any recontamination of these areas.

3.2.4.1 Western Parcel – Historical Applied Pesticide Impacts

HAP impacts extend across most of the western parcel, excluding the southwestern most portion where the prior clubhouse and associated building infrastructure were located. This area will be further split into four, sub-phase areas (HAP-1 thru HAP-4), as shown on Figure 15, to limit the overall area disturbed at one time. Excavation of impacted soil will begin at HAP-1 (Phase 1) and subsequently move to HAP-2 (Phase 2), then HAP-3 (Phase 3), and finishing at HAP-4 (Phase 4). The soil excavation will generally proceed from an upland to downland direction in each Phase Area, beginning farthest from, and working back towards, the MSA, to limit potential recontamination of already remediated grids from soil tracking or sedimentation. A silt fence or equivalent, installed in accordance with Section 4.3, will be used to prevent recontamination of remediated areas. Additional silt fences will be installed, as needed, based on topography and sequencing.

Temporary on-site construction haul roads will be constructed, with the exact route and layout determined by Site access and topography after clearing and grubbing. Haul roads constructed to access remediation areas will be removed as excavation progresses. One central haul road, constructed along the northern border of HAP-2, is anticipated to remain through the

remediation of the western parcel's HAP-impacted soil, and removed upon completion of the excavation of HAP-4.

The excavations will be conducted on a per grid basis, with concurrent excavation on grids with similar cut depths. Soil in each grid(s) will be combined and temporarily stockpiled within the excavation. The temporary stockpiles will be screened with a calibrated X-ray fluorescence (XRF) analyzer to evaluate arsenic and mercury concentrations, the primary COPCs driving the determination of the suitable off-site disposal facility. The QEP will use XRF results to direct the remedial contractor to the appropriate MSA stockpile for subsequent waste characterization sampling prior to off-site disposal. Each grid is assumed to fall into one of the three following scenarios:

1. **Surface Soil Contamination (0 to 0.5 feet)** - The proposed removal depth for the grid is limited to the upper 0.5 feet of soil.
2. **Shallow Soil Contamination Deeper than 0.5 feet** - The proposed removal depth for the grid is deeper than 0.5 feet and/or the grid includes a "localized" removal area deeper than 0.5 feet around the subject RI sample.
3. **Soil Contamination with Unresolved Vertical Refinement** - Soil contamination requires additional vertical refinement characterization sampling prior to excavation.

Figure 13B presents the scenario designation for each grid. The excavation activities for each scenario will be conducted as detailed in the following sections and decision trees visualizing the sequence of activities are provided in Appendix E.

3.2.4.1.1 Surface Soil Contamination (0 to 0.5 feet)

The remedial excavation of grids with only surface soil contamination proposed to be excavated to 0.5 feet across the entire grid, are to be conducted as follows:

- The upper 0.5 feet of soil will be removed and transported to the MSA.
- The excavation base areas (See Figures 15a through 15e) will then be screened for arsenic and mercury using XRF[7] (identified in the RI as the two metals driving remediation below 0.5 feet in the western parcel, based on the RSCOs). The XRF analyzer will be placed directly against the base or sidewall of the excavation, or a representative soil sample removed and placed in a plastic Ziploc bag, and the test

[7] The XRF field screening will screen multiple locations at the base of the excavations to evaluate and direct the excavation activities.

will be conducted for approximately 30-90 seconds in accordance with equipment recommendations.

- Concentrations of the driver compounds will be recorded and used to further direct the excavation as appropriate (i.e. if field screened concentrations are above the applicable SCOs excavation in that area would continue deeper or horizontally as appropriate at 6-inch intervals)[8]. Should the XRF screening results indicate these compounds are below the applicable SCOs, base and sidewall confirmation end-point soil samples will be collected consistent with the end-point sampling frequency detailed in Figures 15a through 15e and Section 5.2 to provide analytical laboratory data to evaluate against the RSCOs and/or PEcoSCOs.
    - If all end-point sample analytical results are below the applicable SCOs, the grid will be considered remediated.
    - If any end-point sample analytical results exceed the applicable SCOs, further excavation will be conducted in the surrounding area associated with the exceeding analytical sample (i.e. 2,500 or 5,000 square foot area, depending on end-point sample location) following a similar XRF screening and end-point sampling process until all soil exceeding the applicable SCOs is excavated and confirmed with end-point sample data. While RI results indicate that Site impacts are limited to surficial HAP, additional excavation and end-point sampling will be conducted if deeper impacts are identified to confirm remaining soil meets a Track 2 cleanup.
    - If the excavation extends deeper than 6 inches, an additional deeper base end-point sample will be collected 2 feet below the base of the excavation or the top of bedrock, whichever is shallower. The sample may be collected either (1) after the base and sidewall end-point sample analytical results confirm compliance with the SCOs or (2) concurrently with the shallower end-point samples. If collected concurrently, the deeper end-point sample will be placed on laboratory hold pending review of the base and sidewall sample results. If the deeper end-point sample analytical results are below the applicable SCOs, the grid will be considered remediated. If the deeper end-point sample analytical results exceed the applicable SCOs, further

[8] The XRF analyzer field screening concentrations will be regularly compared to laboratory analytical data from the collected associated samples. This will provide a general correlation between the two methods and further inform and provide confidence in the evaluation of the XRF analyzer data for field screening purposes.

excavation will be conducted in the surrounding area associated with the exceeding analytical sample (i.e. 2,500 or 5,000 square foot area, depending on end-point sample location) following a similar XRF screening and end-point sampling process until all soil exceeding the applicable SCOs is excavated and confirmed with end-point sample data, including deeper end-point sample data.

- Once end-point sampling has confirmed all soil above the applicable SCOs has been removed from a sub-phase area, the area will be considered free of residual impacts and may be graded and temporarily stabilized, as detailed in Section 3.2.6.

A flowchart depicting the above steps and decision points for the remediation of these grids is provided in Appendix E, Figure E-1.

3.2.4.1.2 Soil Contamination Deeper than 0.5 feet

The remedial excavation of grids where the associated RI sample contained exceedances of the applicable SCOs deeper than 0.5 feet, are to be conducted as follows:

- The upper 0.5 feet of soil across the grid will be removed and transported to the MSA.
- The soil in an approximate 5,000 square foot area centered around the RI sample location containing exceedances of the applicable SCOs deeper than 0.5 feet, will be removed to the proposed depth and transported to the MSA[9].
- The excavation base and sidewalls (See Figures 15a through 15e) will be screened for arsenic and mercury using XRF as described in Section 3.2.4.1.1. Should the XRF screening results indicate these compounds are below the applicable SCOs, end-point soil samples will be collected consistent with the end-point sampling frequency detailed in Figures 15a through 15e and Section 5.2 to provide analytical laboratory data to evaluate against the RSCOs and/or PEcoSCOs.

[9] The supplemental RI soil sampling identified that deeper impacts may be spatially isolated and/or not encompass an entire grid. Therefore, the excavation, screening, and sampling approach proposed for deeper impacts allows for an iterative excavation approach which will demonstrate all soil exceeding the applicable SCOs is removed while potentially reducing the amount of soil transported and disposed offsite, which aligns with GSR principles and provides the opportunity to reduce overall remedial costs.

- If all end-point sample analytical results are below the applicable SCOs, the grid will be considered remediated, and the remainder of the grid will not be excavated to the proposed depth.
- If any end-point sample analytical results exceed the applicable SCOs, further excavation will be conducted in the surrounding area associated with the exceeding analytical sample (i.e. 2,500 or 5,000 square foot area, depending on end-point sample location) following a similar XRF screening and end-point sampling process until all soil exceeding the applicable SCOs is excavated and confirmed with end-point sample data. While RI results indicate that Site impacts are limited to surficial HAP, additional excavation and end-point sampling will be conducted if deeper impacts are identified to confirm remaining soil meets a Track 2 cleanup.

5. In addition to confirmatory base and sidewall samples, a deeper end-point sample will be collected to confirm deeper soil meets a Track 2 cleanup. The sample will be collected 2 feet below the base of the excavation or the top of bedrock, whichever is shallower. The sample may be collected either (1) after the base and sidewall end-point sample analytical results confirm compliance with the SCOs or (2) concurrently with the shallower end-point samples. If collected concurrently, the deeper end-point sample will be placed on laboratory hold pending review of the base and sidewall sample results.
    - If the deeper end-point sample analytical results are below the applicable SCOs, the grid will be considered remediated.
    - If the deeper end-point sample analytical results exceed the applicable SCOs, further excavation will be conducted in the surrounding area associated with the exceeding analytical sample (i.e. 2,500 or 5,000 square foot area, depending on end-point sample location) following a similar XRF screening and end-point sampling process until all soil exceeding the applicable SCOs is excavated and confirmed with end-point sample data, including deeper end-point sample data. Once end-point sampling has confirmed all soil above the applicable SCOs has been removed from a sub-phase area, the area will be considered free of residual impacts and may be graded and temporarily stabilized, as detailed in Section 3.2.6.

A flowchart depicting the above steps and decision points for the remediation of these grids is provide in Appendix E, Figure E-2.

3.2.4.1.3 Soil Contamination with Unresolved Vertical Refinement

For grids where the vertical distribution is not consistent with the CSM (i.e., impacts are generally limited to the upper 2 feet of soil due to historical surficial pesticide application), additional soil characterization sampling may be conducted to confirm the appropriate removal depth. This includes:

(1) locations that exhibited clean soils from 2-4 ft and are underlain by soils from 4-6 feet exceeding the applicable SCOs,
(2) locations where SCO exceedances were identified in the initial 2-foot samples but were not observed in the supplemental six-inch or 2-foot interval samples collected within the same depth interval,
(3) locations that lack refinement sampling due to the update to the SCOs effective December 31, 2025, and
(4) locations with the 100-foot wetland buffer zones that lack refinement sampling in the upper 2-feet of soil when compared against the PEcoSCOs.

To address these uncertainties, vertical refinement characterization samples will be collected at the center of each grid consistent with the RI sampling location at 6-inch intervals, for the following depths:

(1) For target depths below 2-feet, collection of the first sample at 2 feet and continuing to the deepest interval where an applicable SCO exceedance was identified during the RI.
(2) For vertical refinement of the PEcoSCOs in the upper 2-feet, collection of samples between 0.5 to 2-feet bgs.

Characterization samples will be analyzed for COPCs as follows:

- TCL pesticides using EPA Method 8081B/8151A
- TAL metals using EPA Method 6010
- TCL SVOCs using EPA Method 8270C[10]

To the extent practicable, characterization sampling will be conducted concurrently with excavation activities. Once the characterization results are reviewed and an appropriate first cut removal depth is determined, the excavation of each grid will be conducted similar to the excavation activities detailed in Section 3.2.4.1.2.

[10] Only locations in the western parcel designated as containing historical fill will be analyzed for SVOCs.

Once end-point sampling has confirmed all soil above the applicable SCOs has been removed from a sub-phase area, the area will be considered free of residual impacts and may be graded and temporarily stabilized, as detailed in Section 3.2.6.

A flowchart depicting the above steps and decision points for the remediation of these grids is provide in Appendix E, Figure E-3.

3.2.4.2 Western Parcel – Historical Fill

The western parcel historical fill area consists of the southwestern portion of the Site where the former clubhouse, parking areas, tennis courts, maintenance buildings, and other associated infrastructure were located. Figure 13 identifies proposed limits and depths of excavation based on analytical and visual delineation of the extents of the historical fill. Impacted soil excavation in this area will generally proceed from an upland to downland direction to limit potential recontamination of already remediated grids.

During the excavation of this area, the QEP will screen the material visually and with a PID to identify historical fill and direct stockpiling of this material separately at the MSA. The historical fill material is visually distinct; therefore, the screening will be used to adjust the excavations depth and extents to ensure its removal.

Upon excavation of this material to the proposed depth and/or field-screened excavation extents, end-point samples will be collected in accordance with Section 5.2 to provide analytical data to confirm soil exceeding the applicable SCOs has been removed and a Track 2 cleanup has been achieved. The primary COPCs in the historical fill are PAHs; therefore, screening by XRF would not provide suitable information to inform excavation end-points. Any alterations to planned excavation depths based on additional removal of historic fill will be documented in daily/monthly reporting.

3.2.4.3 Eastern Parcel – Historical Applied Pesticide Impacts

The eastern parcel HAP impacts cover the entire parcel (Figures 13 and 14). Impacted soil excavation will generally proceed from the north to south and upland to downland direction to limit potential recontamination of already remediated grids from soil tracking or sedimentation. A silt fence or equivalent, installed in accordance with Section 4.3, will be utilized to prevent recontamination of remediated areas; additional silt fences will be installed as needed, based on topography and sequencing.

A separate MSA may be constructed on the eastern parcel depending on sequencing of the remediation and topography, and access across the ConEd property. A proposed location for the MSA is shown on Figure 12, should it be needed. Access to Dobbs Ferry Road is available from

the eastern parcel through an already existing gate, which will have a stabilized construction entrance added, as needed.

A temporary construction haul road will be constructed running north to south, with the exact route and layout determined by Site access and topography after clearing and grubbing. Haul roads constructed to access remediated areas will be removed as excavation progresses.

Grids in the eastern parcel are assumed to fall into the same three scenarios discussed in Section 3.2.4 that were identified for the western parcel. Accordingly, excavation activities in the eastern parcel will be conducted similar those detailed in Section 3.2.4.1.

3.2.5 Material Management, Loadout, and Offsite Disposal

As detailed in Section 3.2.4, all excavated material will be screened and designated a stockpile by the QEP prior to moving it to the MSA. The MSA will contain up to four distinct stockpiles, separating material by anticipated final disposition pending confirmation through characterization sampling. The stockpiles will be physically separated and managed in accordance with Section 6.1.2. The four distinct stockpiles are expected to consist of materials meeting the following final off-site disposal criteria:

1. Export and reuse to a site with a 6 NYCRR Part 360 Beneficial Use Determination (DER-10, Table 5.4(e)4)
2. Facilities with the most stringent criteria (i.e., New Jersey Residential) (This material may be combined with the material above if the disposal criteria is equivalent.)
3. Facilities with regulated criteria
4. Facilities accepting elevated metals or Toxicity Characteristic Leaching Procedure non-hazardous waste

Each stockpile will be between 500 to 750 cy, depending on the characterization and profiling requirements for the anticipated receiving facility. Stockpiles will be sampled in accordance with the following requirements of the anticipated receiving facility:

- Sample procedures (e.g., grab vs. composite samples)
- Frequency (i.e., no. of samples per cy)
- Laboratory analysis

Soil anticipated for export and reuse to a site with a 6 NYCRR Part 360 Beneficial Use Determination will be sampled in accordance with DER-10, Table 5.4(e)10 and any additional requirements of identified receiving sites.

Each distinct material will have at least two stockpiles consisting of the following:

1. Material sampled, characterized, and approved by the receiving site or facility, and actively being loaded out.
2. Material accumulating and/or sampled and awaiting characterization data for facility approval.

These stockpiles will rotate (i.e. once the stockpile being actively loaded out is completely removed, material from the Site will be place in that bin to accumulate while the other stockpile is then loaded out). Should one stockpile type be identified as the majority of the material excavated, a third stockpile of this type may be added to ensure efficient accumulation, load out, and off-site reuse/disposal.

Additional details regarding material management, loadout, and off-site transport and disposal are provided in Sections 6.1.3 through 6.1.5.

The BMPs to be incorporated during material management, loadout, and offsite disposal are generally consistent with those listed in Section 3.2.4. In addition to those listed above, BMPs related to the reduction of emissions during transportation are:

- Manually shut down engines of vehicles not actively engaged for more than 10 seconds, except for work requiring intermittent engine use or when in traffic;
- Engage automatic shut-down devices, which typically can be programmed to cut an engine after as little as five consecutive minutes of idling;
- Ensure sufficient inflation and tread and proper alignment of tires, to minimize rolling resistance;
- Replace filters in air and fuel systems in accordance with the vehicle manufacturer's recommended frequencies, which typically distinguish between a normal-duty cycle versus a severe-duty cycle that accounts for usage conditions such as unpaved roads or high levels of dust or pollen;
- Downsize energy-intensive equipment that has become oversized as cleanup progresses.
- Use a suitably sized vehicle for the task at hand.
- Avoid rapid acceleration, excessive speed and repetitive hard braking, which lowers gas mileage by as much as 30 percent;
- Refrain from using a jake brake in or near residential neighborhoods and other sensitive communities; and
- Use a reliable navigation system that enables selecting the shortest route to destinations and avoiding traffic events that may trigger vehicle idling.

3.2.6 Excavation End-Point Sampling

Upon completion of the remedial excavation in each grid or "cell," end-point samples will be collected to confirm the removal of all materials exceeding the applicable SCOs. The end-point sampling will be performed at a frequency (i.e., number of samples per excavation base area and/or sidewall length) and for analytes sufficient to demonstrate the completeness of the remedial excavation activities. For excavations that extend deeper than 6 inches, an additional deeper base end-point sample will be collected 2 feet below the base of the excavation or the top of bedrock, whichever is shallower, to confirm deeper soils meet Track 2 SCOs and no additional excavation is warranted. Details regarding end-point samples are presented in Section 5.2.

Once end-point sampling confirms that all impacted soil exceeding applicable SCOs has been removed to meet a Track 2 cleanup, the Site will be considered free of residual impacts and may be graded and temporarily stabilized, as detailed in Section 3.2.7.

The BMPs to be incorporated during excavation end-point sampling are consistent with those listed in Section 3.2.3.

3.2.7 Clean Material Movement, Site Grading, and Stabilization

Grading and temporary stabilization will be performed in accordance with the SWPPP.

The Site will be graded as needed to fill any deeper excavations and tie ground surface elevations into existing Site contours. Any disturbed areas on steep slopes requiring a less steep slope for proper temporary stabilization will be regraded, in accordance with the SWPPP. All equipment entering a "clean" area will be verified to have not tracked through an impacted area and will be decontaminated to remove and any visible soil from tracks or tires.

Because the remediation and proposed redevelopment will result in a net export of material, clean on-site soil is proposed to be redistributed around the Site, as needed, to achieve the proposed final grades for redevelopment shown in the Redevelopment Plans included as Appendix A. Soil demonstrated to only exceed the PEcoSCOs, which will be redistributed across the Site to areas outside of the wetlands buffer zones and soil demonstrated to meet the PEcoSCOs will be redistributed to backfill within the buffer zones. This material movement and any associated activities are not part of this RAWP and any associated cost will not be attributed to BCP activities. As noted, all material remaining on Site after end-point sampling will have been demonstrated to meet applicable SCOs with no residual contamination; therefore, it may be moved as needed without restriction or QEP oversight.

The BMPs to be incorporated during clean material movement, site grading, and stabilization are consistent with those listed in Sections 3.2.4 and 3.2.5.

3.2.8 Soil Vapor Intrusion Evaluation

Although soil vapor compounds were not present above correlating standards, criteria and guidance values in soil and groundwater samples, detected concentrations of soil vapor exist in several on-site areas. Therefore, upon completion of the soil remedy, the potential for vapor intrusion will be evaluated for the Western Parcel through a SVI desktop evaluation using, but not limited to, the following lines of evidence:

- Presence/absence of VOCs in the RI and post-excavation soil samples
- Presence/absence of VOCs in groundwater samples
- Soil vapor analytical data
- Presence of suspected or known sources of VOCs, such as former tanks, fill materials, etc.
- Presence of nuisance odors in soil associated with petroleum or other VOC contaminants, in accordance with CP-51, Section V.G.
- Ambient air concentrations of VOCs

This approach entails review of the comprehensive analytical data, including real-time post-remedy soil data, and review of complete migration pathways that encompass any potential source as well as the nature and extent of impacts. The objective of this evaluation is to determine if there is a complete or potentially complete exposure pathway for vapor intrusion of VOCs, and if further actions are needed to address potential exposures. Appendix F presents an example matrix table of information that will be prepared for each of the current soil vapor sampling points, evaluating these various lines of evidence to support conclusions regarding whether the pathway is complete or incomplete and a vapor intrusion concern is present or not present in the applicable area of the Western Parcel.

The SVI desktop evaluations will be provided to NYSDEC and NYSDOH in phases as they are completed, which will be upon receipt of end-point sampling data in the areas surrounding the subject RI soil vapor sampling location. For example, the SVI desktop evaluation for soil vapor sampling location SV-03, located within Soil Remediation Phase 1 (HAP-01), will be completed upon receipt of the end-point soil sampling results in the surrounding area and the corresponding evaluation provided to NYSDEC and NYSDOH for review. Carson Voci and the Applicant request NYSDEC and NYSDOH provide a preliminary review of each SVI desktop evaluation within 10 business days of submittal, and provide comments, additional requests (if any), and/or a general response regarding concurrence with the presented SVI desktop evaluation and its conclusions.

This rolling submittal approach is to provide NYSDEC and NYSDOH time to review each SVI desktop evaluation while the overall Site remedy is still being implemented, and should their review determine the need for additional lines of evidence and/or that SVI concerns exist in the respective area, these issues can be addressed without the need to remobilize.

Should NYSDEC or NYSDOH determine further actions are needed to address potential SVI, based on the desktop evaluation a suitable action will be selected, which may include:

- Further investigation of soil or soil vapor, as applicable, to demonstrate an SVI concern is not present,
- Further soil excavation, or
- Adjustment of development plans

The goal is to be proactive in conducting, documenting, and reviewing the SVI desktop evaluations so any concerns can be addressed in real-time and not impact future development plans and schedules, including the receipt of the Certificate of Completion for the entire Site.

The SVI desktop evaluations for the entire Western Parcel will be finalized and provided as part of the Final Engineering Report (FER).

3.2.9 Pond Sediment Remediation

As summarized in Section 2.5.7, the majority of the sediments in upper 2 feet of the 1.43-acre pond contain concentrations of arsenic, mercury, and pesticides which exceed the sediment FW Class A SGVs and pose a risk to the environment. The FW Class A SGV exceedances are currently estimated to be present in the upper 2 feet of sediment across the majority of the 1.43-acre pond, for a total volume of 4,600 cy as shown on Figure 16 and its inset table. Due to the thickness of the sediments impacted above FW Class A SGVs, the relatively small size of the pond, and no observed impacts to the pond surface water, the removal will be conducted by temporarily dewatering the pond and the sediments removed by traditional excavation means. When compared to hydraulic dredging, this method provides more efficient access and removal to deeper sediments and limits suspended sediment in the pond surface water that can occur during hydraulic dredging and negatively impact associated fish and wildlife and future water quality.

The pond sediment remediation incorporates multiple activities which are similar to those conducted as part of the overall soil remedy including sample collection and material excavation, management, loadout, and offsite disposal. As such, many of the BMPs listed in sections 3.2.3, 3.2.4, and 3.2.5 are applicable to this scope of work and will be implemented. In addition to the applicable BMPs listed in the aforementioned sections, BMPs to be incorporated which are unique to the pond sediment remediation are:

- Lay synthetic barriers and fluid collection systems on ground surfaces of staging and work areas, to avoid introducing toxic materials to underlying groundwater;
- Avoid use of dewatering coagulants or flocculants containing chemicals that are potentially toxic to aquatic life;
- Use a passive rather than active mechanical process to dewater sediment when possible. A passive process relies on natural gravity flow and evaporation of the water rather than equipment such as filter presses powered by slurry pumps;
- Use geotextile bags or nets when possible to assure containment of excavated sediment during dewatering and to increase efficiency when handling and transporting the dewatered sediment;
- Allocate greenspace as a buffer to the pond to reduce or prevent stormwater runoff;
- Revegetate disturbed areas along the pond banks as quickly as possible through use of a diverse mix of fast-growing and spreading grasses, sedges, shrubs, forbs and/or trees specific to the habitat;
- Seed or install native rather than non-native species, which typically increases the rate of plant survival and minimizes the need for irrigation. Include plant species that promote colonization of bees and other pollinators;
- Monitor and manage the establishment and spreading of non-native, invasive plant species.
- Substitute chemical fertilizers, herbicides or pesticides with non-synthetic inputs, integrated pest management methods, and soil solarizing techniques during vegetation planting or transplanting

The remediation of sediments is summarized in the following sections and a separate Remedial Design (RD) document detailing at minimum, the remedial design and approach, details regarding the delineation and removal of utilities, conduits, or pipes draining to the pond to prevent future recontamination, Best Management Practices, and a restoration plan will be prepared and submitted to NYSDEC for review and approval prior to implementation of the sediment remediation.

3.2.9.1 Permitting and Restoration Plan

If required, a permit package(s) will be prepared and submitted to the applicable NYSDEC department(s) in conjunction with the RD to facilitate implementation of removal of the pond sediments.

A wetlands delineation was conducted in 2019, with updates in 2020, to facilitate development planning and approvals with the Town of Greenburgh as part of the State Environmental Quality Review Act (SEQR) process conducted from 2019 to 2022. The findings, which included the wetlands delineation and evaluation of potential impacts of the development and planned remedial activities, were adopted by the Town of Greenburgh on August 10, 2022, and supplemental findings adopted on November 24, 2025. The findings were subsequently used in approvals of site development plans by the Town of Greenburgh.

3.2.9.2 Sediment Removal, Management, and Stabilization

The pond sediment will be removed by temporary dewatering of the pond and excavation of the impacted pond sediment to be managed at a location adjacent to the pond. The means and methods of the temporary pond dewatering will be determined by the remedial contractor and any permits required for the temporary discharge acquired prior to initiating dewatering. The sediment will be excavated and managed within the footprint of the pond to allow additional natural dewatering as needed, then loaded into the off-road dump trucks for transport to the MSA, for further waste characterization and off-site disposal consistent with the procedure detailed in Section 3.2.5 for soils.

If the excavated sediment is anticipated to require additional dewatering (i.e. does not pass a pint filter test) a bermed and lined sediment staging area will be constructed, and all dredged sediment placed in the staging area to dewater. The staging area will sloped to direct all water to one collection location and the water pumped out of the staging area and into a settling frac tank. The collected water will be run through a treatment system, designed to meet permit requirements for discharge back to the pond and/or a publicly owned treatment works (POTW) system. Once the sediment has dewatered to the extent practicable, solidification agents (i.e. cement, lime, fly ash) will be added to the sediment at quantities sufficient for the material to pass a paint filter test and be acceptable for off-site transport and disposal.

3.2.9.3 End-Point Sampling

Upon completion of the sediment removal end-point samples will be collected to confirm the removal of all sediment exceeding the applicable FW Class A SGVs. The end-point sampling will be performed at a at a frequency (i.e., number of samples per dredged area) and for analytes sufficient to demonstrate the completeness of the sediment remediation activities. Details regarding end-point samples are presented in Section 5.2.

3.2.9.4 Restoration

Once end-point sampling confirms that all impacted sediment exceeding applicable FW Class A SGVs has been removed, restoration activities will commence. A restoration plan will be provided as part of the RD.

3.2.10 Site Demobilization and Removal of Material Staging Areas

After all impacted material has been excavated and removed from the Site, the remedial contractor will dismantle the MSAs and address any impacted soil that may be present beneath them. For MSAs on asphalt, the asphalt surface will be inspected and decontaminated or removed if necessary. Any reusable materials (e.g., jersey barriers, concrete blocks, etc.) will be cleaned of visible soil and managed by the remedial contractor. The MSA base material and liner will be removed and stockpiled for load-out to a suitable off-site facility. If impacted soil is identified beneath the MSA, it will be excavated and transported for off-site disposal, progressing towards the Site entrance. End-point samples will then be collected in accordance with Section 5.2 to confirm removal.

Upon the completion of all remedial activities the remedial contractor will demobilize all equipment and trailers from the Site. Removal of erosion and sediment control measures shall be performed by the remedial contractor and in accordance with the RAWP including accumulated material management and post-removal end-point sampling if the control(s) had the potential to receive contaminated material. Specific soil erosion and sediment control components will stay in place for future redevelopment site work that will be conducted outside of the BCP.

The BMPs to be incorporated during site demobilization and removal of material staging areas are generally consistent with those associated with end-point sampling, material excavation, management, loadout, and offsite disposal, as listed in sections 3.2.3, 3.2.4, and 3.2.5.

3.2.11 Municipal Ordinances – Groundwater Use and Zoning

Upon completion of the proposed remedial activities, no residual contamination will remain at the Site. As part of a Track 2 cleanup for future single-family residential use, no use restrictions will be placed on the proposed future uses of the property, other than the site-wide prohibition on groundwater use imposed by county and municipal ordinance(s) or prohibitions under the NYS Environmental Conservation Law (i.e., no ECs and no environmental easement or deed restriction or other ICs). Accordingly, county and municipal ordinances will govern groundwater use at the Site and ensure that redevelopment remains consistent with the

designated One Family Residence District (R-30) zoning designation. Additional details regarding these restrictions are provided in Section 8.

3.3 LAND USE EVALUATION

3.3.1 Zoning

The Site is currently zoned by the Westchester County Department of Planning as One Family Residence District (R-30) within a suburban area surrounded by residential, institutional, and recreational properties. The preferred remedy will comply with current zoning requirements.

3.3.2 Applicable Comprehensive Community Master Plans or Land Use Plans

The proposed selected remedy is consistent with comprehensive master and land use plans. The Town of Greenburgh has granted preliminary approval for the Site's redevelopment. The preferred remedy will fully comply with the applicable land use plan.

3.3.3 Surrounding Property Uses

The Site is bounded to the north by residential development; to the east by Landers Road with recreational development (Frank Jazzo Field) beyond; to the south by Dobbs Ferry Road with commercial development (Carlson Farm Nursery & Greenhouses) and recreational development (Game on Golf Center) beyond, and to the west by residential development and institutional development (Fairview Fire Department – Station 2). No sensitive receptors were identified in the immediate vicinity of the Site. The proposed remedy will not interfere with surrounding property uses and considers the short-term effects to neighboring properties.

3.3.4 Citizen Participation

A certification of mailing will be sent by the Participant to the NYSDEC Project Manager following the distribution of all fact sheets and notices that include: (1) certification and dates the fact sheet(s) were mailed; (2) a copy of the fact sheet(s); (3) a list of recipients/contacts; and (4) a statement that the repository was inspected on a specific date and that it contained all applicable project documents.

Document repositories have been established at the following location and contain all applicable project documents:

Greenburgh Public Library
300 Tarrytown Road
Elmsford, New York 07932
(914) 721-8200

Hours:
Sunday and Monday: Closed
Tuesday and Wednesday: 9:30 a.m. – 8:30 p.m.
Thursday through Saturday: 9:30 a.m. – 5 p.m.

An electronic repository may be accessed via DECInfo Locator at the following link: https://extapps.dec.ny.gov/data/DecDocs/C360239/

No changes will be made to fact sheets authorized for release by NYSDEC without written consent of NYSDEC. No other information, such as brochures and flyers, will be included with the fact sheet mailing. The *Citizen Participation Plan* prepared for this project is provided in Appendix G**.**

3.3.5 Environmental Justice

The Site is located within a potential environmental justice area. The NYSDEC defines a potential environmental justice area as a "minority or low-income community that may bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies."

Environmental justice means the fair treatment and meaningful involvement of all people regardless of race, color, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

The remedy is designed to protect public health and the environment by removing contaminated materials from the community; therefore, the remedy poses no environmental justice concerns.

3.3.6 Land Use Designations

The proposed remedy is consistent with land use designations.

3.3.7 Population Growth Patterns

The proposed plan to develop the Site for residential use will provide additional housing for potential population growth.

3.3.8 Accessibility to Existing Infrastructure

The Site has access to existing infrastructure, with Dobbs Ferry Road and Landers Road providing direct access to local facilities and state highways. The preferred remedy will not alter or impede accessibility to existing infrastructure.

3.3.9 Proximity to Cultural Resources

The proposed remedy will not negatively impact cultural resources.

3.3.10 Proximity to Natural Resources

The proposed remedy will improve the local environment and will not negatively impact or affect natural resources.

3.3.11 Off-Site Groundwater Impacts

Based on the most recent data, there is no indication of off-site migration of groundwater impacts from the Site. The proposed remedy will not negatively impact or affect natural resources.

3.3.12 Proximity to Floodplains

According to the Federal Emergency Management Agency Flood Insurance Rate Map, the Site is located within Zone X, an area of minimal flood hazard, usually depicted as above the 500-year flood level or 0.2 percent annual chance flood hazard, and protected by levee from the 100-year flood level. The proposed remedy will not affect the floodplains at the Site.

3.3.13 Geography and Geology of the Site

Site geography and geology is consistent with the surrounding area. See Section 2.4.

3.3.14 Current Institutional Controls

There are currently no ICs at the Site.

3.4 SUMMARY OF SELECTED REMEDIAL ACTIONS

This section includes a comprehensive and concise summary of the remedial action proposed for the Site with the following remedial elements:

1. Conduct site preparation activities consisting of utility investigation and mark-outs; mobilization of equipment for the specific remedial activities; installation of soil erosion and sediment controls (as needed); site clearing, grubbing, and tree removal; preparation of staging and material stockpile areas; and set-up of community air monitoring equipment in accordance with the CAMP.
2. Excavation of soil/fill exceeding Track 2 SCOs for both the western and eastern parcels to a depth of 15 feet bgs or top of bedrock, whichever is shallower.
3. Temporary dewatering of the pond (and treatment if necessary), excavation, stabilization (if necessary), and off-site removal of all sediments exceeding FW Class A SGVs, estimated to be approximately 4,600 cy as shown on Figure 16. Restoration of the pond and adjacent wetlands upon completion of sediment removal, as needed. An RD containing further details regarding the sediment remediation will be submitted for review and approval by the NYSDEC prior to initiating sediment remediation.
4. Screening for indications of contamination (by visual means, odor, and monitoring with PID and/or XRF analyzer) of all excavated soil during any intrusive Site work.
5. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of Track 2 SCOs and sediment FW Class A SGVs.
6. Appropriate off-site disposal of all material removed from the Site in accordance with all federal, state, and local rules and regulations for handling, transport, and disposal.
7. Clean material movement, site regrading, and temporary stabilization of excavated areas.
8. Completion of a soil vapor intrusion desktop evaluation following implementation of the soil remedy to determine if there is a complete or potentially complete exposure pathway for vapor intrusion of VOCs, and if further actions are needed to address potential exposures.
9. Demobilization of all remedial equipment and removal of erosion and sediment control measures that are not scheduled to be used during redevelopment activities.

10. All responsibilities associated with the remedial action, including permitting and pretreatment requirements, will be addressed in accordance with all applicable federal, state, and local rules and regulations.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP and the NYSDEC-issued Decision Document. All deviations from the RAWP and/or Decision Document will be promptly reported to NYSDEC for approval and fully explained in the FER.

4.0 REMEDIAL ACTION PROGRAM

4.1 GOVERNING DOCUMENTS

Governing documents and procedures included in the RAWP include a site-specific HASP, a CAMP, a citizen participation plan, an SMMP, and a QAPP. Highlights of these documents and procedures are provided in the following subsections.

4.1.1 Standards, Criteria and Guidance

The following SCGs are typically applicable to remedial action projects in NYS, and will be consulted and adhered to as applicable:

- 6 NYCRR Part 364 - NYS Waste Transporter Permits
- 6 NYCRR Part 360 - NYS Solid Waste Management Requirements
- 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes
- 6 NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities
- 6 NYCRR Part 375 - Environmental Remediation Programs
- 6 NYCRR Part 376 - Land Disposal Restrictions
- 6 NYCRR Part 613 - Petroleum Bulk Storage
- 6 NYCRR Part 663 - Freshwater Wetlands - Permit Requirements
- 6 NYCRR Parts 700-706 – Classes and Standards of Quality and Purity
- 6 NYCRR Part 750 - State Pollutant Discharge Elimination System (SPDES) Permits
- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response
- NYSDEC Commissioner Policy “CP-43: Groundwater Monitoring Well Decommissioning Policy” (2009)
- NYSDEC Commissioner Policy “CP-49 / Climate Change and DEC Action” (2022)

- NYSDEC Commissioner Policy "CP-51 / Soil Cleanup Guidance" (2010)
- NYSDEC Commissioner Policy "CP-60: Screening and Assessment of Contaminated Sediment" (2014)
- NYSDEC DER Program Policy "DER-2 / Making Changes to Selected Remedies" (April 2008)
- NYSDEC DER Program Policy DER-10 (2010)
- NYSDEC DER Program Policy "DER-13 / Strategy for Evaluating Soil Vapor Intrusion at Remedial Sites in New York" (2006)
- NYSDEC DER Program Policy "DER-23 / Citizen Participation Handbook for Remedial Programs" (2010)
- NYSDEC DER Program Policy "DER-31 / Green Remediation" (2010)
- NYSDEC DER Program Policy "DER-32 / Brownfield Cleanup Program Applications and Agreements" (2017)
- NYSDEC DER Program Policy "DER-33 / Institutional Controls: A Guide to Drafting and Recording Institutional Controls" (2010)
- NYSDEC Technical Administrative Guidance Memorandum "TAGM 3028 - "Contained In" Criteria for Environmental Media: Soil Action Levels" (1997)
- NYSDEC Division of Water TOGS 1.1.1 (1998; Addenda 2000, 2004 and 2023)
- *New York State Standards and Specifications for Erosion and Sediment Control* (2016)
- NYSDOH *Generic Community Air Monitoring Plan*
- NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (2006)
- NYS Climate Act (2019)
- NYSDEC *Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances* (2023)

4.1.1.1 Green and Sustainable Remediation and Climate Resiliency

The selected remedial alternative will implement GSR principles and techniques to the extent feasible in the design, implementation, and site management of the remedy per DER-31. The following SCGs are specifically applicable to GSR and climate resiliency remedial action projects in NYS, and will be consulted and adhered to as applicable:

- NYSDEC Green and Sustainable Remediation and Climate Resiliency Fact Sheet (2023)
- NYSDEC DEC Program Policy DER-31/Green Remediation (2010)
- USEPA Green Remediation Best Management Practices: Excavation and Surface Restoration (2019)

4.1.2 Site-Specific Health and Safety Plan (HASP)

All remedial work performed under this RAWP will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by the United States Department of Labor's Occupational Safety and Health Administration.

The Participant and associated parties preparing the remedial documents submitted to NYS and those performing the construction work are completely responsible for the preparation of an appropriate HASP and for the appropriate performance of work according to that plan and applicable laws.

The HASP 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 Site Safety Coordinator will be identified, and associated resume provided, prior to the start of remedial construction. The parties performing the remedial work will document that performance of the work will follow the HASP and applicable laws and regulations. Personnel entering any remediation work area (exclusion zone) will be trained in the provisions of the HASP and required to sign a HASP acknowledgement form. Site-specific training will be provided, as needed, to field personnel and additional safety training may be provided depending on the tasks performed on Site. A safety meeting will be held before each shift or day begins and will be documented in a logbook or other specific or electronic forms. Additionally, an emergency contact sheet with names and phone numbers will be included in the HASP. This document will define the specific project contacts for use in case of emergency.

Confined space entry is not anticipated to occur in association with the remedial action.

4.1.3 Quality Assurance Project Plan

A QAPP has been prepared in accordance with DER-10, outlining the quality control components to ensure the proposed remedy achieves the RAOs. The QAPP is provided as Appendix H.

4.1.4 Construction Quality Assurance Plan

A Construction Quality Assurance Plan (CQAP) describes the quality assurance (QA)/quality control (QC) methodologies applied in the field and in the laboratory(ies) to ensure successful performance and implementation of the remedial action. The following CQAP procedures will be implemented to ensure the selected remedy will meet the proposed remedial goals and RAOs in accordance with design specifications:

- The remedial action will be directed by the Remedial Engineer and Carson Voci personnel, with regulatory oversight by NYSDEC and NYSDOH. Carson Voci personnel will direct the remedial contractor during implementation of the remedial action. A list of personnel involved in the implementation of the CQAP and their responsibilities is provided in Section 4.2.1.
- Carson Voci personnel will meet with the remedial contractor superintendent (or equivalent) daily to review the scope of work and schedule for upcoming activities. Additional meetings with Carson Voci, the Applicant, and the remedial contractor will be conducted, as needed.
- Carson Voci personnel will document all remedial activities in a project field book or separate logs and provide daily reports/updates to the Remedial Engineer/QEP. Daily reports will also be submitted to NYSDEC and NYSDOH in accordance with Section 4.4.1.
- Carson Voci personnel will field screen excavated soil in accordance with this RAWP for appropriate soil management. End-point confirmation sampling will be conducted by field personnel under the direct supervision of the Remedial Engineer and/or QEP in accordance with this RAWP. Waste characterization samples will be collected in accordance with the designated receiving facility. All samples will be collected and submitted to the analytical laboratory in accordance with the QAPP.
- Carson Voci personnel and/or the remedial contractor will retain all waste disposal documents (i.e., bills of lading, waste manifests, etc.) and create an electronic table for waste disposal tracking.
- End-point sample locations will be surveyed by a NYS Licensed Surveyor to document the depth and extents of impacted soil removal.

4.1.5 Soil/Materials Management Plan

Soil removal will follow the SMMP provided in Section 6. The SMMP includes detailed plans for managing soils/materials that are disturbed at the Site, including excavation, handling, staging, transport, and disposal, as well as controls that will be applied to these efforts to assure

effective and environmentally protective performance in compliance with applicable federal, state, and local requirements.

4.1.6 Storm Water Pollution Prevention Plan

The two SWPPPs have been prepared for the Site (western and eastern parcels, respectively) in conformance with requirements presented in the *New York State Standards and Specifications for Erosion and Sediment Control*. The SWPPPs are provided in Appendix I.

4.1.7 Community Air Monitoring Plan

A CAMP will be implemented during any ground intrusive activities to conduct monitoring and protection for potential off-site receptors. The CAMP scope of work will include the use of at minimum one downwind air monitoring station and one upwind air monitoring station, each equipped with one PID and one particulate meter. An additional air monitoring station may be placed between the work zone and the nearest downwind residence. As residences exist adjacent to and potentially within 20 feet of the proposed work areas, special requirements will be implemented as applicable. Upwind concentrations will be measured at the start of each workday, and periodically throughout the day, to establish background concentrations. Daily reporting of any exceedances will be provided to NYSDEC and NYSDOH. The results of the CAMP data will be provided to NYSDEC and NYSDOH on a weekly basis. CAMP data results will be included in the FER along with locations of monitoring stations, monitoring equipment, procedures, and contaminant action levels. The NYSDOH *Generic Community Air Monitoring Plan* is included as Appendix D.

4.1.8 Contractor Site Operations Plan

The Remedial Engineer will review all plans and submittals for this remedial project (including those listed above and contractor and subcontractor document submittals) and confirm compliance with this RAWP. The Remedial Engineer is also responsible for ensuring that all future submittals comply with this RAWP. All remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

4.1.9 Citizen Participation Plan

A certification of mailing will be sent by the Participant to the NYSDEC Project Manager following the distribution of all fact sheets and notices that includes: (1) certification and dates the fact sheet(s) were mailed; (2) a copy of the fact sheet(s); (3) a list of recipients (contact list);

and (4) a statement that the repository was inspected on a specific date and that it contained all of applicable project documents.

No changes will be made to approved fact sheets authorized for release by NYSDEC without written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the fact sheet mailing.

The approved *Citizen Participation Plan* for this project is included in Appendix G.

Document repositories have been established at the following locations and contain all applicable project documents:

Greenburgh Public Library
300 Tarrytown Road
Elmsford, New York 07932
(914) 721-8200

Hours:
Sunday and Monday: Closed
Tuesday and Wednesday: 9:30 a.m. – 8:30 p.m.
Thursday through Saturday: 9:30 a.m. – 5 p.m.

In addition, an electronic repository can be accessed via DECInfo Locator at the following link: https://extapps.dec.ny.gov/data/DecDocs/C360239/

4.2 GENERAL REMEDIAL CONSTRUCTION INFORMATION

4.2.1 Project Organization

Primary personnel for implementation of the remedial action include staff of Carson Voci, as the Environmental Consultants. The Environmental Consultants will have primary oversight of all remedial activities implemented at the Site. Subcontractors will be identified upon approval of this RAWP.

The following project personnel are proposed for RAWP implementation:

- NYSDEC Case Manager: Oliver Wolfe
- NYSDOH Case Manager: Renata Ockerby
- Remedial Engineer: Nicholas Krasnecky, P.E.
- Principal/QEP: Chris Voci, P.G.
- Project Manager: Alex Strohl
- Field Personnel: TBD

- Carson Voci Health and Safety Officer: Daren Roth
- Remedial Contractor: TBD

Resumes of key personnel involved in the remedial action are included in Appendix J.

4.2.2 Remedial Engineer

The Remedial Engineer for this project will be Nicholas Krasnecky, P.E. The Remedial Engineer is a registered professional engineer licensed by the state of New York. The Remedial Engineer will have primary direct responsibility for implementation of the remedial program for the Elmwood Preserve Site (NYSDEC BCA Index No. C360239-08-23, Site No. C360239). The Remedial Engineer will certify in the FER that the remedial activities were observed by QEPs under his supervision and that the remediation requirements set forth in this RAWP and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with the RAWP. Other Remedial Engineer certification requirements are listed later in this RAWP.

The Remedial Engineer will coordinate the work of other contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal; air monitoring; emergency spill response procedures; import of back fill material; and management of waste transport and disposal. The Remedial Engineer will be responsible for all appropriate communication with NYSDEC and NYSDOH.

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

The Remedial Engineer will provide the certifications listed in Section 10 in the FER.

4.2.3 Remedial Action Construction Schedule

The proposed remedial action schedule presented below is contingent upon NYSDEC and NYSDOH approval of this RAWP and remedial action tasks by the dates noted below:

Task	Description	Anticipated Dates
1	NYSDEC Approval of RAWP	October 2026
2	Initiate Remedial Action	November 2026
3	Complete Remedial Action	June 2027

A more detailed remedial schedule is provided in Section 11.

4.2.4 Work Hours

The hours for operation of remedial construction will conform to the Town of Greenburgh Building Department construction code requirements or according to specific variances issued by that agency. NYSDEC will be notified by the Participant of any variances issued by the Building Department. NYSDEC reserves the right to deny alternate remedial construction hours.

4.2.5 Site Security

A perimeter fence exists around the property boundary. An evaluation of the site security of the fence will be conducted, and the fence upgraded, repaired, and maintained as required. Entrances to the Site will be secured at the end of each workday.

4.2.6 Traffic Control

Site traffic will enter through the gated entrances on Dobbs Ferry Road and Landers Road. The access points will be monitored, with flag services and cones provided as needed to ensure safe entry to and exit from the Site. Traffic will adhere to applicable local, state, and federal rules and regulations.

More details regarding traffic control and truck routes are presented in Section 6.1.4.

4.2.7 Contingency Plan

The remedial alternative selected for the Site is a Track 2 remedy to allow future use as single-family housing. A contingency plan is not considered for this Site and selected cleanup, as the proposed future Site use would not be allowed under a less-stringent cleanup track.

4.2.8 Worker Training and Monitoring

Site workers will be required, at a minimum, to have completed Hazardous Waste Operations and Emergency Response (HAZWOPER) site safety and medical monitoring training in accordance with 29 CFR § 1910.120.

4.2.9 Agency Approvals

The Participant has addressed all State Environment Quality Review Act requirements for this Site. All permits or government approvals required for remedial construction have been, or will be, obtained prior to the start of remedial construction.

The planned end use for the Site is in conformance with the current zoning for the property as determined by the Westchester County Department of Planning. A Certificate of Completion will not be issued for the project until conformance with zoning designation is demonstrated.

A complete list of all federal, state, and local governmental permits, certificates or other approvals or authorizations required to perform the remedial and development work is attached in Table 10. This list includes a citation of the law, statute, or code to be complied with, the originating agency, and a contact name and phone number for that agency. This list will be updated in the FER.

All planned remedial or construction work in regulated wetlands and adjacent areas will be specifically approved by the NYSDEC Division of Fish and Wildlife to ensure that it meets the requirements for substantive compliance with those regulations prior to the start of construction. Nothing in the approved RAWP or its approval by NYSDEC should be construed as an approval for this purpose.

4.2.10 NYSDEC BCP Signage

A project sign is not anticipated to be installed at the Site.

4.2.11 Pre-Construction Meeting with NYSDEC

A pre-construction meeting with NYSDEC will take place prior to the initiation of any major remedial activities or as required by the NYSDEC.

4.2.12 Emergency Contact Information

An emergency contact sheet with names and phone numbers is included in the HASP (Appendix K). 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 total estimated cost of the remedial action is $10,800,000. An itemized and detailed summary of estimated costs for all remedial activity is attached as Appendix B. This will be revised based on actual costs and submitted as an Appendix to the FER.

4.3 SITE PREPARATION

4.3.1 Mobilization

Mobilization will be conducted as necessary for each phase of work at the Site. Mobilization includes field personnel orientation; equipment mobilization; marking excavation areas, sampling locations, and injection points; and utility mark-outs.

4.3.2 Monitoring Well / Vapor Probe Decommissioning

Existing groundwater monitoring and irrigation wells will either be protected during remediation and development for use in post-remedial monitoring or will be properly decommissioned in accordance with NYSDEC Commissioners Policy CP-43. The only exception to this is if the full length of the well is to be excavated during remediation.

Similarly, existing soil-vapor probes will be properly decommissioned unless they are to be fully removed during remediation or used for post-remedial monitoring. Any groundwater well or soil-vapor probe decommissioning will be documented in the FER.

4.3.3 Erosion and Sedimentation Controls

Soil erosion and sediment control measures for management of storm water will be installed as necessary in accordance with the NYS *Guidelines for Urban Erosion and Sediment Control* and Site BMPs. The anticipated BMPs to be installed include straw/haybales, coir wattles, and/or silt fences surrounding the excavation areas and within the Site perimeter fencing, as needed, to control stormwater and surface water runoff at areas of ground disturbance and stockpiles. These control measures will be installed prior to initiating soil excavation.

4.3.4 Stabilized Construction Entrance(s)

A stabilized construction entrance will be installed at the locations shown on Figure 12. No vehicles entering or exiting the Site are expected to come in contact with contaminated soils/material, except for the inside of the dump box or roll-off container. A decontamination area will be utilized to remove any soil/material observed on trucks prior to departure from the Site. Measures will be taken to keep the Site pavement free of soil, and within the vicinity of the excavation areas only.

4.3.5 Utility Marker and Easements Layout

The Participant and its contractors are solely responsible for the identification of utilities that might be affected by work under the RAWP and implementation of all required, appropriate, or necessary health and safety measures during performance of work under this RAWP. The Participant and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The Participant and its 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 has been investigated by the Remedial Engineer. It has been determined that no risk or impediment to the planned work under this RAWP is posed by utilities or easements on the Site.

Proper safety and protective measures pertaining to utilities and easements, and compliance with laws and regulations, will be employed during invasive and other work contemplated under this RAWP, including at minimum the use of the One-Call System (811).

4.3.6 Sheeting and Shoring

No sheeting or shoring is anticipated to be required for implementation of the remedial action. Should sheeting and shoring be determined to be necessary, appropriate management of structural stability of off-site structures during on-site activities, including on-site excavation, is the sole responsibility of the Participant and its contractors. The Participant and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The Participant and its contractors must obtain any local, state, or federal permits or approvals that may be required to perform work under this RAWP. Further, the Participant and its contractors are solely responsible for the implementation of all required, appropriate, or necessary health and safety measures during performance of work under the approved RAWP.

4.3.7 Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that complies with applicable laws, guidelines, and regulations. The location of the proposed equipment staging area and MSAs will remain on Site. It is anticipated that the equipment staging area and MSAs will be constructed and remain in place for the duration of remediation on the associated Parcel. Proposed locations of the equipment staging areas and MSAs are provided on Figure 12.

4.3.8 Decontamination Area

A decontamination area will be set up at the exit of the MSA for all personnel and outbound soil disposal transport trucks and vehicles, as the construction haul road and equipment staging areas between the MSA and the site entrance are to be clean areas. All personnel, transport trucks, and vehicles will be examined for evidence of contaminated media to be decontaminated and/or removed prior to leaving the MSA. Decontamination not expected to create fugitive dust (i.e. larger soil clumps, wet or moist soils, soils trapped in tracks or tires, etc.) will be conducted via "dry" methods for removal from personnel protective equipment, vehicles, and equipment, as necessary, using stiff-bristled brushes, brooms and scraping with hand tools (i.e. shovels) as appropriate.

A wet truck and equipment wash consisting of pressure washers with telescoping wands and/or closed loop truck wash pads and systems will be implemented at the exit of the MSA. The washes of trucks and equipment will be conducted in a controlled manner with appropriate containment to capture soils and wash/rinse water for proper management and off-site disposal, if required.

Additional portable wet decontamination of equipment will be set-up as needed should equipment need to move from an impacted area to a clean area.

Personnel wet decontamination will consist of a designated zone equipped with wash stations and brushes between clean and/or remediated zones and impacted areas. Site workers will be required to follow decontamination procedures before exiting the exclusion zone.

Any material removed during decontamination will be collected and transported to a suitable stockpile within the MSA for off-site disposal. Water generated during decontamination efforts will be properly stored and contained, sampled, and disposed of off-site at an appropriate facility.

4.3.9 Site Fencing

A perimeter fence exists around the property boundary. The fence will be maintained as required and secured at the end of each workday. Additional orange construction fencing or equivalent will be installed as deemed necessary for the safety of the on-site workers.

4.3.10 Demobilization

Demobilization will include:

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

- As necessary, removal of temporary access areas (whether on 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.

All equipment used on Site will be decontaminated and demobilized at the completion of all field activities. Investigation equipment and large equipment (e.g., soil excavators) will be decontaminated in the decontamination area as necessary prior to exiting the Site. All investigation- and remediation-derived waste will be appropriately disposed.

4.4 REPORTING

Reporting of the implementation of the RAWP will be conducted in accordance with the following subsections. All daily and monthly reports will be included in the FER.

4.4.1 Daily Reports

Daily reports summarizing the previous day's *active remedial work* will be submitted to NYSDEC and NYSDOH Project Managers by the end of the following day and will include:

- An update of progress made during the reporting day;
- Locations of work and quantities of material imported and exported from the Site;
- References to an alpha-numeric map for Site activities;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP findings, including excursions;
- Photographs of site activities; and
- An explanation of notable Site conditions.

The frequency of the reporting period may be revised in consultation with the NYSDEC Project Manager based on planned project tasks. 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 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 CAMP results, odor and dust excursions and corrective actions, and all complaints received from the public.

A Site map that shows a predefined alpha-numeric grid for use in identifying locations described in reports submitted to NYSDEC is attached on Figure 17.

The NYSDEC assigned project number will appear on all reports.

4.4.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers by the 10th day of each month following the reporting period and will include:

- 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 (e.g., tons/cy of material 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.

Tracking of GSR metrics determined during the design process should be included in monthly reports.

4.4.3 Other Reporting

Photographs will be taken of all remedial activities and submitted to NYSDEC in digital (JPEG) format. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the Site prior to any remedial actions will be provided. Representative photos will be provided of each contaminant source, source area and Site structures before, during and after remediation. Photos will be included in the daily reports as needed, and a comprehensive collection of photos will be included in the FER.

Progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the FER, including a comparison to the goals established during the remedial program. Regular updates to the metrics used (SEFA, SiteWise™, or otherwise approved method) should be included.

The climate screening process and results will be documented in the form of a completed checklist and brief letter report. If the climate screening results indicate that a Climate Vulnerability Assessment (CVA) is necessary, a complete CVA report will be developed. The CVA report will be included as an appendix or attachment in relevant documents and/or submitted as a standalone report.

Job-site record keeping for all remedial work will be appropriately documented. These records will be maintained on Site at all times during the project and be available for inspection by NYSDEC and NYSDOH staff.

4.4.4 Complaint Management Plan

All citizen complaints will be promptly reported to NYSDEC and addressed, as needed, based on the complaint. Notices to NYSDEC, reported as part of the daily reports, will include the nature of the complaint, the party providing the complaint, and the actions taken to resolve any issues.

4.4.5 Deviations from the Remedial Action Work Plan

Any significant and material deviations from the RAWP will be presented to the NYSDEC Project Manager for approval prior to implementation and will be documented in the daily reports and in the FER. Minor deviations that do not alter the overall scope of work presented in the RAWP will be approved by the Remedial Engineer and documented in the daily reports and in the FER.

The process for presenting significant and material deviations to the RAWP will include a request for approval for the changes from NYSDEC including following:

- Reasons for deviating from the approved RAWP;
- Approval process to be followed for changes/editions to the RAWP;
- Determination that the remedial action with the deviation(s) is protective of public health and the environment in the area; and
- Effect of the deviations on overall remedy.

5.0 REMEDIAL ACTION: MATERIAL REMOVAL FROM SITE

The remedial alternative selected for the Site is the Track 2 cleanup. The Track 2 alternative will involve excavation and off-site disposal of soils above RSCOs in the western parcel and the eastern parcel, and soils exceeding the PEcoSCOs in the upper 2-feet within the wetlands and

associated buffer zones, as shown on Figures 6a through 6f. Additional details regarding volume and removal methods is discussed in Section 3.2.

End-point samples will be collected at each excavation grid as detailed in Section 5.2. The QAPP, included as Appendix H, describes the proposed sampling, handling, and analytical methods for remedial activities involving soil removal.

5.1 SOIL CLEANUP OBJECTIVES

The SCOs for the selected Track 2 remedial alternative are the RSCOs for the western parcel and eastern parcel to a depth of 15 feet bgs or top of bedrock, whichever is shallower, and meet the PEcoSCOs for the upper 2-feet of soils within the wetlands and associated buffer zones in the western parcel listed in Tables 2a, 2b, and 2c. Tables 2a, 2b, and 2c summarize all soil samples that exceed the SCOs proposed for this remedial action. A spider map denoting all soil samples that exceed the SCOs proposed for this remedial action is shown on Figures 6a through 6f.

The cleanup objectives for the pond sediment for the selected Track 2 remedial alternative are the FW Class A SGVs listed in Table 7. Table 7 summarizes all sediment samples that exceed the FW Class A SGVs proposed for this remedial action. A spider map denoting all soil samples that exceed the FW Class A SGVs proposed for this remedial action is shown on Figure 10.

Soil and materials management on Site will be conducted in accordance with the SMMP described in Section 6.

5.2 REMEDIAL PERFORMANCE EVALUATION (POST EXCAVATION END-POINT SAMPLING)

In accordance with DER-10, alternate end-point sampling frequencies and methodologies can be proposed for large sites or excavations, of which this Site and proposed remedial action applies. As detailed in the RIR, and Sections 2.5, 2.6, and 3.2 of this RAWP, the source of the soil contamination is from surficial HAP and historical fill at the Site. Based on an understanding of the physical and chemical properties of the low-mobility contaminants in HAPs and how they interact with soils as a relatively homogenous and surficial application, investigation, remediation, and post remediation sampling best practices can be developed and implemented.

Consistent with other HAP sites, RI data indicate a relatively homogenous contaminant distribution across the Site, with the most COPC impacts above applicable SCOs occurring in the upper 0.5 feet of soil. Where impacts extended deeper, COPC concentrations were generally below applicable SCOs by 2 feet bgs. Areas impacted by historical fill exhibit similar physical and chemical characteristics (i.e., low-mobility contaminants) and generally demonstrated

vertical delineation once a compliant sample is collected below the fill; therefore, these areas will be treated the same as the HAP areas for end-point sampling.

5.2.1 End-Point Sampling Frequency

Based on the RI findings and the well-defined nature and source of the contamination at the Site, end-point sampling will be conducted at the following frequency:

1. One base sample for every 5,000 square feet of excavated area.
2. One sidewall sample for every 75 linear feet of sidewall, with a minimum of one sample collected from each sidewall.
3. For excavated areas within the proposed residential development, additional base samples will be collected within each residential lot to meet a frequency of one sample for every 2,500 square feet, up to a maximum of nine soil samples per residential lot.
4. For grids containing an excavation area extending deeper than 0.5 feet one additional deeper sample will be collected from the grid, either at the center of each grid consistent with the RI sampling location or from the base of the deepest portion of the excavation within that grid. The deeper sample will be collected at a depth of 2 to 2.5 feet below the base of the excavation, or the top of bedrock if encountered first.

As detailed in DER-10, Section 5.4(b)5.v, smaller excavations extending to a deeper depth within a grid will be considered a separate excavation and sampled in accordance with the frequency stated above. End-point sampling conducted in grids that contain a portion of the wetlands buffer zone but no sample within the zone (i.e., I05, H08, I09, and H09), will at minimum include one sample collected within the wetlands buffer zone to confirm soils meet the PEcoSCOs.

The selected frequency is sufficient to confirm removal of all soils exceeding applicable SCOs and to ensure protection of public health and the environment.

5.2.2 Methodology

End-point soil and sediment samples will be collected from the locations identified in Section 5.2.1 and as depicted on Figures 15a thru 15f at the following intervals:

- Base Samples – Collected from the 0 to 0.5 feet bgs from the base of the excavation.
- HAP Excavation Sidewall Samples – Collected from each 0.5 foot interval of the exposed sidewall (i.e. a 1-foot deep sidewall would have samples collected from 0 to 0.5 and 0.5 to 1 feet). In instances where the proposed excavation extends deeper than 1 foot, samples below 1 foot will be collected from each 1-foot interval of the

exposed sidewall (i.e. a 3-foot deep sidewall would have samples collected from 0 to 0.5, 0.5 to 1, 1 to 2, and 2 to 3 feet).

- Fill Excavation Sidewall Samples – Collected from the top of the sidewall (surface soil) and one from the bottom of the sidewall (subsurface soil).
- Deeper Soil Samples – Soil borings advanced by hand auger or direct push methods and collected from the vertical interval of 2 to 2.5-feet below the base of the excavation or the 0.5-foot soil interval above bedrock refusal if encountered first.

Each end-point sample will be analyzed for the COPCs identified in the RIR, based on the areas described in Section 3.2.4, as follows:

- HAP Impacted Areas (including the pond sediment)
    - TCL pesticides using EPA Method 8081B/8151A
    - TAL metals using EPA Method 6010
- Historical Fill Impacted Areas
    - TCL SVOCs using EPA Method 8270C
    - TCL pesticides using EPA Method 8081B/8151A
    - TAL metals using EPA Method 6010
    - TCL PCBs using EPA Method 8082A at Grids F02 and TS-11

Full-suite analysis will be performed on all deeper soil samples and a portion of post-excavation end-point base and Site perimeter sidewall samples to total 20 percent of end-point samples run for full-suite analysis. Each residential lot will have at minimum, one post-excavation end-point sample analyzed for full-suite analysis. Full-suite analysis includes the following analyses:

- TCL VOCs using EPA Method 8260C/D, with representative total solids analysis via EPA Method SM2540G;
- TCL SVOCs via EPA Method 8270C;
- TCL pesticides/herbicides;
- TCL polychlorinated biphenyls;
- Total Analyte List metals (including hexavalent chromium, trivalent chromium, and total cyanide); and
- Emerging contaminants including 1,4-dioxane and PFAS using EPA Methods 8270E-SIM and 1633A, respectively.

Full-suite analysis will not be performed on interior post-excavation sidewall samples, as these samples are to be collected to confirm the removal extent of identified contaminants of concern. End-point samples will be collected in accordance with the procedures detailed in the QAPP, with the aliquot for each analytical parameter homogenized and placed in a laboratory-provided glass sample jar and immediately placed on ice. One sample will be collected from each of the proposed end-point sampling locations. Samples will be submitted to a NYSDOH ELAP certified laboratory for analysis of the specified parameters in accordance with holding times and chain-of-custody procedures.

5.2.3 Reporting of Results

The preliminary end-point sampling results (i.e., prior to third-party data validation) will be shared with NYSDEC and NYSDOH upon receipt, either within daily or monthly reports or under separate cover. The QAPP designated QA officer will review the analytical laboratory results and report narrative to confirm all holding times and general laboratory QA/QC components were met prior to providing the data to NYSDEC and NYSDOH. With NYSDEC and NYSDOH concurrence, preliminary end-point sampling results meeting hold times and general laboratory QA/QC requirements that are below applicable SCOs will be used to confirm excavated areas have been remediated. When the data-usability summary report prepared by the third-party data validator indicates non-usable data, the area considered to be remediated will be revisited and addressed, as needed.

Analytical results will be provided with NYS Analytical Services Protocol Category B deliverables. All data will be submitted to NYSDEC in electronic format in accordance with DER-10, Section 1.15.

5.2.4 Quality Assurance / Quality Control

QA/QC samples, including field duplicates and field blanks, shall be collected in accordance with the QAPP. Blind duplicates will be collected at a frequency of 1 blind duplicate per 20 samples. Field blanks will be collected at a frequency of once per day. A laboratory-prepared trip blank will be provided and analyzed alongside field samples collected for VOC analysis. Details regarding sampling methods and analyses are provided in the QAPP (Appendix H).

5.2.5 Data Usability Summary Reports and Electronic Data Deliverables

NSY Analytical Services Protocol Category B deliverables will be reviewed and validated by a third-party data validator who will prepare a data-usability summary report for each deliverable. Verification, documentation, and/or performance monitoring samples collected

under this RAWP will be reviewed and evaluated in accordance with the *Guidance for the Development of Data Usability Summary Reports* as presented in Appendix 2B of DER-10. The completed data usability summary reports will be included in the FER.

5.2.6 Reporting of End-Point Data in FER

End-point sampling, including bottom and sidewall sampling, will be performed in accordance with the sample frequency detailed in Section 5.2.1. Sidewall samples will be collected a minimum of every 75 linear feet. Bottom samples will be collected at a rate of one for every 5,000 square feet from the base of the remedial excavation. For excavated areas within the proposed residential development, one base sample will be collected for every 2,500 square feet, up to a maximum of nine soil samples per residential lot. Deeper end-point soil samples will be collected at a frequency of one per grid for excavations that extend deeper than 0.5 feet.

The FER will provide a tabular and map summary of all end-point sample results and exceedances of SCOs. Chemical laboratories used for all end-point sample results and contingency sampling will be NYSDOH ELAP certified.

5.3 ESTIMATED MATERIAL REMOVAL QUANTITIES

The estimated quantity of soil/fill to be removed from the Site to meet the applicable SCOs presented in Section 5.1 is 112,000 cy, which is approximately 145,600 tons at an estimated 1.3 tons per cy.

The estimated quantity of soil for import (backfill/cover) and on-site reuse/relocation is 0 cy.

Figure 13 shows the horizontal and vertical extents of the proposed excavation(s), including cut and fill depths with elevation contours.

6.0 SOIL/MATERIALS MANAGEMENT PLAN

Soil removal will follow the SMMP, which details plans for managing soils/materials that are disturbed at the Site, including excavation, handling, storage, transport, and disposal, and controls that will be applied for effective and environmentally protective performance in compliance with applicable federal, state, and local requirements. Containment source removal areas will be surveyed at the completion of excavation. This information will be provided on plans in the FER.

6.1.1 Soil Screening Methods

Visual, olfactory, and PID soil screening and assessment will be performed by a QEP or experienced field geologist under the direction of the Remedial Engineer during all remedial and development excavations into known or potentially contaminated material.

All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site characterization, RI, and remedial action will be surveyed by a NYS Licensed Surveyor. This information will be provided on maps in the FER.

Screening will be performed by QEPs. Resumes will be provided for all personnel responsible for field screening (e.g., those representing the Remedial Engineer) of invasive work for unknown contaminant sources during remediation and development work.

6.1.2 Stockpile Methods

All excavated soil will be loaded and transported to the MSA at the southwestern portion of the Site where it will be stockpiled, managed, and loaded for off-site disposal. Soil will be stockpiled on plastic sheeting and covered by tarps or other means when not in use. Whenever possible, dump trucks will be scheduled and made available to load stockpiles approved by the receiving facility(ies). Appropriate procedures and measures will be taken whenever stockpiling excavated soil on Site.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook maintained at the Site and available for inspection by NYSDEC. At a minimum, a storm event should be considered a rainfall of 3 inches or greater in 12 hours. Judgement should be used to evaluate water infiltration, nearby waterbodies where runoff is likely, and ECs that may be affected.

Soil stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Soil stockpiles will be continuously encircled with silt fences. Hay bales will be used as needed near catch basins, surface waters, and other discharge points.

Water will be available on Site at suitable supply and pressure for use in dust control.

6.1.3 Materials Excavation and Load Out

The Remedial Engineer or designated QEP will oversee all invasive work and the excavation and load-out of all excavated material.

The Participant and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP.

The presence of utilities and easements on the Site has been investigated by the Remedial Engineer. It has been determined that no risk or impediment to the planned work under this RAWP is posed by utilities or easements on the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate federal, state, local, and NYS Department of Transportation requirements (and all other applicable transportation requirements).

Vehicles leaving the Site will not be overloaded. The Remedial Engineer's representative will make reasonable efforts to ensure that vehicles are not loaded beyond their NYS Department of Transportation weight rating and all material is secured beneath the truck bed cover.

The Remedial Engineer will be responsible for ensuring that all outbound trucks will be decontaminated and free of soil before leaving the Site until the remedial construction is complete.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-site sediment tracking.

The Remedial Engineer will be responsible for ensuring that all egress points for truck and equipment transport from the Site will be clean of dirt and other materials derived from the Site during Site remediation and development. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

The Participant and associated parties preparing the remedial documents submitted to NYS, and parties performing this work, are completely responsible for the safe performance of all invasive work and the structural integrity of excavations.

The Remedial Engineer will ensure that Site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this RAWP.

Each hotspot and structure to be remediated (USTs, vaults and associated piping, transformers, etc.) will be removed and end-point remedial performance sampling completed before excavations related to Site development commence proximal to the hotspot or structure.

Development-related grading cuts and fills will not be performed without NYSDEC approval and will not interfere with, or otherwise impair or compromise, the performance of remediation required by this RAWP.

Mechanical processing of historical fill and contaminated soil on Site is prohibited.

All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site characterization, RI, and remedial action will be surveyed by a NYS Licensed Surveyor. The survey information will be shown on maps to be reported in the FER.

6.1.4 Materials Transport Off-Site

All transport of materials will be performed by licensed haulers using properly placarded trucks in accordance with appropriate local, state, and federal regulations, including 6 NYCRR Part 364.

Truck transport routes are provided on Figure 18. All trucks loaded with Site materials will exit the vicinity of the Site using only these approved truck routes.

Proposed in-bound and out-bound truck routes to the Site are shown on Figure 18. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city-mapped truck routes; (c) minimizing off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; (f) overall safety in transport; and (g) community input, where necessary.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development. Queuing of trucks will be performed on Site in order to minimize off-site disturbance. Off-site queuing will be minimized as much as possible.

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas or mesh truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be inspected and any soil removed by dry decontamination methods, collected, and transported to the stockpiles in the MSA.

6.1.5 Materials Disposal Off-Site

The disposal locations will be established prior to initiating remedial activities Once established, disposal locations will be reported to the NYSDEC Project Manager.

The total quantity of material expected to be disposed off Site is 112,000 cy.

All soil/fill/solid waste excavated and removed from the Site will be treated as contaminated and regulated material and disposed in accordance with all local, state (including 6 NYCRR Part 360), and federal regulations. If soil/fill from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be

made to NYSDEC's Project Manager. Unregulated off-site management of materials from this Site is prohibited without formal NYSDEC approval.

Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a NYS recycling facility (6 NYCRR Part 360.15 Registration Facility).

The following documentation will be obtained and reported by the Remedial Engineer for each disposal location used in this project to fully demonstrate and document that the disposal of material derived from the Site conforms with all applicable laws: (1) a letter from the Remedial Engineer or BCP Participant to the receiving facility describing the material to be disposed and requesting formal written acceptance of the material. This letter will state that material to be disposed is contaminated material generated at an environmental remediation Site in NYS. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported (including Site characterization data), and a letter from all receiving facilities stating it is in receipt of the correspondence (above) and is approved to accept the material. These documents will be included in the FER.

Non-hazardous historic fill and contaminated soils taken off Site will be handled, at minimum, as municipal solid waste per 6 NYCRR Part 360.2. The Remedial Engineer is responsible for assuring material is properly characterized and determining the appropriate disposal methods based on the characterization results.

Historical fill and contaminated soils from the Site are prohibited from being disposed at 6 NYCCR Part 360.15 Registration Facilities (also known as Soil Recycling Facilities).

Soils that are contaminated but non-hazardous and are being removed from the Site are considered by the NYSDEC Division of Materials Management (DMM) to be Construction and Demolition (C/D) materials with contamination not typical of virgin soils. These soils may be sent to a 6 NYCRR Part 360 permitted landfill. They may be sent to a permitted C/D processing facility without permit modifications only upon prior notification of NYSDEC DMM. This material is prohibited from being sent or redirected to a 6 NYCRR 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 facility that provides a detailed explanation that the material is derived from a DER remediation Site, that the soil material is contaminated and that it must not be redirected to on- or off-site soil recycling facilities. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported.

The FER will include an accounting of the destination of all material removed from the Site during this remedial action, including excavated soil, contaminated soil, historic fill, solid waste,

and hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. This information will also be presented in a tabular form in the FER.

A bill of lading system or equivalent will be used for off-site movement of non-hazardous wastes and contaminated soils. This information will be reported in the FER.

Hazardous wastes derived from on Site will be stored, transported, and disposed of in full compliance with applicable local, state, and federal regulations.

Appropriately licensed haulers will be used for material removed from this Site and will be in full compliance with all applicable local, state, and federal regulations.

Waste characterization sampling will be performed exclusively for the purposes of off-site soil disposal in a manner suitable to receiving facilities and in conformance with applicable federal, state, and local laws rules and regulations and facility-specific permits. Sampling and analytical methods, sampling frequency, analytical results and QA/QC associated with waste characterization activities will be reported in the FER. All data available for soil/material to be disposed at a given facility must be submitted to the disposal facility with suitable explanation prior to shipment and receipt. Waste characterization data will be used solely for complying with requirements for off-site disposal. Waste characterization sampling cannot be utilized for:

- Delineating the extent of contamination required for remediation at a Site.
- Replacing or substituting data collected as part of Site characterization and/or RI.
- Replacing or substituting confirmation or documentation sampling as described in DER-10, Section 5.4.
- To modify remedial decisions as formalized in a NYSDEC approved Decision Document or Record of Decision.

6.1.6 Materials Reuse On-Site

Reuse of Site soils is anticipated as part of the selected remedy.

On-site material for reuse will meet the RSCOs in the Western Parcel and the Eastern Parcel. On-site material for reuse within the wetlands buffer zones in the Western Parcel will meet the PEcoSCOs. Material will be analyzed in accordance with DER-10, Table 5.4(e)10, and compared applicable SCOs and submitted to NYSDEC for review/approval prior to being reused as backfill. The Remedial Engineer will ensure that procedures defined for materials reuse in this RAWP are followed and that unacceptable material will not remain on Site.

A “Request to Import/Reuse Fill Material” form will be filed with the NYSDEC Project Manager for review and approval prior to material reuse on the Site. A copy of the form is

presented in Appendix L. Acceptable demolition material proposed for reuse on Site, if any, will be sampled for asbestos.

Concrete crushing or processing on Site is prohibited, unless NYSDEC has specifically approved on-site processing and reuse of acceptable demolition material.

Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site is further discussed in Section 3.2.2.2.

6.1.7 Fluids Management

Dewatering is not anticipated to be required to facilitate the proposed remediation. If dewatering is conducted, all liquids that cannot be managed on-site will be removed from the Site, including dewatering fluids, and will be handled, transported, and disposed in accordance with applicable local, state, and federal regulations.

Discharge of water generated during remedial construction to surface waters (i.e., a local pond, stream, river and/or storm sewer) is prohibited without a State Pollutant Discharge Elimination System permit.

6.1.8 Demarcation

After the completion of soil removal and any other invasive remedial activities and prior to backfilling, a land survey will be performed by a NYS Licensed Surveyor. The survey will define the final elevation of the remedial excavations. A map showing the survey results will be included in the FER.

6.1.9 Backfill from Off-Site Sources

All materials proposed for import onto the Site will be approved by the Remedial Engineer and will be in compliance with provisions in this RAWP prior to receipt at the Site.

Material from industrial, spill, other environmental remediation or potentially contaminated sites will not be imported to the Site. Solid waste will not be imported onto the Site.

The FER will include the following certification by the Remedial Engineer: “I certify that all import of soils from off Site, including source evaluation, approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan.”

All imported soils will meet NYSDEC approved backfill or cover soil quality objectives for this Site. These NYSDEC approved backfill or cover soil quality objectives are the lower of the protection of groundwater or the protection of public health SCOs for residential use as set forth

in Table 375-6.8(b) of 6 NYCRR Part 375. Non-compliant soils will not be imported onto the Site without prior approval by NYSDEC. Nothing in the approved RAWP or its approval by NYSDEC should be construed as an approval for this purpose.

Soils that meet 'general fill' requirements under 6 NYCRR Part 360.13, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Nothing in this RAWP should be construed as an approval for this purpose.

A "Request to Import/Reuse Fill Material" form will be filed with the NYSDEC Project Manager for review and approval prior to import to the Site. A copy of the form is presented in Appendix L.

6.1.10 Stormwater Pollution Prevention

Erosion and sediment controls shall be installed in accordance with the SWPPPs. Straw/haybales, coir wattles, and/or silt fence will be installed around the entire perimeter of the remedial excavation and soil loading area. Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the RAWP shall be observed to ensure that they are operating correctly. 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.

Silt fencing or hay bales will be installed around the entire perimeter of the remedial construction area.

6.1.11 Contingency Plan

If USTs or other previously unidentified contaminant sources are found during on-site remedial excavation- or development-related construction, sampling will be performed on product, sediment and surrounding soils, etc. in accordance with DER-10. Chemical analytical work will be for full scan parameters (TAL metals; TCL VOCs and SVOCs, TCL pesticides, PCBs, and PFAS). Analyses will not be otherwise limited without NYSDEC approval.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to NYSDEC's Project Manager. These findings will be also included in daily and periodic electronic media reports.

6.1.11.1 Extreme Storm Preparedness and Response Contingency Plan

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of construction materials and equipment, and dislocation of support of excavation structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures, and cause downed power lines, creating dangerous Site conditions and loss of power. In anticipation of emergency conditions caused by an extreme storm event, the Participant will undertake the following steps for Site preparedness and response prior to and after the event, respectively.

Storm Preparedness

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; loose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and generators will be removed from excavated areas, trenches, and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the Site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; and stormwater management systems will be inspected and fortified, including, as necessary: clean and reposition silt fences, hay bales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

Storm Response

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A site inspection report will be submitted to NYSDEC at the completion of site inspection and after the site security is assessed. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. Damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment will be reported to public safety authorities via appropriate means, such as calling 911.

Petroleum spills will be reported to NYSDEC within 2 hours of identification and consistent with state regulations. Public safety structures, such as construction security fences, will be repaired promptly to eliminate public safety threats. Debris will be collected and removed.

Dewatering will be performed in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. Support of excavation structure will be inspected and fortified, as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Stormwater control systems and structures will be inspected and maintained, as necessary.

If soil or fill materials are discharged off Site to adjacent properties, property owners and NYSDEC will be notified, and corrective measure plan designed to remove and clean dislocated material will be submitted to NYSDEC and implemented following approval by NYSDEC and granting of Site access by the property owner. Impacted off-site areas may require characterization based on Site conditions, at the discretion of NYSDEC.

If on-site petroleum spills are identified, a QEP will determine the nature and extent of the spill and report to NYSDEC's spill hotline at (800) 457-7362 within statutory defined timelines. If the source of the spill is ongoing and can be identified, it should be stopped if this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYSDEC.

Storm Response Reporting

A site inspection report will be submitted to NYSDEC at the completion of site inspection. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. The site inspection report will be sent to the NYSDEC Project Manager and will include the site name, address, tax block and lot, and site primary and alternate contact name and phone number.

Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the Site was dislocated and whether any of the soil left the Site; estimates of the volume of soil that left the Site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial or construction program, such as damage to the support of excavation; presence of on- or off-site exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYSDEC; description of corrective actions; and schedule for corrective actions.

This report should be completed and submitted to NYSDEC Project Manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

6.1.12 Community Air Monitoring Plan

Real-time air monitoring for VOCs and particulate levels at the perimeter of the exclusion zone or work area will be performed in accordance with the CAMP provided as Appendix D. As residences exist adjacent to and potentially within 20 feet of the proposed work areas, special requirements will be implemented as applicable.

Continuous air monitoring will be required during ground intrusive activities and other activities where equipment is disturbing the ground surface. Ground-intrusive activities include but are not limited to soil/fill excavation and handling, test pitting or trenching, grading of existing Site soils, and installation of soil borings/monitoring wells.

Periodic monitoring for VOCs and particulates will be required during non-intrusive activities, such as collection of soil/sediment samples. Periodic monitoring during sample collection would generally consist of taking a reading upon arrival at a sample location, monitoring while overturning soil, and taking a reading prior to leaving a sample location.

VOCs will be monitored at the Site perimeter on a continuous basis during excavation activities unless otherwise specific in the CAMP. Upwind concentrations will be measured at the start of each working day and periodically thereafter to establish background conditions, particularly if wind direction changes during the day. The VOC monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels exceeding 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors will be identified, corrective actions will be taken to abate emissions, and monitoring will be continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the exclusion 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 over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shut down until the source of the problem is identified and corrective action is taken to reduce organic vapor levels.
4. Fifteen-minute readings will be recorded and be available for state (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.
5. Particulate concentrations will be monitored at the Site perimeter and in work zones on a continuous basis during excavation and injection activities. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. Visible dust from the work area will trigger the initiation of dust suppression procedures. Dust suppression equipment will be on Site, functional, and available at the work zone prior to commencing work at the Site.
6. If the downwind PM-10 particulate level is 100 micrograms per cubic meter ($\mu g/m^3$) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the work area.
7. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 $\mu g/m^3$ above the upwind level, work will be stopped, and a re-evaluation of activities initiated. Work will resume if dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

Additional CAMP requirements may need to be met depending on the location and timing of ground intrusive activities. When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices may be considered to prevent

exposures related to the work activities and to control dust and odors. The following additional activities will be implemented:

1. Additional air monitoring stations will be installed as needed if any ground intrusive work takes place within 20 feet of an occupied property.
2. If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 µg/m3 , work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 µg/m3 or less at the monitoring point. Readings will be recorded and available for NYSDEC and NYSDOH personnel to review. A map showing the location of the sampling stations will be provided with each CAMP, based on the location of daily work activities and wind direction. Exceedances observed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers and included in the daily report.

6.1.13 Odor, Dust and Nuisance Control Plan

Dust, odor, and nuisance control will be accomplished by the Participant as described in this section. The FER will include the following certification by the Remedial Engineer: "I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology defined in the Remedial Action Work Plan."

6.1.13.1 Odor Control Plan

Odors are not anticipated to be generated during remedial activities as none of the contaminants to be remediated are volatile compounds. Should nuisance odors be generated, an odor control plan will be enacted 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 odor of VOC source areas, as necessary. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project. Implementation of all odor controls, including the halt of work, will be the responsibility of the Participant's Remedial Engineer, who is responsible for certifying the FER.

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

Where odor nuisances have developed during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided due to on-site conditions or proximity to sensitive receptors, odor control will be achieved by sheltering excavation and handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

6.1.13.2 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 a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon 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 soils 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.

6.1.13.3 Other Nuisances

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

A plan will be developed and utilized by the contractor for all remedial work and will conform, at a minimum, to NYCDEP noise control standards.

7.0 RESIDUAL CONTAMINATION

No residual contamination will remain at the Site upon completion of the remediation, as the proposed future use of the Site as single-family housing does not allow for ICs or ECs.

8.0 ENGINEERING AND INSTITUTIONAL CONTROLS

As no residual contamination will remain at the Site upon completion of a Track 2 residential use remediation, an environmental easement (EE) or site management plan (SMP) is not anticipated to be required. In the absence of an EE or SMP, local use restriction Chapter 873, Article VII, of the Laws of Westchester County that prohibits potable use of groundwater without prior approval may be relied on to prevent the ingestion of groundwater.

9.0 FINAL ENGINEERING REPORT

The FER will be submitted to NYSDEC following implementation of the remedial action defined in this RAWP. The FER provides the documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all material removed from the Site including the surveyed map(s) of all sources. The FER will include as-built drawings for all constructed elements, calculation and manufacturer documentation for treatment systems, certifications, manifests, and bills of lading, as well as the complete SMP. The FER will provide a description of the changes in the remedial action from the elements provided in the RAWP and associated design documents. The FER will provide a tabular summary of all performance evaluation sampling results and all material characterization results and other sampling, and chemical analysis performed as part of the remedial action. The FER will provide test results demonstrating that all mitigation and remedial systems are functioning properly. The FER will be prepared in conformance with DER-10.

Where determined to be necessary by NYSDEC, a financial assurance plan will be required to ensure the sufficiency of revenue to perform long-term operations, maintenance, and monitoring tasks defined in the SMP and EE. This determination will be made by NYSDEC in the context of the FER review.

The FER will include written and photographic documentation of all remedial work performed under this remedy.

The FER will include an itemized tabular description of actual costs incurred during all aspects of the remedial action.

The FER will provide a thorough summary of all residual contamination left on the Site after the remedy is complete. Residual contamination includes all contamination that exceeds the Track 1 UUSCO in 6 NYCRR Part 375-6. A table and map that summarize exceedances and locations, respectively, from Track 1 UUSCOs for all soil/fill remaining at the Site after the remedial action will be included in the FER.

The FER will provide a thorough summary of all residual contamination that exceeds the SCOs defined for the Site in the RAWP and must provide an explanation for why the material was not removed as part of the remedial action. A table and map that show residual contamination exceeding Site SCOs will be included in the FER.

The FER will include an accounting of the destination of all material removed from the Site, including excavated contaminated soil, historical fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. It will provide an accounting of the origin and chemical quality of all material imported onto the Site.

The FER must include a discussion of the green remediation practices/technologies employed throughout the remedial program. A final footprint analysis using a DER accepted model, and any tracking methods used through the construction including restoration activities. Before approval of a FER and issuance of a Certificate of Completion, all project reports must be submitted in digital form on electronic media (PDF).

10.0CERTIFICATIONS

The following certification will appear in front of the executive summary of the FER. The FER will be prepared, stamped and the following certification signed by an individual licensed or otherwise authorized in accordance with NYS Education Department, Article 145, Profession Engineering, Land Surveying and Geology. 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 activities, and I certify that the [Remedial Action Work Plan or Remedial Design] was implemented and that all construction activities were completed in substantial conformance with the Department-approved [Remedial Action Work Plan or Remedial Design].

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the [Remedial Action Work Plan or Remedial Design] and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established for the remedy.

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

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of all engineering controls employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by Department.

I certify that any financial assurance mechanisms required by the Department pursuant to Environmental Conservation Law have been executed.

I certify that all data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department.

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. I, [name], of [business address], am certifying as Owner's Designated Site Representative (and if the site consists of multiple properties): [and I have been authorized and designated by all site owners to sign this certification] for the site.

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.

11.0SCHEDULE

The implementation of the proposed remedy is anticipated to take approximately nine months. An estimated overall remedial schedule is provided as Appendix M, presenting tasks through receipt of the Certificate of Completion.

Tables

1. Table 1 – Summary of Sample Analyses
2. Table 2a – Soil Analytical Results Exceedances Summary (Western Parcel)
3. Table 2b – Soil Analytical Results Exceedances Summary (Eastern Parcel)
4. Table 2c – Limited Delineation Soil Analytical Results Exceedances Summary
5. Table 3 – Groundwater Well Constructions and Gauging
6. Table 4 – Groundwater Analytical Results Exceedances Summary
7. Table 5 – Soil Vapor Analytical Results Summary
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10. Table 8 – Proposed Soils to be Excavated – Alternative 1 (Track 1)
11. Table 9 – Proposed Soils to be Excavated – Alternative 2 (Track 2)

Table 1

Summary of Sample Analyses by Media

Elmwood Preserve Site - NYSDEC Site No. C360239

850 Dobbs Ferry Road, White Plains, New York

Media	**PFAS** (E1633)	**Metals** (SW6010D)	**Metals** (SW6020B)	**Hexavalent Chromium** (SW7196A)	**Mercury** (SW7470A)	**Mercury** (SW7471B)	**Pesticides** (SW8081B)	**PCBs** (SW8082A)	**Herbicides** (SW8151A)	**VOCs** (SW8260D)	**SVOCs** (SW8270E)	**VOCs/SVOCs** (SW8270ESIM)	**Cyanide** (SW9010C/SW9012B)	**Total Organic Carbon** (SW9060A Mod)	**VOCs/SVOCs** (TO15)	**VOCs/SVOCs** (TO15SIM)
Soil	52	418		297		418	470	138	253	151	171		128			
Groundwater	7		8	7	7		8	10	7	7	7	7	7			
Sediment	12	25		21		25	25	12	16	12	12		12	20		
Surface Water	10		13	9	13		13	9	13	9	9	9	9			
Soil Gas															35	19

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				A04	A04	A04	A04	A04	A04	A04	A04	A05
Field Sample ID				A4_0-0.2	A04-0-0.2	A4_0.2-2	A04R-0.5-1	A04R-1-1.5	A04R-1.5-2	A4_2-4	A04R-2-4	A5_0-0.2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5	1.5 - 2	2 - 4	2 - 4	0 - 0.2
Sampler	SCO	SCO		Roux	Carson Voci	Roux	Carson Voci	Carson Voci	Carson Voci	Roux	Carson Voci	Roux
Sample Date				5/22/2024	4/30/2025	5/22/2024	2/4/2025	2/4/2025	2/4/2025	5/22/2024	2/4/2025	6/10/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	ND (0.014)	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	0.022 J (0.11)	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	ND (0.15)	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	ND (0.11)	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	ND (0.15)	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.11)	NA	NA	NA	NA	NA	NA
Chrysene	1	1.2	--	NA	NA	0.02 J (0.11)	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.11)	NA	NA	NA	NA	NA	NA
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.19)	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	ND (0.15)	NA	NA	NA	NA	NA	NA
Phenanthrene	1.1	1.2	--	NA	NA	ND (0.11)	NA	NA	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	**0.00105 (0.000199)**	**0.00105 (0.0002)**	NA	NA	NA	NA	0.000094 J (0.000199)	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	0.000204 (0.000199)	0.000368 (0.0002)	NA	NA	NA	NA	0.000286 (0.000199)	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00187)	NA	ND (0.00178)	NA	NA	NA	ND (0.00166)	NA	ND (0.00203)
alpha-Chlordane	0.014	0.14	1.3	0.00431 IP (0.00234)	NA	0.00494 IP (0.00223)	NA	NA	NA	ND (0.00208)	NA	ND (0.00254)
4,4'-DDD	0.0033	1.2	0.0033	0.00137 J (0.00187)	NA	0.0013 J (0.00178)	NA	NA	NA	ND (0.00166)	NA	ND (0.00203)
4,4'-DDE	0.0033	0.78	0.0033	**0.0943 (0.00187)**	NA	**0.0964 (0.00178)**	NA	NA	NA	ND (0.00166)	NA	**0.012 (0.00203)**
4,4'-DDT	0.0033	0.78	0.0033	**0.0306 (0.00187)**	NA	**0.027 (0.00178)**	NA	NA	NA	ND (0.00166)	NA	**0.0082 (0.00203)**
Dieldrin	0.005	0.017	0.006	0.00372 (0.00117)	NA	0.00461 (0.00111)	NA	NA	NA	ND (0.00104)	NA	ND (0.00127)
Endrin	0.014	1.2	0.014	ND (0.000779)	NA	ND (0.000742)	NA	NA	NA	ND (0.000694)	NA	ND (0.000846)
Heptachlor epoxide	0.013	0.12	0.14	0.00354 (0.00351)	NA	0.00407 (0.00334)	NA	NA	NA	ND (0.00312)	NA	ND (0.0038)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	ND (0.0575)	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	13	16	13	**22 (0.936)**	NA	**17.7 (0.92)**	**19 (0.968)**	**16.6 (0.996)**	NA	2.4 (0.832)	NA	**15.6 (0.982)**
Cadmium	2.5	2.5	4	0.25 J (0.936)	NA	0.227 J (0.92)	NA	NA	NA	0.098 J (0.832)	NA	0.2 J (0.982)
Chromium III	30	30	160	26.9185 (0.936)	NA	23.831 (0.92)	NA	NA	NA	NA	NA	28.885 (0.982)
Chromium VI	1	1	20	ND (0.963)	NA	ND (0.938)	NA	NA	NA	NA	NA	ND (1.03)
Copper	50	280	50	20.6 (0.936)	NA	19.7 (0.92)	NA	NA	NA	14 (0.832)	NA	16 (0.982)
Lead	63	400	63	**79.2 (4.68)**	NA	**63.2 (4.6)**	NA	NA	NA	4.71 (4.16)	NA	53.3 (4.91)
Mercury	0.18	0.3	0.18	**3.14 (0.082)**	NA	**2.77 (0.074)**	**4.05 (0.486)**	**3.9 (0.105)**	**2.57 (0.077)**	ND (0.07)	NA	0.135 (0.084)
Nickel	30	87	30	17.7 (2.34)	NA	16.9 (2.3)	NA	NA	NA	23.5 (2.08)	NA	16.7 (2.46)
Zinc	109	1300	109	71.4 (4.68)	NA	61.9 (4.6)	NA	NA	NA	45.1 (4.16)	NA	59.3 (4.91)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				A05	A05	A06	A06	A07	A07	A08	A08	A09
Field Sample ID				A5_0.2-2	A05R-0.2-2	A6_0-0.2	A6_0.2-2	A7_0-0.2	A7_0.2-2	A8_0-0.2	A8_0.2-2	A9_0-0.2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0.2 - 2	0.2 - 2	0 - 0.2	0.2 - 2	0 - 0.2	0.2 - 2	0 - 0.2	0.2 - 2	0 - 0.2
Sampler	SCO	SCO		Roux	Carson Voci	Roux	Roux	Roux	Roux	Roux	Roux	Roux
Sample Date				6/10/2024	2/4/2025	6/10/2024	6/10/2024	6/10/2024	6/10/2024	6/10/2024	6/10/2024	5/23/2024
Comments												
Acetone	0.03	100	2.2	ND (0.014)	NA	NA	ND (0.012)	NA	ND (0.012)	NA	ND (0.014)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	ND (0.12)	NA	NA	0.031 J (0.12)	NA	ND (0.12)	NA	ND (0.12)	NA
Benzo(a)pyrene	1	1	2.6	ND (0.16)	NA	NA	ND (0.16)	NA	ND (0.15)	NA	ND (0.16)	NA
Benzo(b)fluoranthene	1	1	--	ND (0.12)	NA	NA	0.036 J (0.12)	NA	ND (0.12)	NA	ND (0.12)	NA
Benzo(g,h,i)perylene	0.64	1.2	--	ND (0.16)	NA	NA	ND (0.16)	NA	ND (0.15)	NA	ND (0.16)	NA
Benzo(k)fluoranthene	0.8	1.2	--	ND (0.12)	NA	NA	ND (0.12)	NA	ND (0.12)	NA	ND (0.12)	NA
Chrysene	1	1.2	--	ND (0.12)	NA	NA	0.025 J (0.12)	NA	ND (0.12)	NA	ND (0.12)	NA
Dibenz(a,h)anthracene	0.33	0.33	--	ND (0.12)	NA	NA	ND (0.12)	NA	ND (0.12)	NA	ND (0.12)	NA
Dibenzofuran	2.1	4.2	--	ND (0.21)	NA	NA	ND (0.2)	NA	ND (0.19)	NA	ND (0.2)	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	ND (0.16)	NA	NA	ND (0.16)	NA	ND (0.15)	NA	ND (0.16)	NA
Phenanthrene	1.1	1.2	--	ND (0.12)	NA	NA	ND (0.12)	NA	ND (0.12)	NA	ND (0.12)	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	0.000066 J (0.0002)	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	0.000168 J (0.0002)	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00192)	NA	ND (0.00176)	ND (0.00183)	ND (0.00218)	ND (0.00181)	ND (0.00232)	ND (0.00184)	ND (0.00266)
alpha-Chlordane	0.014	0.14	1.3	ND (0.00241)	NA	0.000677 JIP (0.0022)	ND (0.00229)	0.00147 J (0.00273)	ND (0.00226)	0.00115 JIP (0.0029)	ND (0.0023)	0.0133 IP (0.00333)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00192)	NA	ND (0.00176)	ND (0.00183)	ND (0.00218)	ND (0.00181)	ND (0.00232)	ND (0.00184)	0.00167 J (0.00266)
4,4'-DDE	0.0033	0.78	0.0033	0.00151 JIP (0.00192)	NA	**0.0274 (0.00176)**	0.000801 JIP (0.00183)	**0.0361 (0.00218)**	0.00198 IP (0.00181)	**0.0125 (0.00232)**	0.00197 IP (0.00184)	**0.301 (0.00266)**
4,4'-DDT	0.0033	0.78	0.0033	ND (0.00192)	NA	**0.0113 (0.00176)**	ND (0.00183)	**0.0117 (0.00218)**	ND (0.00181)	**0.00355 (0.00232)**	ND (0.00184)	**0.0598 (0.00266)**
Dieldrin	0.005	0.017	0.006	ND (0.0012)	NA	**0.0103 (0.0011)**	ND (0.00114)	0.00471 (0.00136)	ND (0.00113)	0.000742 J (0.00145)	ND (0.00115)	**0.0145 (0.00166)**
Endrin	0.014	1.2	0.014	ND (0.000802)	NA	ND (0.000733)	ND (0.000763)	ND (0.000909)	ND (0.000754)	ND (0.000966)	ND (0.000765)	ND (0.00111)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00361)	NA	ND (0.0033)	ND (0.00343)	0.00328 J (0.00409)	ND (0.00339)	0.00304 J (0.00435)	ND (0.00344)	0.0057 (0.005)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	ND (0.0612)	NA	NA	ND (0.0565)	NA	ND (0.0554)	NA	ND (0.0578)	NA
Metals												
Arsenic	13	16	13	3.96 (0.992)	NA	**19 (0.929)**	4.9 (0.915)	**29.3 (1.08)**	5.25 (0.904)	**66.1 (1.13)**	4.38 (0.961)	**43.8 (1.39)**
Cadmium	2.5	2.5	4	0.162 J (0.992)	NA	0.255 J (0.929)	0.174 J (0.915)	0.256 J (1.08)	0.154 J (0.904)	0.341 J (1.13)	0.156 J (0.961)	0.258 J (1.39)
Chromium III	30	30	160	20.695 (0.992)	NA	27.033 (0.929)	21.825 (0.915)	**34.145 (1.08)**	25.531 (0.904)	**41.295 (1.13)**	29.1115 (0.961)	**35.895 (1.39)**
Chromium VI	1	1	20	ND (1.01)	NA	ND (0.934)	ND (0.95)	ND (1.11)	ND (0.938)	ND (1.21)	ND (0.977)	ND (1.41)
Copper	50	280	50	18.2 (0.992)	NA	14.9 (0.929)	19 (0.915)	20.8 (1.08)	22.2 (0.904)	25.4 (1.13)	14.8 (0.961)	34.7 (1.39)
Lead	63	400	63	12.8 (4.96)	NA	62.6 (4.64)	11.4 (4.57)	**99.2 (5.41)**	16.9 (4.52)	**195 (5.67)**	13.5 (4.81)	**127 (6.97)**
Mercury	0.18	0.3	0.18	ND (0.089)	NA	**0.344 (0.074)**	0.053 J (0.077)	**0.252 (0.091)**	0.057 J (0.077)	**0.272 (0.106)**	ND (0.077)	**1.09 (0.124)**
Nickel	30	87	30	16.4 (2.48)	NA	15.6 (2.32)	19 (2.29)	19.4 (2.7)	19.3 (2.26)	26.1 (2.83)	17.2 (2.4)	24.7 (3.48)
Zinc	109	1300	109	47.1 (4.96)	NA	54 (4.64)	43.2 (4.57)	76.6 (5.41)	47.4 (4.52)	98.6 (5.67)	53.1 (4.81)	74.4 (6.97)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				A09	A09	A09	A10	A10	A11	A11	A11	A11
Field Sample ID				A09-0-0.2	A9_0.2-2	A9_2-4	A10_0-0.2	A10_0.2-2	A11_0-0.2	A11_0.2-2	A11R-0.5-1	A11R-1-1.5
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5
Sampler	SCO	SCO		Carson Voci	Roux	Roux	Roux	Roux	Roux	Roux	Carson Voci	Carson Voci
Sample Date				4/30/2025	5/23/2024	5/23/2024	6/10/2024	6/10/2024	6/10/2024	6/10/2024	2/8/2025	2/8/2025
Comments												
Acetone	0.03	100	2.2	NA	ND (0.012)	NA	NA	ND (0.011)	NA	ND (0.016)	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	ND (0.16)	NA	NA	ND (0.14)	NA	ND (0.16)	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	ND (0.16)	NA	NA	ND (0.14)	NA	ND (0.16)	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA	NA
Chrysene	1	1.2	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA	NA
Dibenzofuran	2.1	4.2	--	NA	ND (0.2)	NA	NA	ND (0.18)	NA	ND (0.21)	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	ND (0.16)	NA	NA	ND (0.14)	NA	ND (0.16)	NA	NA
Phenanthrene	1.1	1.2	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	**0.00109 (0.0002)**	0.000745 (0.000192)	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	0.000369 (0.0002)	0.000585 (0.000192)	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	NA	ND (0.00183)	ND (0.00202)	ND (0.00182)	ND (0.00172)	ND (0.00187)	ND (0.00194)	NA	NA
alpha-Chlordane	0.014	0.14	1.3	NA	0.00123 JIP (0.00229)	ND (0.00253)	**0.0358 IP (0.00227)**	ND (0.00215)	**0.0209 IP (0.00233)**	0.00924 IP (0.00243)	NA	NA
4,4'-DDD	0.0033	1.2	0.0033	NA	ND (0.00183)	ND (0.00202)	ND (0.00182)	ND (0.00172)	ND (0.00187)	ND (0.00194)	NA	NA
4,4'-DDE	0.0033	0.78	0.0033	NA	**0.0235 (0.00183)**	ND (0.00202)	**0.0916 (0.00182)**	0.000815 JIP (0.00172)	**0.0612 (0.00187)**	**0.0165 (0.00194)**	NA	NA
4,4'-DDT	0.0033	0.78	0.0033	NA	**0.00632 (0.00183)**	ND (0.00202)	**0.0184 (0.00182)**	ND (0.00172)	**0.0123 (0.00187)**	**0.00422 (0.00194)**	NA	NA
Dieldrin	0.005	0.017	0.006	NA	0.00106 J (0.00114)	ND (0.00126)	**0.112 (0.00114)**	0.000989 J (0.00107)	**0.0138 (0.00117)**	0.00412 (0.00121)	NA	NA
Endrin	0.014	1.2	0.014	NA	ND (0.000763)	ND (0.000842)	ND (0.000758)	ND (0.000716)	ND (0.000778)	ND (0.000809)	NA	NA
Heptachlor epoxide	0.013	0.12	0.14	NA	ND (0.00344)	ND (0.00379)	**0.0402 (0.00341)**	ND (0.00322)	0.00486 (0.0035)	0.0032 J (0.00364)	NA	NA
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	ND (0.0569)	NA	NA	ND (0.0525)	NA	ND (0.0592)	NA	NA
Metals												
Arsenic	13	16	13	NA	**16.2 (0.935)**	2.49 (1.03)	**112 (0.87)**	1.93 (0.862)	**20.5 (0.985)**	**16.9 (0.971)**	**25.2 (0.985)**	3.25 (0.934)
Cadmium	2.5	2.5	4	NA	0.146 J (0.935)	0.114 J (1.03)	0.746 J (0.87)	0.199 J (0.862)	0.414 J (0.985)	0.238 J (0.971)	NA	NA
Chromium III	30	30	160	NA	24.117 (0.935)	NA	**61.144 (0.87)**	**31.261 (0.862)**	29.907 (0.985)	25.19 (0.971)	NA	NA
Chromium VI	1	1	20	NA	ND (0.966)	NA	ND (0.912)	ND (0.878)	ND (0.986)	ND (1.02)	NA	NA
Copper	50	280	50	NA	18.4 (0.935)	17.1 (1.03)	27.8 (0.87)	45.1 (0.862)	25 (0.985)	22.9 (0.971)	NA	NA
Lead	63	400	63	NA	48 (4.67)	6.17 (5.14)	**99.9 (4.35)**	7.1 (4.31)	56.7 (4.92)	26.4 (4.86)	NA	NA
Mercury	0.18	0.3	0.18	NA	**0.828 (0.08)**	0.066 J (0.089)	**0.424 (0.073)**	ND (0.074)	**1.07 (0.086)**	**0.453 (0.086)**	0.145 (0.079)	NA
Nickel	30	87	30	NA	16.7 (2.34)	17.5 (2.57)	20.2 (2.18)	23.6 (2.15)	22.7 (2.46)	23 (2.43)	NA	NA
Zinc	109	1300	109	NA	54.2 (4.67)	45 (5.14)	81 (4.35)	65.6 (4.31)	78.9 (4.92)	62.9 (4.86)	NA	NA

Notes:

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5 Boldfaced concentrations exceed the Unrestricted Use SCO.
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				A11	A11	A12	A12	A12	A12	A13	A13	A13
Field Sample ID				A11_2-4	A11_4-6	A12_0-0.2	A12_0.2-2	A12_2-4	A12_4-6	A13_0-0.2	A13-0-0.2	A13_0.2-2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	2 - 4	4 - 6	0 - 0.2	0.2 - 2	2 - 4	4 - 6	0 - 0.2	0 - 0.2	0.2 - 2
Sampler	SCO	SCO		Roux	Roux	Roux	Roux	Roux	Roux	Roux	Carson Voci	Roux
Sample Date				6/10/2024	6/10/2024	6/10/2024	6/10/2024	6/10/2024	6/10/2024	5/23/2024	4/30/2025	5/23/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	ND (0.011)	NA	NA	NA	NA	ND (0.012)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	ND (0.11)	NA	NA	NA	NA	ND (0.12)
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	ND (0.15)	NA	NA	NA	NA	ND (0.15)
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	ND (0.11)	NA	NA	NA	NA	ND (0.12)
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	ND (0.15)	NA	NA	NA	NA	ND (0.15)
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	ND (0.11)	NA	NA	NA	NA	ND (0.12)
Chrysene	1	1.2	--	NA	NA	NA	ND (0.11)	NA	NA	NA	NA	ND (0.12)
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	ND (0.11)	NA	NA	NA	NA	ND (0.12)
Dibenzofuran	2.1	4.2	--	NA	NA	NA	ND (0.18)	NA	NA	NA	NA	ND (0.19)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	ND (0.15)	NA	NA	NA	NA	ND (0.15)
Phenanthrene	1.1	1.2	--	NA	NA	NA	ND (0.11)	NA	NA	NA	NA	ND (0.12)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	0.000586 (0.0002)	0.000702 (0.000187)
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	0.000126 J (0.0002)	0.000426 (0.000187)
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00194)	ND (0.00187)	ND (0.00192)	ND (0.0017)	NA	NA	ND (0.00222)	NA	ND (0.00181)
alpha-Chlordane	0.014	0.14	1.3	0.000765 JIP (0.00243)	ND (0.00234)	**0.0466 IP (0.00239)**	ND (0.00212)	NA	NA	0.00382 IP (0.00278)	NA	0.00134 JIP (0.00226)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00194)	ND (0.00187)	ND (0.00192)	ND (0.0017)	NA	NA	ND (0.00222)	NA	ND (0.00181)
4,4'-DDE	0.0033	0.78	0.0033	**0.00419 (0.00194)**	ND (0.00187)	**0.0551 (0.00192)**	0.00182 IP (0.0017)	NA	NA	**0.0287 (0.00222)**	NA	**0.0364 (0.00181)**
4,4'-DDT	0.0033	0.78	0.0033	ND (0.00194)	ND (0.00187)	**0.0181 (0.00192)**	ND (0.0017)	NA	NA	**0.0168 (0.00222)**	NA	**0.014 (0.00181)**
Dieldrin	0.005	0.017	0.006	0.001 J (0.00121)	ND (0.00117)	**0.131 (0.0012)**	0.00238 (0.00106)	NA	NA	**0.0479 (0.00139)**	NA	**0.0182 (0.00113)**
Endrin	0.014	1.2	0.014	ND (0.000809)	ND (0.000779)	ND (0.000798)	ND (0.000706)	NA	NA	ND (0.000926)	NA	ND (0.000754)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00364)	ND (0.0035)	**0.124 (0.00359)**	0.00139 JIP (0.00318)	NA	NA	0.00267 JIP (0.00417)	NA	0.00144 J (0.0034)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	ND (0.0546)	NA	NA	NA	NA	ND (0.0554)
Metals												
Arsenic	13	16	13	4.06 (0.969)	NA	**72.2 (0.93)**	3.72 (0.867)	1.35 (0.874)	ND (1.72)	**17.7 (1.08)**	NA	11.6 (0.903)
Cadmium	2.5	2.5	4	ND (0.969)	NA	0.616 J (0.93)	0.2 J (0.867)	ND (0.874)	ND (0.86)	0.202 J (1.08)	NA	0.166 J (0.903)
Chromium III	30	30	160	NA	NA	**46.2055 (0.93)**	**36.6565 (0.867)**	NA	NA	27.33 (1.08)	NA	25.4315 (0.903)
Chromium VI	1	1	20	NA	NA	ND (0.989)	ND (0.887)	NA	NA	ND (1.14)	NA	ND (0.937)
Copper	50	280	50	31.6 (0.969)	NA	10.8 (0.93)	4.57 (0.867)	42.1 (0.874)	33.4 (0.86)	19.7 (1.08)	NA	20 (0.903)
Lead	63	400	63	9.95 (4.85)	NA	**82.9 (4.65)**	9.61 (4.34)	5.28 (4.37)	4.62 (4.3)	49.8 (5.41)	NA	35.1 (4.51)
Mercury	0.18	0.3	0.18	ND (0.098)	NA	**0.401 (0.087)**	0.049 J (0.072)	ND (0.082)	ND (0.071)	**1.06 (0.114)**	NA	**0.75 (0.086)**
Nickel	30	87	30	17.3 (2.42)	NA	**32.2 (2.32)**	**38.8 (2.17)**	**37.2 (2.18)**	**39.4 (2.15)**	15.7 (2.71)	NA	18 (2.26)
Zinc	109	1300	109	49.2 (4.85)	NA	93.2 (4.65)	89.9 (4.34)	88.6 (4.37)	95.3 (4.3)	57.7 (5.41)	NA	57.3 (4.51)

Notes:
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				A13	A13	A13	A13	A13	A13	A13	B04	B04
Field Sample ID				A13_2-4	A13R-2-2.5	A13R-2.5-3	A13R-3-3.5	A13R-3.5-4	A13_4-6	A13_7-9	B4_0-0.2	B4_0.2-2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	2 - 4	2 - 2.5	2.5 - 3	3 - 3.5	3.5 - 4	4 - 6	7 - 9	0 - 0.2	0.2 - 2
Sampler	SCO	SCO		Roux	Carson Voci	Carson Voci	Carson Voci	Carson Voci	Roux	Roux	Roux	Roux
Sample Date				5/23/2024	2/7/2025	2/7/2025	2/7/2025	2/7/2025	5/23/2024	5/23/2024	6/13/2024	6/13/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	NA	NA	NA	0.0074 J (0.01)	NA	ND (0.01)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	NA	NA	NA	ND (0.11)	NA	ND (0.11)
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	NA	NA	NA	ND (0.15)	NA	ND (0.15)
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	NA	NA	NA	ND (0.11)	NA	ND (0.11)
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	NA	NA	NA	ND (0.15)	NA	ND (0.15)
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	NA	NA	NA	ND (0.11)	NA	ND (0.11)
Chrysene	1	1.2	--	NA	NA	NA	NA	NA	NA	ND (0.11)	NA	ND (0.11)
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	NA	NA	NA	ND (0.11)	NA	ND (0.11)
Dibenzofuran	2.1	4.2	--	NA	NA	NA	NA	NA	NA	ND (0.18)	NA	ND (0.18)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	NA	NA	NA	ND (0.15)	NA	ND (0.15)
Phenanthrene	1.1	1.2	--	NA	NA	NA	NA	NA	NA	ND (0.11)	NA	ND (0.11)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	ND (0.00019)	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	ND (0.00019)	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00172)	ND (0.00176)	NA	NA	NA	ND (0.0018)	ND (0.00173)	ND (0.00211)	ND (0.00179)
alpha-Chlordane	0.014	0.14	1.3	ND (0.00215)	0.00769 IP (0.0022)	NA	NA	NA	ND (0.00224)	ND (0.00216)	0.00276 J (0.00263)	0.00433 IP (0.00224)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00172)	**0.00592 (0.00176)**	NA	NA	NA	ND (0.0018)	ND (0.00173)	ND (0.00211)	0.000761 J (0.00179)
4,4'-DDE	0.0033	0.78	0.0033	**0.00365 (0.00172)**	**0.00495 (0.00176)**	NA	NA	NA	ND (0.0018)	ND (0.00173)	0.00273 (0.00211)	**0.00336 (0.00179)**
4,4'-DDT	0.0033	0.78	0.0033	0.00209 (0.00172)	ND (0.00176)	NA	NA	NA	ND (0.0018)	ND (0.00173)	ND (0.00211)	ND (0.00179)
Dieldrin	0.005	0.017	0.006	ND (0.00107)	ND (0.0011)	NA	NA	NA	ND (0.00112)	ND (0.00108)	0.00137 (0.00132)	0.00389 (0.00112)
Endrin	0.014	1.2	0.014	ND (0.000716)	ND (0.000734)	NA	NA	NA	ND (0.000748)	ND (0.00072)	ND (0.000878)	ND (0.000746)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00322)	ND (0.0033)	NA	NA	NA	ND (0.00337)	ND (0.00324)	ND (0.00395)	ND (0.00336)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	NA	NA	NA	ND (0.0541)	NA	ND (0.0542)
Metals												
Arsenic	13	16	13	3.93 (0.843)	NA	NA	NA	NA	2.06 (0.896)	2.1 (0.869)	11 (1.06)	5.53 (0.907)
Cadmium	2.5	2.5	4	ND (0.843)	NA	NA	NA	NA	0.119 J (0.896)	0.098 J (0.869)	0.221 J (1.06)	0.116 J (0.907)
Chromium III	30	30	160	NA	NA	NA	NA	NA	NA	22.7455 (0.869)	20.465 (1.06)	21.041 (0.907)
Chromium VI	1	1	20	NA	NA	NA	NA	NA	NA	ND (0.909)	ND (1.07)	ND (0.918)
Copper	50	280	50	20.5 (0.843)	NA	NA	NA	NA	18.5 (0.896)	22.5 (0.869)	18 (1.06)	16.2 (0.907)
Lead	63	400	63	9.34 (4.21)	NA	NA	NA	NA	4.97 (4.48)	5.46 (4.34)	25.9 (5.32)	11.4 (4.53)
Mercury	0.18	0.3	0.18	**3.15 (0.082)**	0.136 (0.08)	0.061 J (0.08)	**1.5 (0.102)**	ND (0.08)	**0.297 (0.073)**	ND (0.083)	**0.575 (0.097)**	0.099 (0.078)
Nickel	30	87	30	12.2 (2.11)	NA	NA	NA	NA	14.6 (2.24)	19.6 (2.17)	15.7 (2.66)	16.4 (2.27)
Zinc	109	1300	109	36.3 (4.21)	NA	NA	NA	NA	41.2 (4.48)	40.5 (4.34)	57.5 (5.32)	45.8 (4.53)

Notes:
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				B04	B04	B04	B05	B05	B05	B05	B05	B06	B06
Field Sample ID				B04R-0.2-2	B4_2-4	B4_4-6	B5_0-0.2	B5_0.2-2	B05R-0.2-2	B05R-2-4	B6_0-0.2	B6_0.2-2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0.2 - 2	2 - 4	4 - 6	0 - 0.2	0.2 - 2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2
Sampler	SCO	SCO		Carson Voci	Roux	Roux	Roux	Roux	Carson Voci	Carson Voci	Roux	Roux
Sample Date				2/4/2025	6/13/2024	6/13/2024	6/13/2024	6/13/2024	2/4/2025	2/4/2025	6/11/2024	6/11/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	NA	ND (0.011)	NA	NA	NA	ND (0.014)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	NA	ND (0.12)	NA	NA	NA	ND (0.12)
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	NA	ND (0.16)	NA	NA	NA	ND (0.16)
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	NA	ND (0.12)	NA	NA	NA	ND (0.12)
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	NA	ND (0.16)	NA	NA	NA	ND (0.16)
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	NA	ND (0.12)	NA	NA	NA	ND (0.12)
Chrysene	1	1.2	--	NA	NA	NA	NA	ND (0.12)	NA	NA	NA	ND (0.12)
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	NA	ND (0.12)	NA	NA	NA	ND (0.12)
Dibenzofuran	2.1	4.2	--	NA	NA	NA	NA	ND (0.19)	NA	NA	NA	ND (0.2)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	NA	ND (0.16)	NA	NA	NA	ND (0.16)
Phenanthrene	1.1	1.2	--	NA	NA	NA	NA	ND (0.12)	NA	NA	NA	ND (0.12)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	0.000522 (0.0002)	NA	NA	NA	NA	**0.000912 (0.0002)**	0.00016 J (0.0002)	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	0.000274 (0.0002)	NA	NA	NA	NA	**0.00125 (0.0002)**	0.00042 (0.0002)	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	NA	ND (0.00191)	ND (0.00187)	ND (0.00211)	ND (0.00183)	NA	NA	ND (0.00211)	ND (0.00188)
alpha-Chlordane	0.014	0.14	1.3	NA	0.00728 (0.00239)	ND (0.00234)	0.0018 JIP (0.00264)	ND (0.00229)	NA	NA	ND (0.00263)	ND (0.00235)
4,4'-DDD	0.0033	1.2	0.0033	NA	0.00169 J (0.00191)	ND (0.00187)	ND (0.00211)	ND (0.00183)	NA	NA	ND (0.00211)	ND (0.00188)
4,4'-DDE	0.0033	0.78	0.0033	NA	**0.00821 (0.00191)**	ND (0.00187)	**0.00857 (0.00211)**	0.00187 (0.00183)	NA	NA	**0.0112 (0.00211)**	ND (0.00188)
4,4'-DDT	0.0033	0.78	0.0033	NA	ND (0.00191)	ND (0.00187)	**0.00378 (0.00211)**	ND (0.00183)	NA	NA	0.00327 (0.00211)	ND (0.00188)
Dieldrin	0.005	0.017	0.006	NA	0.00418 (0.0012)	ND (0.00117)	**0.00552 (0.00132)**	0.000601 J (0.00115)	NA	NA	**0.0175 (0.00132)**	ND (0.00117)
Endrin	0.014	1.2	0.014	NA	ND (0.000797)	ND (0.00078)	ND (0.00088)	ND (0.000764)	NA	NA	ND (0.000878)	ND (0.000782)
Heptachlor epoxide	0.013	0.12	0.14	NA	ND (0.00358)	ND (0.00351)	0.00162 J (0.00396)	ND (0.00344)	NA	NA	0.00239 J (0.00395)	ND (0.00352)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	NA	ND (0.0558)	NA	NA	NA	ND (0.0559)
Metals												
Arsenic	13	16	13	NA	NA	NA	13 (1.01)	3.75 (0.936)	NA	NA	**25.9 (1.02)**	3.24 (0.912)
Cadmium	2.5	2.5	4	NA	NA	NA	0.149 J (1.01)	ND (0.936)	NA	NA	ND (1.02)	ND (0.912)
Chromium III	30	30	160	NA	NA	NA	23.065 (1.01)	18.027 (0.936)	NA	NA	**33.66 (1.02)**	26.024 (0.912)
Chromium VI	1	1	20	NA	NA	NA	ND (1.07)	ND (0.946)	NA	NA	ND (1.08)	ND (0.952)
Copper	50	280	50	NA	NA	NA	19.1 (1.01)	14.5 (0.936)	NA	NA	30.9 (1.02)	31.8 (0.912)
Lead	63	400	63	NA	NA	NA	41.9 (5.07)	9.44 (4.68)	NA	NA	**88.4 (5.09)**	11.5 (4.56)
Mercury	0.18	0.3	0.18	NA	NA	NA	0.11 (0.093)	ND (0.078)	NA	NA	0.1 (0.089)	ND (0.084)
Nickel	30	87	30	NA	NA	NA	15.3 (2.54)	13 (2.34)	NA	NA	23.8 (2.54)	24.9 (2.28)
Zinc	109	1300	109	NA	NA	NA	53.2 (5.07)	34.1 (4.68)	NA	NA	63.5 (5.09)	62.5 (4.56)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				B07	B07	B07	B08	B08	B08	B08	B08	B08
Field Sample ID				B7_0-0.2	B7_0.2-2	B7_2-4	B8_0-0.2	B8_0.2-2	B08R-0.5-1	B08R-1-1.5	B8_2-4	B8_4-6
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5	2 - 4	4 - 6
Sampler	SCO	SCO		Roux	Roux	Roux	Roux	Roux	Carson Voci	Carson Voci	Roux	Roux
Sample Date				6/11/2024	6/11/2024	6/11/2024	6/11/2024	6/11/2024	2/7/2025	2/7/2025	6/11/2024	6/11/2024
Comments												
Acetone	0.03	100	2.2	NA	ND (0.014)	NA	NA	ND (0.015)	NA	NA	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	ND (0.12)	NA	NA	ND (0.12)	NA	NA	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	ND (0.15)	NA	NA	ND (0.16)	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	ND (0.12)	NA	NA	ND (0.12)	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	ND (0.15)	NA	NA	ND (0.16)	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	ND (0.12)	NA	NA	ND (0.12)	NA	NA	NA	NA
Chrysene	1	1.2	--	NA	ND (0.12)	NA	NA	ND (0.12)	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	ND (0.12)	NA	NA	ND (0.12)	NA	NA	NA	NA
Dibenzofuran	2.1	4.2	--	NA	ND (0.19)	NA	NA	ND (0.2)	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	ND (0.15)	NA	NA	ND (0.16)	NA	NA	NA	NA
Phenanthrene	1.1	1.2	--	NA	ND (0.12)	NA	NA	ND (0.12)	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00208)	ND (0.00182)	ND (0.00168)	ND (0.00208)	ND (0.0019)	NA	NA	ND (0.00172)	NA
alpha-Chlordane	0.014	0.14	1.3	0.00122 JIP (0.0026)	ND (0.00227)	ND (0.0021)	0.000816 JIP (0.0026)	ND (0.00238)	NA	NA	ND (0.00214)	NA
4,4'-DDD	0.0033	1.2	0.0033	0.000879 J (0.00208)	ND (0.00182)	ND (0.00168)	ND (0.00208)	ND (0.0019)	NA	NA	ND (0.00172)	NA
4,4'-DDE	0.0033	0.78	0.0033	**0.212 (0.00208)**	**0.0134 (0.00182)**	ND (0.00168)	**0.0273 (0.00208)**	**0.0173 (0.0019)**	NA	NA	ND (0.00172)	NA
4,4'-DDT	0.0033	0.78	0.0033	**0.032 (0.00208)**	0.00243 (0.00182)	ND (0.00168)	**0.00572 (0.00208)**	**0.00346 (0.0019)**	NA	NA	ND (0.00172)	NA
Dieldrin	0.005	0.017	0.006	0.000935 J (0.0013)	ND (0.00114)	ND (0.00105)	ND (0.0013)	ND (0.00119)	NA	NA	ND (0.00107)	NA
Endrin	0.014	1.2	0.014	ND (0.000866)	ND (0.000758)	ND (0.0007)	ND (0.000867)	ND (0.000794)	NA	NA	ND (0.000715)	NA
Heptachlor epoxide	0.013	0.12	0.14	0.00756 (0.0039)	ND (0.00341)	ND (0.00315)	0.00912 (0.0039)	0.0059 (0.00357)	NA	NA	ND (0.00322)	NA
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	ND (0.0538)	NA	NA	ND (0.0575)	NA	NA	NA	NA
Metals												
Arsenic	13	16	13	**71 (1.04)**	7.45 (0.89)	0.641 J (0.879)	**29 (1.03)**	**27.7 (0.905)**	**22 (0.904)**	**15.8 (0.887)**	0.761 J (0.882)	0.25 J (0.89)
Cadmium	2.5	2.5	4	ND (1.04)	ND (0.89)	ND (0.879)	ND (1.03)	ND (0.905)	NA	NA	ND (0.882)	ND (0.89)
Chromium III	30	30	160	**36.675 (1.04)**	24.433 (0.89)	NA	24.262 J (1.03)	29.218 (0.905)	NA	NA	NA	NA
Chromium VI	1	1	20	ND (1.05)	ND (0.934)	NA	0.338 J (1.08)	ND (0.964)	NA	NA	NA	NA
Copper	50	280	50	22.1 (1.04)	16.4 (0.89)	28.3 (0.879)	15.5 (1.03)	19.7 (0.905)	NA	NA	**51.2 (0.882)**	**62.5 (0.89)**
Lead	63	400	63	**220 (5.23)**	20.6 (4.45)	4.14 J (4.4)	**93.4 (5.15)**	**90.2 (4.52)**	NA	NA	8.67 (4.41)	7.51 (4.45)
Mercury	0.18	0.3	0.18	**6.16 (0.856)**	**0.474 (0.077)**	ND (0.073)	**0.288 (0.087)**	**0.414 (0.083)**	NA	NA	ND (0.079)	ND (0.073)
Nickel	30	87	30	20.8 (2.61)	18.7 (2.23)	22.4 (2.2)	15.5 (2.57)	19.2 (2.26)	NA	NA	25.8 (2.2)	28.2 (2.22)
Zinc	109	1300	109	75.2 (5.23)	50.8 (4.45)	63.1 (4.4)	56.1 (5.15)	61.3 (4.52)	NA	NA	71 (4.41)	74.2 (4.45)

Notes:
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3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				B08	B09	B09	B09	B10	B10	B11	B11	B11
Field Sample ID				B08R-6-8	B9_0-0.2	B9_0.2-2	B9_2-4	B10_0-0.2	B10_0.2-2	B11_0-0.2	B11_0.2-2	B11_2-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	6 - 8	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	0 - 0.2	0.2 - 2	2 - 4
Sampler	SCO	SCO		Carson Voci	Roux	Roux	Roux	Roux	Roux	Roux	Roux	Roux
Sample Date				2/7/2025	6/11/2024	6/11/2024	6/11/2024	6/11/2024	6/11/2024	6/11/2024	6/11/2024	6/11/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	ND (0.014)	NA	NA	0.016 (0.012)	NA	ND (0.016)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	ND (0.16)	NA	NA	ND (0.15)	NA	ND (0.16)	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	ND (0.16)	NA	NA	ND (0.15)	NA	ND (0.16)	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA
Chrysene	1	1.2	--	NA	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.2)	NA	NA	ND (0.18)	NA	ND (0.2)	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	ND (0.16)	NA	NA	ND (0.15)	NA	ND (0.16)	NA
Phenanthrene	1.1	1.2	--	NA	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	NA	ND (0.00203)	ND (0.00181)	ND (0.00178)	ND (0.00258)	ND (0.00176)	ND (0.00213)	ND (0.00196)	ND (0.00167)
alpha-Chlordane	0.014	0.14	1.3	NA	ND (0.00254)	ND (0.00226)	ND (0.00223)	0.001 JIP (0.00323)	ND (0.0022)	0.00115 JIP (0.00267)	0.00092 JIP (0.00246)	ND (0.00209)
4,4'-DDD	0.0033	1.2	0.0033	NA	ND (0.00203)	ND (0.00181)	ND (0.00178)	ND (0.00258)	ND (0.00176)	ND (0.00213)	ND (0.00196)	ND (0.00167)
4,4'-DDE	0.0033	0.78	0.0033	NA	**0.0257 (0.00203)**	**0.0168 (0.00181)**	ND (0.00178)	**0.0266 (0.00258)**	ND (0.00176)	**0.00505 (0.00213)**	**0.00346 (0.00196)**	ND (0.00167)
4,4'-DDT	0.0033	0.78	0.0033	NA	**0.00972 (0.00203)**	**0.00746 (0.00181)**	ND (0.00178)	**0.00707 (0.00258)**	ND (0.00176)	0.00276 (0.00213)	0.00204 (0.00196)	ND (0.00167)
Dieldrin	0.005	0.017	0.006	NA	0.00143 (0.00127)	ND (0.00113)	ND (0.00111)	ND (0.00161)	ND (0.0011)	ND (0.00133)	ND (0.00123)	ND (0.00104)
Endrin	0.014	1.2	0.014	NA	ND (0.000847)	ND (0.000755)	ND (0.000742)	ND (0.00108)	ND (0.000735)	ND (0.000889)	ND (0.000819)	ND (0.000696)
Heptachlor epoxide	0.013	0.12	0.14	NA	ND (0.00381)	ND (0.0034)	ND (0.00334)	0.00558 (0.00484)	ND (0.00331)	ND (0.004)	ND (0.00368)	ND (0.00313)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	ND (0.0579)	NA	NA	ND (0.0526)	NA	ND (0.058)	NA
Metals												
Arsenic	13	16	13	NA	11.4 (1.03)	5.16 (0.929)	NA	**85 (1.36)**	2.42 (0.888)	7.31 (1.02)	3.4 (0.961)	0.422 J (0.825)
Cadmium	2.5	2.5	4	NA	ND (1.03)	ND (0.929)	NA	ND (1.36)	ND (0.888)	ND (1.02)	ND (0.961)	ND (0.825)
Chromium III	30	30	160	NA	23.77 (1.03)	26.8245 (0.929)	NA	**37.515 (1.36)**	25.644 (0.888)	24.56 (1.02)	17.803 (0.961)	NA
Chromium VI	1	1	20	NA	ND (1.06)	ND (0.951)	NA	ND (1.37)	ND (0.912)	ND (1.08)	ND (0.994)	NA
Copper	50	280	50	39 (0.819)	19.1 (1.03)	20.5 (0.929)	NA	40.2 (1.36)	27.1 (0.888)	19.3 (1.02)	12.2 (0.961)	5.77 (0.825)
Lead	63	400	63	NA	20.5 (5.14)	11.3 (4.64)	NA	**287 (6.81)**	5.13 (4.44)	31.8 (5.12)	12.7 (4.81)	4.48 (4.12)
Mercury	0.18	0.3	0.18	NA	0.101 (0.093)	0.058 J (0.08)	NA	**0.484 (0.109)**	ND (0.074)	**0.514 (0.096)**	**0.215 (0.082)**	ND (0.089)
Nickel	30	87	30	NA	17.3 (2.57)	18.8 (2.32)	NA	23.2 (3.4)	19.7 (2.22)	18.5 (2.56)	14 (2.4)	25.9 (2.06)
Zinc	109	1300	109	NA	63.6 (5.14)	57.1 (4.64)	NA	101 (6.81)	45.1 (4.44)	75.5 (5.12)	45.7 (4.81)	67.2 (4.12)

Notes:
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4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
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I - The lower value for the two columns has been reported due to obvious interference
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				B12	B12	B12	B12	B12	B13	B13	B13	B13
Field Sample ID				B12_0-0.2	B12_0.2-2	B12_2-4	B12_4-6	B12R-6-7	B13_0-0.2	B13_0.2-2	B13R-0.5-1	B13R-1-1.5
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0.2 - 2	2 - 4	4 - 6	6 -7	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5
Sampler	SCO	SCO		Roux	Roux	Roux	Roux	Carson Voci	Roux	Roux	Carson Voci	Carson Voci
Sample Date				6/11/2024	6/11/2024	6/11/2024	6/11/2024	2/7/2025	6/11/2024	6/11/2024	2/8/2025	2/8/2025
Comments												
Acetone	0.03	100	2.2	NA	ND (0.013)	NA	NA	NA	NA	ND (0.015)	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	0.13 (0.11)	NA	NA	NA	NA	ND (0.13)	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	0.12 J (0.15)	NA	NA	NA	NA	ND (0.18)	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	0.17 (0.11)	NA	NA	NA	NA	ND (0.13)	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	0.069 J (0.15)	NA	NA	NA	NA	ND (0.18)	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	0.051 J (0.11)	NA	NA	NA	NA	ND (0.13)	NA	NA
Chrysene	1	1.2	--	NA	0.12 (0.11)	NA	NA	NA	NA	ND (0.13)	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	ND (0.11)	NA	NA	NA	NA	ND (0.13)	NA	NA
Dibenzofuran	2.1	4.2	--	NA	ND (0.19)	NA	NA	NA	NA	ND (0.22)	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	0.072 J (0.15)	NA	NA	NA	NA	ND (0.18)	NA	NA
Phenanthrene	1.1	1.2	--	NA	0.13 (0.11)	NA	NA	NA	NA	ND (0.13)	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00206)	ND (0.0018)	ND (0.00178)	ND (0.00179)	ND (0.00163)	ND (0.00221)	ND (0.00205)	NA	NA
alpha-Chlordane	0.014	0.14	1.3	0.00273 IP (0.00257)	0.00189 J (0.00225)	ND (0.00223)	0.00188 J (0.00224)	ND (0.00204)	**0.0698 IP (0.00276)**	0.00634 IP (0.00257)	NA	NA
4,4'-DDD	0.0033	1.2	0.0033	**0.00342 (0.00206)**	**0.0194 (0.0018)**	**0.0196 (0.00178)**	**0.00528 (0.00179)**	ND (0.00163)	ND (0.00221)	ND (0.00205)	NA	NA
4,4'-DDE	0.0033	0.78	0.0033	**0.163 (0.00206)**	**0.352 (0.0036)**	**0.282 (0.00178)**	**0.118 (0.00179)**	ND (0.00163)	**0.221 (0.00221)**	**0.0273 (0.00205)**	NA	NA
4,4'-DDT	0.0033	0.78	0.0033	**0.0449 (0.00206)**	**0.0615 (0.0018)**	**0.0272 (0.00178)**	**0.0214 (0.00179)**	ND (0.00163)	**0.088 (0.00221)**	**0.00956 (0.00205)**	NA	NA
Dieldrin	0.005	0.017	0.006	0.00292 (0.00128)	0.00223 (0.00112)	ND (0.00111)	**0.00507 (0.00112)**	ND (0.00102)	**0.115 (0.00138)**	**0.0133 (0.00128)**	NA	NA
Endrin	0.014	1.2	0.014	ND (0.000857)	ND (0.00075)	ND (0.000743)	ND (0.000746)	ND (0.000681)	ND (0.000922)	ND (0.000855)	NA	NA
Heptachlor epoxide	0.013	0.12	0.14	0.00396 (0.00385)	0.00195 JIP (0.00338)	ND (0.00334)	0.00152 JIP (0.00336)	ND (0.00306)	**0.0895 (0.00415)**	0.0103 (0.00385)	NA	NA
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	ND (0.0545)	NA	NA	NA	NA	ND (0.0653)	NA	NA
Metals												
Arsenic	13	16	13	6.89 (1.01)	7.43 (0.894)	NA	NA	NA	**62 (1.12)**	**13.8 (1.04)**	NA	NA
Cadmium	2.5	2.5	4	ND (1.01)	ND (0.894)	NA	NA	NA	1.05 J (1.12)	ND (1.04)	NA	NA
Chromium III	30	30	160	**30.58 (1.01)**	28.8435 (0.894)	NA	NA	NA	**60.63 (1.12)**	**31.065 (1.04)**	NA	NA
Chromium VI	1	1	20	ND (1.04)	ND (0.913)	NA	NA	NA	ND (1.14)	ND (1.07)	NA	NA
Copper	50	280	50	20.5 (1.01)	22.8 (0.894)	NA	NA	NA	23.5 (1.12)	23.7 (1.04)	NA	NA
Lead	63	400	63	30.3 (5.04)	29.8 (4.47)	NA	NA	NA	**180 (5.62)**	35.7 (5.21)	NA	NA
Mercury	0.18	0.3	0.18	**0.606 (0.084)**	0.164 (0.077)	NA	NA	NA	**5.93 (0.465)**	**1.54 (0.09)**	**6.45 (0.817)**	0.104 (0.088)
Nickel	30	87	30	19.5 (2.52)	19.1 (2.23)	NA	NA	NA	14.7 (2.81)	17.7 (2.6)	NA	NA
Zinc	109	1300	109	80.9 (5.04)	86.9 (4.47)	NA	NA	NA	**115 (5.62)**	68.6 (5.21)	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location Field Sample ID Collection Depth (ft bgs) Sampler Sample Date Comments	Unrestricted Use SCO	Residential SCO	PEco SCO	B13 B13_2-4 2 - 4 Roux 6/11/2024	C03 C3_0-0.2 0 - 0.2 Roux 6/13/2024	C03 C3_0.2-2 0.2 - 2 Roux 6/13/2024	C03 C03R-0.5-1 0.5 - 1 Carson Voci 2/8/2025	C03 C3_2-4 2 - 4 Roux 6/13/2024	C03 C3_4-6 4 - 6 Roux 6/13/2024	C04 C4_0-0.2 0 - 0.2 Roux 6/13/2024	C04 C4_0.2-2 0.2 - 2 Roux 6/13/2024	C05 C5_0-0.2 0 - 0.2 Roux 5/23/2024
Acetone	0.03	100	2.2	NA	NA	0.0088 J (0.011)	NA	NA	NA	NA	0.011 J (0.014)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	0.067 J (0.12)	NA	NA	NA	NA	ND (0.11)	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	0.058 J (0.16)	NA	NA	NA	NA	ND (0.15)	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	0.077 J (0.12)	NA	NA	NA	NA	ND (0.11)	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	0.035 J (0.16)	NA	NA	NA	NA	ND (0.15)	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.12)	NA	NA	NA	NA	ND (0.11)	NA
Chrysene	1	1.2	--	NA	NA	0.058 J (0.12)	NA	NA	NA	NA	ND (0.11)	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.12)	NA	NA	NA	NA	ND (0.11)	NA
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.2)	NA	NA	NA	NA	ND (0.18)	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	0.033 J (0.16)	NA	NA	NA	NA	ND (0.15)	NA
Phenanthrene	1.1	1.2	--	NA	NA	0.064 J (0.12)	NA	NA	NA	NA	ND (0.11)	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00188)	ND (0.00204)	ND (0.00187)	ND (0.0018)	ND (0.00185)	ND (0.0017)	ND (0.00203)	ND (0.00173)	ND (0.00186)
alpha-Chlordane	0.014	0.14	1.3	ND (0.00236)	**0.0344 IP (0.00255)**	0.00214 J (0.00234)	ND (0.00225)	ND (0.00232)	ND (0.00213)	0.0033 IP (0.00254)	ND (0.00216)	**0.066 IP (0.00233)**
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00188)	ND (0.00204)	0.00138 J (0.00187)	ND (0.0018)	ND (0.00185)	ND (0.0017)	ND (0.00203)	ND (0.00173)	ND (0.00186)
4,4'-DDE	0.0033	0.78	0.0033	ND (0.00188)	**0.0232 (0.00204)**	**0.11 (0.00187)**	ND (0.0018)	**0.0304 (0.00185)**	ND (0.0017)	**0.0105 (0.00203)**	0.00322 (0.00173)	**0.186 (0.00186)**
4,4'-DDT	0.0033	0.78	0.0033	ND (0.00188)	**0.00559 (0.00204)**	**0.0126 (0.00187)**	ND (0.0018)	**0.0101 (0.00185)**	ND (0.0017)	**0.00381 (0.00203)**	ND (0.00173)	**0.0848 (0.00186)**
Dieldrin	0.005	0.017	0.006	ND (0.00118)	**0.0227 (0.00127)**	**0.106 (0.00117)**	ND (0.00112)	0.00318 (0.00116)	ND (0.00106)	0.00426 (0.00127)	ND (0.00108)	**0.127 (0.00116)**
Endrin	0.014	1.2	0.014	ND (0.000785)	ND (0.00085)	ND (0.000778)	ND (0.00075)	ND (0.000772)	ND (0.00071)	ND (0.000847)	ND (0.00072)	ND (0.000776)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00353)	0.00717 (0.00382)	0.00804 (0.0035)	ND (0.00338)	ND (0.00347)	ND (0.00319)	0.0013 J (0.00381)	ND (0.00324)	**0.1 (0.00349)**
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	ND (0.0588)	NA	NA	NA	NA	ND (0.0555)	NA
Metals												
Arsenic	13	16	13	3.02 (0.949)	**14.2 (0.999)**	**15.4 (0.952)**	NA	8.63 (1.89)	NA	**16.3 (0.975)**	2.86 (0.855)	**64.6 (0.917)**
Cadmium	2.5	2.5	4	ND (0.949)	0.468 J (0.999)	0.166 J (0.952)	NA	ND (1.89)	NA	0.252 J (0.975)	0.106 J (0.855)	0.895 J (0.917)
Chromium III	30	30	160	NA	29.48 (0.999)	23.6145 (0.952)	NA	NA	NA	26.99 (0.975)	21.0455 (0.855)	**54.2255 (0.917)**
Chromium VI	1	1	20	NA	ND (1.04)	ND (0.971)	NA	NA	NA	ND (1.02)	ND (0.909)	ND (0.949)
Copper	50	280	50	15.8 (0.949)	22.8 (0.999)	12.6 (0.952)	NA	18.9 (1.89)	NA	25.6 (0.975)	21 (0.855)	26.1 (0.917)
Lead	63	400	63	9.2 (4.75)	48 (5)	43.3 (4.76)	NA	21.3 (9.46)	NA	38.5 (4.87)	13.3 (4.28)	**101 (4.59)**
Mercury	0.18	0.3	0.18	0.068 J (0.082)	**1.59 (0.087)**	0.085 J (0.094)	NA	ND (0.076)	NA	**0.975 (0.095)**	ND (0.071)	**9.54 (0.776)**
Nickel	30	87	30	18.4 (2.37)	16.2 (2.5)	14.4 (2.38)	NA	20.2 (4.73)	NA	20.2 (2.44)	19.5 (2.14)	20.8 (2.29)
Zinc	109	1300	109	61.4 (4.75)	71.7 (5)	49 (4.76)	NA	52.2 (9.46)	NA	70.5 (4.87)	54 (4.28)	82.9 (4.59)

Notes:
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2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
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J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				C05	C05	C05	C06	C06	C06	C07	C07	C07
Field Sample ID				C05-0-0.2	C5_0.2-2	C5_2-4	C6_0-0.2	C6_0.2-2	C6_2-4	C7_0-0.2	C7_0.2-2	C7_2-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	2 - 4
Sampler	SCO	SCO		Carson Voci	Roux	Roux	Roux	Roux	Roux	Roux	Roux	Roux
Sample Date				4/30/2025	5/23/2024	5/23/2024	6/13/2024	6/13/2024	6/13/2024	6/13/2024	6/13/2024	6/13/2024
Comments												
Acetone	0.03	100	2.2	NA	0.01 J (0.012)	NA	NA	0.01 J (0.011)	NA	NA	0.012 J (0.013)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	ND (0.1)	NA	NA	ND (0.11)	NA	NA	ND (0.1)	NA
Benzo(a)pyrene	1	1	2.6	NA	ND (0.14)	NA	NA	ND (0.14)	NA	NA	ND (0.14)	NA
Benzo(b)fluoranthene	1	1	--	NA	ND (0.1)	NA	NA	ND (0.11)	NA	NA	ND (0.1)	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	ND (0.14)	NA	NA	ND (0.14)	NA	NA	ND (0.14)	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	ND (0.1)	NA	NA	ND (0.11)	NA	NA	ND (0.1)	NA
Chrysene	1	1.2	--	NA	ND (0.1)	NA	NA	ND (0.11)	NA	NA	ND (0.1)	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	ND (0.1)	NA	NA	ND (0.11)	NA	NA	ND (0.1)	NA
Dibenzofuran	2.1	4.2	--	NA	ND (0.17)	NA	NA	ND (0.18)	NA	NA	ND (0.18)	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	ND (0.14)	NA	NA	ND (0.14)	NA	NA	ND (0.14)	NA
Phenanthrene	1.1	1.2	--	NA	ND (0.1)	NA	NA	ND (0.11)	NA	NA	ND (0.1)	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	**0.00164 (0.000199)**	0.000125 J (0.000196)	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	0.000053 J (0.000199)	ND (0.000196)	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	NA	ND (0.00166)	NA	ND (0.00192)	ND (0.00174)	ND (0.00166)	ND (0.00184)	ND (0.00164)	ND (0.00169)
alpha-Chlordane	0.014	0.14	1.3	NA	0.00151 JIP (0.00208)	NA	**0.0292 IP (0.0024)**	0.00236 IP (0.00217)	ND (0.00208)	**0.0176 IP (0.0023)**	0.00121 JIP (0.00204)	ND (0.00211)
4,4'-DDD	0.0033	1.2	0.0033	NA	ND (0.00166)	NA	ND (0.00192)	0.000802 J (0.00174)	ND (0.00166)	ND (0.00184)	ND (0.00164)	ND (0.00169)
4,4'-DDE	0.0033	0.78	0.0033	NA	0.00204 (0.00166)	NA	**0.0271 (0.00192)**	**0.00486 (0.00174)**	0.000604 J (0.00166)	**0.0544 (0.00184)**	**0.00346 (0.00164)**	ND (0.00169)
4,4'-DDT	0.0033	0.78	0.0033	NA	ND (0.00166)	NA	**0.00691 (0.00192)**	0.00159 JIP (0.00174)	ND (0.00166)	**0.0135 (0.00184)**	ND (0.00164)	ND (0.00169)
Dieldrin	0.005	0.017	0.006	NA	0.00296 (0.00104)	NA	**0.119 (0.0012)**	**0.0118 (0.00109)**	0.00153 (0.00104)	**0.0267 (0.00115)**	0.00112 (0.00102)	ND (0.00105)
Endrin	0.014	1.2	0.014	NA	ND (0.000692)	NA	ND (0.000798)	ND (0.000724)	ND (0.000692)	ND (0.000766)	ND (0.000682)	ND (0.000703)
Heptachlor epoxide	0.013	0.12	0.14	NA	0.00256 J (0.00312)	NA	**0.0424 (0.00359)**	0.0047 (0.00326)	ND (0.00311)	**0.0234 (0.00345)**	ND (0.00307)	ND (0.00316)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	ND (0.0518)	NA	NA	ND (0.0528)	NA	NA	ND (0.0518)	NA
Metals												
Arsenic	13	16	13	NA	1.74 (0.833)	0.64 J (0.824)	**29.6 (0.97)**	3.62 (0.858)	NA	**52.9 (0.88)**	6.2 (0.81)	NA
Cadmium	2.5	2.5	4	NA	0.125 J (0.833)	0.091 J (0.824)	0.618 J (0.97)	0.113 J (0.858)	NA	0.436 J (0.88)	0.089 J (0.81)	NA
Chromium III	30	30	160	NA	28.9815 (0.833)	NA	**35.31 (0.97)**	20.45 (0.858)	NA	**46.735 (0.88)**	24.373 (0.81)	NA
Chromium VI	1	1	20	NA	ND (0.837)	NA	ND (0.98)	ND (0.9)	NA	ND (0.93)	ND (0.854)	NA
Copper	50	280	50	NA	47.3 (0.833)	41.5 (0.824)	14.8 (0.97)	16.4 (0.858)	NA	19.8 (0.88)	23.4 (0.81)	NA
Lead	63	400	63	NA	8.04 (4.16)	3 J (4.12)	37.8 (4.85)	10.3 (4.29)	NA	**94.7 (4.4)**	18.7 (4.05)	NA
Mercury	0.18	0.3	0.18	NA	ND (0.073)	ND (0.083)	**0.739 (0.082)**	ND (0.089)	NA	**0.342 (0.087)**	ND (0.081)	NA
Nickel	30	87	30	NA	**30.6 (2.08)**	25.4 (2.06)	11.8 (2.42)	17.1 (2.14)	NA	15.3 (2.2)	20.4 (2.02)	NA
Zinc	109	1300	109	NA	80.9 (4.16)	63.3 (4.12)	51.9 (4.85)	45.1 (4.29)	NA	57.9 (4.4)	51.6 (4.05)	NA

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4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				C08	C08	C08	C09	C09	C10	C10	C10	C10
Field Sample ID				C8_0-0.2	C8_0.2-2	C8_2-4	C9_0-0.2	C9_0.2-2	C10_0-0.2	C10_0.2-2	C10R-0.5-1	C10R-1-1.5
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5
Sampler	SCO	SCO		Roux	Roux	Roux	Roux	Roux	Roux	Roux	Carson Voci	Carson Voci
Sample Date				6/13/2024	6/13/2024	6/13/2024	6/13/2024	6/13/2024	6/14/2024	6/14/2024	2/8/2025	2/8/2025
Comments												
Acetone	0.03	100	2.2	NA	0.0072 J (0.012)	NA	NA	0.0092 J (0.011)	NA	ND (0.01)	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	ND (0.16)	NA	NA	ND (0.15)	NA	ND (0.15)	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	ND (0.16)	NA	NA	ND (0.15)	NA	ND (0.15)	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA	NA
Chrysene	1	1.2	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA	NA
Dibenzofuran	2.1	4.2	--	NA	ND (0.19)	NA	NA	ND (0.18)	NA	ND (0.19)	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	ND (0.16)	NA	NA	ND (0.15)	NA	ND (0.15)	NA	NA
Phenanthrene	1.1	1.2	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	ND (0.12)	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00187)	ND (0.00184)	ND (0.00172)	ND (0.00182)	ND (0.00173)	ND (0.00214)	ND (0.00186)	ND (0.00189)	NA
alpha-Chlordane	0.014	0.14	1.3	**0.0232 IP (0.00233)**	0.00212 JIP (0.0023)	ND (0.00215)	ND (0.00227)	ND (0.00216)	**0.168 IP (0.00267)**	**0.0163 IP (0.00232)**	ND (0.00236)	NA
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00187)	ND (0.00184)	ND (0.00172)	ND (0.00182)	ND (0.00173)	**0.014 (0.00214)**	0.00163 J (0.00186)	ND (0.00189)	NA
4,4'-DDE	0.0033	0.78	0.0033	**0.0806 (0.00187)**	**0.0168 (0.00184)**	ND (0.00172)	0.00309 (0.00182)	ND (0.00173)	**1.02 (0.0107)**	**0.219 (0.00186)**	**0.0116 (0.00189)**	NA
4,4'-DDT	0.0033	0.78	0.0033	**0.0218 (0.00187)**	**0.0074 IP (0.00184)**	ND (0.00172)	0.0025 (0.00182)	ND (0.00173)	**0.62 (0.0107)**	**0.0857 (0.00186)**	0.00224 (0.00189)	NA
Dieldrin	0.005	0.017	0.006	**0.23 (0.00117)**	**0.0198 (0.00115)**	ND (0.00108)	ND (0.00114)	ND (0.00108)	**0.592 (0.00668)**	**0.0736 (0.00116)**	**0.00666 (0.00118)**	NA
Endrin	0.014	1.2	0.014	ND (0.000778)	ND (0.000766)	ND (0.000717)	ND (0.000758)	ND (0.000722)	ND (0.000891)	ND (0.000774)	ND (0.000788)	NA
Heptachlor epoxide	0.013	0.12	0.14	**0.0788 (0.0035)**	0.00531 (0.00345)	ND (0.00322)	ND (0.00341)	ND (0.00325)	**0.307 (0.00401)**	**0.0416 (0.00348)**	ND (0.00354)	NA
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	ND (0.0583)	NA	NA	ND (0.0534)	NA	ND (0.0565)	NA	NA
Metals												
Arsenic	13	16	13	**139 (0.926)**	11.2 (0.913)	NA	3.33 (0.93)	0.818 J (0.848)	**218 (1.04)**	**39.4 (0.918)**	**39.2 (0.915)**	0.719 J (0.874)
Cadmium	2.5	2.5	4	0.838 J (0.926)	0.146 J (0.913)	NA	ND (0.93)	ND (0.848)	2.14 (1.04)	0.232 J (0.918)	NA	NA
Chromium III	30	30	160	**61.4215 (0.926)**	28.325 (0.913)	NA	22.8335 (0.93)	23.354 (0.848)	**140.46 (1.04)**	29.23 (0.918)	NA	NA
Chromium VI	1	1	20	ND (0.957)	ND (0.95)	NA	ND (0.933)	ND (0.892)	ND (1.08)	ND (0.94)	NA	NA
Copper	50	280	50	21.6 (0.926)	19.2 (0.913)	NA	16 (0.93)	20.4 (0.848)	27 (1.04)	19.1 (0.918)	NA	NA
Lead	63	400	63	**93.6 (4.63)**	15 (4.56)	NA	8.48 (4.65)	6.66 (4.24)	**199 (5.2)**	23.2 (4.59)	NA	NA
Mercury	0.18	0.3	0.18	**0.685 (0.083)**	0.077 J (0.088)	NA	ND (0.087)	ND (0.082)	**1.97 (0.097)**	0.18 (0.09)	NA	NA
Nickel	30	87	30	18.1 (2.32)	17.4 (2.28)	NA	17.8 (2.33)	17.2 (2.12)	19 (2.6)	15.8 (2.3)	NA	NA
Zinc	109	1300	109	70.8 (4.63)	46.8 (4.56)	NA	48.8 (4.65)	44.7 (4.24)	108 (5.2)	41.4 (4.59)	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
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J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				C10	C10	C11	C11	C11	C11	C11	C11	C11
Field Sample ID				C10_2-4	C10_4-6	C11_0-0.2	C11_0.2-2	C11R-0.5-1	C11R-1-1.5	C11R-1.5-2	C11_2-4	C11_4-6
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	2 - 4	4 - 6	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5	1.5 - 2	2 - 4	4 - 6
Sampler	SCO	SCO		Roux	Roux	Roux	Roux	Carson Voci	Carson Voci	Carson Voci	Roux	Roux
Sample Date				6/14/2024	6/14/2024	6/14/2024	6/14/2024	2/7/2025	2/7/2025	2/7/2025	6/14/2024	6/14/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	ND (0.011)	NA	NA	NA	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	ND (0.12)	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	ND (0.15)	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	ND (0.12)	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	ND (0.15)	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	ND (0.12)	NA	NA	NA	NA	NA
Chrysene	1	1.2	--	NA	NA	NA	ND (0.12)	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	ND (0.12)	NA	NA	NA	NA	NA
Dibenzofuran	2.1	4.2	--	NA	NA	NA	ND (0.19)	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	ND (0.15)	NA	NA	NA	NA	NA
Phenanthrene	1.1	1.2	--	NA	NA	NA	ND (0.12)	NA	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00175)	ND (0.00176)	ND (0.00264)	ND (0.00185)	NA	NA	NA	ND (0.00217)	ND (0.00173)
alpha-Chlordane	0.014	0.14	1.3	ND (0.00218)	ND (0.0022)	**0.37 IP (0.0033)**	**0.0173 IP (0.00231)**	NA	NA	NA	ND (0.00271)	0.00205 J (0.00217)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00175)	ND (0.00176)	**0.0192 (0.00264)**	0.00263 (0.00185)	NA	NA	NA	ND (0.00217)	ND (0.00173)
4,4'-DDE	0.0033	0.78	0.0033	**0.00446 (0.00175)**	ND (0.00176)	**0.452 (0.0132)**	**0.0665 (0.00185)**	NA	NA	NA	**0.00511 (0.00217)**	0.00215 (0.00173)
4,4'-DDT	0.0033	0.78	0.0033	ND (0.00175)	ND (0.00176)	**0.141 (0.00264)**	**0.0233 (0.00185)**	NA	NA	NA	0.00313 (0.00217)	ND (0.00173)
Dieldrin	0.005	0.017	0.006	0.00121 (0.00109)	ND (0.0011)	**0.0513 (0.00165)**	**0.00972 (0.00116)**	NA	NA	NA	ND (0.00135)	ND (0.00108)
Endrin	0.014	1.2	0.014	ND (0.000728)	ND (0.000735)	ND (0.0011)	ND (0.000772)	NA	NA	NA	ND (0.000903)	ND (0.000723)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00327)	ND (0.0033)	**0.203 (0.00494)**	**0.0275 (0.00347)**	NA	NA	NA	ND (0.00406)	ND (0.00325)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	ND (0.0553)	NA	NA	NA	NA	NA
Metals												
Arsenic	13	16	13	2.46 (0.899)	NA	**59.2 (1.33)**	**17.9 (0.932)**	**21.3 (0.893)**	10.2 (0.873)	NA	5.65 (1.09)	0.838 J (0.861)
Cadmium	2.5	2.5	4	ND (0.899)	NA	2.03 (1.33)	0.211 J (0.932)	NA	NA	NA	ND (1.09)	ND (0.861)
Chromium III	30	30	160	NA	NA	**49.015 (1.33)**	19.328 (0.932)	NA	NA	NA	NA	NA
Chromium VI	1	1	20	NA	NA	ND (1.37)	ND (0.944)	NA	NA	NA	NA	NA
Copper	50	280	50	21.4 (0.899)	NA	21.5 (1.33)	14.2 (0.932)	NA	NA	NA	12.1 (1.09)	26.2 (0.861)
Lead	63	400	63	8.82 (4.49)	NA	**197 (6.63)**	19.3 (4.66)	NA	NA	NA	12.4 (5.43)	4.26 J (4.3)
Mercury	0.18	0.3	0.18	ND (0.08)	NA	**38.1 (1.17)**	**1.49 (0.087)**	**12.4 (0.768)**	**1.29 (0.078)**	**0.404 (0.082)**	**0.693 (0.1)**	**0.22 (0.08)**
Nickel	30	87	30	16.7 (2.25)	NA	14.5 (3.32)	13.8 (2.33)	NA	NA	NA	13.3 (2.72)	18 (2.15)
Zinc	109	1300	109	41.8 (4.49)	NA	107 (6.63)	44.5 (4.66)	NA	NA	NA	49.4 (5.43)	44 (4.3)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
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6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location Field Sample ID Collection Depth (ft bgs) Sampler Sample Date Comments	Unrestricted Use SCO	Residential SCO	PEco SCO	C11 C11R-6-8 6 - 8 Carson Voci 2/7/2025	C12 C12_0-0.2 0 - 0.2 Roux 5/23/2024	C12 C12_0.2-2 0.2 - 2 Roux 5/23/2024	C13 C13_0-0.2 0 - 0.2 Roux 6/14/2024	C13 C13-0-0.2 0 - 0.2 Carson Voci 4/30/2025	C13 C13_0.2-2 0.2 - 2 Roux 6/14/2024	C13 C13_11-13 11 - 13 Roux 6/14/2024	D03 D3_0-0.2 0 - 0.2 Roux 6/17/2024	D03 D3_0.2-2 0.2 - 2 Roux 6/17/2024
Acetone	0.03	100	2.2	NA	NA	0.0058 J (0.012)	NA	NA	ND (0.013)	ND (0.012)	NA	ND (0.012)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	ND (0.11)	NA	NA	ND (0.13)	ND (0.11)	NA	ND (0.11)
Benzo(a)pyrene	1	1	2.6	NA	NA	ND (0.14)	NA	NA	ND (0.17)	ND (0.14)	NA	ND (0.14)
Benzo(b)fluoranthene	1	1	--	NA	NA	ND (0.11)	NA	NA	ND (0.13)	ND (0.11)	NA	ND (0.11)
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	ND (0.14)	NA	NA	ND (0.17)	ND (0.14)	NA	ND (0.14)
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.11)	NA	NA	ND (0.13)	ND (0.11)	NA	ND (0.11)
Chrysene	1	1.2	--	NA	NA	ND (0.11)	NA	NA	ND (0.13)	ND (0.11)	NA	ND (0.11)
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.11)	NA	NA	ND (0.13)	ND (0.11)	NA	ND (0.11)
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.18)	NA	NA	ND (0.21)	ND (0.18)	NA	ND (0.18)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	ND (0.14)	NA	NA	ND (0.17)	ND (0.14)	NA	ND (0.14)
Phenanthrene	1.1	1.2	--	NA	NA	ND (0.11)	NA	NA	ND (0.13)	ND (0.11)	NA	ND (0.11)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	ND (0.000198)	NA	0.000306 (0.000199)	0.000329 (0.000196)	ND (0.000198)	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	0.000101 J (0.000198)	NA	0.000101 J (0.000199)	0.00018 J (0.000196)	ND (0.000198)	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	NA	ND (0.00195)	ND (0.00174)	ND (0.00185)	NA	ND (0.00199)	ND (0.0017)	ND (0.00182)	ND (0.0017)
alpha-Chlordane	0.014	0.14	1.3	NA	0.0138 IP (0.00244)	ND (0.00217)	ND (0.00231)	NA	ND (0.00249)	ND (0.00212)	ND (0.00228)	ND (0.00212)
4,4'-DDD	0.0033	1.2	0.0033	NA	ND (0.00195)	ND (0.00174)	ND (0.00185)	NA	ND (0.00199)	ND (0.0017)	ND (0.00182)	ND (0.0017)
4,4'-DDE	0.0033	0.78	0.0033	NA	**0.0429 (0.00195)**	ND (0.00174)	**0.013 (0.00185)**	NA	0.000662 J (0.00199)	ND (0.0017)	**0.0161 (0.00182)**	ND (0.0017)
4,4'-DDT	0.0033	0.78	0.0033	NA	**0.00974 (0.00195)**	ND (0.00174)	**0.00431 (0.00185)**	NA	ND (0.00199)	ND (0.0017)	**0.00537 (0.00182)**	ND (0.0017)
Dieldrin	0.005	0.017	0.006	NA	0.00223 (0.00122)	ND (0.00109)	0.00118 (0.00116)	NA	ND (0.00124)	ND (0.00106)	**0.0279 (0.00114)**	ND (0.00106)
Endrin	0.014	1.2	0.014	NA	ND (0.000814)	ND (0.000724)	ND (0.00077)	NA	ND (0.00083)	ND (0.000708)	ND (0.00076)	ND (0.000708)
Heptachlor epoxide	0.013	0.12	0.14	NA	0.0114 (0.00366)	ND (0.00326)	ND (0.00347)	NA	ND (0.00373)	ND (0.00319)	ND (0.00342)	ND (0.00318)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	ND (0.0531)	NA	NA	ND (0.062)	ND (0.0497)	NA	ND (0.0524)
Metals												
Arsenic	13	16	13	NA	10.6 (0.963)	2.47 (0.885)	**17.6 (0.938)**	NA	4.32 (0.996)	2.34 (0.833)	**15.7 (0.941)**	1.44 (0.864)
Cadmium	2.5	2.5	4	NA	0.172 J (0.963)	0.127 J (0.885)	0.17 J (0.938)	NA	0.098 J (0.996)	ND (0.833)	0.212 J (0.941)	0.092 J (0.864)
Chromium III	30	30	160	NA	27.895 (0.963)	25.9495 (0.885)	23.719 (0.938)	NA	22.185 (0.996)	15.169 (0.833)	**30.424 (0.941)**	27.53 J (0.864)
Chromium VI	1	1	20	NA	ND (1.01)	ND (0.901)	ND (0.962)	NA	ND (1.03)	ND (0.862)	ND (0.952)	0.27 J (0.866)
Copper	50	280	50	NA	20.5 (0.963)	23.8 (0.885)	24.6 (0.938)	NA	15.9 (0.996)	16.1 (0.833)	16.7 (0.941)	27.4 (0.864)
Lead	63	400	63	NA	46.8 (4.82)	6.88 (4.42)	**65.3 (4.69)**	NA	13.5 (4.98)	8.41 (4.17)	49.1 (4.7)	5.06 (4.32)
Mercury	0.18	0.3	0.18	ND (0.073)	0.146 (0.097)	ND (0.089)	**0.194 (0.089)**	NA	0.072 J (0.096)	ND (0.077)	0.113 (0.084)	ND (0.07)
Nickel	30	87	30	NA	16.4 (2.41)	20.3 (2.21)	16.7 (2.34)	NA	14.7 (2.49)	11.9 (2.08)	15.9 (2.35)	25.8 (2.16)
Zinc	109	1300	109	NA	45.2 (4.82)	46.5 (4.42)	72.7 (4.69)	NA	52 (4.98)	26.5 (4.17)	50 (4.7)	50.6 (4.32)

Notes:
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				D04	D04	D04	D05	D05	D05	D06	D06	D06
Field Sample ID				D4_0-0.2	D4_0.2-2	D04R-2-4	D5_0-0.2	D5_0.2-2	D5_2-4	D6_0-0.2	D6_0.2-2	D6_2-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	2 - 4
Sampler	SCO	SCO		Roux	Roux	Carson Voci	Roux	Roux	Roux	Roux	Roux	Roux
Sample Date				6/17/2024	6/17/2024	2/7/2025	6/17/2024	6/17/2024	6/17/2024	6/17/2024	6/17/2024	6/17/2024
Comments												
Acetone	0.03	100	2.2	NA	ND (0.014)	NA	NA	ND (0.012)	NA	NA	ND (0.014)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	ND (0.11)	NA	NA	ND (0.11)	NA	NA	ND (0.11)	NA
Benzo(a)pyrene	1	1	2.6	NA	ND (0.14)	NA	NA	ND (0.15)	NA	NA	ND (0.15)	NA
Benzo(b)fluoranthene	1	1	--	NA	ND (0.11)	NA	NA	ND (0.11)	NA	NA	ND (0.11)	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	ND (0.14)	NA	NA	ND (0.15)	NA	NA	ND (0.15)	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	ND (0.11)	NA	NA	ND (0.11)	NA	NA	ND (0.11)	NA
Chrysene	1	1.2	--	NA	ND (0.11)	NA	NA	ND (0.11)	NA	NA	ND (0.11)	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	ND (0.11)	NA	NA	ND (0.11)	NA	NA	ND (0.11)	NA
Dibenzofuran	2.1	4.2	--	NA	ND (0.18)	NA	NA	ND (0.19)	NA	NA	ND (0.19)	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	ND (0.14)	NA	NA	ND (0.15)	NA	NA	ND (0.15)	NA
Phenanthrene	1.1	1.2	--	NA	ND (0.11)	NA	NA	ND (0.11)	NA	NA	ND (0.11)	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00176)	ND (0.00168)	NA	ND (0.00201)	ND (0.00181)	ND (0.00165)	ND (0.00177)	ND (0.00171)	ND (0.00192)
alpha-Chlordane	0.014	0.14	1.3	0.00113 JIP (0.0022)	ND (0.0021)	NA	**0.0284 IP (0.00251)**	0.00533 IP (0.00226)	ND (0.00206)	0.00138 JIP (0.00221)	0.000684 JIP (0.00213)	ND (0.0024)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00176)	ND (0.00168)	NA	ND (0.00201)	ND (0.00181)	ND (0.00165)	ND (0.00177)	ND (0.00171)	ND (0.00192)
4,4'-DDE	0.0033	0.78	0.0033	0.00245 (0.00176)	ND (0.00168)	NA	**0.0974 (0.00201)**	**0.0492 (0.00181)**	0.000405 JIP (0.00165)	**0.0151 (0.00177)**	**0.0283 (0.00171)**	ND (0.00192)
4,4'-DDT	0.0033	0.78	0.0033	ND (0.00176)	ND (0.00168)	NA	**0.0222 (0.00201)**	**0.0137 (0.00181)**	ND (0.00165)	**0.00736 (0.00177)**	**0.0158 (0.00171)**	ND (0.00192)
Dieldrin	0.005	0.017	0.006	0.00154 (0.0011)	ND (0.00105)	NA	**0.0853 (0.00126)**	**0.0251 (0.00113)**	0.00103 (0.00103)	0.00495 (0.00111)	0.0023 (0.00107)	ND (0.0012)
Endrin	0.014	1.2	0.014	0.00508 (0.000733)	ND (0.000701)	NA	ND (0.000838)	ND (0.000753)	ND (0.000686)	ND (0.000738)	ND (0.000711)	ND (0.000802)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.0033)	ND (0.00315)	NA	**0.0878 (0.00377)**	**0.019 (0.00339)**	ND (0.00309)	0.0106 (0.00332)	0.00468 (0.0032)	ND (0.00361)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	ND (0.0517)	NA	NA	ND (0.056)	NA	NA	ND (0.055)	NA
Metals												
Arsenic	13	16	13	4.3 (0.91)	2.86 (0.842)	NA	**136 (0.97)**	7.98 (0.894)	NA	5.95 (0.927)	7.07 (0.868)	NA
Cadmium	2.5	2.5	4	0.136 J (0.91)	0.129 J (0.842)	NA	0.572 J (0.97)	0.236 J (0.894)	NA	ND (0.927)	ND (0.868)	NA
Chromium III	30	30	160	17.67 J (0.91)	**33.3545 (0.842)**	19.392 (0.783)	**74.495 (0.97)**	19.812 J (0.894)	NA	20.353 J (0.927)	13.9515 (0.868)	NA
Chromium VI	1	1	20	0.23 J (0.918)	ND (0.891)	ND (0.816)	ND (1.01)	0.488 J (0.93)	NA	0.247 J (0.942)	ND (0.897)	NA
Copper	50	280	50	28.3 (0.91)	23.9 (0.842)	NA	22 (0.97)	10.4 (0.894)	NA	11 (0.927)	9.24 (0.868)	NA
Lead	63	400	63	11.6 (4.55)	8.55 (4.21)	NA	**90 (4.85)**	14.5 (4.47)	NA	24.8 (4.63)	20.9 (4.34)	NA
Mercury	0.18	0.3	0.18	0.097 (0.073)	ND (0.072)	NA	**1.03 (0.083)**	0.126 (0.073)	NA	**0.253 (0.075)**	0.102 (0.083)	NA
Nickel	30	87	30	15.7 (2.27)	27.2 (2.1)	NA	20.8 (2.43)	15.8 (2.23)	NA	9.64 (2.32)	8.62 (2.17)	NA
Zinc	109	1300	109	56.9 (4.55)	68.6 (4.21)	NA	76.3 (4.85)	48.3 (4.47)	NA	42.5 (4.63)	34 (4.34)	NA

Notes:
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3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				D07	D07	D08	D08	D08	D09	D09	D10	D10
Field Sample ID				D7_0-0.2	D7_0.2-2	D8_0-0.2	D8_0.2-2	D8_2-4	D9_0-0.2	D9_0.2-2	D10_0-0.2	D10_0.2-2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0.2 - 2	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	0 - 0.2	0.2 - 2
Sampler	SCO	SCO		Roux	Roux	Roux	Roux	Roux	Roux	Roux	Roux	Roux
Sample Date				6/17/2024	6/17/2024	6/17/2024	6/17/2024	6/17/2024	6/17/2024	6/17/2024	6/17/2024	6/17/2024
Comments												
Acetone	0.03	100	2.2	NA	0.0099 J (0.014)	NA	ND (0.012)	NA	NA	ND (0.015)	NA	ND (0.017)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	ND (0.13)	NA	ND (0.12)	NA	NA	ND (0.1)	NA	ND (0.11)
Benzo(a)pyrene	1	1	2.6	NA	ND (0.18)	NA	ND (0.16)	NA	NA	ND (0.14)	NA	ND (0.15)
Benzo(b)fluoranthene	1	1	--	NA	ND (0.13)	NA	ND (0.12)	NA	NA	ND (0.1)	NA	ND (0.11)
Benzo(g,h,i)perylene	0.64	1.2	--	NA	ND (0.18)	NA	ND (0.16)	NA	NA	ND (0.14)	NA	ND (0.15)
Benzo(k)fluoranthene	0.8	1.2	--	NA	ND (0.13)	NA	ND (0.12)	NA	NA	ND (0.1)	NA	ND (0.11)
Chrysene	1	1.2	--	NA	ND (0.13)	NA	ND (0.12)	NA	NA	ND (0.1)	NA	0.025 J (0.11)
Dibenz(a,h)anthracene	0.33	0.33	--	NA	ND (0.13)	NA	ND (0.12)	NA	NA	ND (0.1)	NA	ND (0.11)
Dibenzofuran	2.1	4.2	--	NA	ND (0.22)	NA	ND (0.2)	NA	NA	ND (0.18)	NA	ND (0.19)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	ND (0.18)	NA	ND (0.16)	NA	NA	ND (0.14)	NA	ND (0.15)
Phenanthrene	1.1	1.2	--	NA	ND (0.13)	NA	ND (0.12)	NA	NA	ND (0.1)	NA	ND (0.11)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00197)	ND (0.00202)	ND (0.00212)	ND (0.00187)	ND (0.00171)	ND (0.00197)	ND (0.00172)	ND (0.00198)	ND (0.00178)
alpha-Chlordane	0.014	0.14	1.3	0.00176 J (0.00246)	ND (0.00253)	**0.018 IP (0.00264)**	0.0012 JIP (0.00234)	ND (0.00214)	0.00254 IP (0.00246)	ND (0.00215)	0.0067 IP (0.00248)	0.00356 IP (0.00222)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00197)	ND (0.00202)	ND (0.00212)	ND (0.00187)	ND (0.00171)	ND (0.00197)	ND (0.00172)	ND (0.00198)	ND (0.00178)
4,4'-DDE	0.0033	0.78	0.0033	**0.0202 (0.00197)**	ND (0.00202)	**0.146 (0.00212)**	**0.0056 (0.00187)**	ND (0.00171)	**0.131 (0.00197)**	0.0013 J (0.00172)	**0.0893 (0.00198)**	**0.0742 (0.00178)**
4,4'-DDT	0.0033	0.78	0.0033	**0.00894 (0.00197)**	ND (0.00202)	**0.0265 (0.00212)**	ND (0.00187)	ND (0.00171)	**0.0549 (0.00197)**	ND (0.00172)	**0.04 (0.00198)**	**0.0274 (0.00178)**
Dieldrin	0.005	0.017	0.006	0.00233 (0.00123)	ND (0.00127)	**0.0507 (0.00132)**	0.0014 (0.00117)	ND (0.00107)	**0.00642 (0.00123)**	ND (0.00108)	0.00247 (0.00124)	0.0012 (0.00111)
Endrin	0.014	1.2	0.014	ND (0.000821)	ND (0.000844)	ND (0.000881)	ND (0.000779)	ND (0.000713)	ND (0.000822)	ND (0.000717)	ND (0.000827)	ND (0.00074)
Heptachlor epoxide	0.013	0.12	0.14	0.00739 (0.0037)	ND (0.0038)	**0.0268 (0.00396)**	0.00138 J (0.00351)	ND (0.00321)	0.00246 J (0.0037)	ND (0.00323)	0.00183 J (0.00372)	ND (0.00333)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	ND (0.0622)	NA	ND (0.061)	NA	NA	ND (0.0526)	NA	ND (0.0568)
Metals												
Arsenic	13	16	13	**35.1 (0.985)**	1.4 (1.06)	**106 (1.02)**	7.08 (0.973)	NA	**22.4 (0.95)**	2.47 (0.856)	**18.4 (1)**	11.6 (0.914)
Cadmium	2.5	2.5	4	0.168 J (0.985)	ND (1.06)	0.912 J (1.02)	0.144 J (0.973)	NA	0.316 J (0.95)	0.087 J (0.856)	0.397 J (1)	0.215 J (0.914)
Chromium III	30	30	160	20.002 (0.985)	28.865 (1.06)	**67.465 (1.02)**	19.9045 (0.973)	NA	24.095 (0.95)	23.5665 (0.856)	25.195 (1)	25.637 (0.914)
Chromium VI	1	1	20	ND (0.996)	ND (1.07)	ND (1.07)	ND (0.991)	NA	ND (1.01)	ND (0.867)	ND (1.01)	ND (0.926)
Copper	50	280	50	17.3 (0.985)	20.8 (1.06)	23.6 (1.02)	12.8 (0.973)	NA	20.5 (0.95)	22.5 (0.856)	23.5 (1)	20 (0.914)
Lead	63	400	63	**111 (4.93)**	7.19 (5.3)	**160 (5.12)**	10.8 (4.87)	NA	**63.8 (4.75)**	10.3 (4.28)	**92.7 (5.02)**	57.6 (4.57)
Mercury	0.18	0.3	0.18	0.057 J (0.085)	ND (0.09)	**0.856 (0.09)**	0.107 (0.085)	NA	**1.68 (0.092)**	0.116 (0.078)	**0.356 (0.089)**	**0.211 (0.08)**
Nickel	30	87	30	16.3 (2.46)	23.7 (2.65)	18.8 (2.56)	13.4 (2.43)	NA	15.7 (2.37)	16.3 (2.14)	18.9 (2.51)	18.8 (2.28)
Zinc	109	1300	109	55.6 (4.93)	62.7 (5.3)	87.2 (5.12)	39.4 (4.87)	NA	57.6 (4.75)	51.4 (4.28)	87.5 (5.02)	65.2 (4.57)

Notes:
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6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				D10	D11	D11	D11	D11	D12	D12	D12	D12
Field Sample ID				D10_2-4	D11_0-0.2	D11_0.2-2	D11R-0.5-1	D11_2-4	D12_0-0.2	D12_0.2-2	D12_2-4	D12_4-6
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	2 - 4	0 - 0.2	0.2 - 2	0.5 - 1	2 - 4	0 - 0.2	0.2 - 2	2 - 4	4 - 6
Sampler	SCO	SCO		Roux	Roux	Roux	Carson Voci	Roux	Roux	Roux	Roux	Roux
Sample Date				6/17/2024	6/17/2024	6/17/2024	2/8/2025	6/17/2024	6/14/2024	6/14/2024	6/14/2024	6/14/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	ND (0.014)	NA	NA	NA	ND (0.01)	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	0.025 J (0.12)	NA	NA	NA	ND (0.12)	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	ND (0.16)	NA	NA	NA	ND (0.16)	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	0.037 J (0.12)	NA	NA	NA	ND (0.12)	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	ND (0.16)	NA	NA	NA	ND (0.16)	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.12)	NA	NA	NA	ND (0.12)	NA	NA
Chrysene	1	1.2	--	NA	NA	0.029 J (0.12)	NA	NA	NA	ND (0.12)	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.12)	NA	NA	NA	ND (0.12)	NA	NA
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.2)	NA	NA	NA	ND (0.2)	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	ND (0.16)	NA	NA	NA	ND (0.16)	NA	NA
Phenanthrene	1.1	1.2	--	NA	NA	ND (0.12)	NA	NA	NA	ND (0.12)	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00167)	ND (0.00208)	ND (0.00195)	ND (0.00185)	ND (0.00186)	ND (0.00175)	ND (0.00191)	ND (0.00213)	ND (0.00189)
alpha-Chlordane	0.014	0.14	1.3	ND (0.00208)	**0.0862 IP (0.0026)**	**0.072 J (0.00244)**	ND (0.00231)	ND (0.00232)	**0.0725 IP (0.00219)**	0.00999 IP (0.00238)	0.00379 IP (0.00267)	ND (0.00236)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00167)	ND (0.00208)	ND (0.00195)	ND (0.00185)	ND (0.00186)	**0.00509 (0.00175)**	0.00108 J (0.00191)	0.00103 J (0.00213)	ND (0.00189)
4,4'-DDE	0.0033	0.78	0.0033	ND (0.00167)	**0.604 (0.0208)**	**0.181 (0.00195)**	**0.174 (0.00185)**	0.00284 (0.00186)	**0.303 (0.00876)**	**0.0826 (0.00191)**	**0.0263 (0.00213)**	ND (0.00189)
4,4'-DDT	0.0033	0.78	0.0033	ND (0.00167)	**0.203 (0.00208)**	**0.052 (0.00195)**	**0.0445 (0.00185)**	ND (0.00186)	**0.123 (0.00175)**	**0.017 (0.00191)**	**0.00543 IP (0.00213)**	ND (0.00189)
Dieldrin	0.005	0.017	0.006	ND (0.00104)	**0.125 (0.0013)**	**0.125 (0.00122)**	ND (0.00116)	0.000712 J (0.00116)	**0.179 (0.0011)**	**0.0279 (0.00119)**	**0.0126 (0.00133)**	ND (0.00118)
Endrin	0.014	1.2	0.014	ND (0.000695)	ND (0.000866)	ND (0.000814)	ND (0.000771)	ND (0.000774)	ND (0.00073)	ND (0.000794)	ND (0.000889)	ND (0.000786)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00313)	**0.19 (0.0039)**	**0.133 (0.00366)**	ND (0.00347)	ND (0.00348)	**0.144 (0.00329)**	**0.0184 IP (0.00357)**	0.00814 (0.004)	ND (0.00354)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	ND (0.0592)	NA	NA	NA	ND (0.0585)	NA	NA
Metals												
Arsenic	13	16	13	0.576 J (0.817)	**173 (1)**	**121 (0.962)**	7.38 (0.892)	1.91 (0.904)	**125 (0.908)**	**16.5 (0.944)**	12.3 (1.1)	NA
Cadmium	2.5	2.5	4	0.118 J (0.817)	1.45 (1)	1 (0.962)	NA	ND (0.904)	1.18 (0.908)	0.264 J (0.944)	0.229 J (1.1)	NA
Chromium III	30	30	160	NA	**70.265 (1)**	**63.402 (0.962)**	24.7315 (0.892)	NA	**90.843 (0.908)**	22.109 (0.944)	NA	NA
Chromium VI	1	1	20	NA	ND (1.07)	ND (0.996)	ND (0.937)	NA	ND (0.914)	ND (0.982)	NA	NA
Copper	50	280	50	22.8 (0.817)	20.5 (1)	19.5 (0.962)	NA	27.5 (0.904)	18.4 (0.908)	12.5 (0.944)	13.3 (1.1)	NA
Lead	63	400	63	4.81 (4.08)	**202 (5.03)**	**130 (4.81)**	NA	5.26 (4.52)	**110 (4.54)**	27.6 (4.72)	16.4 (5.48)	NA
Mercury	0.18	0.3	0.18	ND (0.072)	**1.29 (0.091)**	**1.18 (0.088)**	0.13 (0.079)	ND (0.073)	**0.692 (0.086)**	0.154 (0.089)	0.075 J (0.091)	NA
Nickel	30	87	30	16 (2.04)	15.2 (2.51)	14.4 (2.4)	NA	15.3 (2.26)	15.5 (2.27)	13.2 (2.36)	15.7 (2.74)	NA
Zinc	109	1300	109	74.9 (4.08)	84.9 (5.03)	74.9 (4.81)	NA	65.9 (4.52)	74.6 (4.54)	45.2 (4.72)	63 (5.48)	NA

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Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				D13	D13	D13	D13	E03	E03	E03	E03	E03
Field Sample ID				D13_0-0.2	D13_0.2-2	D13R-0.5-1	D13_2-4	E3_0-0.2	E3_0.2-2	E03R-0.5-1	E03R-1-1.5	E3_2-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0.2 - 2	0.5 - 1	2 - 4	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5	2 - 4
Sampler	SCO	SCO		Roux	Roux	Carson Voci	Roux	Roux	Roux	Carson Voci	Carson Voci	Roux
Sample Date				6/14/2024	6/14/2024	2/8/2025	6/14/2024	6/18/2024	6/18/2024	2/8/2025	2/8/2025	6/18/2024
Comments												
Acetone	0.03	100	2.2	NA	**0.12 (0.012)**	NA	NA	NA	ND (0.012)	NA	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	ND (0.11)	NA	NA	NA	0.028 J (0.11)	NA	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	ND (0.15)	NA	NA	NA	ND (0.15)	NA	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	ND (0.11)	NA	NA	NA	0.033 J (0.11)	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	ND (0.15)	NA	NA	NA	ND (0.15)	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	ND (0.11)	NA	NA	NA	ND (0.11)	NA	NA	NA
Chrysene	1	1.2	--	NA	ND (0.11)	NA	NA	NA	0.021 J (0.11)	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	ND (0.11)	NA	NA	NA	ND (0.11)	NA	NA	NA
Dibenzofuran	2.1	4.2	--	NA	ND (0.19)	NA	NA	NA	ND (0.19)	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	ND (0.15)	NA	NA	NA	ND (0.15)	NA	NA	NA
Phenanthrene	1.1	1.2	--	NA	ND (0.11)	NA	NA	NA	0.024 J (0.11)	NA	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00178)	ND (0.00176)	NA	ND (0.0016)	ND (0.00194)	ND (0.00179)	ND (0.00194)	NA	ND (0.00163)
alpha-Chlordane	0.014	0.14	1.3	**0.112 IP (0.00223)**	**0.0214 IP (0.0022)**	NA	0.000629 JIP (0.00201)	0.0122 IP (0.00243)	0.00491 J (0.00224)	**0.0238 IP (0.00242)**	NA	ND (0.00204)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00178)	ND (0.00176)	NA	ND (0.0016)	ND (0.00194)	0.000821 J (0.00179)	ND (0.00194)	NA	ND (0.00163)
4,4'-DDE	0.0033	0.78	0.0033	**0.022 (0.00178)**	**0.0104 (0.00176)**	NA	ND (0.0016)	**0.119 (0.00194)**	**0.0347 (0.00179)**	**0.0784 (0.00194)**	NA	ND (0.00163)
4,4'-DDT	0.0033	0.78	0.0033	**0.0107 (0.00178)**	**0.00696 (0.00176)**	NA	ND (0.0016)	**0.021 (0.00194)**	**0.00676 (0.00179)**	**0.0146 (0.00194)**	NA	ND (0.00163)
Dieldrin	0.005	0.017	0.006	**0.0531 (0.00111)**	**0.0125 (0.0011)**	NA	ND (0.001)	**0.259 (0.00122)**	**0.0591 (0.00112)**	**0.0477 (0.00121)**	**0.0145 (0.00114)**	ND (0.00102)
Endrin	0.014	1.2	0.014	ND (0.000742)	ND (0.000734)	NA	ND (0.000669)	ND (0.00081)	ND (0.000746)	ND (0.000808)	NA	ND (0.00068)
Heptachlor epoxide	0.013	0.12	0.14	**0.099 (0.00334)**	**0.0378 (0.0033)**	NA	ND (0.00301)	**0.0303 (0.00365)**	0.0112 (0.00336)	**0.0173 IP (0.00364)**	NA	ND (0.00306)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	ND (0.0549)	NA	NA	NA	0.0242 J (0.0524)	NA	NA	NA
Metals												
Arsenic	13	16	13	**121 (0.89)**	**19.2 (0.891)**	4.62 (0.921)	1.62 (0.844)	**14.7 (0.959)**	7.33 (0.906)	NA	NA	0.533 J (0.845)
Cadmium	2.5	2.5	4	1.24 (0.89)	0.119 J (0.891)	NA	0.083 J (0.844)	0.362 J (0.959)	0.197 J (0.906)	NA	NA	ND (0.845)
Chromium III	30	30	160	**46.3465 (0.89)**	17.3475 (0.891)	NA	NA	**32.905 (0.959)**	29.844 (0.906)	NA	NA	NA
Chromium VI	1	1	20	ND (0.907)	ND (0.905)	NA	NA	ND (0.99)	ND (0.912)	NA	NA	NA
Copper	50	280	50	19 (0.89)	13.6 (0.891)	NA	14.4 (0.844)	23.5 (0.959)	22.4 (0.906)	NA	NA	33.6 (0.845)
Lead	63	400	63	14.7 (4.45)	6.32 (4.46)	NA	5.82 (4.22)	53.7 (4.79)	27.6 (4.53)	NA	NA	9.32 (4.23)
Mercury	0.18	0.3	0.18	**0.629 (0.079)**	ND (0.078)	NA	ND (0.073)	**1.5 (0.096)**	**0.997 (0.072)**	**0.333 (0.093)**	NA	ND (0.069)
Nickel	30	87	30	15.3 (2.22)	12 (2.23)	NA	18.8 (2.11)	17.8 (2.4)	18.5 (2.26)	NA	NA	**30.7 (2.11)**
Zinc	109	1300	109	52.6 (4.45)	28.2 (4.46)	NA	48.2 (4.22)	70.1 (4.79)	64 (4.53)	NA	NA	109 (4.23)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				E03	E04	E04	E04	E05	E05	E06	E06	E06
Field Sample ID				E3_4-6	E4_0-0.2	E4_0.2-2	E4_2-4	E5_0-0.2	E5_0.2-2	E6_0-0.2	E6_0.2-2	E06R-0.5-1
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	4 - 6	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	0 - 0.2	0.2 - 2	0.5 - 1
Sampler	SCO	SCO		Roux	Roux	Roux	Roux	Roux	Roux	Roux	Roux	Carson Voci
Sample Date				6/18/2024	6/18/2024	6/18/2024	6/18/2024	5/21/2024	5/21/2024	6/18/2024	6/18/2024	2/10/2025
Comments												
Acetone	0.03	100	2.2	NA	NA	ND (0.015)	NA	NA	ND (0.012)	NA	ND (0.015)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	ND (0.12)	NA	NA	ND (0.12)	NA	0.045 J (0.14)	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	ND (0.17)	NA	NA	ND (0.16)	NA	ND (0.18)	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	ND (0.12)	NA	NA	ND (0.12)	NA	0.061 J (0.14)	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	ND (0.17)	NA	NA	ND (0.16)	NA	0.03 J (0.18)	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.12)	NA	NA	ND (0.12)	NA	ND (0.14)	NA
Chrysene	1	1.2	--	NA	NA	ND (0.12)	NA	NA	ND (0.12)	NA	0.042 J (0.14)	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.12)	NA	NA	ND (0.12)	NA	ND (0.14)	NA
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.21)	NA	NA	ND (0.2)	NA	ND (0.23)	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	ND (0.17)	NA	NA	ND (0.16)	NA	ND (0.18)	NA
Phenanthrene	1.1	1.2	--	NA	NA	ND (0.12)	NA	NA	ND (0.12)	NA	ND (0.14)	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	0.000123 J (0.000199)	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	0.0003 (0.000199)	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	NA	ND (0.00197)	ND (0.00198)	ND (0.00176)	ND (0.00221)	ND (0.00187)	ND (0.00184)	ND (0.00212)	ND (0.0018)
alpha-Chlordane	0.014	0.14	1.3	NA	0.0059 IP (0.00247)	0.000705 JIP (0.00247)	0.00121 JIP (0.0022)	ND (0.00276)	ND (0.00234)	**0.389 (0.0461)**	**0.229 IP (0.00264)**	**0.052 IP (0.00225)**
4,4'-DDD	0.0033	1.2	0.0033	NA	ND (0.00197)	ND (0.00198)	ND (0.00176)	**0.0109 (0.00221)**	ND (0.00187)	ND (0.00184)	ND (0.00212)	ND (0.0018)
4,4'-DDE	0.0033	0.78	0.0033	NA	**0.346 (0.00987)**	**0.0181 (0.00198)**	0.00279 (0.00176)	**0.458 (0.011)**	0.00223 (0.00187)	**0.568 (0.0369)**	**0.392 (0.0106)**	**0.257 (0.0018)**
4,4'-DDT	0.0033	0.78	0.0033	NA	**0.0941 (0.00197)**	**0.00775 (0.00198)**	ND (0.00176)	**0.517 (0.011)**	0.00152 J (0.00187)	**0.237 (0.0369)**	**0.23 (0.00212)**	**0.054 (0.0018)**
Dieldrin	0.005	0.017	0.006	NA	**0.013 (0.00123)**	0.00137 (0.00124)	0.0008 J (0.0011)	ND (0.00138)	ND (0.00117)	**0.14 (0.00115)**	**0.0579 (0.00132)**	**0.143 (0.00113)**
Endrin	0.014	1.2	0.014	NA	ND (0.000822)	ND (0.000824)	ND (0.000732)	ND (0.000922)	ND (0.000781)	ND (0.000769)	ND (0.000882)	ND (0.000751)
Heptachlor epoxide	0.013	0.12	0.14	NA	**0.0191 (0.0037)**	ND (0.00371)	0.0014 J (0.0033)	**0.0222 (0.00415)**	ND (0.00351)	**0.16 (0.0692)**	**0.273 (0.00397)**	ND (0.00338)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	ND (0.0606)	NA	NA	ND (0.0598)	NA	ND (0.0687)	NA
Metals												
Arsenic	13	16	13	0.742 J (0.871)	**21.7 (0.98)**	8.74 (0.998)	NA	**28.6 (1.13)**	3.7 (0.955)	**57.5 (0.968)**	**49.7 (1.09)**	**46.3 (0.889)**
Cadmium	2.5	2.5	4	ND (0.871)	0.116 J (0.98)	ND (0.998)	NA	0.188 J (1.13)	ND (0.955)	2.43 (0.968)	1.05 J (1.09)	NA
Chromium III	30	30	160	NA	15.39 (0.98)	20.09 (0.998)	NA	22.235 (1.13)	17.708 (0.955)	**49.816 (0.968)**	**37.44 (1.09)**	NA
Chromium VI	1	1	20	NA	ND (1.02)	ND (1.02)	NA	ND (1.13)	ND (0.984)	ND (0.968)	ND (1.12)	NA
Copper	50	280	50	31.7 (0.871)	7.76 (0.98)	13.5 (0.998)	NA	24.9 (1.13)	31.8 (0.955)	14.8 (0.968)	15.8 (1.09)	NA
Lead	63	400	63	7.7 (4.36)	**67.2 (4.9)**	19.9 (4.99)	NA	**98.1 (5.66)**	9.4 (4.77)	**250 (4.84)**	**104 (5.47)**	NA
Mercury	0.18	0.3	0.18	ND (0.081)	**0.183 (0.083)**	0.086 (0.081)	NA	**0.449 (0.116)**	ND (0.078)	**75.9 (7.78)**	**49.8 (11.6)**	**0.414 (0.085)**
Nickel	30	87	30	24.2 (2.18)	7.81 (2.45)	13.6 (2.5)	NA	18.2 (2.83)	15.7 (2.39)	10.4 (2.42)	15.6 (2.73)	NA
Zinc	109	1300	109	79.9 (4.36)	44 (4.9)	38 (4.99)	NA	61.7 (5.66)	42.8 (4.77)	76.3 (4.84)	58.1 (5.47)	NA

Notes:

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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				E06	E06	E06	E07	E07	E07	E07	E07	E07
Field Sample ID				E06R-1-1.5	E6_2-4	E6_4-6	E7_0-0.2	E7_0.2-2	E07R-0.5-1	E07R-1-1.5	E07R-1.5-2	E07R-2-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	1 - 1.5	2 - 4	4 - 6	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5	1.5 - 2	2 - 4
Sampler	SCO	SCO		Carson Voci	Roux	Roux	Roux	Roux	Carson Voci	Carson Voci	Carson Voci	Carson Voci
Sample Date				2/10/2025	6/18/2024	6/18/2024	6/18/2024	6/18/2024	2/7/2025	2/7/2025	2/7/2025	2/7/2025
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	NA	ND (0.014)	NA	NA	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	NA	ND (0.11)	NA	NA	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	NA	ND (0.14)	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	NA	ND (0.11)	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	NA	ND (0.14)	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	NA	ND (0.11)	NA	NA	NA	NA
Chrysene	1	1.2	--	NA	NA	NA	NA	ND (0.11)	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	NA	ND (0.11)	NA	NA	NA	NA
Dibenzofuran	2.1	4.2	--	NA	NA	NA	NA	ND (0.18)	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	NA	ND (0.14)	NA	NA	NA	NA
Phenanthrene	1.1	1.2	--	NA	NA	NA	NA	ND (0.11)	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	NA	ND (0.00226)	NA	ND (0.00184)	ND (0.00172)	ND (0.00179)	NA	NA	NA
alpha-Chlordane	0.014	0.14	1.3	NA	ND (0.00282)	NA	**0.0365 J (0.0023)**	0.00869 IP (0.00215)	**0.0198 IP (0.00224)**	NA	NA	NA
4,4'-DDD	0.0033	1.2	0.0033	NA	ND (0.00226)	NA	ND (0.00184)	ND (0.00172)	ND (0.00179)	NA	NA	NA
4,4'-DDE	0.0033	0.78	0.0033	NA	0.00144 J (0.00226)	NA	**0.113 (0.00184)**	**0.0361 (0.00172)**	**0.263 (0.00179)**	**0.0735 (0.00179)**	0.00142 J (0.00164)	NA
4,4'-DDT	0.0033	0.78	0.0033	NA	ND (0.00226)	NA	**0.0226 (0.00184)**	**0.00751 (0.00172)**	**0.0784 (0.00179)**	**0.0174 (0.00179)**	ND (0.00164)	NA
Dieldrin	0.005	0.017	0.006	**0.0187 (0.00118)**	ND (0.00141)	NA	**0.17 (0.00115)**	**0.0413 (0.00107)**	**0.176 (0.00112)**	**0.043 (0.00112)**	0.00102 J (0.00103)	NA
Endrin	0.014	1.2	0.014	NA	ND (0.000942)	NA	ND (0.000767)	ND (0.000716)	ND (0.000747)	NA	NA	NA
Heptachlor epoxide	0.013	0.12	0.14	NA	ND (0.00424)	NA	**0.101 (0.00345)**	**0.029 (0.00322)**	**0.0791 (0.00336)**	**0.0185 (0.00336)**	NA	NA
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	NA	ND (0.0534)	NA	NA	NA	NA
Metals												
Arsenic	13	16	13	**40.1 (0.95)**	3.37 (1.11)	1.27 (0.914)	**60.4 (0.966)**	**17.5 (0.878)**	**67 (0.914)**	**30.3 (0.88)**	2.47 (0.782)	NA
Cadmium	2.5	2.5	4	NA	ND (1.11)	ND (0.914)	0.479 J (0.966)	0.188 J (0.878)	NA	NA	NA	NA
Chromium III	30	30	160	NA	NA	NA	**41.616 (0.966)**	29.159 (0.878)	NA	NA	NA	NA
Chromium VI	1	1	20	NA	NA	NA	ND (0.968)	ND (0.882)	NA	NA	NA	NA
Copper	50	280	50	NA	14.3 (1.11)	27.6 (0.914)	15.5 (0.966)	29 (0.878)	NA	NA	NA	NA
Lead	63	400	63	NA	15 (5.54)	4.95 (4.57)	**70.7 (4.83)**	23.8 (4.39)	NA	NA	NA	NA
Mercury	0.18	0.3	0.18	NA	**0.258 (0.101)**	ND (0.093)	**0.442 (0.08)**	**0.194 (0.082)**	NA	NA	NA	ND (0.082)
Nickel	30	87	30	NA	22.3 (2.77)	19.1 (2.28)	12.8 (2.42)	14.6 (2.2)	NA	NA	NA	NA
Zinc	109	1300	109	NA	66.3 (5.54)	48.3 (4.57)	47.3 (4.83)	43.4 (4.39)	NA	NA	NA	NA

Notes:
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				E08	E08	E08	E08	E08	E09	E09	E10	E10
Field Sample ID				E8_0-0.2	E08-0-0.2	E8_0.2-2	E08R-0.5-1	E8_2-4	E9_0-0.2	E9_0.2-2	E10_0-0.2	E10_0.2-2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0 - 0.2	0.2 - 2	0.5 - 1	2 - 4	0 - 0.2	0.2 - 2	0 - 0.2	0.2 - 2
Sampler	SCO	SCO		Roux	Carson Voci	Roux	Carson Voci	Roux	Roux	Roux	Roux	Roux
Sample Date				5/24/2024	4/30/2025	5/24/2024	2/10/2025	5/24/2024	6/18/2024	6/18/2024	6/18/2024	6/18/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	ND (0.012)	NA	NA	NA	ND (0.013)	NA	ND (0.013)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	ND (0.11)	NA	NA	NA	ND (0.12)	NA	ND (0.13)
Benzo(a)pyrene	1	1	2.6	NA	NA	ND (0.15)	NA	NA	NA	ND (0.16)	NA	ND (0.17)
Benzo(b)fluoranthene	1	1	--	NA	NA	ND (0.11)	NA	NA	NA	ND (0.12)	NA	ND (0.13)
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	ND (0.15)	NA	NA	NA	ND (0.16)	NA	ND (0.17)
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.11)	NA	NA	NA	ND (0.12)	NA	ND (0.13)
Chrysene	1	1.2	--	NA	NA	ND (0.11)	NA	NA	NA	ND (0.12)	NA	ND (0.13)
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.11)	NA	NA	NA	ND (0.12)	NA	ND (0.13)
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.19)	NA	NA	NA	ND (0.2)	NA	ND (0.22)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	ND (0.15)	NA	NA	NA	ND (0.16)	NA	ND (0.17)
Phenanthrene	1.1	1.2	--	NA	NA	ND (0.11)	NA	NA	NA	ND (0.12)	NA	ND (0.13)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	0.000845 (0.0002)	0.00015 J (0.000197)	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	0.000312 (0.0002)	0.000278 (0.000197)	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00212)	NA	ND (0.00182)	NA	NA	ND (0.0025)	ND (0.00181)	ND (0.00228)	ND (0.00202)
alpha-Chlordane	0.014	0.14	1.3	0.00299 IP (0.00265)	NA	ND (0.00228)	NA	NA	ND (0.00312)	ND (0.00226)	**0.0892 IP (0.00285)**	0.00334 IP (0.00253)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00212)	NA	ND (0.00182)	NA	NA	ND (0.0025)	ND (0.00181)	ND (0.00228)	ND (0.00202)
4,4'-DDE	0.0033	0.78	0.0033	**0.0346 (0.00212)**	NA	0.000472 J (0.00182)	NA	NA	**0.087 (0.0025)**	0.00136 J (0.00181)	**0.363 (0.0114)**	**0.0129 (0.00202)**
4,4'-DDT	0.0033	0.78	0.0033	**0.0131 (0.00212)**	NA	ND (0.00182)	NA	NA	**0.0238 (0.0025)**	ND (0.00181)	**0.226 (0.00228)**	0.00232 (0.00202)
Dieldrin	0.005	0.017	0.006	0.00353 (0.00133)	NA	ND (0.00114)	NA	NA	ND (0.00156)	ND (0.00113)	**0.525 (0.00714)**	**0.0229 (0.00126)**
Endrin	0.014	1.2	0.014	ND (0.000884)	NA	ND (0.00076)	NA	NA	ND (0.00104)	ND (0.000755)	ND (0.000951)	ND (0.000844)
Heptachlor epoxide	0.013	0.12	0.14	**0.0171 (0.00398)**	NA	ND (0.00342)	NA	NA	ND (0.00468)	ND (0.0034)	**0.127 IP (0.00428)**	0.0111 (0.0038)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	ND (0.0563)	NA	NA	NA	ND (0.0577)	NA	ND (0.0599)
Metals												
Arsenic	13	16	13	**48.8 (1.05)**	NA	**28.7 (0.888)**	10.4 (1.08)	0.796 J (0.883)	**19.7 (1.21)**	3.62 (0.922)	**155 (1.14)**	**14.1 (1)**
Cadmium	2.5	2.5	4	ND (1.05)	NA	ND (0.888)	NA	0.093 J (0.883)	ND (1.21)	ND (0.922)	1.6 (1.14)	0.224 J (1)
Chromium III	30	30	160	26.555 (1.05)	NA	25.428 (0.888)	NA	NA	18.27 (1.21)	18.723 (0.922)	**88 (1.14)**	24.74 J (1)
Chromium VI	1	1	20	ND (1.09)	NA	ND (0.944)	NA	NA	ND (1.26)	ND (0.954)	ND (1.2)	0.26 J (1.04)
Copper	50	280	50	20.6 (1.05)	NA	16.7 (0.888)	NA	25.7 (0.883)	11.6 (1.21)	17.6 (0.922)	18.7 (1.14)	17.5 (1)
Lead	63	400	63	**150 (5.24)**	NA	59.1 (4.44)	NA	3.78 J (4.41)	39.1 (6.05)	10.4 (4.61)	**164 (5.71)**	13.9 (5.01)
Mercury	0.18	0.3	0.18	**0.264 (0.087)**	NA	0.079 (0.074)	NA	ND (0.072)	0.077 J (0.113)	0.06 J (0.086)	**1.21 (0.114)**	0.118 (0.091)
Nickel	30	87	30	18.7 (2.62)	NA	16.3 (2.22)	NA	18 (2.21)	12.3 (3.03)	14 (2.3)	12.6 (2.86)	15.8 (2.5)
Zinc	109	1300	109	65.8 (5.24)	NA	55 (4.44)	NA	48.4 (4.41)	43.3 (6.05)	39.4 (4.61)	74.6 (5.71)	48.3 (5.01)

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
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3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:

ND - Not Detected
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I - The lower value for the two columns has been reported due to obvious interference
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				E10	E10	E11	E11	E11	E12	E12	E12	E12
Field Sample ID				E10_2-4	E10_4-6	E11_0-0.2	E11_0.2-2	E11_2-4	E12_0-0.2	E12_0.2-2	E12R-0.5-1	E12R-1-1.5
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	2 - 4	4 - 6	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5
Sampler	SCO	SCO		Roux	Roux	Roux	Roux	Roux	Roux	Roux	Carson Voci	Carson Voci
Sample Date				6/18/2024	6/18/2024	6/18/2024	6/18/2024	6/18/2024	6/19/2024	6/19/2024	2/8/2025	2/8/2025
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	ND (0.014)	NA	NA	ND (0.011)	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	ND (0.12)	NA	NA	ND (0.12)	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	ND (0.16)	NA	NA	ND (0.16)	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	ND (0.12)	NA	NA	ND (0.12)	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	ND (0.16)	NA	NA	ND (0.16)	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	ND (0.12)	NA	NA	ND (0.12)	NA	NA
Chrysene	1	1.2	--	NA	NA	NA	ND (0.12)	NA	NA	ND (0.12)	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	ND (0.12)	NA	NA	ND (0.12)	NA	NA
Dibenzofuran	2.1	4.2	--	NA	NA	NA	ND (0.2)	NA	NA	ND (0.2)	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	ND (0.16)	NA	NA	ND (0.16)	NA	NA
Phenanthrene	1.1	1.2	--	NA	NA	NA	ND (0.12)	NA	NA	ND (0.12)	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00175)	ND (0.00168)	ND (0.00194)	ND (0.00192)	ND (0.00178)	ND (0.002)	ND (0.00182)	NA	NA
alpha-Chlordane	0.014	0.14	1.3	0.00452 J (0.00219)	ND (0.0021)	**0.0475 IP (0.00242)**	0.00434 IP (0.0024)	0.000918 JIP (0.00222)	**0.187 IP (0.0025)**	**0.0147 J (0.00227)**	NA	NA
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00175)	ND (0.00168)	0.00126 JIP (0.00194)	ND (0.00192)	ND (0.00178)	ND (0.002)	ND (0.00182)	NA	NA
4,4'-DDE	0.0033	0.78	0.0033	**0.00769 (0.00175)**	0.00057 J (0.00168)	**0.0987 (0.00194)**	**0.0263 (0.00192)**	0.00188 (0.00178)	**0.0392 (0.002)**	**0.00519 (0.00182)**	NA	NA
4,4'-DDT	0.0033	0.78	0.0033	0.00248 (0.00175)	ND (0.00168)	**0.0246 (0.00194)**	**0.0103 (0.00192)**	ND (0.00178)	**0.0155 (0.002)**	ND (0.00182)	NA	NA
Dieldrin	0.005	0.017	0.006	0.0015 IP (0.00109)	ND (0.00105)	**0.104 (0.00121)**	**0.00791 (0.0012)**	0.00409 (0.00111)	**0.113 (0.00125)**	**0.0156 (0.00113)**	NA	NA
Endrin	0.014	1.2	0.014	ND (0.000729)	ND (0.0007)	ND (0.000807)	ND (0.000801)	ND (0.000741)	ND (0.000835)	ND (0.000756)	NA	NA
Heptachlor epoxide	0.013	0.12	0.14	**0.0214 (0.00328)**	ND (0.00315)	**0.0768 (0.00363)**	0.0053 (0.0036)	0.00138 J (0.00334)	**0.281 (0.00376)**	**0.0502 (0.0034)**	NA	NA
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	ND (0.0562)	NA	NA	ND (0.0571)	NA	NA
Metals												
Arsenic	13	16	13	3.08 (0.893)	NA	**148 (0.972)**	12 (0.947)	NA	**176 (1.01)**	**35.2 (0.926)**	**22 (0.908)**	5.42 (0.93)
Cadmium	2.5	2.5	4	ND (0.893)	NA	1.22 (0.972)	0.125 J (0.947)	NA	2.45 (1.01)	0.176 J (0.926)	NA	NA
Chromium III	30	30	160	NA	NA	**69.4025 (0.972)**	19.232 J (0.947)	NA	**137.48 (1.01)**	**30.426 (0.926)**	NA	NA
Chromium VI	1	1	20	NA	NA	ND (0.995)	0.368 J (0.982)	NA	ND (1.04)	ND (0.948)	NA	NA
Copper	50	280	50	16.2 (0.893)	NA	17.6 (0.972)	8.06 (0.947)	NA	23.5 (1.01)	19 (0.926)	NA	NA
Lead	63	400	63	6.64 (4.46)	NA	**119 (4.86)**	18.4 (4.74)	NA	**94.4 (5.06)**	9.4 (4.63)	NA	NA
Mercury	0.18	0.3	0.18	0.066 J (0.071)	NA	**1.13 (0.095)**	0.112 (0.081)	NA	**3.94 (0.164)**	**0.366 (0.074)**	NA	NA
Nickel	30	87	30	13.4 (2.23)	NA	13.2 (2.43)	10.2 (2.37)	NA	13.9 (2.53)	15 (2.32)	NA	NA
Zinc	109	1300	109	44.1 (4.46)	NA	70.7 (4.86)	34.6 (4.74)	NA	101 (5.06)	44.7 (4.63)	NA	NA

Notes:
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4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				E12	E13	E13	F02	F02	F02	F02	F02	F03	F03
Field Sample ID				E12_2-4	E13_0-0.2	E13_0.2-2	F2_0-0.2	F2_0.2-2	F02R-2-2.5	F2_2-4	F3_0-0.2	F3_0.2-2
Collection Depth (ft bgs)	Unrestricted Use SCO	Residential SCO	PEco SCO	2 - 4	0 - 0.2	0.2 - 2	0 - 0.2	0.2 - 2	2 - 2.5	2 - 4	0 - 0.2	0.2 - 2
Sampler				Roux	Roux	Roux	Roux	Roux	Carson Voci	Roux	Roux	Roux
Sample Date				6/19/2024	6/19/2024	6/19/2024	6/21/2024	6/21/2024	2/5/2025	6/21/2024	6/21/2024	6/21/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	ND (0.012)	NA	ND (0.015)	NA	NA	NA	ND (0.014)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	ND (0.12)	NA	**15 (0.51)**	ND (0.11)	NA	NA	ND (0.13)
Benzo(a)pyrene	1	1	2.6	NA	NA	ND (0.16)	NA	**16 (0.68)**	ND (0.15)	NA	NA	ND (0.17)
Benzo(b)fluoranthene	1	1	--	NA	NA	ND (0.12)	NA	**20 (0.51)**	ND (0.11)	NA	NA	ND (0.13)
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	ND (0.16)	NA	**8.8 (0.68)**	ND (0.15)	NA	NA	ND (0.17)
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.12)	NA	**5.6 (0.51)**	ND (0.11)	NA	NA	ND (0.13)
Chrysene	1	1.2	--	NA	NA	ND (0.12)	NA	**14 (0.51)**	ND (0.11)	NA	NA	ND (0.13)
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.12)	NA	**2.2 (0.51)**	ND (0.11)	NA	NA	ND (0.13)
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.2)	NA	1.2 (0.86)	ND (0.19)	NA	NA	ND (0.22)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	ND (0.16)	NA	**9.3 (0.68)**	ND (0.15)	NA	NA	ND (0.17)
Phenanthrene	1.1	1.2	--	NA	NA	ND (0.12)	NA	**14 (0.51)**	ND (0.11)	NA	NA	ND (0.13)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00199)	ND (0.0019)	ND (0.00183)	ND (0.00164)	ND (0.00165)	NA	NA	ND (0.00178)	ND (0.00207)
alpha-Chlordane	0.014	0.14	1.3	0.00148 J (0.00248)	**0.0492 IP (0.00237)**	ND (0.00229)	0.0124 (0.00204)	0.00786 (0.00206)	NA	NA	ND (0.00223)	ND (0.00259)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00199)	ND (0.0019)	ND (0.00183)	ND (0.00164)	ND (0.00165)	NA	NA	ND (0.00178)	**0.0036 (0.00207)**
4,4'-DDE	0.0033	0.78	0.0033	ND (0.00199)	**0.0454 (0.0019)**	0.00118 JIP (0.00183)	ND (0.00164)	ND (0.00165)	NA	NA	ND (0.00178)	**0.0129 (0.00207)**
4,4'-DDT	0.0033	0.78	0.0033	ND (0.00199)	**0.0284 (0.0019)**	ND (0.00183)	ND (0.00164)	ND (0.00165)	NA	NA	ND (0.00178)	0.00178 J (0.00207)
Dieldrin	0.005	0.017	0.006	0.00128 (0.00124)	**0.0424 (0.00119)**	ND (0.00115)	ND (0.00102)	ND (0.00103)	NA	NA	ND (0.00111)	ND (0.0013)
Endrin	0.014	1.2	0.014	ND (0.000828)	ND (0.000791)	ND (0.000764)	ND (0.000681)	ND (0.000687)	NA	NA	ND (0.000743)	ND (0.000863)
Heptachlor epoxide	0.013	0.12	0.14	0.00269 J (0.00372)	**0.12 (0.00356)**	ND (0.00344)	ND (0.00307)	ND (0.00309)	NA	NA	ND (0.00334)	ND (0.00388)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	ND (0.0572)	NA	**3.69 (1.04)**	ND (0.0568)	NA	NA	ND (0.0623)
Metals												
Arsenic	13	16	13	6.75 (1)	**150 (0.959)**	6.11 (0.932)	5.08 (0.804)	4.7 (0.785)	NA	2.49 (0.864)	0.268 J (0.855)	0.333 J (0.991)
Cadmium	2.5	2.5	4	ND (1)	1.99 (0.959)	ND (0.932)	0.29 J (0.804)	0.34 J (0.785)	NA	ND (0.864)	ND (0.855)	ND (0.991)
Chromium III	30	30	160	NA	**124.504 (0.959)**	17.263 J (0.932)	19.987 (0.804)	17.583 (0.785)	NA	NA	2.576 (0.855)	2.97 (0.991)
Chromium VI	1	1	20	NA	ND (0.992)	0.637 J (0.962)	ND (0.826)	ND (0.834)	NA	NA	ND (0.908)	ND (1.06)
Copper	50	280	50	18.8 (1)	22.2 (0.959)	9.39 (0.932)	30 (0.804)	27.7 (0.785)	NA	17.8 (0.864)	1.59 (0.855)	1.83 (0.991)
Lead	63	400	63	8.04 (5.02)	**64.6 (4.79)**	9.06 (4.66)	**114 (4.02)**	**91.9 (3.92)**	NA	19 (4.32)	0.987 J (4.27)	1.25 J (4.96)
Mercury	0.18	0.3	0.18	0.066 J (0.082)	**3.07 (0.157)**	0.082 (0.076)	**0.257 (0.073)**	**0.236 (0.067)**	NA	ND (0.07)	ND (0.075)	ND (0.093)
Nickel	30	87	30	13.8 (2.51)	13.6 (2.4)	12.6 (2.33)	16.4 (2.01)	14.6 (1.96)	NA	5.7 (2.16)	0.212 J (2.14)	0.303 J (2.48)
Zinc	109	1300	109	43.9 (5.02)	92.8 (4.79)	44.7 (4.66)	**144 (4.02)**	**136 (3.92)**	NA	55 (4.32)	5.16 (4.27)	5.09 (4.96)

Notes:
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				F03	F03	F03	F04	F04	F04	F05	F05	F05
Field Sample ID				F3_2-4	F3_4-6	F03R-6-8	F4_0-0.2	F4_0.2-2	F4_2-4	F5_0-0.2	F5_0.2-2	F5_2-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	2 - 4	4 - 6	6 - 8	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	2 - 4
Sampler	SCO	SCO		Roux	Roux	Carson Voci	Roux	Roux	Roux	Roux	Roux	Roux
Sample Date				6/21/2024	6/21/2024	2/7/2025	6/21/2024	6/21/2024	6/21/2024	6/20/2024	6/20/2024	6/20/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	NA	ND (0.015)	NA	NA	ND (0.017)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	NA	ND (0.12)	NA	NA	ND (0.14)	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	NA	ND (0.16)	NA	NA	ND (0.19)	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	NA	ND (0.12)	NA	NA	ND (0.14)	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	NA	ND (0.16)	NA	NA	ND (0.19)	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	NA	ND (0.12)	NA	NA	ND (0.14)	NA
Chrysene	1	1.2	--	NA	NA	NA	NA	ND (0.12)	NA	NA	ND (0.14)	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	NA	ND (0.12)	NA	NA	ND (0.14)	NA
Dibenzofuran	2.1	4.2	--	NA	NA	NA	NA	ND (0.2)	NA	NA	ND (0.24)	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	NA	ND (0.16)	NA	NA	ND (0.19)	NA
Phenanthrene	1.1	1.2	--	NA	NA	NA	NA	ND (0.12)	NA	NA	ND (0.14)	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00183)	ND (0.00192)	ND (0.00173)	ND (0.00193)	ND (0.00186)	ND (0.00174)	ND (0.0021)	ND (0.00222)	ND (0.00193)
alpha-Chlordane	0.014	0.14	1.3	0.00476 IP (0.00229)	0.00368 (0.00241)	ND (0.00216)	0.00314 IP (0.00242)	0.000839 JIP (0.00232)	ND (0.00218)	0.00222 JIP (0.00263)	ND (0.00278)	ND (0.00241)
4,4'-DDD	0.0033	1.2	0.0033	**0.0277 (0.00183)**	**0.00654 (0.00192)**	ND (0.00173)	ND (0.00193)	ND (0.00186)	ND (0.00174)	**0.00484 (0.0021)**	ND (0.00222)	ND (0.00193)
4,4'-DDE	0.0033	0.78	0.0033	**0.1 (0.00183)**	**0.0441 (0.00192)**	ND (0.00173)	**0.108 (0.00193)**	**0.00731 (0.00186)**	0.000782 J (0.00174)	**0.248 (0.0021)**	**0.0309 (0.00222)**	ND (0.00193)
4,4'-DDT	0.0033	0.78	0.0033	**0.0169 (0.00183)**	**0.00567 (0.00192)**	ND (0.00173)	**0.0261 (0.00193)**	0.00311 (0.00186)	ND (0.00174)	**0.0306 (0.0021)**	**0.00682 (0.00222)**	ND (0.00193)
Dieldrin	0.005	0.017	0.006	0.00148 IP (0.00115)	0.00215 IP (0.0012)	ND (0.00108)	0.00242 (0.00121)	ND (0.00116)	ND (0.00109)	0.00108 J (0.00132)	ND (0.00139)	ND (0.0012)
Endrin	0.014	1.2	0.014	ND (0.000764)	ND (0.000802)	ND (0.00072)	ND (0.000806)	ND (0.000773)	ND (0.000727)	ND (0.000877)	ND (0.000926)	ND (0.000804)
Heptachlor epoxide	0.013	0.12	0.14	0.00176 JIP (0.00344)	0.00265 JIP (0.00361)	ND (0.00324)	0.00125 JIP (0.00362)	ND (0.00348)	ND (0.00327)	0.0022 J (0.00395)	ND (0.00417)	ND (0.00362)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	NA	ND (0.0573)	NA	NA	ND (0.068)	NA
Metals												
Arsenic	13	16	13	NA	NA	NA	**28.6 (0.94)**	10.2 (0.882)	NA	**52.4 (1.08)**	8.28 (1.1)	NA
Cadmium	2.5	2.5	4	NA	NA	NA	0.128 J (0.94)	ND (0.882)	NA	0.271 J (1.08)	ND (1.1)	NA
Chromium III	30	30	160	NA	NA	NA	25.41 (0.94)	20.729 (0.882)	NA	**31.045 (1.08)**	25.42 (1.1)	NA
Chromium VI	1	1	20	NA	NA	NA	ND (0.98)	ND (0.942)	NA	ND (1.11)	ND (1.16)	NA
Copper	50	280	50	NA	NA	NA	21.5 (0.94)	38.8 (0.882)	NA	22.9 (1.08)	13.2 (1.1)	NA
Lead	63	400	63	NA	NA	NA	**88 (4.7)**	29.4 (4.41)	NA	**176 (5.38)**	26.6 (5.5)	NA
Mercury	0.18	0.3	0.18	NA	NA	NA	**0.216 (0.079)**	0.069 J (0.078)	NA	**1.08 (0.089)**	0.162 (0.092)	NA
Nickel	30	87	30	NA	NA	NA	14.9 (2.35)	18.1 (2.2)	NA	24.3 (2.69)	24.3 (2.75)	NA
Zinc	109	1300	109	NA	NA	NA	51.1 (4.7)	39.2 (4.41)	NA	94.8 (5.38)	69.6 (5.5)	NA

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
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3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:

ND - Not Detected
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-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				F06	F06	F06	F07	F07	F07	F07	F08	F08
Field Sample ID				F6_0-0.2	F6_0.2-2	F6_2-4	F7_0-0.2	F7_0.2-2	F07R-0.5-1	F7_2-4	F8_0-0.2	F8_0.2-2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	0.5 - 1	2 - 4	0 - 0.2	0.2 - 2
Sampler	SCO	SCO		Roux	Roux	Roux	Roux	Roux	Carson Voci	Roux	Roux	Roux
Sample Date				6/20/2024	6/20/2024	6/20/2024	6/20/2024	6/20/2024	2/10/2025	6/20/2024	6/20/2024	6/20/2024
Comments												
Acetone	0.03	100	2.2	NA	ND (0.016)	NA	NA	ND (0.024)	NA	NA	NA	ND (0.013)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	NA	NA	ND (0.12)
Benzo(a)pyrene	1	1	2.6	NA	ND (0.15)	NA	NA	ND (0.15)	NA	NA	NA	ND (0.16)
Benzo(b)fluoranthene	1	1	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	NA	NA	ND (0.12)
Benzo(g,h,i)perylene	0.64	1.2	--	NA	ND (0.15)	NA	NA	ND (0.15)	NA	NA	NA	ND (0.16)
Benzo(k)fluoranthene	0.8	1.2	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	NA	NA	ND (0.12)
Chrysene	1	1.2	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	NA	NA	ND (0.12)
Dibenz(a,h)anthracene	0.33	0.33	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	NA	NA	ND (0.12)
Dibenzofuran	2.1	4.2	--	NA	ND (0.19)	NA	NA	ND (0.19)	NA	NA	NA	ND (0.2)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	ND (0.15)	NA	NA	ND (0.15)	NA	NA	NA	ND (0.16)
Phenanthrene	1.1	1.2	--	NA	ND (0.12)	NA	NA	ND (0.11)	NA	NA	NA	ND (0.12)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00189)	ND (0.00181)	ND (0.00183)	ND (0.00214)	ND (0.00174)	NA	ND (0.00165)	ND (0.00205)	ND (0.00186)
alpha-Chlordane	0.014	0.14	1.3	0.00226 JIP (0.00236)	0.000739 JIP (0.00226)	ND (0.00228)	0.00912 J (0.00267)	0.00238 IP (0.00217)	NA	ND (0.00206)	**0.0668 IP (0.00256)**	**0.0197 IP (0.00232)**
4,4'-DDD	0.0033	1.2	0.0033	0.00133 J (0.00189)	ND (0.00181)	ND (0.00183)	**0.0123 IP (0.00214)**	0.000629 JIP (0.00174)	NA	ND (0.00165)	ND (0.00205)	ND (0.00186)
4,4'-DDE	0.0033	0.78	0.0033	**0.349 (0.00943)**	**0.156 (0.00181)**	0.00212 (0.00183)	**1.37 (0.0428)**	**0.236 (0.00174)**	NA	ND (0.00165)	**1.46 (0.0205)**	**0.586 (0.00929)**
4,4'-DDT	0.0033	0.78	0.0033	**0.175 (0.00189)**	**0.0819 (0.00181)**	ND (0.00183)	**2.96 (0.0428)**	**0.125 (0.00174)**	NA	ND (0.00165)	**0.416 (0.0205)**	**0.142 (0.00186)**
Dieldrin	0.005	0.017	0.006	ND (0.00118)	ND (0.00113)	ND (0.00114)	**0.0493 (0.00134)**	**0.0112 (0.00109)**	NA	ND (0.00103)	**0.475 (0.0128)**	**0.135 (0.00116)**
Endrin	0.014	1.2	0.014	ND (0.000786)	ND (0.000753)	ND (0.000762)	ND (0.000891)	ND (0.000724)	NA	ND (0.000686)	ND (0.000853)	ND (0.000774)
Heptachlor epoxide	0.013	0.12	0.14	0.00647 (0.00354)	0.00139 JIP (0.00339)	ND (0.00343)	**0.181 (0.00401)**	**0.0536 (0.00326)**	NA	ND (0.00309)	**0.228 (0.00384)**	**0.068 (0.00348)**
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	ND (0.0587)	NA	NA	ND (0.0556)	NA	NA	NA	ND (0.0568)
Metals												
Arsenic	13	16	13	**65.8 (0.946)**	11.7 (0.898)	NA	**79.5 (1.03)**	**46.5 (0.877)**	11.8 (1.01)	0.331 J (0.822)	**172 (1)**	**50.4 (0.959)**
Cadmium	2.5	2.5	4	0.154 J (0.946)	ND (0.898)	NA	0.129 J (1.03)	0.09 J (0.877)	NA	ND (0.822)	1.16 (1)	0.239 J (0.959)
Chromium III	30	30	160	**30.716 (0.946)**	22.228 (0.898)	NA	**36.065 (1.03)**	22.34 (0.877)	NA	NA	**88.575 (1)**	**41.005 (0.959)**
Chromium VI	1	1	20	ND (0.968)	ND (0.944)	NA	ND (1.07)	ND (0.92)	NA	NA	ND (1.05)	ND (0.99)
Copper	50	280	50	19.3 (0.946)	16.5 (0.898)	NA	19.5 (1.03)	15.1 (0.877)	NA	22.5 (0.822)	23.1 (1)	19.8 (0.959)
Lead	63	400	63	**211 (4.73)**	33.6 (4.49)	NA	**192 (5.16)**	**91.9 (4.39)**	NA	3.51 J (4.11)	**158 (5.01)**	48.7 (4.8)
Mercury	0.18	0.3	0.18	0.15 (0.077)	ND (0.076)	NA	**0.208 (0.084)**	0.1 (0.073)	NA	ND (0.066)	**1.28 (0.082)**	**0.312 (0.078)**
Nickel	30	87	30	17.2 (2.36)	15.8 (2.25)	NA	18 (2.58)	15.5 (2.19)	NA	22 (2.06)	17 (2.5)	15.2 (2.4)
Zinc	109	1300	109	54.2 (4.73)	38 (4.49)	NA	60.5 (5.16)	44.3 (4.39)	NA	49.9 (4.11)	81.3 (5.01)	48.2 (4.8)

Notes:

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3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

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I - The lower value for the two columns has been reported due to obvious interference
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				F08	F08	F09	F09	F09	F10	F10	F10	F10
Field Sample ID				F08R-0.5-1	F8_2-4	F9_0-0.2	F9_0.2-2	F9_2-4	F10_0-0.2	F10_0.2-2	F10R-0.5-1	F10_2-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0.5 - 1	2 - 4	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	0.5 - 1	2 - 4
Sampler	SCO	SCO		Carson Voci	Roux	Roux	Roux	Roux	Roux	Roux	Carson Voci	Roux
Sample Date				2/10/2025	6/20/2024	6/20/2024	6/20/2024	6/20/2024	6/20/2024	6/20/2024	2/8/2025	6/20/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	ND (0.052)	NA	NA	ND (0.016)	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	ND (0.11)	NA	NA	ND (0.14)	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	ND (0.14)	NA	NA	ND (0.18)	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	ND (0.11)	NA	NA	ND (0.14)	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	ND (0.14)	NA	NA	ND (0.18)	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	ND (0.11)	NA	NA	ND (0.14)	NA	NA
Chrysene	1	1.2	--	NA	NA	NA	ND (0.11)	NA	NA	ND (0.14)	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	ND (0.11)	NA	NA	ND (0.14)	NA	NA
Dibenzofuran	2.1	4.2	--	NA	NA	NA	ND (0.18)	NA	NA	ND (0.23)	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	ND (0.14)	NA	NA	ND (0.18)	NA	NA
Phenanthrene	1.1	1.2	--	NA	NA	NA	ND (0.11)	NA	NA	ND (0.14)	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00193)	ND (0.00173)	ND (0.00193)	ND (0.0017)	ND (0.00171)	ND (0.00181)	ND (0.00216)	ND (0.00194)	ND (0.00174)
alpha-Chlordane	0.014	0.14	1.3	0.0027 IP (0.00241)	ND (0.00216)	0.00139 JIP (0.00241)	ND (0.00213)	ND (0.00214)	**0.18 IP (0.00227)**	**0.0774 J (0.00269)**	0.00618 IP (0.00243)	ND (0.00218)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00193)	ND (0.00173)	ND (0.00193)	ND (0.0017)	ND (0.00171)	ND (0.00181)	ND (0.00216)	ND (0.00194)	ND (0.00174)
4,4'-DDE	0.0033	0.78	0.0033	**0.231 (0.00193)**	ND (0.00173)	**0.0518 (0.00193)**	**0.00505 (0.0017)**	ND (0.00171)	**0.21 (0.00181)**	**0.0917 (0.00216)**	**0.0209 (0.00194)**	ND (0.00174)
4,4'-DDT	0.0033	0.78	0.0033	**0.048 (0.00193)**	ND (0.00173)	**0.0165 (0.00193)**	0.00178 IP (0.0017)	ND (0.00171)	**0.0885 (0.00181)**	**0.032 (0.00216)**	**0.00908 (0.00194)**	ND (0.00174)
Dieldrin	0.005	0.017	0.006	**0.0297 (0.0012)**	ND (0.00108)	**0.00924 (0.0012)**	0.000556 J (0.00106)	ND (0.00107)	**0.459 (0.00566)**	**0.223 (0.00135)**	**0.00955 (0.00121)**	ND (0.00109)
Endrin	0.014	1.2	0.014	ND (0.000803)	ND (0.00072)	ND (0.000803)	ND (0.000709)	ND (0.000714)	ND (0.000755)	ND (0.000898)	ND (0.000809)	ND (0.000727)
Heptachlor epoxide	0.013	0.12	0.14	**0.0197 (0.00361)**	ND (0.00324)	0.00205 J (0.00361)	ND (0.00319)	ND (0.00321)	**0.247 (0.0034)**	**0.154 (0.00404)**	0.0071 IP (0.00364)	ND (0.00327)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	ND (0.0523)	NA	NA	ND (0.0692)	NA	NA
Metals												
Arsenic	13	16	13	11.5 (0.936)	ND (0.885)	**16.2 (0.954)**	2.69 (0.818)	NA	**198 (0.936)**	**78 (1.1)**	4.86 (0.946)	0.565 J (0.904)
Cadmium	2.5	2.5	4	NA	ND (0.885)	0.202 J (0.954)	ND (0.818)	NA	1.62 (0.936)	0.655 J (1.1)	NA	ND (0.904)
Chromium III	30	30	160	26.9145 (0.936)	NA	29.5 (0.954)	14.565 (0.818)	NA	**66.4185 (0.936)**	27.235 (1.1)	NA	NA
Chromium VI	1	1	20	ND (0.971)	NA	ND (1)	ND (0.87)	NA	ND (0.963)	ND (1.13)	NA	NA
Copper	50	280	50	NA	31.6 (0.885)	14.5 (0.954)	9.23 (0.818)	NA	19.7 (0.936)	13.6 (1.1)	NA	28.1 (0.904)
Lead	63	400	63	NA	4.32 J (4.42)	54.5 (4.77)	6.79 (4.09)	NA	**204 (4.68)**	45.9 (5.49)	NA	5.07 (4.52)
Mercury	0.18	0.3	0.18	NA	ND (0.071)	**0.939 (0.08)**	0.051 J (0.069)	NA	**1.82 (0.076)**	**0.318 (0.091)**	NA	ND (0.072)
Nickel	30	87	30	NA	23.2 (2.21)	14.7 (2.38)	11.4 (2.04)	NA	13.7 (2.34)	10 (2.75)	NA	19.9 (2.26)
Zinc	109	1300	109	NA	56.1 (4.42)	64.3 (4.77)	32.6 (4.09)	NA	84.4 (4.68)	51.5 (5.49)	NA	54.2 (4.52)

Notes:

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5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				F11	F11	F11	F11	F11	F12	F12	F12	G01
Field Sample ID				F11_0-0.2	F11_0.2-2	F11R-0.5-1	F11R-1-1.5	F11_2-4	F12_0-0.2	F12_0.2-2	F12_2-4	G1_0-0.2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5	2 - 4	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2
Sampler	SCO	SCO		Roux	Roux	Carson Voci	Carson Voci	Roux	Roux	Roux	Roux	Roux
Sample Date				6/20/2024	6/20/2024	2/8/2025	2/8/2025	6/20/2024	6/19/2024	6/19/2024	6/19/2024	6/21/2024
Comments												
Acetone	0.03	100	2.2	NA	ND (0.015)	NA	NA	NA	NA	ND (0.013)	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	0.078 J (0.11)	NA	NA	NA	NA	ND (0.11)	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	0.08 J (0.15)	NA	NA	NA	NA	ND (0.15)	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	0.12 (0.11)	NA	NA	NA	NA	ND (0.11)	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	0.059 J (0.15)	NA	NA	NA	NA	ND (0.15)	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	ND (0.11)	NA	NA	NA	NA	ND (0.11)	NA	NA
Chrysene	1	1.2	--	NA	0.082 J (0.11)	NA	NA	NA	NA	ND (0.11)	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	ND (0.11)	NA	NA	NA	NA	ND (0.11)	NA	NA
Dibenzofuran	2.1	4.2	--	NA	ND (0.19)	NA	NA	NA	NA	ND (0.19)	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	0.051 J (0.15)	NA	NA	NA	NA	ND (0.15)	NA	NA
Phenanthrene	1.1	1.2	--	NA	0.043 J (0.11)	NA	NA	NA	NA	ND (0.11)	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00184)	ND (0.00181)	ND (0.00208)	NA	ND (0.00172)	ND (0.00203)	ND (0.00181)	ND (0.0018)	ND (0.00168)
alpha-Chlordane	0.014	0.14	1.3	**0.215 IP (0.0023)**	**0.184 IP (0.00226)**	0.00651 J (0.0026)	NA	0.000923 J (0.00215)	0.00628 IP (0.00254)	**0.139 IP (0.00226)**	ND (0.00225)	ND (0.00209)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00184)	ND (0.00181)	ND (0.00208)	NA	ND (0.00172)	ND (0.00203)	ND (0.00181)	ND (0.0018)	ND (0.00168)
4,4'-DDE	0.0033	0.78	0.0033	**0.0598 (0.00184)**	**0.0448 (0.00181)**	**0.0131 (0.00208)**	NA	0.000418 J (0.00172)	0.002 J (0.00203)	**0.0415 (0.00181)**	ND (0.0018)	ND (0.00168)
4,4'-DDT	0.0033	0.78	0.0033	**0.0286 (0.00184)**	**0.0239 (0.00181)**	0.0029 (0.00208)	NA	ND (0.00172)	ND (0.00203)	**0.0134 (0.00181)**	ND (0.0018)	ND (0.00168)
Dieldrin	0.005	0.017	0.006	**0.163 (0.00115)**	**0.134 (0.00113)**	**0.00613 (0.0013)**	NA	0.000723 J (0.00108)	0.000748 J (0.00127)	**0.0153 (0.00113)**	ND (0.00112)	ND (0.00105)
Endrin	0.014	1.2	0.014	ND (0.000766)	ND (0.000753)	ND (0.000865)	NA	ND (0.000717)	ND (0.000847)	ND (0.000754)	ND (0.000749)	ND (0.000698)
Heptachlor epoxide	0.013	0.12	0.14	**0.4 (0.00689)**	**0.417 (0.0169)**	**0.0139 IP (0.00389)**	NA	0.00229 J (0.00323)	0.00244 J (0.00381)	**0.0635 (0.00339)**	ND (0.00337)	ND (0.00314)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	0.0231 J (0.0557)	NA	NA	NA	NA	ND (0.0546)	NA	NA
Metals												
Arsenic	13	16	13	**156 (0.905)**	**117 (0.88)**	**34 (1.06)**	12.1 (0.918)	1.53 (0.873)	**43.3 (0.996)**	3.07 (0.897)	NA	2.33 (0.812)
Cadmium	2.5	2.5	4	2.18 (0.905)	1.96 (0.88)	NA	NA	ND (0.873)	0.39 J (0.996)	ND (0.897)	NA	0.205 J (0.812)
Chromium III	30	30	160	**86.7375 (0.905)**	**176.536 (0.88)**	25.26 (1.06)	NA	NA	**47.985 (0.996)**	20.438 (0.897)	NA	22.38 (0.812)
Chromium VI	1	1	20	ND (0.925)	ND (0.928)	ND (1.08)	NA	NA	ND (1.03)	ND (0.924)	NA	ND (0.84)
Copper	50	280	50	21.5 (0.905)	22.8 (0.88)	NA	NA	18.1 (0.873)	23.2 (0.996)	20.4 (0.897)	NA	28.2 (0.812)
Lead	63	400	63	**140 (4.53)**	**89.2 (4.4)**	NA	NA	4.49 (4.36)	29.2 (4.98)	4.8 (4.49)	NA	3.02 J (4.06)
Mercury	0.18	0.3	0.18	**2.1 (0.073)**	**2.4 (0.074)**	**0.199 (0.092)**	NA	ND (0.071)	**0.769 (0.082)**	0.055 J (0.074)	NA	ND (0.068)
Nickel	30	87	30	13.1 (2.26)	14.2 (2.2)	NA	NA	15.3 (2.18)	15.7 (2.49)	14.7 (2.24)	NA	18.4 (2.03)
Zinc	109	1300	109	101 (4.53)	94 (4.4)	NA	NA	38 (4.36)	58.2 (4.98)	35.5 (4.49)	NA	84 (4.06)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				G01	G02	G02	G02	G02	G02	G03	G03	G03
Field Sample ID				G1_0.2-2	G2_0-0.2	G2_0.2-2	G2_2-4	G02R-2.5-3	G2_4-6	G3_0-0.2	G3_0.2-2	G3_2-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0.2 - 2	0 - 0.2	0.2 - 2	2 - 4	2.5 - 3	4 - 6	0 - 0.2	0.2 - 2	2 - 4
Sampler	SCO	SCO		Roux	Roux	Roux	Roux	Carson Voci	Roux	Roux	Roux	Roux
Sample Date				6/21/2024	6/21/2024	6/21/2024	6/21/2024	2/6/2025	6/21/2024	6/21/2024	6/21/2024	6/21/2024
Comments												
Acetone	0.03	100	2.2	ND (0.012)	NA	ND (0.012)	NA	NA	NA	NA	ND (0.018)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	ND (0.11)	NA	ND (0.1)	NA	NA	NA	NA	0.11 J (0.12)	NA
Benzo(a)pyrene	1	1	2.6	ND (0.15)	NA	ND (0.14)	NA	NA	NA	NA	0.1 J (0.16)	NA
Benzo(b)fluoranthene	1	1	--	ND (0.11)	NA	ND (0.1)	NA	NA	NA	NA	0.13 (0.12)	NA
Benzo(g,h,i)perylene	0.64	1.2	--	ND (0.15)	NA	ND (0.14)	NA	NA	NA	NA	0.063 J (0.16)	NA
Benzo(k)fluoranthene	0.8	1.2	--	ND (0.11)	NA	ND (0.1)	NA	NA	NA	NA	0.036 J (0.12)	NA
Chrysene	1	1.2	--	ND (0.11)	NA	ND (0.1)	NA	NA	NA	NA	0.1 J (0.12)	NA
Dibenz(a,h)anthracene	0.33	0.33	--	ND (0.11)	NA	ND (0.1)	NA	NA	NA	NA	ND (0.12)	NA
Dibenzofuran	2.1	4.2	--	ND (0.19)	NA	ND (0.18)	NA	NA	NA	NA	ND (0.2)	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	ND (0.15)	NA	ND (0.14)	NA	NA	NA	NA	0.059 J (0.16)	NA
Phenanthrene	1.1	1.2	--	ND (0.11)	NA	ND (0.1)	NA	NA	NA	NA	0.086 J (0.12)	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.0017)	ND (0.00172)	ND (0.00166)	NA	NA	NA	ND (0.00194)	ND (0.00185)	ND (0.00185)
alpha-Chlordane	0.014	0.14	1.3	ND (0.00212)	ND (0.00215)	ND (0.00207)	NA	NA	NA	ND (0.00243)	ND (0.00231)	ND (0.00231)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.0017)	ND (0.00172)	ND (0.00166)	NA	NA	NA	**0.00556 (0.00194)**	0.00152 JIP (0.00185)	0.000726 JIP (0.00185)
4,4'-DDE	0.0033	0.78	0.0033	ND (0.0017)	0.000619 J (0.00172)	0.000786 J (0.00166)	NA	NA	NA	**1.16 (0.00972)**	**0.71 (0.00924)**	**0.049 (0.00185)**
4,4'-DDT	0.0033	0.78	0.0033	ND (0.0017)	ND (0.00172)	0.00256 (0.00166)	NA	NA	NA	**0.929 (0.00972)**	**0.422 (0.00924)**	**0.0621 (0.00185)**
Dieldrin	0.005	0.017	0.006	ND (0.00106)	ND (0.00108)	ND (0.00104)	NA	NA	NA	ND (0.00122)	ND (0.00116)	ND (0.00116)
Endrin	0.014	1.2	0.014	ND (0.000708)	ND (0.000717)	ND (0.00069)	NA	NA	NA	ND (0.00081)	ND (0.00077)	ND (0.000771)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00318)	ND (0.00323)	ND (0.00311)	NA	NA	NA	ND (0.00365)	ND (0.00347)	ND (0.00347)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	ND (0.0529)	NA	ND (0.0528)	NA	NA	NA	NA	ND (0.0584)	NA
Metals												
Arsenic	13	16	13	2.93 (0.89)	ND (0.846)	ND (0.823)	ND (1.66)	NA	0.629 J (1.59)	**34.6 (0.969)**	12.1 (0.934)	NA
Cadmium	2.5	2.5	4	ND (0.89)	ND (0.846)	ND (0.823)	ND (1.66)	NA	ND (0.796)	0.246 J (0.969)	0.15 J (0.934)	NA
Chromium III	30	30	160	16.6505 (0.89)	**31.03 (0.846)**	**30.13 J (0.823)**	NA	NA	NA	**32.1085 (0.969)**	23.529 (0.934)	NA
Chromium VI	1	1	20	ND (0.899)	**1.47 (0.879)**	0.67 J (0.851)	NA	NA	NA	ND (0.983)	ND (0.942)	NA
Copper	50	280	50	24.8 (0.89)	16.1 (0.846)	13.1 (0.823)	24 (1.66)	NA	23.3 (0.796)	34.3 (0.969)	21.9 (0.934)	NA
Lead	63	400	63	5.46 (4.45)	7.37 (4.23)	4.59 (4.12)	6.68 J (8.31)	NA	10.8 (3.98)	**132 (4.84)**	51.3 (4.67)	NA
Mercury	0.18	0.3	0.18	ND (0.076)	**0.976 (0.076)**	0.172 (0.068)	**0.284 (0.067)**	NA	0.178 (0.066)	**0.357 (0.085)**	0.146 (0.077)	NA
Nickel	30	87	30	25.2 (2.22)	25.6 (2.11)	**31 (2.06)**	**38.3 (4.15)**	22.3 (1.97)	**34.6 (1.99)**	21.6 (2.42)	18.8 (2.34)	NA
Zinc	109	1300	109	36.8 (4.45)	67.4 (4.23)	74.1 (4.12)	**115 (8.31)**	NA	102 (3.98)	106 (4.84)	77.8 (4.67)	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				G03	G03	G04	G04	G04	G04	G04	G04	G04
Field Sample ID				G3_4-6	G03R-6-7.5	G4_0-0.2	G4_0.2-2	G04R-2-2.5	G4_2-4	G04R-2.5-3	G04R-3-3.5	G04R-3.5-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	4 - 6	6 - 7.5	0 - 0.2	0.2 - 2	2 - 2.5	2 - 4	2.5 - 3	3 - 3.5	3.5 - 4
Sampler	SCO	SCO		Roux	Carson Voci	Roux	Roux	Carson Voci	Roux	Carson Voci	Carson Voci	Carson Voci
Sample Date				6/21/2024	2/8/2025	6/21/2024	6/21/2024	2/7/2025	6/21/2024	2/7/2025	2/7/2025	2/7/2025
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	0.026 (0.015)	NA	NA	NA	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	0.039 J (0.1)	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	ND (0.14)	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	0.043 J (0.1)	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	0.022 J (0.14)	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	ND (0.1)	NA	NA	NA	NA	NA
Chrysene	1	1.2	--	NA	NA	NA	0.035 J (0.1)	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	ND (0.1)	NA	NA	NA	NA	NA
Dibenzofuran	2.1	4.2	--	NA	NA	NA	ND (0.17)	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	ND (0.14)	NA	NA	NA	NA	NA
Phenanthrene	1.1	1.2	--	NA	NA	NA	0.042 J (0.1)	NA	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.0018)	ND (0.00206)	ND (0.00173)	ND (0.00164)	NA	ND (0.00193)	NA	NA	NA
alpha-Chlordane	0.014	0.14	1.3	ND (0.00225)	ND (0.00258)	0.00579 J (0.00217)	0.00574 IP (0.00206)	NA	**0.0351 (0.00241)**	NA	NA	NA
4,4'-DDD	0.0033	1.2	0.0033	ND (0.0018)	ND (0.00206)	ND (0.00173)	ND (0.00164)	NA	**0.116 (0.00193)**	NA	NA	NA
4,4'-DDE	0.0033	0.78	0.0033	**0.011 (0.0018)**	ND (0.00206)	**0.014 (0.00173)**	**0.0135 (0.00164)**	NA	**0.27 (0.00193)**	NA	NA	NA
4,4'-DDT	0.0033	0.78	0.0033	**0.0114 (0.0018)**	ND (0.00206)	0.00322 (0.00173)	0.00281 (0.00164)	NA	**0.0536 (0.00193)**	NA	NA	NA
Dieldrin	0.005	0.017	0.006	ND (0.00112)	ND (0.00129)	**0.00563 (0.00108)**	**0.00568 (0.00103)**	NA	**0.0327 IP (0.0012)**	NA	NA	NA
Endrin	0.014	1.2	0.014	ND (0.00075)	ND (0.000859)	ND (0.000722)	ND (0.000686)	NA	ND (0.000803)	NA	NA	NA
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00337)	ND (0.00387)	0.00397 (0.00325)	0.00379 (0.00308)	NA	0.00969 (0.00361)	NA	NA	NA
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	ND (0.0512)	NA	NA	NA	NA	NA
Metals												
Arsenic	13	16	13	NA	NA	5.53 (0.834)	2.92 (0.788)	NA	10.4 (1.01)	NA	NA	NA
Cadmium	2.5	2.5	4	NA	NA	0.268 J (0.834)	0.151 J (0.788)	NA	0.265 J (1.01)	NA	NA	NA
Chromium III	30	30	160	NA	NA	11.965 (0.834)	7.5435 (0.788)	NA	NA	NA	NA	NA
Chromium VI	1	1	20	NA	NA	ND (0.87)	ND (0.833)	NA	NA	NA	NA	NA
Copper	50	280	50	NA	NA	10.1 (0.834)	5.75 (0.788)	NA	20.4 (1.01)	NA	NA	NA
Lead	63	400	63	NA	NA	21.4 (4.17)	13.4 (3.94)	NA	37.6 (5.05)	NA	NA	NA
Mercury	0.18	0.3	0.18	NA	NA	**0.806 (0.069)**	**0.672 (0.075)**	ND (0.078)	**1.59 (0.08)**	ND (0.097)	ND (0.085)	ND (0.088)
Nickel	30	87	30	NA	NA	5.66 (2.08)	3.45 (1.97)	NA	18.4 (2.53)	NA	NA	NA
Zinc	109	1300	109	NA	NA	24.5 (4.17)	16 (3.94)	NA	87.2 (5.05)	NA	NA	NA

Notes:
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				G04	G04	G05	G05	G05	G05	G06	G06	G06
Field Sample ID				G4_4-6	G04R-6-8	G5_0-0.2	G05-0-0.2	G5_0.2-2	G5_13-15	G6_0-0.2	G6_0.2-2	G06R-0.5-1
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	4 - 6	6 - 8	0 - 0.2	0 - 0.2	0.2 - 2	13 - 15	0 - 0.2	0.2 - 2	0.5 - 1
Sampler	SCO	SCO		Roux	Carson Voci	Roux	Carson Voci	Roux	Roux	Roux	Roux	Carson Voci
Sample Date				6/21/2024	2/7/2025	5/21/2024	4/30/2025	5/21/2024	5/21/2024	6/21/2024	6/21/2024	2/10/2025
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	NA	ND (0.011)	0.011 J (0.012)	NA	ND (0.013)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	NA	ND (0.12)	ND (0.11)	NA	0.024 J (0.11)	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	NA	ND (0.16)	ND (0.14)	NA	ND (0.15)	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	NA	ND (0.12)	ND (0.11)	NA	ND (0.11)	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	NA	ND (0.16)	ND (0.14)	NA	ND (0.15)	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	NA	ND (0.12)	ND (0.11)	NA	ND (0.11)	NA
Chrysene	1	1.2	--	NA	NA	NA	NA	ND (0.12)	ND (0.11)	NA	0.026 J (0.11)	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	NA	ND (0.12)	ND (0.11)	NA	ND (0.11)	NA
Dibenzofuran	2.1	4.2	--	NA	NA	NA	NA	ND (0.21)	ND (0.18)	NA	ND (0.19)	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	NA	ND (0.16)	ND (0.14)	NA	ND (0.15)	NA
Phenanthrene	1.1	1.2	--	NA	NA	NA	NA	ND (0.12)	ND (0.11)	NA	ND (0.11)	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	0.000079 J (0.0002)	0.00009 J (0.0002)	ND (0.000199)	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	0.000043 J (0.0002)	ND (0.0002)	ND (0.000199)	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.002)	ND (0.00172)	ND (0.00182)	NA	ND (0.00196)	ND (0.00165)	ND (0.00198)	ND (0.00181)	NA
alpha-Chlordane	0.014	0.14	1.3	0.00479 (0.0025)	ND (0.00215)	**0.258 IP (0.00227)**	NA	ND (0.00244)	0.00375 IP (0.00207)	ND (0.00247)	ND (0.00226)	NA
4,4'-DDD	0.0033	1.2	0.0033	**0.0176 (0.002)**	ND (0.00172)	ND (0.00182)	NA	ND (0.00196)	ND (0.00165)	ND (0.00198)	ND (0.00181)	NA
4,4'-DDE	0.0033	0.78	0.0033	**0.0451 (0.002)**	ND (0.00172)	**0.0281 (0.00182)**	NA	ND (0.00196)	0.00185 (0.00165)	**0.326 (0.00198)**	**0.215 (0.00181)**	NA
4,4'-DDT	0.0033	0.78	0.0033	**0.00679 (0.002)**	ND (0.00172)	**0.0272 (0.00182)**	NA	ND (0.00196)	0.0021 (0.00165)	**0.0631 (0.00198)**	**0.0437 (0.00181)**	NA
Dieldrin	0.005	0.017	0.006	0.00442 (0.00125)	ND (0.00107)	ND (0.00113)	NA	ND (0.00122)	ND (0.00103)	**0.0149 (0.00124)**	**0.01 (0.00113)**	NA
Endrin	0.014	1.2	0.014	ND (0.000834)	ND (0.000716)	ND (0.000756)	NA	ND (0.000815)	ND (0.000689)	ND (0.000824)	ND (0.000755)	NA
Heptachlor epoxide	0.013	0.12	0.14	0.00131 JIP (0.00375)	ND (0.00322)	0.00552 IP (0.0034)	NA	ND (0.00367)	ND (0.0031)	0.00282 J (0.00371)	0.0019 J (0.0034)	NA
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	NA	ND (0.0625)	ND (0.0506)	NA	ND (0.0545)	NA
Metals												
Arsenic	13	16	13	9.38 (0.999)	NA	7.91 (0.942)	NA	3.62 (0.974)	1.89 (0.857)	**17.4 (0.973)**	8.51 (0.9)	NA
Cadmium	2.5	2.5	4	0.187 J (0.999)	NA	0.166 J (0.942)	NA	0.096 J (0.974)	ND (0.857)	0.263 J (0.973)	0.179 J (0.9)	NA
Chromium III	30	30	160	NA	NA	14.266 J (0.942)	NA	18.546 J (0.974)	23.7615 (0.857)	**36.001 (0.973)**	21.941 (0.9)	NA
Chromium VI	1	1	20	NA	NA	0.434 J (0.965)	NA	0.254 J (1.02)	ND (0.877)	ND (0.998)	ND (0.918)	NA
Copper	50	280	50	17 (0.999)	NA	39.2 (0.942)	NA	22.3 (0.974)	31 (0.857)	20.6 (0.973)	15.1 (0.9)	NA
Lead	63	400	63	39.9 (5)	NA	33.2 (4.71)	NA	7.75 (4.87)	5.3 (4.28)	49.6 (4.86)	26.1 (4.5)	NA
Mercury	0.18	0.3	0.18	**0.694 (0.082)**	0.051 J (0.075)	**0.436 (0.081)**	NA	ND (0.085)	ND (0.069)	**6.1 (0.838)**	**1.91 (0.076)**	**2.18 (0.092)**
Nickel	30	87	30	15.2 (2.5)	NA	14 (2.36)	NA	17.3 (2.44)	21.6 (2.14)	16.4 (2.43)	13.7 (2.25)	NA
Zinc	109	1300	109	45.6 (5)	NA	62 (4.71)	NA	48 (4.87)	50.1 (4.28)	58 (4.86)	47.3 (4.5)	NA

Notes:
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2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
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I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				G06	G06	G06	G07	G07	G07	G07	G08	G08
Field Sample ID				G06R-1-1.5	G06R-1.5-2	G6_2-4	G7_0-0.2	G7_0.2-2	G07R-2-4	G07R-4-6	G8_0-0.2	G8_0.2-2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	1 - 1.5	1.5 - 2	2 - 4	0 - 0.2	0.2 - 2	2 - 4	4 - 6	0 - 0.2	0.2 - 2
Sampler	SCO	SCO		Carson Voci	Carson Voci	Roux	Roux	Roux	Carson Voci	Carson Voci	Roux	Roux
Sample Date				2/10/2025	2/10/2025	6/21/2024	6/24/2024	6/24/2024	2/7/2025	2/7/2025	6/24/2024	6/24/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	NA	ND (0.012)	NA	NA	NA	ND (0.018)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	NA	0.025 J (0.11)	NA	NA	NA	ND (0.13)
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	NA	ND (0.15)	NA	NA	NA	ND (0.18)
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	NA	ND (0.11)	NA	NA	NA	ND (0.13)
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	NA	ND (0.15)	NA	NA	NA	ND (0.18)
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	NA	ND (0.11)	NA	NA	NA	ND (0.13)
Chrysene	1	1.2	--	NA	NA	NA	NA	0.023 J (0.11)	NA	NA	NA	ND (0.13)
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	NA	ND (0.11)	NA	NA	NA	ND (0.13)
Dibenzofuran	2.1	4.2	--	NA	NA	NA	NA	ND (0.19)	NA	NA	NA	ND (0.22)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	NA	ND (0.15)	NA	NA	NA	ND (0.18)
Phenanthrene	1.1	1.2	--	NA	NA	NA	NA	0.029 J (0.11)	NA	NA	NA	ND (0.13)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	NA	NA	ND (0.00164)	ND (0.00182)	ND (0.00175)	ND (0.00182)	NA	ND (0.00183)	ND (0.00212)
alpha-Chlordane	0.014	0.14	1.3	NA	NA	ND (0.00205)	ND (0.00228)	ND (0.00219)	ND (0.00227)	NA	0.00108 JIP (0.00228)	ND (0.00265)
4,4'-DDD	0.0033	1.2	0.0033	NA	NA	ND (0.00164)	ND (0.00182)	ND (0.00175)	ND (0.00182)	NA	ND (0.00183)	ND (0.00212)
4,4'-DDE	0.0033	0.78	0.0033	NA	NA	0.00158 J (0.00164)	**0.0367 (0.00182)**	**0.0156 (0.00175)**	**0.0141 (0.00182)**	ND (0.00176)	**0.0179 (0.00183)**	**0.00592 (0.00212)**
4,4'-DDT	0.0033	0.78	0.0033	NA	NA	0.00185 (0.00164)	**0.0119 (0.00182)**	**0.00561 (0.00175)**	0.0015 JIP (0.00182)	NA	**0.0106 (0.00183)**	0.00238 (0.00212)
Dieldrin	0.005	0.017	0.006	NA	NA	ND (0.00103)	ND (0.00114)	ND (0.00109)	ND (0.00114)	NA	0.000839 J (0.00114)	ND (0.00132)
Endrin	0.014	1.2	0.014	NA	NA	ND (0.000684)	ND (0.000761)	ND (0.000729)	ND (0.000758)	NA	ND (0.000761)	ND (0.000884)
Heptachlor epoxide	0.013	0.12	0.14	NA	NA	ND (0.00308)	ND (0.00342)	ND (0.00328)	ND (0.00341)	NA	0.00133 J (0.00342)	ND (0.00398)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	NA	ND (0.056)	NA	NA	NA	ND (0.0665)
Metals												
Arsenic	13	16	13	NA	NA	ND (1.62)	9 (0.947)	4.92 (0.926)	NA	NA	6.58 (0.904)	6.33 (1.08)
Cadmium	2.5	2.5	4	NA	NA	ND (1.62)	ND (0.947)	ND (0.926)	NA	NA	ND (0.904)	0.268 J (1.08)
Chromium III	30	30	160	NA	NA	NA	18.2245 (0.947)	21.336 (0.926)	NA	NA	14.6245 (0.904)	**32.155 (1.08)**
Chromium VI	1	1	20	NA	NA	NA	ND (0.951)	ND (0.928)	NA	NA	ND (0.951)	ND (1.09)
Copper	50	280	50	NA	NA	14.3 (1.62)	13.2 (0.947)	23.7 (0.926)	NA	NA	12.9 (0.904)	29.8 (1.08)
Lead	63	400	63	NA	NA	2.78 J (8.12)	33.3 (4.74)	17.8 (4.63)	NA	NA	24.7 (4.52)	20.4 (5.41)
Mercury	0.18	0.3	0.18	**2.72 (0.088)**	**0.854 (0.105)**	ND (0.067)	**0.199 (0.082)**	0.118 (0.08)	NA	NA	**0.249 (0.085)**	0.109 (0.096)
Nickel	30	87	30	NA	NA	29.1 (4.06)	14.3 (2.37)	19.3 (2.32)	NA	NA	13.5 (2.26)	25.3 (2.7)
Zinc	109	1300	109	NA	NA	75.8 (8.12)	43.3 (4.74)	46.8 (4.63)	NA	NA	49.1 (4.52)	87.5 (5.41)

Notes:
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3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
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Abbreviations:
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				G08	G09	G09	G09	G09	G09	G09	G09	G09	G10
Field Sample ID				G08R-2-4	G9_0-0.2	G9_0.2-2	G09R-0.5-1	G09R-1-1.5	G09R-1.5-2	G09R-2-2.5	G09R-2-4	G10_0-0.2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	2 - 4	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5	1.5 - 2	2 - 2.5	2 - 4	0 - 0.2
Sampler	SCO	SCO		Carson Voci	Roux	Roux	Carson Voci	Carson Voci	Carson Voci	Carson Voci	Carson Voci	Roux
Sample Date				2/3/2025	6/24/2024	6/24/2024	2/3/2025	2/3/2025	2/3/2025	2/3/2025	2/3/2025	6/24/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	0.0074 J (0.015)	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	ND (0.11)	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	ND (0.15)	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	ND (0.11)	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	ND (0.15)	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.11)	NA	NA	NA	NA	NA	NA
Chrysene	1	1.2	--	NA	NA	ND (0.11)	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.11)	NA	NA	NA	NA	NA	NA
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.18)	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	ND (0.15)	NA	NA	NA	NA	NA	NA
Phenanthrene	1.1	1.2	--	NA	NA	ND (0.11)	NA	NA	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00169)	ND (0.00216)	ND (0.00178)	ND (0.00203)	NA	NA	NA	NA	ND (0.0022)
alpha-Chlordane	0.014	0.14	1.3	ND (0.00211)	0.0137 IP (0.0027)	0.0134 IP (0.00223)	0.00151 JIP (0.00253)	NA	NA	NA	NA	0.0032 IP (0.00275)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00169)	0.0033 (0.00216)	0.00129 J (0.00178)	ND (0.00203)	NA	NA	NA	NA	ND (0.0022)
4,4'-DDE	0.0033	0.78	0.0033	0.00179 (0.00169)	**0.0704 (0.00216)**	**0.059 (0.00178)**	**0.00945 (0.00203)**	**0.0762 (0.00178)**	**0.214 (0.00178)**	**0.0199 (0.0017)**	0.00238 (0.00166)	**0.0476 (0.0022)**
4,4'-DDT	0.0033	0.78	0.0033	ND (0.00169)	**0.0191 (0.00216)**	**0.0535 (0.00178)**	**0.00735 (0.00203)**	**0.0223 (0.00178)**	**0.0229 (0.00178)**	**0.00427 (0.0017)**	ND (0.00166)	**0.0119 (0.0022)**
Dieldrin	0.005	0.017	0.006	ND (0.00106)	**0.0515 (0.00135)**	**0.0468 (0.00111)**	0.00224 (0.00127)	NA	NA	NA	NA	0.00279 (0.00138)
Endrin	0.014	1.2	0.014	ND (0.000704)	ND (0.000902)	ND (0.000743)	ND (0.000844)	NA	NA	NA	NA	ND (0.000918)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00317)	**0.0251 (0.00406)**	**0.052 (0.00334)**	ND (0.0038)	NA	NA	NA	NA	0.00688 (0.00413)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	0.023 J (0.0555)	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	13	16	13	NA	**19 (1.09)**	**20.8 (0.864)**	1.53 (1.04)	NA	NA	NA	NA	**25.9 (1.1)**
Cadmium	2.5	2.5	4	NA	0.342 J (1.09)	0.098 J (0.864)	NA	NA	NA	NA	NA	ND (1.1)
Chromium III	30	30	160	18.41 J (0.848)	23.425 (1.09)	20.6525 (0.864)	NA	NA	NA	NA	NA	20.645 (1.1)
Chromium VI	1	1	20	0.29 J (0.858)	ND (1.15)	ND (0.895)	NA	NA	NA	NA	NA	ND (1.11)
Copper	50	280	50	NA	10.8 (1.09)	11.7 (0.864)	NA	NA	NA	NA	NA	10.2 (1.1)
Lead	63	400	63	NA	52.3 (5.45)	50.5 (4.32)	NA	NA	NA	NA	NA	**90.8 (5.52)**
Mercury	0.18	0.3	0.18	NA	**1.03 (0.094)**	**0.729 (0.076)**	NA	NA	NA	NA	ND (0.083)	**0.311 (0.096)**
Nickel	30	87	30	NA	8.54 (2.73)	13.4 (2.16)	NA	NA	NA	NA	NA	11.9 (2.76)
Zinc	109	1300	109	NA	47.1 (5.45)	49.6 (4.32)	NA	NA	NA	NA	NA	54.5 (5.52)

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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				G10	G10	G11	G11	G11	G12	G12	G12	G12
Field Sample ID				G10_0.2-2	G10R-2-4	G11_0-0.2	G11_0.2-2	G11R-2-4	G12_0-0.2	G12-0-0.2	G12_0.2-2	G12_2-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0 - 0.2	0.2 - 2	2 - 4
Sampler	SCO	SCO		Roux	Carson Voci	Roux	Roux	Carson Voci	Roux	Carson Voci	Roux	Roux
Sample Date				6/24/2024	2/7/2025	6/24/2024	6/24/2024	2/7/2025	5/22/2024	4/30/2025	5/22/2024	5/22/2024
Comments												
Acetone	0.03	100	2.2	0.0086 J (0.014)	NA	NA	ND (0.019)	NA	NA	NA	ND (0.0098)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	ND (0.12)	NA	NA	ND (0.13)	NA	NA	NA	ND (0.11)	NA
Benzo(a)pyrene	1	1	2.6	ND (0.16)	NA	NA	ND (0.18)	NA	NA	NA	ND (0.15)	NA
Benzo(b)fluoranthene	1	1	--	ND (0.12)	NA	NA	ND (0.13)	NA	NA	NA	ND (0.11)	NA
Benzo(g,h,i)perylene	0.64	1.2	--	ND (0.16)	NA	NA	ND (0.18)	NA	NA	NA	ND (0.15)	NA
Benzo(k)fluoranthene	0.8	1.2	--	ND (0.12)	NA	NA	ND (0.13)	NA	NA	NA	ND (0.11)	NA
Chrysene	1	1.2	--	ND (0.12)	NA	NA	ND (0.13)	NA	NA	NA	ND (0.11)	NA
Dibenz(a,h)anthracene	0.33	0.33	--	ND (0.12)	NA	NA	ND (0.13)	NA	NA	NA	ND (0.11)	NA
Dibenzofuran	2.1	4.2	--	ND (0.2)	NA	NA	ND (0.22)	NA	NA	NA	ND (0.19)	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	ND (0.16)	NA	NA	ND (0.18)	NA	NA	NA	ND (0.15)	NA
Phenanthrene	1.1	1.2	--	ND (0.12)	NA	NA	ND (0.13)	NA	NA	NA	ND (0.11)	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	**0.00475 (0.000198)**	0.000299 (0.0002)	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	0.000046 J (0.000198)	ND (0.0002)	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00191)	ND (0.0018)	ND (0.00186)	ND (0.00213)	ND (0.00172)	ND (0.0019)	NA	ND (0.0018)	ND (0.00174)
alpha-Chlordane	0.014	0.14	1.3	ND (0.00238)	ND (0.00225)	**0.394 IP (0.0233)**	0.00325 IP (0.00266)	ND (0.00216)	**0.0934 IP (0.00237)**	NA	0.00131 JIP (0.00225)	ND (0.00218)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00191)	ND (0.0018)	ND (0.00186)	ND (0.00213)	ND (0.00172)	ND (0.0019)	NA	ND (0.0018)	ND (0.00174)
4,4'-DDE	0.0033	0.78	0.0033	**0.0128 (0.00191)**	0.00286 (0.0018)	**0.0347 (0.00186)**	0.00119 J (0.00213)	ND (0.00172)	**0.0244 (0.0019)**	NA	ND (0.0018)	ND (0.00174)
4,4'-DDT	0.0033	0.78	0.0033	**0.0038 (0.00191)**	ND (0.0018)	**0.0109 (0.00186)**	ND (0.00213)	ND (0.00172)	**0.024 (0.0019)**	NA	ND (0.0018)	ND (0.00174)
Dieldrin	0.005	0.017	0.006	ND (0.00119)	ND (0.00113)	**1.13 (0.0116)**	**0.0193 (0.00133)**	ND (0.00108)	**0.791 (0.0118)**	NA	**0.012 (0.00112)**	0.0039 (0.00109)
Endrin	0.014	1.2	0.014	ND (0.000795)	ND (0.000752)	ND (0.000777)	ND (0.000887)	ND (0.000718)	ND (0.000791)	NA	ND (0.00075)	ND (0.000726)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00358)	ND (0.00338)	**0.229 (0.0035)**	0.00644 (0.00399)	ND (0.00323)	**0.14 (0.00356)**	NA	0.0029 J (0.00338)	ND (0.00327)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	ND (0.0561)	NA	NA	ND (0.0667)	NA	NA	NA	ND (0.0537)	NA
Metals												
Arsenic	13	16	13	9.01 (0.929)	NA	**155 (0.926)**	6.24 (1.07)	NA	**111 (0.939)**	NA	5.53 (0.887)	NA
Cadmium	2.5	2.5	4	ND (0.929)	NA	**3.32 (0.926)**	ND (1.07)	NA	1.6 (0.939)	NA	0.096 J (0.887)	NA
Chromium III	30	30	160	15.221 (0.929)	NA	**131.5255 (0.926)**	23.055 (1.07)	NA	**85.6145 (0.939)**	NA	20.846 (0.887)	NA
Chromium VI	1	1	20	ND (0.958)	NA	ND (0.949)	ND (1.09)	NA	ND (0.971)	NA	ND (0.908)	NA
Copper	50	280	50	10.1 (0.929)	NA	17.8 (0.926)	12 (1.07)	NA	12.3 (0.939)	NA	17.6 (0.887)	NA
Lead	63	400	63	31 (4.64)	NA	56.8 (4.63)	10.2 (5.37)	NA	55.5 (4.7)	NA	4.72 (4.44)	NA
Mercury	0.18	0.3	0.18	0.111 (0.092)	NA	**2.85 (0.086)**	0.079 J (0.086)	NA	**1.68 (0.08)**	NA	ND (0.071)	NA
Nickel	30	87	30	12 (2.32)	NA	14 (2.32)	16.7 (2.68)	NA	9.44 (2.35)	NA	15.4 (2.22)	NA
Zinc	109	1300	109	41.2 (4.64)	NA	**111 (4.63)**	57.1 (5.37)	NA	73 (4.7)	NA	39 (4.44)	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				G12	H01	H01	H01	H01	H02	H02	H02	H02
Field Sample ID				G12_9-11	H1_0-0.2	H1_0.2-2	H01R-2-4	H01R-4-6	H2_0-0.2	H2_0.2-2	H2_2-4	H02R-4-5
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	9 - 11	0 - 0.2	0.2 - 2	2 - 4	4 - 6	0 - 0.2	0.2 - 2	2 - 4	4 - 5
Sampler	SCO	SCO		Roux	Roux	Roux	Carson Voci	Carson Voci	Roux	Roux	Roux	Carson Voci
Sample Date				5/22/2024	6/26/2024	6/26/2024	2/6/2025	2/6/2025	6/26/2024	6/26/2024	6/26/2024	2/6/2025
Comments												
Acetone	0.03	100	2.2	0.016 (0.0093)	NA	0.01 J (0.017)	NA	NA	NA	ND (0.011)	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	ND (0.11)	NA	0.027 J (0.1)	NA	NA	NA	ND (0.12)	NA	NA
Benzo(a)pyrene	1	1	2.6	ND (0.15)	NA	ND (0.14)	NA	NA	NA	ND (0.16)	NA	NA
Benzo(b)fluoranthene	1	1	--	ND (0.11)	NA	0.043 J (0.1)	NA	NA	NA	ND (0.12)	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	ND (0.15)	NA	0.022 J (0.14)	NA	NA	NA	ND (0.16)	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	ND (0.11)	NA	ND (0.1)	NA	NA	NA	ND (0.12)	NA	NA
Chrysene	1	1.2	--	ND (0.11)	NA	0.027 J (0.1)	NA	NA	NA	ND (0.12)	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	ND (0.11)	NA	ND (0.1)	NA	NA	NA	ND (0.12)	NA	NA
Dibenzofuran	2.1	4.2	--	ND (0.18)	NA	ND (0.17)	NA	NA	NA	ND (0.2)	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	ND (0.15)	NA	ND (0.14)	NA	NA	NA	ND (0.16)	NA	NA
Phenanthrene	1.1	1.2	--	ND (0.11)	NA	ND (0.1)	NA	NA	NA	ND (0.12)	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	0.000079 J (0.0002)	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	ND (0.0002)	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00176)	ND (0.0025)	ND (0.0016)	ND (0.00178)	ND (0.00178)	ND (0.00181)	ND (0.00186)	ND (0.00169)	NA
alpha-Chlordane	0.014	0.14	1.3	ND (0.0022)	ND (0.00313)	ND (0.002)	ND (0.00222)	ND (0.00222)	0.003 IP (0.00227)	ND (0.00233)	ND (0.00211)	NA
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00176)	ND (0.0025)	ND (0.0016)	ND (0.00178)	ND (0.00178)	**0.00563 (0.00181)**	ND (0.00186)	ND (0.00169)	NA
4,4'-DDE	0.0033	0.78	0.0033	ND (0.00176)	**0.00808 IP (0.0025)**	**0.00431 IP (0.0016)**	ND (0.00178)	ND (0.00178)	**0.152 (0.00181)**	**0.0173 (0.00186)**	ND (0.00169)	NA
4,4'-DDT	0.0033	0.78	0.0033	ND (0.00176)	**0.0173 (0.0025)**	**0.00731 (0.0016)**	ND (0.00178)	ND (0.00178)	**0.046 (0.00181)**	**0.00582 (0.00186)**	ND (0.00169)	NA
Dieldrin	0.005	0.017	0.006	0.00214 (0.0011)	0.0014 J (0.00156)	0.000581 J (0.001)	ND (0.00111)	ND (0.00111)	0.000831 J (0.00113)	ND (0.00116)	ND (0.00106)	NA
Endrin	0.014	1.2	0.014	ND (0.000732)	ND (0.00104)	ND (0.000668)	ND (0.00074)	ND (0.000741)	ND (0.000756)	ND (0.000776)	ND (0.000704)	NA
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00329)	ND (0.00469)	ND (0.003)	ND (0.00333)	ND (0.00334)	**0.0199 (0.0034)**	0.00106 JIP (0.00349)	ND (0.00317)	NA
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	0.0205 J (0.0546)	NA	ND (0.0515)	NA	NA	NA	ND (0.056)	NA	NA
Metals												
Arsenic	13	16	13	2.57 (0.872)	7.78 (1.21)	2.33 (0.817)	NA	NA	**13.2 (0.918)**	**15.4 (0.92)**	1.22 (0.856)	NA
Cadmium	2.5	2.5	4	0.094 J (0.872)	0.345 J (1.21)	ND (0.817)	NA	NA	0.097 J (0.918)	0.129 J (0.92)	0.553 J (0.856)	NA
Chromium III	30	30	160	23.806 J (0.872)	18.87 (1.21)	20.974 (0.817)	NA	NA	22.1385 (0.918)	24.324 (0.92)	NA	NA
Chromium VI	1	1	20	0.294 J (0.905)	ND (1.26)	ND (0.852)	NA	NA	ND (0.923)	ND (0.952)	NA	NA
Copper	50	280	50	18.7 (0.872)	24 (1.21)	42.4 (0.817)	NA	NA	17.2 (0.918)	16.4 (0.92)	25.7 (0.856)	NA
Lead	63	400	63	5.22 (4.36)	30.6 (6.03)	6.27 (4.09)	NA	NA	41.3 (4.59)	39.4 (4.6)	3.96 J (4.28)	NA
Mercury	0.18	0.3	0.18	ND (0.071)	0.154 (0.099)	ND (0.069)	NA	NA	0.09 (0.072)	0.064 J (0.08)	ND (0.07)	NA
Nickel	30	87	30	15.2 (2.18)	14 (3.02)	18.6 (2.04)	NA	NA	16.4 (2.3)	17.8 (2.3)	22.8 (2.14)	NA
Zinc	109	1300	109	38.3 (4.36)	**136 (6.03)**	61.4 (4.09)	NA	NA	50.7 (4.59)	51.9 (4.6)	**283 (4.28)**	46.8 (4.19)

Notes:
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2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
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4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location Field Sample ID Collection Depth (ft bgs) Sampler Sample Date Comments	Unrestricted Use SCO	Residential SCO	PEco SCO	H03 H3_0-0.2 0 - 0.2 Roux 6/26/2024	H03 H3_0.2-2 0.2 - 2 Roux 6/26/2024	H03 H03R-0.5-1 0.5 - 1 Carson Voci 2/10/2025	H03 H3_2-4 2 - 4 Roux 6/26/2024	H04 H4_0-0.2 0 - 0.2 Roux 6/26/2024	H04 H4_0.2-2 0.2 - 2 Roux 6/26/2024	H04 H04R-0.5-1 0.5 - 1 Carson Voci 2/7/2025	H04 H04R-1-1.5 1 - 1.5 Carson Voci 2/7/2025	H04 H4_2-4 2 - 4 Roux 6/26/2024
Acetone	0.03	100	2.2	NA	ND (0.015)	NA	NA	NA	ND (0.018)	NA	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	0.44 (0.12)	NA	NA	NA	ND (0.11)	NA	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	0.48 (0.16)	NA	NA	NA	ND (0.15)	NA	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	0.73 (0.12)	NA	NA	NA	ND (0.11)	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	0.37 (0.16)	NA	NA	NA	ND (0.15)	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	0.15 (0.12)	NA	NA	NA	ND (0.11)	NA	NA	NA
Chrysene	1	1.2	--	NA	0.48 (0.12)	NA	NA	NA	ND (0.11)	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	0.074 J (0.12)	NA	NA	NA	ND (0.11)	NA	NA	NA
Dibenzofuran	2.1	4.2	--	NA	ND (0.2)	NA	NA	NA	ND (0.18)	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	0.35 (0.16)	NA	NA	NA	ND (0.15)	NA	NA	NA
Phenanthrene	1.1	1.2	--	NA	0.26 (0.12)	NA	NA	NA	ND (0.11)	NA	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00225)	ND (0.00195)	NA	NA	ND (0.0019)	ND (0.00169)	NA	NA	ND (0.0018)
alpha-Chlordane	0.014	0.14	1.3	ND (0.00244)	ND (0.00224)	NA	NA	0.00223 IP (0.00212)	ND (0.00204)	NA	NA	**0.0371 IP (0.00237)**
4,4'-DDD	0.0033	1.2	0.0033	0.00084 J (0.00225)	ND (0.00195)	NA	NA	ND (0.0019)	ND (0.00169)	NA	NA	ND (0.0018)
4,4'-DDE	0.0033	0.78	0.0033	**0.0141 (0.00225)**	ND (0.00195)	NA	NA	**0.105 (0.0019)**	**0.0128 (0.00169)**	NA	NA	0.00109 JIP (0.0018)
4,4'-DDT	0.0033	0.78	0.0033	**0.00781 (0.00225)**	ND (0.00195)	NA	NA	**0.0198 (0.0019)**	0.00166 J (0.00169)	NA	NA	ND (0.0018)
Dieldrin	0.005	0.017	0.006	**0.00959 (0.0014)**	ND (0.00122)	NA	NA	**0.31 (0.00119)**	**0.0341 (0.00106)**	NA	NA	0.00133 (0.00112)
Endrin	0.014	1.2	0.014	ND (0.000936)	ND (0.000814)	NA	NA	ND (0.000791)	ND (0.000706)	NA	NA	ND (0.000748)
Heptachlor epoxide	0.013	0.12	0.14	0.00411 J (0.00421)	ND (0.00366)	NA	NA	**0.0736 (0.00356)**	0.00848 (0.00318)	NA	NA	ND (0.00337)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	ND (0.0623)	NA	NA	NA	ND (0.0528)	NA	NA	NA
Metals												
Arsenic	13	16	13	11.7 (1.09)	**27.7 (0.941)**	11.7 (0.937)	3.56 (1)	**119 (0.914)**	**15.1 (0.876)**	NA	NA	1.19 (0.887)
Cadmium	2.5	2.5	4	0.383 J (1.09)	0.126 J (0.941)	NA	ND (1)	0.957 (0.914)	0.116 J (0.876)	NA	NA	ND (0.887)
Chromium III	30	30	160	26.835 (1.09)	21.3 (0.941)	NA	NA	**68.42 (0.914)**	29.154 (0.876)	NA	NA	NA
Chromium VI	1	1	20	ND (1.13)	ND (1)	NA	NA	ND (0.96)	ND (0.892)	NA	NA	NA
Copper	50	280	50	40 (1.09)	17.3 (0.941)	NA	8.32 (1)	21.5 (0.914)	15.6 (0.876)	NA	NA	17.7 (0.887)
Lead	63	400	63	**81.5 (5.45)**	24.2 (4.71)	NA	8.92 (5.02)	**88.7 (4.57)**	34.4 (4.38)	NA	NA	29 (4.44)
Mercury	0.18	0.3	0.18	**0.306 (0.095)**	0.107 (0.087)	NA	ND (0.08)	**4.58 (0.176)**	**9.06 (0.803)**	**0.977 (0.091)**	**0.622 (0.088)**	0.05 J (0.074)
Nickel	30	87	30	19.2 (2.72)	27.2 (2.35)	NA	12.5 (2.51)	23.8 (2.28)	24.6 (2.19)	NA	NA	**44.6 (2.22)**
Zinc	109	1300	109	**119 (5.45)**	74.7 (4.71)	NA	37.2 (5.02)	89.1 (4.57)	72.8 (4.38)	NA	NA	**115 (4.44)**

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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				H04	H05	H05	H05	H05	H06	H06	H06	H06
Field Sample ID				H04R-4-6	H5_0-0.2	H5_0.2-2	H05R-1-1.5	H5_2-4	H6_0-0.2	H6_0.2-2	H06R-0.5-1	H06R-1-1.5
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	4 - 6	0 - 0.2	0.2 - 2	1 - 1.5	2 - 4	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5
Sampler	SCO	SCO		Carson Voci	Roux	Roux	Carson Voci	Roux	Roux	Roux	Carson Voci	Carson Voci
Sample Date				2/7/2025	6/26/2024	6/26/2024	2/10/2025	6/26/2024	6/26/2024	6/26/2024	2/7/2025	2/7/2025
Comments												
Acetone	0.03	100	2.2	NA	NA	0.0076 J (0.015)	NA	NA	NA	ND (0.019)	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	ND (0.12)	NA	NA	NA	ND (0.1)	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	ND (0.16)	NA	NA	NA	ND (0.14)	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	ND (0.12)	NA	NA	NA	ND (0.1)	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	ND (0.16)	NA	NA	NA	ND (0.14)	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.12)	NA	NA	NA	ND (0.1)	NA	NA
Chrysene	1	1.2	--	NA	NA	ND (0.12)	NA	NA	NA	ND (0.1)	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.12)	NA	NA	NA	ND (0.1)	NA	NA
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.19)	NA	NA	NA	ND (0.18)	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	ND (0.16)	NA	NA	NA	ND (0.14)	NA	NA
Phenanthrene	1.1	1.2	--	NA	NA	ND (0.12)	NA	NA	NA	ND (0.1)	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	NA	ND (0.0018)	ND (0.00182)	NA	ND (0.00163)	ND (0.00172)	ND (0.00164)	ND (0.00192)	NA
alpha-Chlordane	0.014	0.14	1.3	NA	ND (0.00227)	0.00103 JIP (0.00243)	NA	**0.0351 J (0.00224)**	0.00562 IP (0.00205)	NA	**0.0902 IP (0.0024)**	NA
4,4'-DDD	0.0033	1.2	0.0033	NA	0.00324 (0.0018)	ND (0.00182)	NA	ND (0.00163)	ND (0.00172)	ND (0.00164)	0.00207 (0.00192)	NA
4,4'-DDE	0.0033	0.78	0.0033	NA	**0.0704 (0.0018)**	**0.0188 (0.00182)**	NA	ND (0.00163)	**0.207 (0.00172)**	**0.025 (0.00164)**	**0.636 (0.00961)**	NA
4,4'-DDT	0.0033	0.78	0.0033	NA	**0.0299 (0.0018)**	**0.004 (0.00182)**	NA	ND (0.00163)	**0.0452 (0.00172)**	**0.00625 (0.00164)**	**0.205 (0.00192)**	NA
Dieldrin	0.005	0.017	0.006	NA	**0.118 (0.00112)**	0.00325 (0.00113)	NA	ND (0.00102)	**0.878 (0.00538)**	**0.0969 (0.00102)**	**0.576 (0.006)**	**0.458 (0.00581)**
Endrin	0.014	1.2	0.014	NA	ND (0.000748)	ND (0.000756)	NA	ND (0.00068)	ND (0.000717)	ND (0.000683)	0.000945 IP (0.0008)	NA
Heptachlor epoxide	0.013	0.12	0.14	NA	**0.0237 (0.00337)**	ND (0.0034)	NA	ND (0.00306)	**0.146 (0.00323)**	**0.0156 (0.00307)**	**0.168 (0.0036)**	NA
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	ND (0.0554)	NA	NA	NA	ND (0.0496)	NA	NA
Metals												
Arsenic	13	16	13	NA	**23.2 (0.86)**	**29.1 (0.913)**	6.36 (0.897)	4.86 (0.823)	**89 (0.83)**	6.09 (0.828)	NA	NA
Cadmium	2.5	2.5	4	NA	0.497 J (0.86)	0.134 J (0.913)	NA	ND (0.823)	0.974 (0.83)	0.085 J (0.828)	NA	NA
Chromium III	30	30	160	NA	28.9475 (0.86)	25.4305 (0.913)	NA	NA	**52.861 (0.83)**	18.1775 (0.828)	NA	NA
Chromium VI	1	1	20	NA	ND (0.905)	ND (0.939)	NA	NA	ND (0.878)	ND (0.845)	NA	NA
Copper	50	280	50	NA	21.8 (0.86)	15 (0.913)	NA	19.1 (0.823)	15.4 (0.83)	10.4 (0.828)	NA	NA
Lead	63	400	63	NA	**139 (4.3)**	**65.3 (4.57)**	NA	6.66 (4.11)	**77.4 (4.15)**	8.24 (4.14)	NA	NA
Mercury	0.18	0.3	0.18	NA	**0.632 (0.078)**	0.161 (0.082)	NA	0.047 J (0.067)	**1.04 (0.069)**	0.075 (0.074)	NA	NA
Nickel	30	87	30	**31 (2.12)**	10.1 (2.15)	16.4 (2.28)	NA	13.9 (2.06)	12 (2.07)	15 (2.07)	NA	NA
Zinc	109	1300	109	98.2 (4.24)	**214 (4.3)**	52.7 (4.57)	NA	38.5 (4.11)	71.4 (4.15)	51.6 (4.14)	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
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-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				H06	H06	H06	H06	H07	H07	H07	H08	H08
Field Sample ID				H06R-1.5-2	H6_2-4	H06R-4-6	H06R-6-8	H7_0-0.2	H7_0.2-2	H7_2-4	H8_0-0.2	H8_0.2-2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	1.5 - 2	2 - 4	4 - 6	6 - 8	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2
Sampler	SCO	SCO		Carson Voci	Roux	Carson Voci	Carson Voci	Roux	Roux	Roux	Roux	Roux
Sample Date				2/7/2025	6/26/2024	2/7/2025	2/7/2025	6/26/2024	6/26/2024	6/26/2024	6/26/2024	6/26/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	NA	NA	ND (0.014)	NA	NA	ND (0.017)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	NA	NA	ND (0.11)	NA	NA	ND (0.15)
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	NA	NA	ND (0.15)	NA	NA	ND (0.2)
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	NA	NA	ND (0.11)	NA	NA	ND (0.15)
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	NA	NA	ND (0.15)	NA	NA	ND (0.2)
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	NA	NA	ND (0.11)	NA	NA	ND (0.15)
Chrysene	1	1.2	--	NA	NA	NA	NA	NA	ND (0.11)	NA	NA	0.026 J (0.15)
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	NA	NA	ND (0.11)	NA	NA	ND (0.15)
Dibenzofuran	2.1	4.2	--	NA	NA	NA	NA	NA	ND (0.19)	NA	NA	ND (0.25)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	NA	NA	ND (0.15)	NA	NA	ND (0.2)
Phenanthrene	1.1	1.2	--	NA	NA	NA	NA	NA	ND (0.11)	NA	NA	ND (0.15)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	NA	ND (0.00195)	ND (0.00179)	NA	ND (0.00206)	ND (0.00181)	ND (0.00166)	ND (0.00181)	ND (0.00236)
alpha-Chlordane	0.014	0.14	1.3	NA	**0.0722 IP (0.00215)**	0.00549 IP (0.00224)	NA	0.00136 JIP (0.00258)	0.000852 JIP (0.00226)	ND (0.00208)	0.00849 IP (0.00226)	**0.0179 J (0.00295)**
4,4'-DDD	0.0033	1.2	0.0033	NA	ND (0.00195)	ND (0.00179)	NA	ND (0.00206)	ND (0.00181)	ND (0.00166)	**0.00545 (0.00181)**	**0.0321 (0.00236)**
4,4'-DDE	0.0033	0.78	0.0033	NA	**0.00403 (0.00195)**	**0.0117 (0.00179)**	ND (0.00173)	**0.038 (0.00206)**	**0.0299 (0.00181)**	ND (0.00166)	**0.0998 (0.00181)**	**0.146 (0.00236)**
4,4'-DDT	0.0033	0.78	0.0033	NA	ND (0.00195)	0.00238 (0.00179)	NA	**0.024 (0.00206)**	**0.017 (0.00181)**	ND (0.00166)	**0.106 (0.00181)**	**0.0367 (0.00236)**
Dieldrin	0.005	0.017	0.006	**0.121 (0.00114)**	**0.0129 (0.00122)**	**0.0227 (0.00112)**	ND (0.00108)	0.00324 (0.00129)	0.00186 (0.00113)	ND (0.00104)	**0.00617 (0.00113)**	**0.0068 (0.00148)**
Endrin	0.014	1.2	0.014	NA	ND (0.000811)	ND (0.000745)	NA	ND (0.00086)	ND (0.000755)	ND (0.000693)	ND (0.000753)	ND (0.000984)
Heptachlor epoxide	0.013	0.12	0.14	NA	0.00189 J (0.00365)	0.00308 JIP (0.00335)	NA	ND (0.00387)	ND (0.0034)	ND (0.00312)	0.00324 J (0.00339)	0.00312 JIP (0.00443)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	NA	NA	ND (0.0544)	NA	NA	ND (0.0736)
Metals												
Arsenic	13	16	13	NA	NA	NA	NA	11.4 (1.01)	7.07 (0.886)	NA	11.6 (0.892)	9.12 (1.2)
Cadmium	2.5	2.5	4	NA	NA	NA	NA	0.161 J (1.01)	0.091 J (0.886)	NA	0.156 J (0.892)	ND (1.2)
Chromium III	30	30	160	NA	NA	NA	NA	18.665 (1.01)	13.746 (0.886)	NA	14.4425 (0.892)	21.09 (1.2)
Chromium VI	1	1	20	NA	NA	NA	NA	ND (1.07)	ND (0.908)	NA	ND (0.915)	ND (1.22)
Copper	50	280	50	NA	NA	NA	NA	10.2 (1.01)	8.41 (0.886)	NA	12.7 (0.892)	11 (1.2)
Lead	63	400	63	NA	NA	NA	NA	24.4 (5.03)	14.3 (4.43)	NA	29.1 (4.46)	19.5 (6.02)
Mercury	0.18	0.3	0.18	NA	NA	NA	NA	**0.241 (0.094)**	0.118 (0.071)	NA	**0.27 (0.084)**	0.112 (0.101)
Nickel	30	87	30	NA	NA	NA	NA	11.3 (2.52)	10.4 (2.22)	NA	8.14 (2.23)	14.1 (3.01)
Zinc	109	1300	109	NA	NA	NA	NA	48.7 (5.03)	35.2 (4.43)	NA	38 (4.46)	48.8 (6.02)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
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I - The lower value for the two columns has been reported due to obvious interference
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				H08	H08	H08	H09	H09	H09	H09	H09	H09
Field Sample ID				H8_2-4	H08R-4-6	H08R-6-8	H9_0-0.2	H9_0.2-2	H09R-0.5-1	H09R-1-1.5	H09R-1.5-2	H9_2-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	2 - 4	4 - 6	6 - 8	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5	1.5 - 2	2 - 4
Sampler	SCO	SCO		Roux	Carson Voci	Carson Voci	Roux	Roux	Carson Voci	Carson Voci	Carson Voci	Roux
Sample Date				6/26/2024	2/3/2025	2/3/2025	6/25/2024	6/25/2024	2/3/2025	2/3/2025	2/3/2025	6/25/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	NA	ND (0.022)	NA	NA	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	NA	ND (0.12)	NA	NA	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	NA	ND (0.16)	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	NA	ND (0.12)	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	NA	ND (0.16)	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	NA	ND (0.12)	NA	NA	NA	NA
Chrysene	1	1.2	--	NA	NA	NA	NA	ND (0.12)	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	NA	ND (0.12)	NA	NA	NA	NA
Dibenzofuran	2.1	4.2	--	NA	NA	NA	NA	ND (0.2)	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	NA	ND (0.16)	NA	NA	NA	NA
Phenanthrene	1.1	1.2	--	NA	NA	NA	NA	ND (0.12)	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00196)	ND (0.00173)	NA	ND (0.00178)	ND (0.00191)	NA	NA	NA	ND (0.00248)
alpha-Chlordane	0.014	0.14	1.3	ND (0.00245)	**0.0224 IP (0.00216)**	NA	ND (0.00222)	ND (0.00238)	NA	NA	NA	0.00122 JIP (0.0031)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00196)	ND (0.00173)	NA	0.000749 J (0.00178)	0.00246 (0.00191)	NA	NA	NA	ND (0.00248)
4,4'-DDE	0.0033	0.78	0.0033	**0.00631 (0.00196)**	**0.00545 (0.00173)**	ND (0.00173)	**0.0176 (0.00178)**	**0.0413 (0.00191)**	NA	NA	NA	**0.0394 (0.00248)**
4,4'-DDT	0.0033	0.78	0.0033	0.00178 J (0.00196)	**0.00982 (0.00173)**	ND (0.00173)	**0.00517 (0.00178)**	**0.0064 (0.00191)**	NA	NA	NA	**0.00721 (0.00248)**
Dieldrin	0.005	0.017	0.006	0.0008 JIP (0.00122)	ND (0.00108)	NA	ND (0.00111)	0.00145 (0.00119)	NA	NA	NA	0.00102 J (0.00155)
Endrin	0.014	1.2	0.014	ND (0.000816)	ND (0.00072)	NA	ND (0.00074)	ND (0.000794)	NA	NA	NA	ND (0.00103)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00367)	ND (0.00324)	NA	ND (0.00333)	0.00183 J (0.00357)	NA	NA	NA	0.00208 J (0.00465)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	NA	ND (0.0605)	NA	NA	NA	NA
Metals												
Arsenic	13	16	13	NA	NA	NA	12.9 (1.78)	**15.4 (1.96)**	NA	NA	NA	9.33 (1.24)
Cadmium	2.5	2.5	4	NA	NA	NA	ND (1.78)	ND (1.96)	NA	NA	NA	0.133 J (1.24)
Chromium III	30	30	160	NA	NA	NA	**32.8425 (1.78)**	29.504 (1.96)	NA	NA	NA	NA
Chromium VI	1	1	20	NA	NA	NA	ND (0.915)	ND (0.992)	NA	NA	NA	NA
Copper	50	280	50	NA	NA	NA	24.9 (1.78)	32.6 (1.96)	NA	NA	NA	9.47 (1.24)
Lead	63	400	63	NA	NA	NA	32.1 (8.9)	49.4 (9.79)	NA	NA	NA	27.5 (6.18)
Mercury	0.18	0.3	0.18	NA	NA	NA	**2.59 (0.078)**	**2.49 (0.092)**	**1.68 (0.086)**	**0.996 (0.08)**	**0.553 (0.085)**	**0.38 (0.124)**
Nickel	30	87	30	NA	NA	NA	20 (4.45)	18.7 (4.9)	NA	NA	NA	14.6 (3.09)
Zinc	109	1300	109	NA	NA	NA	83.5 (8.9)	83.3 (9.79)	NA	NA	NA	58.9 (6.18)

Notes:
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				H09	H09	H09	H10	H10	H10	H11	H11	H11
Field Sample ID				H9_4-6	H09R-6-8	H09R-8-10	H10_0-0.2	H10_0.2-2	H10_2-4	H11_0-0.2	H11_0.2-2	H11_2-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	4 - 6	6 - 8	8 - 10	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2	0.2 - 2	2 - 4
Sampler	SCO	SCO		Roux	Carson Voci	Carson Voci	Roux	Roux	Roux	Roux	Roux	Roux
Sample Date				6/25/2024	2/3/2025	2/3/2025	6/25/2024	6/25/2024	6/25/2024	6/25/2024	6/25/2024	6/25/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	NA	ND (0.013)	NA	NA	ND (0.014)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	NA	ND (0.12)	NA	NA	ND (0.11)	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	NA	ND (0.16)	NA	NA	ND (0.15)	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	NA	ND (0.12)	NA	NA	ND (0.11)	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	NA	ND (0.16)	NA	NA	ND (0.15)	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	NA	ND (0.12)	NA	NA	ND (0.11)	NA
Chrysene	1	1.2	--	NA	NA	NA	NA	ND (0.12)	NA	NA	ND (0.11)	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	NA	ND (0.12)	NA	NA	ND (0.11)	NA
Dibenzofuran	2.1	4.2	--	NA	NA	NA	NA	ND (0.2)	NA	NA	ND (0.18)	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	NA	ND (0.16)	NA	NA	ND (0.15)	NA
Phenanthrene	1.1	1.2	--	NA	NA	NA	NA	ND (0.12)	NA	NA	ND (0.11)	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00176)	ND (0.00182)	NA	ND (0.00193)	ND (0.00185)	ND (0.00179)	ND (0.00167)	ND (0.00168)	ND (0.00174)
alpha-Chlordane	0.014	0.14	1.3	ND (0.0022)	ND (0.00227)	NA	0.00358 IP (0.00241)	0.000718 JIP (0.00232)	ND (0.00224)	**0.0327 IP (0.00208)**	0.00305 IP (0.00211)	ND (0.00217)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00176)	ND (0.00182)	NA	ND (0.00193)	ND (0.00185)	ND (0.00179)	ND (0.00167)	ND (0.00168)	ND (0.00174)
4,4'-DDE	0.0033	0.78	0.0033	**0.00558 (0.00176)**	**0.172 (0.00182)**	ND (0.00178)	**0.0758 (0.00193)**	**0.0167 (0.00185)**	0.00052 JIP (0.00179)	**0.0329 (0.00167)**	**0.00644 (0.00168)**	ND (0.00174)
4,4'-DDT	0.0033	0.78	0.0033	0.00271 (0.00176)	**0.0714 (0.00182)**	ND (0.00178)	**0.0135 (0.00193)**	0.00316 (0.00185)	ND (0.00179)	**0.0142 (0.00167)**	0.0017 (0.00168)	ND (0.00174)
Dieldrin	0.005	0.017	0.006	ND (0.0011)	ND (0.00114)	NA	0.00109 J (0.0012)	ND (0.00116)	ND (0.00112)	**0.268 (0.00521)**	**0.0343 (0.00105)**	ND (0.00109)
Endrin	0.014	1.2	0.014	ND (0.000734)	ND (0.000757)	NA	ND (0.000803)	ND (0.000772)	ND (0.000746)	ND (0.000695)	ND (0.000702)	ND (0.000725)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.0033)	ND (0.00341)	NA	0.00245 J (0.00361)	ND (0.00347)	ND (0.00336)	**0.0474 (0.00313)**	0.00655 (0.00316)	ND (0.00326)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	NA	ND (0.056)	NA	NA	ND (0.0537)	NA
Metals												
Arsenic	13	16	13	5.48 (0.929)	NA	NA	**30.3 (0.936)**	10.5 (0.953)	NA	**68.2 (0.859)**	**15.8 (0.866)**	1.68 (0.849)
Cadmium	2.5	2.5	4	ND (0.929)	NA	NA	0.177 J (0.936)	0.094 J (0.953)	NA	0.642 J (0.859)	0.127 J (0.866)	ND (0.849)
Chromium III	30	30	160	NA	NA	NA	23.907 (0.936)	19.3205 (0.953)	NA	**46.6625 (0.859)**	**37.1545 (0.866)**	NA
Chromium VI	1	1	20	NA	NA	NA	ND (0.986)	ND (0.959)	NA	ND (0.875)	ND (0.891)	NA
Copper	50	280	50	11.2 (0.929)	NA	NA	14.6 (0.936)	10.8 (0.953)	NA	15.9 (0.859)	15.7 (0.866)	16.4 (0.849)
Lead	63	400	63	13.2 (4.64)	NA	NA	**104 (4.68)**	35.1 (4.76)	NA	61.2 (4.29)	17.2 (4.33)	3.56 J (4.25)
Mercury	0.18	0.3	0.18	0.055 J (0.083)	NA	NA	0.129 (0.084)	0.074 J (0.085)	NA	**1.48 (0.087)**	**0.189 (0.073)**	ND (0.077)
Nickel	30	87	30	12.8 (2.32)	NA	NA	12.8 (2.34)	12.4 (2.38)	NA	13.8 (2.15)	18.3 (2.16)	11.8 (2.12)
Zinc	109	1300	109	41.2 (4.64)	NA	NA	55.7 (4.68)	43.2 (4.76)	NA	59.8 (4.29)	39.9 (4.33)	25.6 (4.25)

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				I01	I01	I01	I01	I01	I02	I02	I03	I03
Field Sample ID				I1_0-0.2	I01-0-0.2	I1_0.2-2	I1_2-4	I01R-4-6	I2_0-0.2	I2_0.2-2	I3_0-0.2	I3_0.2-2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0 - 0.2	0.2 - 2	2 - 4	4 - 6	0 - 0.2	0.2 - 2	0 - 0.2	0.2 - 2
Sampler	SCO	SCO		Roux	Carson Voci	Roux	Roux	Carson Voci	Roux	Roux	Roux	Roux
Sample Date				5/21/2024	4/30/2025	5/21/2024	5/21/2024	2/7/2025	6/26/2024	6/26/2024	6/27/2024	6/27/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	ND (0.012)	NA	NA	NA	ND (0.014)	NA	ND (0.013)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	0.054 J (0.12)	NA	NA	NA	ND (0.12)	NA	ND (0.11)
Benzo(a)pyrene	1	1	2.6	NA	NA	0.057 J (0.16)	NA	NA	NA	ND (0.16)	NA	ND (0.15)
Benzo(b)fluoranthene	1	1	--	NA	NA	0.068 J (0.12)	NA	NA	NA	ND (0.12)	NA	ND (0.11)
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	0.041 J (0.16)	NA	NA	NA	ND (0.16)	NA	ND (0.15)
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.12)	NA	NA	NA	ND (0.12)	NA	ND (0.11)
Chrysene	1	1.2	--	NA	NA	0.046 J (0.12)	NA	NA	NA	ND (0.12)	NA	ND (0.11)
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.12)	NA	NA	NA	ND (0.12)	NA	ND (0.11)
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.2)	NA	NA	NA	ND (0.2)	NA	ND (0.19)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	0.04 J (0.16)	NA	NA	NA	ND (0.16)	NA	ND (0.15)
Phenanthrene	1.1	1.2	--	NA	NA	0.049 J (0.12)	NA	NA	NA	ND (0.12)	NA	ND (0.11)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	**0.00104 (0.0002)**	0.000734 (0.000199)	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	0.000334 (0.0002)	0.000223 (0.000199)	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00215)	NA	ND (0.00189)	ND (0.00182)	ND (0.00171)	ND (0.00194)	ND (0.00181)	ND (0.00219)	ND (0.00179)
alpha-Chlordane	0.014	0.14	1.3	0.00353 J (0.00269)	NA	0.00222 JIP (0.00236)	ND (0.00228)	ND (0.00214)	ND (0.00242)	ND (0.00227)	ND (0.00273)	ND (0.00224)
4,4'-DDD	0.0033	1.2	0.0033	**0.00763 (0.00215)**	NA	**0.00455 (0.00189)**	ND (0.00182)	ND (0.00171)	ND (0.00194)	ND (0.00181)	ND (0.00219)	ND (0.00179)
4,4'-DDE	0.0033	0.78	0.0033	**0.107 (0.00215)**	NA	**0.0637 (0.00189)**	**0.00454 (0.00182)**	0.00248 (0.00171)	0.00102 J (0.00194)	ND (0.00181)	**0.0119 (0.00219)**	**0.00339 (0.00179)**
4,4'-DDT	0.0033	0.78	0.0033	**0.046 (0.00215)**	NA	**0.0293 (0.00189)**	ND (0.00182)	0.00183 (0.00171)	ND (0.00194)	ND (0.00181)	**0.00497 (0.00219)**	ND (0.00179)
Dieldrin	0.005	0.017	0.006	0.00168 (0.00135)	NA	0.00118 (0.00118)	ND (0.00114)	ND (0.00107)	ND (0.00121)	ND (0.00113)	0.00102 J (0.00137)	ND (0.00112)
Endrin	0.014	1.2	0.014	ND (0.000897)	NA	ND (0.000788)	ND (0.00076)	ND (0.000714)	ND (0.000808)	ND (0.000756)	ND (0.000911)	ND (0.000748)
Heptachlor epoxide	0.013	0.12	0.14	**0.0166 (0.00404)**	NA	0.0113 (0.00354)	ND (0.00342)	0.0011 J (0.00321)	ND (0.00364)	ND (0.0034)	ND (0.0041)	ND (0.00336)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	ND (0.0583)	NA	NA	NA	ND (0.0563)	NA	ND (0.0557)
Metals												
Arsenic	13	16	13	**23.6 (1.11)**	NA	9.98 (0.934)	NA	NA	2.52 (0.988)	2.66 (0.888)	**19.1 (1.06)**	8.28 (0.882)
Cadmium	2.5	2.5	4	0.204 J (1.11)	NA	0.106 J (0.934)	NA	NA	ND (0.988)	ND (0.888)	0.513 J (1.06)	0.179 J (0.882)
Chromium III	30	30	160	17.935 (1.11)	NA	21.615 (0.934)	NA	NA	14.995 (0.988)	16.853 J (0.888)	17.65 (1.06)	18.2415 (0.882)
Chromium VI	1	1	20	ND (1.13)	NA	ND (0.97)	NA	NA	ND (1.01)	0.447 J (0.941)	ND (1.1)	ND (0.917)
Copper	50	280	50	21.4 (1.11)	NA	17.8 (0.934)	NA	NA	27.9 (0.988)	28.6 (0.888)	16.8 (1.06)	18 (0.882)
Lead	63	400	63	**148 (5.57)**	NA	59.8 (4.67)	NA	NA	4.68 J (4.94)	6.1 (4.44)	**81.4 (5.31)**	34.1 (4.41)
Mercury	0.18	0.3	0.18	**0.304 (0.095)**	NA	0.145 (0.084)	NA	NA	ND (0.087)	ND (0.078)	**0.288 (0.103)**	0.085 J (0.086)
Nickel	30	87	30	13.2 (2.78)	NA	19.8 (2.34)	NA	NA	14.2 (2.47)	14.4 (2.22)	14.1 (2.66)	14.8 (2.2)
Zinc	109	1300	109	101 (5.57)	NA	77.9 (4.67)	NA	NA	30.4 (4.94)	31 (4.44)	93.5 (5.31)	54 (4.41)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
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J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				I03	I04	I04	I04	I04	I04	I05	I05	I05
Field Sample ID				I3_2-4	I4_0-0.2	I4_0.2-2	I04R-0.5-1	I4_2-4	I04R-4-6	I5_0-0.2	I5_0.2-2	I5_2-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	2 - 4	0 - 0.2	0.2 - 2	0.5 - 1	2 - 4	4 - 6	0 - 0.2	0.2 - 2	2 - 4
Sampler	SCO	SCO		Roux	Roux	Roux	Carson Voci	Roux	Carson Voci	Roux	Roux	Roux
Sample Date				6/27/2024	6/27/2024	6/27/2024	2/7/2025	6/27/2024	2/7/2025	6/27/2024	6/27/2024	6/27/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	ND (0.012)	NA	NA	NA	NA	ND (0.012)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	ND (0.12)	NA	NA	NA	NA	ND (0.12)	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	ND (0.16)	NA	NA	NA	NA	ND (0.16)	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	ND (0.12)	NA	NA	NA	NA	ND (0.12)	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	ND (0.16)	NA	NA	NA	NA	ND (0.16)	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.12)	NA	NA	NA	NA	ND (0.12)	NA
Chrysene	1	1.2	--	NA	NA	ND (0.12)	NA	NA	NA	NA	ND (0.12)	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.12)	NA	NA	NA	NA	ND (0.12)	NA
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.2)	NA	NA	NA	NA	ND (0.2)	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	ND (0.16)	NA	NA	NA	NA	ND (0.16)	NA
Phenanthrene	1.1	1.2	--	NA	NA	ND (0.12)	NA	NA	NA	NA	ND (0.12)	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00164)	ND (0.00232)	ND (0.00191)	ND (0.0018)	ND (0.0017)	ND (0.0018)	ND (0.00187)	ND (0.00182)	NA
alpha-Chlordane	0.014	0.14	1.3	ND (0.00205)	0.00424 IP (0.00289)	0.00232 J (0.00239)	ND (0.00225)	ND (0.00213)	0.000722 JIP (0.00225)	0.000931 JIP (0.00233)	ND (0.00227)	NA
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00164)	ND (0.00232)	ND (0.00191)	ND (0.0018)	ND (0.0017)	ND (0.0018)	ND (0.00187)	ND (0.00182)	NA
4,4'-DDE	0.0033	0.78	0.0033	ND (0.00164)	**0.11 (0.00232)**	**0.142 (0.00191)**	0.00152 J (0.0018)	**0.00388 (0.0017)**	0.00179 J (0.0018)	**0.00479 IP (0.00187)**	0.000822 J (0.00182)	NA
4,4'-DDT	0.0033	0.78	0.0033	ND (0.00164)	**0.0228 (0.00232)**	**0.0229 (0.00191)**	ND (0.0018)	ND (0.0017)	ND (0.0018)	0.00249 (0.00187)	ND (0.00182)	NA
Dieldrin	0.005	0.017	0.006	ND (0.00103)	**0.0857 (0.00145)**	**0.0414 (0.0012)**	0.00301 (0.00112)	ND (0.00106)	0.00478 (0.00112)	0.00319 (0.00117)	ND (0.00114)	NA
Endrin	0.014	1.2	0.014	ND (0.000684)	0.00461 (0.000965)	ND (0.000797)	ND (0.00075)	ND (0.00071)	ND (0.000749)	ND (0.000778)	ND (0.000757)	NA
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00308)	0.00418 J (0.00434)	0.00185 J (0.00359)	ND (0.00337)	ND (0.0032)	ND (0.00337)	ND (0.0035)	ND (0.00341)	NA
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	ND (0.0592)	NA	NA	NA	NA	ND (0.0566)	NA
Metals												
Arsenic	13	16	13	NA	**73.1 (1.22)**	**25.1 (0.975)**	10.2 (0.946)	4.57 (0.855)	NA	**44.5 (0.935)**	**15 (0.919)**	5.38 (0.896)
Cadmium	2.5	2.5	4	NA	0.634 J (1.22)	0.3 J (0.975)	NA	0.099 J (0.855)	NA	0.144 J (0.935)	0.098 J (0.919)	0.164 J (0.896)
Chromium III	30	30	160	NA	**57.89 (1.22)**	29.1085 (0.975)	NA	NA	NA	29.818 (0.935)	28.3265 (0.919)	NA
Chromium VI	1	1	20	NA	ND (1.22)	ND (0.983)	NA	NA	NA	ND (0.964)	ND (0.947)	NA
Copper	50	280	50	NA	19.6 (1.22)	13.7 (0.975)	NA	14.6 (0.855)	NA	17.4 (0.935)	14.4 (0.919)	24.1 (0.896)
Lead	63	400	63	NA	**153 (6.1)**	53.9 (4.88)	NA	8.5 (4.28)	NA	**127 (4.68)**	46.3 (4.59)	14.7 (4.48)
Mercury	0.18	0.3	0.18	NA	**1.13 (0.114)**	**0.26 (0.083)**	NA	0.051 J (0.072)	NA	0.158 (0.088)	0.064 J (0.083)	ND (0.073)
Nickel	30	87	30	NA	19.2 (3.05)	16.1 (2.44)	NA	16.8 (2.14)	NA	15.8 (2.34)	16.5 (2.3)	16.9 (2.24)
Zinc	109	1300	109	NA	105 (6.1)	68.4 (4.88)	NA	43.4 (4.28)	NA	77.8 (4.68)	74.7 (4.59)	**113 (4.48)**

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				I06	I06	I06	I06	I06	I07	I07	I07	I08
Field Sample ID				I6_0-0.2	I6_0.2-2	I6_2-4	I06R-4-6	I06R-6-8	I7_0-0.2	I7_0.2-2	I7_2-4	I8_0-0.2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	0 - 0.2	0.2 - 2	2 - 4	4 - 6	6 - 8	0 - 0.2	0.2 - 2	2 - 4	0 - 0.2
Sampler	SCO	SCO		Roux	Roux	Roux	Carson Voci	Carson Voci	Roux	Roux	Roux	Roux
Sample Date				6/27/2024	6/27/2024	6/27/2024	2/7/2025	2/7/2025	6/27/2024	6/27/2024	6/27/2024	5/21/2024
Comments												
Acetone	0.03	100	2.2	NA	ND (0.016)	NA	NA	NA	NA	ND (0.028)	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	ND (0.12)	NA	NA	NA	NA	0.18 J (0.21)	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	ND (0.16)	NA	NA	NA	NA	0.2 J (0.28)	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	ND (0.12)	NA	NA	NA	NA	0.29 (0.21)	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	ND (0.16)	NA	NA	NA	NA	0.13 J (0.28)	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	ND (0.12)	NA	NA	NA	NA	0.086 J (0.21)	NA	NA
Chrysene	1	1.2	--	NA	ND (0.12)	NA	NA	NA	NA	0.21 (0.21)	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	ND (0.12)	NA	NA	NA	NA	ND (0.21)	NA	NA
Dibenzofuran	2.1	4.2	--	NA	ND (0.2)	NA	NA	NA	NA	0.034 J (0.35)	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	ND (0.16)	NA	NA	NA	NA	0.14 J (0.28)	NA	NA
Phenanthrene	1.1	1.2	--	NA	ND (0.12)	NA	NA	NA	NA	0.45 (0.21)	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00213)	ND (0.00192)	ND (0.00184)	ND (0.00171)	NA	0.00246 J (0.00332)	ND (0.00324)	NA	ND (0.00164)
alpha-Chlordane	0.014	0.14	1.3	0.00527 IP (0.00266)	0.00705 IP (0.0024)	ND (0.00231)	0.00344 IP (0.00214)	NA	**0.122 IP (0.00415)**	0.00197 JIP (0.00406)	NA	**0.0408 IP (0.00206)**
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00213)	ND (0.00192)	ND (0.00184)	ND (0.00171)	ND (0.00172)	ND (0.00332)	ND (0.00324)	NA	ND (0.00164)
4,4'-DDE	0.0033	0.78	0.0033	**0.0222 (0.00213)**	**0.0391 (0.00192)**	0.00136 J (0.00184)	**0.0613 (0.00171)**	ND (0.00172)	**0.0433 (0.00332)**	0.00266 J (0.00324)	NA	**0.0135 (0.00164)**
4,4'-DDT	0.0033	0.78	0.0033	**0.0057 IP (0.00213)**	**0.0118 (0.00192)**	ND (0.00184)	**0.018 (0.00171)**	ND (0.00172)	**0.0408 (0.00332)**	ND (0.00324)	NA	**0.00448 (0.00164)**
Dieldrin	0.005	0.017	0.006	**0.0282 (0.00133)**	**0.0235 (0.0012)**	**0.00563 (0.00115)**	**0.0349 (0.00107)**	NA	**0.274 (0.00208)**	0.0022 (0.00203)	NA	**0.0317 (0.00103)**
Endrin	0.014	1.2	0.014	ND (0.000887)	ND (0.0008)	ND (0.000769)	ND (0.000713)	NA	**0.0437 (0.00138)**	ND (0.00135)	NA	ND (0.000686)
Heptachlor epoxide	0.013	0.12	0.14	0.00731 (0.00399)	0.00707 (0.0036)	0.00228 J (0.00346)	0.00734 (0.00321)	NA	**0.0915 (0.00623)**	ND (0.00608)	NA	0.00784 (0.00308)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	ND (0.0581)	NA	NA	NA	NA	ND (0.102)	NA	NA
Metals												
Arsenic	13	16	13	**31.3 (1.05)**	9.5 (0.972)	NA	NA	NA	**154 (1.75)**	10.8 (1.66)	4.18 (1.88)	4.12 (0.861)
Cadmium	2.5	2.5	4	0.565 J (1.05)	0.214 J (0.972)	NA	NA	NA	**2.94 (1.75)**	0.413 J (1.66)	0.306 J (1.88)	0.118 J (0.861)
Chromium III	30	30	160	**37.86 (1.05)**	23.2055 (0.972)	NA	NA	NA	**93.625 (1.75)**	**33.15 (1.66)**	NA	12.565 (0.861)
Chromium VI	1	1	20	ND (1.08)	ND (0.989)	NA	NA	NA	ND (1.75)	ND (1.7)	NA	ND (0.87)
Copper	50	280	50	19.2 (1.05)	12.6 (0.972)	NA	NA	NA	49 (1.75)	36.3 (1.66)	16 (1.88)	44.7 (0.861)
Lead	63	400	63	42.7 (5.26)	19.2 (4.86)	NA	NA	NA	**118 (8.73)**	**71.8 (8.31)**	11.6 (9.41)	14.2 (4.3)
Mercury	0.18	0.3	0.18	**0.418 (0.095)**	0.179 (0.084)	NA	NA	NA	**1.62 (0.171)**	**0.525 (0.152)**	0.133 J (0.153)	**0.244 (0.073)**
Nickel	30	87	30	17.4 (2.63)	17.6 (2.43)	NA	NA	NA	22.4 (4.36)	23.6 (4.16)	15.4 (4.7)	10.5 (2.15)
Zinc	109	1300	109	**130 (5.26)**	57.3 (4.86)	NA	NA	NA	**124 (8.73)**	109 (8.31)	34.9 (9.41)	41.8 (4.3)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

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J - Estimated Concentration
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P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				I08	I08	I08	I08	I09	I09	I09	I09	I09
Field Sample ID				I08-0-0.2	I8_0.2-2	I8_2-4	I8_6-8	I9_0-0.2	I9_0.2-2	I09R-0.5-1	I09R-1-1.5	I09R-1.5-2
Collection Depth (ft bgs)	Unrestricted Use SCO	Residential SCO	PEco SCO	0 - 0.2	0.2 - 2	2 - 4	6 - 8	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5	1.5 - 2
Sampler				Carson Voci	Roux	Roux	Roux	Roux	Roux	Carson Voci	Carson Voci	Carson Voci
Sample Date				4/30/2025	5/21/2024	5/21/2024	5/21/2024	6/28/2024	6/28/2024	2/3/2025	2/3/2025	2/3/2025
Comments												
Acetone	0.03	100	2.2	NA	ND (0.011)	NA	0.011 (0.011)	NA	ND (0.015)	NA	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	ND (0.11)	NA	ND (0.12)	NA	0.033 J (0.11)	NA	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	ND (0.15)	NA	ND (0.16)	NA	ND (0.14)	NA	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	ND (0.11)	NA	ND (0.12)	NA	0.048 J (0.11)	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	ND (0.15)	NA	ND (0.16)	NA	0.026 J (0.14)	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	ND (0.11)	NA	ND (0.12)	NA	ND (0.11)	NA	NA	NA
Chrysene	1	1.2	--	NA	ND (0.11)	NA	ND (0.12)	NA	0.036 J (0.11)	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	ND (0.11)	NA	ND (0.12)	NA	ND (0.11)	NA	NA	NA
Dibenzofuran	2.1	4.2	--	NA	ND (0.19)	NA	ND (0.2)	NA	ND (0.18)	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	ND (0.15)	NA	ND (0.16)	NA	0.026 J (0.14)	NA	NA	NA
Phenanthrene	1.1	1.2	--	NA	ND (0.11)	NA	ND (0.12)	NA	ND (0.11)	NA	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	0.000511 (0.000198)	0.000141 J (0.000198)	NA	ND (0.0002)	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	0.000083 J (0.000198)	0.000081 J (0.000198)	NA	ND (0.0002)	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	NA	ND (0.00181)	ND (0.00189)	ND (0.00197)	ND (0.00193)	ND (0.00169)	ND (0.002)	NA	NA
alpha-Chlordane	0.014	0.14	1.3	NA	**0.0423 IP (0.00226)**	ND (0.00236)	ND (0.00246)	**0.117 (0.00241)**	**0.0691 IP (0.00212)**	0.00289 IP (0.00251)	NA	NA
4,4'-DDD	0.0033	1.2	0.0033	NA	0.00252 (0.00181)	ND (0.00189)	ND (0.00197)	**0.0034 (0.00193)**	ND (0.00169)	ND (0.002)	NA	NA
4,4'-DDE	0.0033	0.78	0.0033	NA	**0.0158 (0.00181)**	0.00154 J (0.00189)	ND (0.00197)	**0.268 (0.00193)**	**0.179 (0.00169)**	**0.0206 (0.002)**	NA	NA
4,4'-DDT	0.0033	0.78	0.0033	NA	0.00288 (0.00181)	ND (0.00189)	ND (0.00197)	**0.0643 (0.00193)**	**0.0501 (0.00169)**	ND (0.002)	NA	NA
Dieldrin	0.005	0.017	0.006	NA	0.00411 (0.00113)	ND (0.00118)	ND (0.00123)	**0.606 (0.00603)**	**0.368 (0.00529)**	0.00234 (0.00125)	NA	NA
Endrin	0.014	1.2	0.014	NA	ND (0.000755)	ND (0.000788)	ND (0.000821)	ND (0.000804)	ND (0.000706)	ND (0.000836)	NA	NA
Heptachlor epoxide	0.013	0.12	0.14	NA	0.00212 J (0.0034)	ND (0.00354)	ND (0.00369)	**0.111 (0.00362)**	**0.0567 (0.00318)**	ND (0.00376)	NA	NA
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	ND (0.058)	NA	ND (0.061)	NA	ND (0.0531)	NA	NA	NA
Metals												
Arsenic	13	16	13	NA	4.19 (0.916)	1.25 (0.935)	0.859 J (1)	**40.5 (0.932)**	**33.5 (0.862)**	**24.3 (0.962)**	**28.5 (0.985)**	**15.3 (0.932)**
Cadmium	2.5	2.5	4	NA	ND (0.916)	0.12 J (0.935)	ND (1)	0.698 J (0.932)	0.612 J (0.862)	NA	NA	NA
Chromium III	30	30	160	NA	16.4295 (0.916)	NA	15.795 (1)	**32.713 (0.932)**	29.357 (0.862)	NA	NA	NA
Chromium VI	1	1	20	NA	ND (0.941)	NA	ND (1.01)	ND (0.974)	ND (0.886)	NA	NA	NA
Copper	50	280	50	NA	21.6 (0.916)	9.55 (0.935)	8.32 (1)	17.9 (0.932)	16.4 (0.862)	NA	NA	NA
Lead	63	400	63	NA	21.4 (4.58)	3.09 J (4.68)	2.96 J (5.02)	**118 (4.66)**	**115 (4.31)**	NA	NA	NA
Mercury	0.18	0.3	0.18	NA	**0.27 (0.079)**	ND (0.075)	ND (0.091)	**5.25 (0.419)**	**3.95 (0.179)**	**1.72 (0.091)**	**1.99 (0.099)**	**0.966 (0.095)**
Nickel	30	87	30	NA	11.4 (2.29)	11.3 (2.34)	9.26 (2.51)	12.5 (2.33)	11.7 (2.16)	NA	NA	NA
Zinc	109	1300	109	NA	45.3 (4.58)	31.9 (4.68)	29.2 (5.02)	76.3 (4.66)	69.3 (4.31)	NA	NA	NA

Notes:
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3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
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6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				I09	I09	I09	I10	I10	I10	I10	I10	I10
Field Sample ID				I9_2-4	I09R-2-4	I09R-4-6	I10_0-0.2	I10_0.2-2	I10R-0.5-1	I10R-1-1.5	I10R-1.5-2	I10_2-4
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	2 - 4	2 - 4	4 - 6	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5	1.5 - 2	2 - 4
Sampler	SCO	SCO		Roux	Carson Voci	Carson Voci	Roux	Roux	Carson Voci	Carson Voci	Carson Voci	Roux
Sample Date				6/28/2024	2/3/2025	2/3/2025	6/28/2024	6/28/2024	2/3/2025	2/3/2025	2/3/2025	6/28/2024
Comments												
Acetone	0.03	100	2.2	NA	NA	NA	NA	ND (0.018)	NA	NA	NA	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	NA	NA	0.032 J (0.11)	NA	NA	NA	NA
Benzo(a)pyrene	1	1	2.6	NA	NA	NA	NA	ND (0.15)	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1	--	NA	NA	NA	NA	0.047 J (0.11)	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	NA	NA	0.027 J (0.15)	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	NA	NA	ND (0.11)	NA	NA	NA	NA
Chrysene	1	1.2	--	NA	NA	NA	NA	0.037 J (0.11)	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	NA	NA	ND (0.11)	NA	NA	NA	NA
Dibenzofuran	2.1	4.2	--	NA	NA	NA	NA	ND (0.19)	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	NA	NA	ND (0.15)	NA	NA	NA	NA
Phenanthrene	1.1	1.2	--	NA	NA	NA	NA	ND (0.11)	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00177)	ND (0.00181)	NA	ND (0.00188)	ND (0.00175)	ND (0.00196)	NA	NA	ND (0.00182)
alpha-Chlordane	0.014	0.14	1.3	0.0101 IP (0.00221)	ND (0.00226)	NA	**0.088 IP (0.00235)**	**0.0473 IP (0.00218)**	**0.0205 J (0.00246)**	NA	NA	ND (0.00227)
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00177)	ND (0.00181)	NA	**0.00907 (0.00188)**	ND (0.00175)	ND (0.00196)	NA	NA	ND (0.00182)
4,4'-DDE	0.0033	0.78	0.0033	**0.0277 (0.00177)**	ND (0.00181)	NA	**0.8 (0.0188)**	**0.438 (0.00873)**	**0.0675 (0.00196)**	**0.132 (0.00191)**	NA	**0.00412 (0.00182)**
4,4'-DDT	0.0033	0.78	0.0033	**0.0094 (0.00177)**	ND (0.00181)	NA	**0.301 (0.00188)**	**0.154 (0.00175)**	ND (0.00196)	NA	NA	0.00195 (0.00182)
Dieldrin	0.005	0.017	0.006	**0.0509 (0.00111)**	ND (0.00113)	NA	**0.768 (0.0118)**	**0.417 (0.00546)**	**0.113 (0.00123)**	**0.213 (0.0012)**	**0.116 (0.00115)**	0.00243 (0.00114)
Endrin	0.014	1.2	0.014	ND (0.000738)	ND (0.000755)	NA	ND (0.000783)	ND (0.000728)	ND (0.000819)	NA	NA	ND (0.000757)
Heptachlor epoxide	0.013	0.12	0.14	0.0107 (0.00332)	ND (0.0034)	NA	**0.207 (0.00352)**	**0.0966 (0.00328)**	0.0118 IP (0.00368)	NA	NA	ND (0.00341)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	NA	ND (0.0545)	NA	NA	NA	NA
Metals												
Arsenic	13	16	13	9.96 (0.908)	NA	NA	**188 (0.925)**	**98.7 (0.88)**	**98.6 (0.963)**	**76.7 (0.964)**	**46 (0.921)**	6.21 (0.907)
Cadmium	2.5	2.5	4	0.155 J (0.908)	NA	NA	1.45 (0.925)	0.853 J (0.88)	NA	NA	NA	ND (0.907)
Chromium III	30	30	160	NA	NA	NA	**94.022 (0.925)**	**55.54 (0.88)**	**69.5055 (0.963)**	**52.71 (0.964)**	**41.216 (0.921)**	NA
Chromium VI	1	1	20	NA	NA	NA	ND (0.956)	ND (0.92)	ND (0.989)	ND (0.98)	ND (0.968)	NA
Copper	50	280	50	17 (0.908)	NA	NA	15 (0.925)	11.4 (0.88)	NA	NA	NA	17.5 (0.907)
Lead	63	400	63	41.7 (4.54)	NA	NA	**206 (4.63)**	**106 (4.4)**	NA	NA	NA	7.26 (4.54)
Mercury	0.18	0.3	0.18	**0.683 (0.073)**	NA	ND (0.081)	**1.78 (0.086)**	**0.813 (0.086)**	NA	NA	NA	ND (0.074)
Nickel	30	87	30	12.8 (2.27)	NA	NA	11.5 (2.31)	11.4 (2.2)	NA	NA	NA	14.5 (2.27)
Zinc	109	1300	109	51.1 (4.54)	NA	NA	74.1 (4.63)	56.3 (4.4)	NA	NA	NA	37.3 (4.54)

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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location Field Sample ID Collection Depth (ft bgs) Sampler Sample Date Comments	Unrestricted Use SCO	Residential SCO	PEco SCO	I10 I10R-4-6 4 - 6 Carson Voci 2/3/2025	I11 I11_0-0.2 0 - 0.2 Roux 6/28/2024	I11 I11_0.2-2 0.2 - 2 Roux 6/28/2024	TEI-SB-01 TEI-SB-01-8-8.5 8 - 8.5 Carson Voci 2/6/2025	TEI-SB-02 TEI-SB-02-6-8 6 - 8 Carson Voci 2/4/2025	TEI-SB-04 TEI-SB-04-1-3 1 - 3 Carson Voci 2/6/2025	TEI-SB-05 TEI-SB-05-3.5-4 3.5 - 4 Carson Voci 2/5/2025	TEI-SB-06 TEI-SB-06-3-3.5 3 - 3.5 Carson Voci 2/5/2025	TS-01 TS-01R-0-1 0 - 1 Carson Voci 2/6/2025
Acetone	0.03	100	2.2	NA	NA	ND (0.011)	ND (0.59)	0.018 (0.012)	**0.04 (0.0096)**	0.0063 J (0.01)	ND (0.01)	ND (0.0099)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	ND (0.11)	0.041 J (0.11)	ND (0.12)	0.059 J (0.12)	ND (0.1)	0.032 J (0.12)	0.078 J (0.11)
Benzo(a)pyrene	1	1	2.6	NA	NA	ND (0.15)	ND (0.15)	ND (0.16)	0.056 J (0.16)	ND (0.14)	ND (0.17)	0.079 J (0.15)
Benzo(b)fluoranthene	1	1	--	NA	NA	ND (0.11)	ND (0.11)	ND (0.12)	0.066 J (0.12)	ND (0.1)	0.036 J (0.12)	0.11 (0.11)
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	ND (0.15)	ND (0.15)	ND (0.16)	0.037 J (0.16)	ND (0.14)	ND (0.17)	0.051 J (0.15)
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.11)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.1)	ND (0.12)	ND (0.11)
Chrysene	1	1.2	--	NA	NA	ND (0.11)	0.042 J (0.11)	ND (0.12)	0.066 J (0.12)	ND (0.1)	0.029 J (0.12)	0.083 J (0.11)
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.11)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.1)	ND (0.12)	ND (0.11)
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.19)	ND (0.19)	ND (0.2)	ND (0.2)	ND (0.17)	ND (0.21)	ND (0.19)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	ND (0.15)	ND (0.15)	ND (0.16)	0.033 J (0.16)	ND (0.14)	ND (0.17)	0.051 J (0.15)
Phenanthrene	1.1	1.2	--	NA	NA	ND (0.11)	0.23 (0.11)	ND (0.12)	0.069 J (0.12)	ND (0.1)	0.052 J (0.12)	0.054 J (0.11)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	0.00007 J (0.0002)	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	ND (0.0002)	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00189)	ND (0.00209)	ND (0.00181)	NA	ND (0.00188)	NA	NA	NA	ND (0.00181)
alpha-Chlordane	0.014	0.14	1.3	ND (0.00236)	0.00203 J (0.00261)	ND (0.00226)	NA	ND (0.00235)	NA	NA	NA	**1.71 (0.0226)**
4,4'-DDD	0.0033	1.2	0.0033	ND (0.00189)	**0.00857 (0.00209)**	ND (0.00181)	NA	ND (0.00188)	NA	NA	NA	**0.0668 P (0.00181)**
4,4'-DDE	0.0033	0.78	0.0033	ND (0.00189)	**0.221 (0.00209)**	0.00167 J (0.00181)	NA	ND (0.00188)	NA	NA	NA	**0.766 IP (0.0181)**
4,4'-DDT	0.0033	0.78	0.0033	ND (0.00189)	**0.0726 (0.00209)**	ND (0.00181)	NA	ND (0.00188)	NA	NA	NA	**0.595 (0.0181)**
Dieldrin	0.005	0.017	0.006	ND (0.00118)	0.00294 IP (0.00131)	ND (0.00113)	NA	ND (0.00118)	NA	NA	NA	**0.33 (0.0113)**
Endrin	0.014	1.2	0.014	ND (0.000788)	ND (0.000871)	ND (0.000753)	NA	ND (0.000784)	NA	NA	NA	ND (0.000754)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00354)	0.00731 (0.00392)	ND (0.00339)	NA	ND (0.00353)	NA	NA	NA	**0.537 (0.0339)**
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	ND (0.0566)	NA	ND (0.0595)	NA	NA	NA	NA
Metals												
Arsenic	13	16	13	NA	**43.5 (1.05)**	4.46 (0.888)	NA	2.28 (0.94)	NA	NA	NA	**64.5 (0.923)**
Cadmium	2.5	2.5	4	NA	0.163 J (1.05)	ND (0.888)	NA	ND (0.94)	NA	NA	NA	**9.56 (0.923)**
Chromium III	30	30	160	NA	29.36 (1.05)	22.5355 (0.888)	NA	15.426 J (0.94)	NA	NA	NA	**193.5315 (0.923)**
Chromium VI	1	1	20	NA	ND (1.08)	ND (0.929)	NA	0.574 J (0.957)	NA	NA	NA	ND (0.937)
Copper	50	280	50	NA	18.9 (1.05)	14.6 (0.888)	NA	19.4 (0.94)	NA	NA	NA	30.9 (0.923)
Lead	63	400	63	NA	**140 (5.25)**	15.9 (4.44)	NA	5.39 (4.7)	NA	NA	NA	**963 (4.62)**
Mercury	0.18	0.3	0.18	NA	0.137 (0.098)	ND (0.079)	NA	ND (0.078)	NA	NA	NA	**160 (7.56)**
Nickel	30	87	30	NA	18.9 (2.63)	15 (2.22)	NA	15.8 (2.35)	NA	NA	NA	10.2 (2.31)
Zinc	109	1300	109	NA	63.4 (5.25)	42.6 (4.44)	NA	48.9 (4.7)	NA	NA	NA	**150 (4.62)**

Notes:
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4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location Field Sample ID Collection Depth (ft bgs) Sampler Sample Date Comments	Unrestricted Use SCO	Residential SCO	PEco SCO	TS-01 TS-01R-1-1.5 1 - 1.5 Carson Voci 2/6/2025	TS-01 TS-01R-1.5-2 1.5 - 2 Carson Voci 2/6/2025	TS-02 TS-02R-0-1 0 - 1 Carson Voci 2/6/2025	TS-02 TS-02R-1-1.5 1 - 1.5 Carson Voci 2/6/2025	TS-02 TS-02R-1.5-2 1.5 - 2 Carson Voci 2/6/2025	TS-02 TS-02R-2-2.5 2 - 2.5 Carson Voci 2/6/2025	TS-02 TS-02R-2.5-3 2.5 - 3 Carson Voci 2/6/2025	TS-03 TS-03R-0-1 0 - 1 Carson Voci 2/4/2025	TS-03 TS-03R-1-1.5 1 - 1.5 Carson Voci 2/4/2025
Acetone	0.03	100	2.2	NA	NA	ND (0.012)	NA	NA	NA	NA	**0.066 (0.021)**	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	ND (0.12)	NA	ND (0.13)	ND (0.12)	NA	NA	NA	ND (0.12)	ND (0.12)
Benzo(a)pyrene	1	1	2.6	ND (0.15)	NA	ND (0.18)	ND (0.16)	NA	NA	NA	ND (0.16)	ND (0.16)
Benzo(b)fluoranthene	1	1	--	ND (0.12)	NA	ND (0.13)	ND (0.12)	NA	NA	NA	ND (0.12)	ND (0.12)
Benzo(g,h,i)perylene	0.64	1.2	--	ND (0.15)	NA	ND (0.18)	ND (0.16)	NA	NA	NA	ND (0.16)	ND (0.16)
Benzo(k)fluoranthene	0.8	1.2	--	ND (0.12)	NA	ND (0.13)	ND (0.12)	NA	NA	NA	ND (0.12)	ND (0.12)
Chrysene	1	1.2	--	ND (0.12)	NA	ND (0.13)	ND (0.12)	NA	NA	NA	ND (0.12)	ND (0.12)
Dibenz(a,h)anthracene	0.33	0.33	--	ND (0.12)	NA	ND (0.13)	ND (0.12)	NA	NA	NA	ND (0.12)	ND (0.12)
Dibenzofuran	2.1	4.2	--	ND (0.19)	NA	ND (0.22)	ND (0.2)	NA	NA	NA	ND (0.2)	ND (0.2)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	ND (0.15)	NA	ND (0.18)	ND (0.16)	NA	NA	NA	ND (0.16)	ND (0.16)
Phenanthrene	1.1	1.2	--	ND (0.12)	NA	ND (0.13)	ND (0.12)	NA	NA	NA	ND (0.12)	ND (0.12)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	**0.000922 (0.0002)**	0.000708 (0.000199)
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	**0.000974 (0.0002)**	**0.0033 (0.000199)**
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.00186)	NA	ND (0.00211)	ND (0.00193)	NA	NA	NA	ND (0.00195)	ND (0.00195)
alpha-Chlordane	0.014	0.14	1.3	**0.134 (0.00232)**	NA	0.00473 IP (0.00264)	0.00425 IP (0.00241)	NA	NA	NA	ND (0.00243)	ND (0.00243)
4,4'-DDD	0.0033	1.2	0.0033	**0.00608 (0.00186)**	ND (0.0018)	ND (0.00211)	0.00112 JIP (0.00193)	NA	NA	NA	ND (0.00195)	ND (0.00195)
4,4'-DDE	0.0033	0.78	0.0033	**0.38 (0.0093)**	**0.0392 (0.0018)**	**1 (0.0211)**	**0.79 (0.0193)**	**0.302 (0.00187)**	NA	NA	**0.00362 (0.00195)**	ND (0.00195)
4,4'-DDT	0.0033	0.78	0.0033	**0.147 (0.00186)**	**0.0083 (0.0018)**	**0.283 (0.00211)**	**0.234 (0.00193)**	**0.12 (0.00187)**	NA	NA	0.00316 (0.00195)	ND (0.00195)
Dieldrin	0.005	0.017	0.006	**0.0469 (0.00116)**	**0.00798 (0.00113)**	**0.0541 (0.00132)**	**0.0332 (0.0012)**	**0.0096 (0.00117)**	NA	NA	0.00183 (0.00122)	ND (0.00122)
Endrin	0.014	1.2	0.014	ND (0.000775)	NA	ND (0.000881)	ND (0.000803)	NA	NA	NA	ND (0.000811)	ND (0.000811)
Heptachlor epoxide	0.013	0.12	0.14	**0.0684 IP (0.00349)**	**0.0177 (0.00338)**	**0.0149 (0.00396)**	0.0098 (0.00362)	NA	NA	NA	ND (0.00365)	ND (0.00365)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	13	16	13	**63.6 (0.905)**	3.28 (0.919)	**25.1 (1.03)**	**15 (0.931)**	6.69 (0.941)	NA	NA	**22.5 (0.934)**	**19.6 (0.944)**
Cadmium	2.5	2.5	4	0.963 (0.905)	NA	0.721 J (1.03)	0.537 J (0.931)	NA	NA	NA	0.231 J (0.934)	0.209 J (0.944)
Chromium III	30	30	160	27.624 (0.905)	NA	**33.165 (1.03)**	28.0075 (0.931)	NA	NA	NA	21.707 (0.934)	21.304 (0.944)
Chromium VI	1	1	20	ND (0.952)	NA	ND (1.07)	ND (0.985)	NA	NA	NA	ND (0.986)	ND (0.992)
Copper	50	280	50	18.6 (0.905)	NA	17.7 (1.03)	18.4 (0.931)	NA	NA	NA	19 (0.934)	21.2 (0.944)
Lead	63	400	63	**110 (4.53)**	8.45 (4.6)	**119 (5.16)**	**79.1 (4.65)**	22.8 (4.7)	NA	NA	**98.5 (4.67)**	**84.2 (4.72)**
Mercury	0.18	0.3	0.18	**32 (0.865)**	**0.395 (0.091)**	**15.2 (1.02)**	**7.52 (0.832)**	**2.17 (0.076)**	**1.9 (0.072)**	**0.312 (0.083)**	**0.219 (0.08)**	0.16 (0.082)
Nickel	30	87	30	14.3 (2.26)	NA	15.4 (2.58)	15.3 (2.33)	NA	NA	NA	15.9 (2.34)	16.5 (2.36)
Zinc	109	1300	109	61 (4.53)	NA	70.3 (5.16)	61 (4.65)	NA	NA	NA	52.2 (4.67)	52 (4.72)

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7 Underlined concentrations exceed the PEco SCO.

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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location Field Sample ID Collection Depth (ft bgs) Sampler Sample Date Comments	Unrestricted Use SCO	Residential SCO	PEco SCO	TS-03 TS-03R-1.5-2 1.5 - 2 Carson Voci 2/4/2025	TS-03 COMPOSITE #1 2 - 4 Carson Voci 2/4/2025	TS-04 TS-04R-0-1 0 - 1 Carson Voci 2/5/2025	TS-04 TS-04R-1-1.5 1 - 1.5 Carson Voci 2/5/2025	TS-04 TS-04R-1.5-2 1.5 - 2 Carson Voci 2/5/2025	TS-04 TS-04R-2-2.5 2 - 2.5 Carson Voci 2/5/2025	TS-05 TS-05R-0-1.5 0 - 1.5 Carson Voci 2/4/2025	TS-05 TS-05R-1.5-2 1.5 - 2 Carson Voci 2/4/2025	TS-06 TS-06R-0-1.5 0 - 1.5 Carson Voci 2/6/2025
Acetone	0.03	100	2.2	NA	NA	ND (0.011)	NA	NA	NA	0.008 J (0.013)	NA	ND (0.012)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	NA	NA	0.17 (0.13)	0.091 J (0.11)	NA	NA	**5 (0.11)**	0.058 J (0.11)	**5.3 (0.12)**
Benzo(a)pyrene	1	1	2.6	NA	NA	0.18 (0.17)	0.098 J (0.15)	NA	NA	**4.2 (0.15)**	0.072 J (0.15)	**5.9 (0.16)**
Benzo(b)fluoranthene	1	1	--	NA	NA	0.21 (0.13)	0.13 (0.11)	NA	NA	**5.1 (0.11)**	0.09 J (0.11)	**6.2 (0.12)**
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	0.12 J (0.17)	0.065 J (0.15)	NA	NA	**2.6 (0.15)**	0.056 J (0.15)	**2.5 (0.16)**
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	0.086 J (0.13)	0.038 J (0.11)	NA	NA	**1.5 (0.11)**	ND (0.11)	**2.5 (0.12)**
Chrysene	1	1.2	--	NA	NA	0.16 (0.13)	0.095 J (0.11)	NA	NA	**4.2 (0.11)**	0.05 J (0.11)	**4.7 (0.12)**
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	0.028 J (0.13)	ND (0.11)	NA	NA	**0.62 (0.11)**	ND (0.11)	**0.64 (0.12)**
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.21)	ND (0.19)	NA	NA	1.2 (0.19)	ND (0.18)	0.78 (0.2)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	0.11 J (0.17)	0.057 J (0.15)	NA	NA	**2.6 (0.15)**	0.05 J (0.15)	**2.1 (0.16)**
Phenanthrene	1.1	1.2	--	NA	NA	0.15 (0.13)	0.082 J (0.11)	NA	NA	**6.8 (0.57)**	ND (0.11)	**6.5 (0.62)**
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	0.000324 (0.000199)	NA	NA	NA	NA	NA	0.000564 (0.0002)	ND (0.000199)	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	**0.00161 (0.000199)**	0.000196 J (0.0002)	NA	NA	NA	NA	0.000146 J (0.0002)	ND (0.000199)	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	NA	NA	ND (0.00206)	ND (0.00175)	NA	NA	ND (0.00177)	ND (0.00179)	ND (0.00196)
alpha-Chlordane	0.014	0.14	1.3	NA	NA	0.00098 JIP (0.00258)	0.0114 IP (0.00219)	NA	NA	**0.0153 (0.00222)**	ND (0.00224)	0.0114 IP (0.00246)
4,4'-DDD	0.0033	1.2	0.0033	NA	NA	ND (0.00206)	ND (0.00175)	NA	NA	0.00265 IP (0.00177)	ND (0.00179)	**0.00936 (0.00196)**
4,4'-DDE	0.0033	0.78	0.0033	NA	NA	0.00309 (0.00206)	**0.00986 (0.00175)**	**0.0118 (0.00182)**	**0.0213 (0.00172)**	**0.00417 (0.00177)**	ND (0.00179)	**0.0188 (0.00196)**
4,4'-DDT	0.0033	0.78	0.0033	NA	NA	**0.00538 (0.00206)**	**0.017 (0.00175)**	**0.0178 (0.00182)**	**0.0305 (0.00172)**	**0.0432 (0.00177)**	ND (0.00179)	**0.0263 (0.00196)**
Dieldrin	0.005	0.017	0.006	NA	NA	0.00072 J (0.00129)	0.000674 J (0.0011)	NA	NA	0.00419 (0.00111)	ND (0.00112)	**0.144 (0.00123)**
Endrin	0.014	1.2	0.014	NA	NA	ND (0.00086)	ND (0.000731)	NA	NA	ND (0.000739)	ND (0.000745)	ND (0.000818)
Heptachlor epoxide	0.013	0.12	0.14	NA	NA	ND (0.00387)	0.00335 (0.00329)	NA	NA	0.00164 JIP (0.00332)	ND (0.00335)	0.00242 J (0.00368)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	ND (0.0637)	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	13	16	13	5.15 (0.912)	NA	4.37 (1)	9.8 (0.878)	NA	NA	4.46 (0.888)	2.48 (0.9)	3.86 (0.981)
Cadmium	2.5	2.5	4	NA	NA	0.22 J (1)	0.298 J (0.878)	NA	NA	ND (0.888)	ND (0.9)	0.418 J (0.981)
Chromium III	30	30	160	NA	NA	17.975 (1)	21.939 (0.878)	NA	NA	9.245 (0.888)	21.3425 (0.9)	17.205 (0.981)
Chromium VI	1	1	20	NA	NA	ND (1.05)	ND (0.922)	NA	NA	ND (0.93)	ND (0.915)	ND (0.99)
Copper	50	280	50	NA	NA	28.1 (1)	42.3 (0.878)	NA	NA	41.7 (0.888)	33 (0.9)	**62.5 (0.981)**
Lead	63	400	63	18.7 (4.56)	NA	35.4 (5.03)	63 (4.39)	NA	NA	31.4 (4.44)	13.6 (4.5)	**347 (4.91)**
Mercury	0.18	0.3	0.18	NA	NA	ND (0.095)	**0.275 (0.082)**	0.052 J (0.073)	NA	ND (0.09)	ND (0.077)	**0.199 (0.084)**
Nickel	30	87	30	NA	NA	16.2 (2.51)	20.2 (2.2)	NA	NA	11.5 (2.22)	22.5 (2.25)	14.8 (2.45)
Zinc	109	1300	109	NA	NA	81.7 (5.03)	81.1 (4.39)	NA	NA	54 (4.44)	58 (4.5)	**203 (4.91)**

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Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location Field Sample ID Collection Depth (ft bgs) Sampler Sample Date Comments	Unrestricted Use SCO	Residential SCO	PEco SCO	TS-06 TS-06R-1.5-2 1.5 - 2 Carson Voci 2/6/2025	TS-06 TS-06R-2-2.5 2 - 2.5 Carson Voci 2/6/2025	TS-07 TS-07R-0-1 0 - 1 Carson Voci 2/6/2025	TS-07 TS-07R-1-1.5 1 - 1.5 Carson Voci 2/6/2025	TS-07 TS-07R-1.5-2 1.5 - 2 Carson Voci 2/6/2025	TS-08 TS-08R-0-3.5 0 - 3.5 Carson Voci 2/6/2025	TS-08 TS-08R-3.5-4 3.5 - 4 Carson Voci 2/6/2025	TS-09 TS-09R-0-1 0 - 1 Carson Voci 2/5/2025	TS-09 TS-09R-1-1.5 1 - 1.5 Carson Voci 2/5/2025
Acetone	0.03	100	2.2	NA	NA	ND (0.01)	NA	NA	ND (0.0097)	NA	0.0086 J (0.014)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	0.25 (0.12)	NA	ND (0.12)	ND (0.12)	NA	**15 (1.1)**	**2.6 (0.11)**	0.31 (0.12)	**2.6 (0.12)**
Benzo(a)pyrene	1	1	2.6	0.22 (0.16)	NA	ND (0.16)	ND (0.16)	NA	**14 (1.5)**	**2.6 (0.15)**	0.32 (0.17)	**2.6 (0.15)**
Benzo(b)fluoranthene	1	1	--	0.28 (0.12)	NA	ND (0.12)	ND (0.12)	NA	**17 (1.1)**	**3 (0.11)**	0.38 (0.12)	**3 (0.12)**
Benzo(g,h,i)perylene	0.64	1.2	--	0.14 J (0.16)	NA	ND (0.16)	ND (0.16)	NA	**7.8 (1.5)**	**2.2 (0.15)**	0.19 (0.17)	**1.5 (0.15)**
Benzo(k)fluoranthene	0.8	1.2	--	0.094 J (0.12)	NA	ND (0.12)	ND (0.12)	NA	**5.8 (1.1)**	**1 (0.11)**	0.14 (0.12)	**1.1 (0.12)**
Chrysene	1	1.2	--	0.24 (0.12)	NA	ND (0.12)	0.021 J (0.12)	NA	**13 (1.1)**	**2.4 (0.11)**	0.29 (0.12)	**2.3 (0.12)**
Dibenz(a,h)anthracene	0.33	0.33	--	0.034 J (0.12)	NA	ND (0.12)	ND (0.12)	NA	**1.8 (1.1)**	**0.35 (0.11)**	0.046 J (0.12)	**0.39 (0.12)**
Dibenzofuran	2.1	4.2	--	0.042 J (0.2)	NA	ND (0.2)	ND (0.2)	NA	**2.7 (1.9)**	0.28 (0.18)	0.034 J (0.21)	0.24 (0.19)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	0.14 J (0.16)	NA	ND (0.16)	ND (0.16)	NA	**7.6 (1.5)**	**1.4 (0.15)**	0.19 (0.17)	**1.5 (0.15)**
Phenanthrene	1.1	1.2	--	0.48 (0.12)	NA	ND (0.12)	ND (0.12)	NA	**30 (1.1)**	**4.4 (0.11)**	0.47 (0.12)	**3.5 (0.12)**
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	0.00136 J (0.00185)	NA	ND (0.00187)	ND (0.00184)	NA	ND (0.00182)	ND (0.00172)	ND (0.00197)	ND (0.0018)
alpha-Chlordane	0.014	0.14	1.3	0.00158 JIP (0.00232)	NA	0.00175 JIP (0.00233)	ND (0.0023)	NA	0.00321 J (0.00227)	0.00225 (0.00215)	0.00216 JIP (0.00246)	**0.0152 IP (0.00225)**
4,4'-DDD	0.0033	1.2	0.0033	**0.00406 (0.00185)**	ND (0.00194)	0.00189 (0.00187)	ND (0.00184)	NA	0.00118 JIP (0.00182)	ND (0.00172)	0.00155 JIP (0.00197)	ND (0.0018)
4,4'-DDE	0.0033	0.78	0.0033	**0.00851 (0.00185)**	0.00104 J (0.00194)	**0.013 (0.00187)**	0.00297 (0.00184)	NA	**0.00599 IP (0.00182)**	0.00253 (0.00172)	**0.0149 (0.00197)**	0.00243 (0.0018)
4,4'-DDT	0.0033	0.78	0.0033	**0.00611 (0.00185)**	ND (0.00194)	**0.0444 (0.00187)**	**0.00432 (0.00184)**	ND (0.00182)	**0.0332 (0.00182)**	**0.0221 IP (0.00172)**	**0.00827 (0.00197)**	**0.00528 (0.0018)**
Dieldrin	0.005	0.017	0.006	**0.0358 (0.00116)**	0.00337 (0.00121)	0.00137 IP (0.00117)	ND (0.00115)	NA	ND (0.00114)	ND (0.00107)	ND (0.00123)	0.00142 IP (0.00112)
Endrin	0.014	1.2	0.014	ND (0.000773)	NA	ND (0.000778)	ND (0.000767)	NA	ND (0.000757)	ND (0.000716)	ND (0.000821)	ND (0.00075)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.00348)	NA	ND (0.0035)	ND (0.00345)	NA	0.00557 (0.00341)	ND (0.00322)	ND (0.00369)	0.0022 J (0.00338)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	NA	NA	**0.238 (0.0535)**	**0.691 (0.0529)**	NA	NA
Metals												
Arsenic	13	16	13	6.03 (0.914)	NA	3.85 (0.932)	6 (0.935)	NA	6.41 (1.79)	4.03 (0.872)	6.92 (0.974)	3.41 (0.881)
Cadmium	2.5	2.5	4	0.36 J (0.914)	NA	0.333 J (0.932)	0.325 J (0.935)	NA	0.226 J (1.79)	0.144 J (0.872)	0.55 J (0.974)	0.14 J (0.881)
Chromium III	30	30	160	20.821 (0.914)	NA	14.4215 (0.932)	16.018 (0.935)	NA	22.51 (1.79)	12.852 J (0.872)	19.09 (0.974)	15.537 (0.881)
Chromium VI	1	1	20	ND (0.958)	NA	ND (0.957)	ND (0.964)	NA	**1.49 (0.915)**	0.348 J (0.897)	ND (1.02)	ND (0.926)
Copper	50	280	50	48.3 (0.914)	NA	29.6 (0.932)	20.2 (0.935)	NA	26.4 (1.79)	48.3 (0.872)	20.6 (0.974)	20.5 (0.881)
Lead	63	400	63	**103 (4.57)**	21.4 (4.62)	**132 (4.66)**	**84.3 (4.68)**	9.93 (4.65)	59.4 (8.96)	**118 (4.36)**	56.9 (4.87)	43.6 (4.41)
Mercury	0.18	0.3	0.18	0.129 (0.086)	NA	**1.02 (0.081)**	0.111 (0.086)	NA	0.146 (0.082)	**0.208 (0.084)**	**0.208 (0.089)**	0.11 (0.082)
Nickel	30	87	30	20.4 (2.28)	NA	12.7 (2.33)	14.9 (2.34)	NA	21.4 (4.48)	8.59 (2.18)	12.9 (2.43)	10.8 (2.2)
Zinc	109	1300	109	**119 (4.57)**	83.4 (4.62)	**114 (4.66)**	**148 (4.68)**	70.4 (4.65)	103 (8.96)	**127 (4.36)**	71.7 (4.87)	81.6 (4.41)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
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3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
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J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location Field Sample ID Collection Depth (ft bgs) Sampler Sample Date Comments	Unrestricted Use SCO	Residential SCO	PEco SCO	TS-09 TS-09R-1.5-2 1.5 - 2 Carson Voci 2/5/2025	TS-09 TS-09R-2-2.5 2 - 2.5 Carson Voci 2/5/2025	TS-10 TS-10R-0-1 0 - 1 Carson Voci 2/4/2025	TS-10 TS-10R-1-1.5 1 - 1.5 Carson Voci 2/4/2025	TS-10 TS-10R-1.5-2 1.5 - 2 Carson Voci 2/4/2025	TS-10 TS-10R-2-2.5 2 - 2.5 Carson Voci 2/4/2025	TS-11 TS-11R-0-1.5 0 - 1.5 Carson Voci 2/5/2025	TS-11 TS-11R-1.5-2 1.5 - 2 Carson Voci 2/5/2025	TS-12 TS-12R-0-1.5 0 - 1.5 Carson Voci 2/5/2025
Acetone	0.03	100	2.2	NA	NA	0.025 (0.011)	NA	NA	NA	0.023 J (0.041)	NA	ND (0.01)
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	0.066 J (0.13)	NA	0.24 (0.11)	1 (0.11)	NA	NA	**10 (1.1)**	0.024 J (0.11)	0.056 J (0.11)
Benzo(a)pyrene	1	1	2.6	0.075 J (0.17)	NA	0.26 (0.15)	0.97 (0.14)	NA	NA	**9.1 (1.4)**	ND (0.15)	0.06 J (0.15)
Benzo(b)fluoranthene	1	1	--	0.095 J (0.13)	NA	0.34 (0.11)	**1.4 (0.11)**	0.44 (0.11)	NA	**11 (1.1)**	ND (0.11)	0.074 J (0.11)
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	0.18 (0.15)	0.59 (0.14)	NA	NA	**5.7 (0.14)**	ND (0.15)	0.036 J (0.15)
Benzo(k)fluoranthene	0.8	1.2	--	ND (0.13)	NA	0.12 (0.11)	0.53 (0.11)	NA	NA	**2.3 (0.11)**	ND (0.11)	ND (0.11)
Chrysene	1	1.2	--	0.077 J (0.13)	NA	0.26 (0.11)	**1.3 (0.11)**	0.36 (0.11)	NA	**8.5 (1.1)**	ND (0.11)	0.048 J (0.11)
Dibenz(a,h)anthracene	0.33	0.33	--	ND (0.13)	NA	0.042 J (0.11)	0.14 (0.11)	NA	NA	**1.4 (0.11)**	ND (0.11)	ND (0.11)
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.18)	0.035 J (0.18)	NA	NA	**2.8 (0.18)**	ND (0.19)	ND (0.19)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	0.06 J (0.17)	NA	0.18 (0.15)	**0.59 (0.14)**	0.19 (0.14)	NA	**5.9 (0.14)**	ND (0.15)	0.032 J (0.15)
Phenanthrene	1.1	1.2	--	NA	NA	0.15 (0.11)	1 (0.11)	NA	NA	**21 (1.1)**	0.042 J (0.11)	0.049 J (0.11)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	0.00009 J (0.0002)	0.000135 J (0.000199)	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	0.000027 J (0.0002)	ND (0.000199)	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	NA	NA	ND (0.00176)	ND (0.00168)	NA	NA	ND (0.00178)	ND (0.00177)	ND (0.00176)
alpha-Chlordane	0.014	0.14	1.3	NA	NA	NDJ (0.0022)	0.00166 J (0.0021)	NA	NA	ND (0.00222)	ND (0.00221)	0.00262 IP (0.0022)
4,4'-DDD	0.0033	1.2	0.0033	NA	NA	**0.0118 (0.00176)**	0.0032 IP (0.00168)	NA	NA	ND (0.00178)	ND (0.00177)	ND (0.00176)
4,4'-DDE	0.0033	0.78	0.0033	NA	NA	**0.0197 IP (0.00176)**	**0.00546 IP (0.00168)**	**0.026 (0.00175)**	**0.0239 P (0.00181)**	ND (0.00178)	ND (0.00177)	**0.00947 (0.00176)**
4,4'-DDT	0.0033	0.78	0.0033	**0.00357 (0.00203)**	**0.0237 (0.00167)**	ND (0.00176)	ND (0.00168)	NA	NA	ND (0.00178)	ND (0.00177)	**0.00942 (0.00176)**
Dieldrin	0.005	0.017	0.006	NA	NA	ND (0.0011)	ND (0.00105)	NA	NA	ND (0.00111)	ND (0.00111)	0.0023 (0.0011)
Endrin	0.014	1.2	0.014	NA	NA	ND (0.000734)	ND (0.000699)	NA	NA	ND (0.00074)	ND (0.000738)	ND (0.000732)
Heptachlor epoxide	0.013	0.12	0.14	NA	NA	ND (0.0033)	ND (0.00314)	NA	NA	ND (0.00333)	ND (0.00332)	0.00116 JIP (0.0033)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	0.00824 J (0.0542)	NA	NA	NA	ND (0.0538)	ND (0.0519)	NA
Metals												
Arsenic	13	16	13	NA	NA	1.73 (0.873)	4.1 (0.887)	NA	NA	2.35 (0.868)	2.86 (0.895)	8.06 (0.908)
Cadmium	2.5	2.5	4	NA	NA	ND (0.873)	0.069 J (0.887)	NA	NA	ND (0.868)	0.138 J (0.895)	0.362 J (0.908)
Chromium III	30	30	160	NA	NA	28.3555 (0.873)	19.553 (0.887)	NA	NA	14.655 (0.868)	23.246 (0.895)	21.545 (0.908)
Chromium VI	1	1	20	NA	NA	ND (0.889)	ND (0.894)	NA	NA	ND (0.89)	ND (0.908)	ND (0.91)
Copper	50	280	50	NA	NA	26.3 (0.873)	22.3 (0.887)	NA	NA	33.7 (0.868)	17.5 (0.895)	25.9 (0.908)
Lead	63	400	63	NA	NA	13.3 (4.36)	18.7 (4.43)	NA	NA	15.8 (4.34)	12.4 (4.48)	36 (4.54)
Mercury	0.18	0.3	0.18	NA	NA	ND (0.071)	ND (0.079)	NA	NA	0.071 J (0.072)	ND (0.078)	**0.743 (0.074)**
Nickel	30	87	30	NA	NA	18.2 (2.18)	14.4 (2.22)	NA	NA	**35.5 (2.17)**	19.4 (2.24)	14.7 (2.27)
Zinc	109	1300	109	NA	NA	86.1 (4.36)	41.4 (4.43)	NA	NA	93.6 (4.34)	56 (4.48)	79.2 (4.54)

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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location Field Sample ID Collection Depth (ft bgs) Sampler Sample Date Comments	Unrestricted Use SCO	Residential SCO	PEco SCO	TS-12 TS-12R-1.5-2 1.5 - 2 Carson Voci 2/5/2025	TS-12 TS-12R-2-2.5 2 - 2.5 Carson Voci 2/5/2025	TS-12 TS-12R-2.5-3 2.5 - 3 Carson Voci 2/5/2025	TS-12 TEI-SB-03-7-9 7 - 9 Carson Voci 2/5/2025	TS-13 TS-13R-0-1 0 - 1 Carson Voci 2/5/2025	TS-13 TS-13R-1-1.5 1 - 1.5 Carson Voci 2/5/2025	TS-13 TS-13R-1.5-2 1.5 - 2 Carson Voci 2/5/2025	TS-14 TS-14R-0-2.5 0 - 2.5 Carson Voci 2/5/2025	TS-14 TS-14R-2.5-3 2.5 - 3 Carson Voci 2/5/2025
Acetone	0.03	100	2.2	NA	NA	NA	ND (0.012)	ND (0.0095)	NA	NA	ND (0.011)	NA
Semivolatile Organic Compounds												
Benzo(a)anthracene	1	1	--	0.38 (0.11)	NA	NA	ND (0.1)	0.13 (0.11)	ND (0.11)	NA	0.73 (0.12)	**1.4 (0.12)**
Benzo(a)pyrene	1	1	2.6	0.43 (0.14)	NA	NA	ND (0.14)	0.11 J (0.14)	ND (0.14)	NA	0.7 (0.16)	**1.2 (0.16)**
Benzo(b)fluoranthene	1	1	--	0.53 (0.11)	NA	NA	ND (0.1)	0.13 (0.11)	ND (0.11)	NA	0.88 (0.12)	**1.4 (0.12)**
Benzo(g,h,i)perylene	0.64	1.2	--	0.27 (0.14)	NA	NA	ND (0.14)	0.073 J (0.14)	ND (0.14)	NA	0.39 (0.16)	0.59 (0.16)
Benzo(k)fluoranthene	0.8	1.2	--	0.18 (0.11)	NA	NA	ND (0.1)	0.05 J (0.11)	ND (0.11)	NA	0.25 (0.12)	0.49 (0.12)
Chrysene	1	1.2	--	0.35 (0.11)	NA	NA	ND (0.1)	0.12 (0.11)	ND (0.11)	NA	0.67 (0.12)	**1.4 (0.12)**
Dibenz(a,h)anthracene	0.33	0.33	--	0.064 J (0.11)	NA	NA	ND (0.1)	ND (0.11)	ND (0.11)	NA	0.11 J (0.12)	0.17 (0.12)
Dibenzofuran	2.1	4.2	--	0.08 J (0.18)	NA	NA	ND (0.17)	ND (0.18)	ND (0.18)	NA	0.031 J (0.2)	ND (0.2)
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	0.27 (0.14)	NA	NA	ND (0.14)	0.069 J (0.14)	ND (0.14)	NA	0.38 (0.16)	0.46 (0.16)
Phenanthrene	1.1	1.2	--	0.76 (0.11)	NA	NA	ND (0.1)	0.21 (0.11)	ND (0.11)	NA	0.68 (0.12)	0.46 (0.12)
Per-and Polyfluoroalkyl Substances												
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Aldrin	0.0048	0.0088	0.14	ND (0.0017)	NA	NA	NA	ND (0.00168)	ND (0.00174)	NA	ND (0.0019)	ND (0.00182)
alpha-Chlordane	0.014	0.14	1.3	0.00121 JIP (0.00213)	NA	NA	NA	ND (0.0021)	ND (0.00218)	NA	**0.0204 IP (0.00237)**	**0.0222 IP (0.00228)**
4,4'-DDD	0.0033	1.2	0.0033	ND (0.0017)	NA	NA	NA	ND (0.00168)	ND (0.00174)	NA	**0.0049 (0.0019)**	0.00252 (0.00182)
4,4'-DDE	0.0033	0.78	0.0033	**0.00641 (0.0017)**	0.000821 J (0.00169)	NA	NA	**0.00444 (0.00168)**	0.000943 J (0.00174)	NA	**0.0134 (0.0019)**	**0.0448 (0.00182)**
4,4'-DDT	0.0033	0.78	0.0033	**0.00868 (0.0017)**	0.00198 (0.00169)	NA	NA	**0.00447 (0.00168)**	ND (0.00174)	NA	**0.0295 IP (0.0019)**	**0.0155 (0.00182)**
Dieldrin	0.005	0.017	0.006	0.00092 J (0.00107)	NA	NA	NA	ND (0.00105)	ND (0.00109)	NA	ND (0.00119)	**0.02 (0.00114)**
Endrin	0.014	1.2	0.014	ND (0.000711)	NA	NA	NA	ND (0.0007)	ND (0.000725)	NA	ND (0.000792)	ND (0.00076)
Heptachlor epoxide	0.013	0.12	0.14	ND (0.0032)	NA	NA	NA	ND (0.00315)	ND (0.00326)	NA	0.00695 IP (0.00356)	0.00644 IP (0.00342)
Polychlorinated Biphenyls												
PCBs (total)	0.1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	13	16	13	**19.3 (0.841)**	**23.4 (0.828)**	2.34 (0.82)	NA	**25 (0.838)**	3.67 (0.876)	NA	3.62 (0.939)	13 (0.909)
Cadmium	2.5	2.5	4	0.35 J (0.841)	NA	NA	NA	1.53 (0.838)	1.04 (0.876)	NA	0.173 J (0.939)	0.337 J (0.909)
Chromium III	30	30	160	24.166 (0.841)	NA	NA	NA	22.856 (0.838)	21.273 J (0.876)	NA	19.4135 (0.939)	22.226 (0.909)
Chromium VI	1	1	20	ND (0.868)	NA	NA	NA	ND (0.888)	0.527 J (0.897)	NA	ND (0.973)	ND (0.948)
Copper	50	280	50	**266 (0.841)**	45.7 (0.828)	NA	NA	23.6 (0.838)	18.4 (0.876)	NA	28.9 (0.939)	24.6 (0.909)
Lead	63	400	63	39.8 (4.2)	NA	NA	NA	19 (4.19)	13.6 (4.38)	NA	**72.8 (4.69)**	52 (4.54)
Mercury	0.18	0.3	0.18	**0.336 (0.072)**	0.071 J (0.086)	NA	NA	0.07 J (0.079)	ND (0.075)	NA	**0.305 (0.088)**	**1.28 (0.083)**
Nickel	30	87	30	14.4 (2.1)	NA	NA	NA	15.8 (2.09)	15.5 (2.19)	NA	9.92 (2.35)	13.5 (2.27)
Zinc	109	1300	109	82.2 (4.2)	NA	NA	NA	95.8 (4.19)	**139 (4.38)**	40.4 (4.35)	**139 (4.69)**	63.4 (4.54)

Notes:
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Table 2a
Soil Analytical Results Exceedances Summary (Western Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				TS-14	TS-14	TS-15	TS-15	TS-15	TS-15	TS-15
Field Sample ID				TS-14R-3-3.5	TS-14R-3.5-4	TS-15R-0-1	TS-15R-1-1.5	TS-15R-1.5-2	TS-15R-2-2.5	COMPOSITE #2
Collection Depth (ft bgs)	Unrestricted Use	Residential	PEco SCO	3 - 3.5	3.5 - 4	0 - 1	1 - 1.5	1.5 - 2	2 - 2.5	2 - 4
Sampler	SCO	SCO		Carson Voci	Carson Voci	Carson Voci	Carson Voci	Carson Voci	Carson Voci	Carson Voci
Sample Date				2/5/2025	2/5/2025	2/4/2025	2/4/2025	2/4/2025	2/4/2025	2/4/2025
Comments										
Acetone	0.03	100	2.2	NA	NA	ND (0.017)	NA	NA	NA	NA
Semivolatile Organic Compounds										
Benzo(a)anthracene	1	1	--	0.36 (0.11)	NA	0.034 J (0.12)	0.034 J (0.12)	NA	NA	NA
Benzo(a)pyrene	1	1	2.6	0.31 (0.15)	NA	ND (0.16)	ND (0.16)	NA	NA	NA
Benzo(b)fluoranthene	1	1	--	0.36 (0.11)	NA	0.047 J (0.12)	0.043 J (0.12)	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	--	NA	NA	0.027 J (0.16)	0.025 J (0.16)	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	--	NA	NA	ND (0.12)	ND (0.12)	NA	NA	NA
Chrysene	1	1.2	--	0.35 (0.11)	NA	0.035 J (0.12)	0.036 J (0.12)	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	--	NA	NA	ND (0.12)	ND (0.12)	NA	NA	NA
Dibenzofuran	2.1	4.2	--	NA	NA	ND (0.2)	ND (0.21)	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	--	NA	NA	ND (0.16)	ND (0.16)	NA	NA	NA
Phenanthrene	1.1	1.2	--	NA	NA	ND (0.12)	ND (0.12)	NA	NA	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	--	NA	NA	0.000853 (0.000199)	**0.000971 (0.000199)**	0.000552 (0.000199)	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0066	--	NA	NA	**0.000834 (0.000199)**	**0.00111 (0.000199)**	**0.000732 (0.000199)**	NA	0.000325 (0.0002)
Pesticides										
Aldrin	0.0048	0.0088	0.14	NA	NA	ND (0.00189)	ND (0.00189)	NA	NA	NA
alpha-Chlordane	0.014	0.14	1.3	NA	NA	0.000874 JIP (0.00237)	0.0014 JIP (0.00236)	NA	NA	NA
4,4'-DDD	0.0033	1.2	0.0033	NA	NA	ND (0.00189)	ND (0.00189)	NA	NA	NA
4,4'-DDE	0.0033	0.78	0.0033	**0.0579 (0.00175)**	NA	**0.0079 (0.00189)**	**0.0206 (0.00189)**	**0.0281 (0.0018)**	0.00128 J (0.00173)	NA
4,4'-DDT	0.0033	0.78	0.0033	**0.0222 (0.00175)**	NA	**0.00363 (0.00189)**	**0.00594 (0.00189)**	**0.00612 (0.0018)**	ND (0.00173)	NA
Dieldrin	0.005	0.017	0.006	**0.028 (0.00109)**	NA	0.00281 (0.00118)	**0.0378 (0.00118)**	**0.0136 (0.00112)**	ND (0.00108)	NA
Endrin	0.014	1.2	0.014	NA	NA	ND (0.000789)	ND (0.000787)	NA	NA	NA
Heptachlor epoxide	0.013	0.12	0.14	NA	NA	ND (0.00355)	0.0033 J (0.00354)	NA	NA	NA
Polychlorinated Biphenyls										
PCBs (total)	0.1	1	1	NA	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	13	16	13	NA	NA	**24.5 (0.932)**	**29.8 (0.97)**	12.8 (0.908)	NA	NA
Cadmium	2.5	2.5	4	NA	NA	0.276 J (0.932)	0.135 J (0.97)	NA	NA	NA
Chromium III	30	30	160	NA	NA	22.1165 (0.932)	18.9 (0.97)	NA	NA	NA
Chromium VI	1	1	20	NA	NA	ND (0.967)	ND (1)	NA	NA	NA
Copper	50	280	50	NA	NA	21.4 (0.932)	15.5 (0.97)	NA	NA	NA
Lead	63	400	63	NA	NA	59.2 (4.66)	50.5 (4.85)	NA	NA	NA
Mercury	0.18	0.3	0.18	**2.39 (0.083)**	**0.652 (0.089)**	**1.05 (0.094)**	**1.34 (0.09)**	**0.478 (0.08)**	NA	NA
Nickel	30	87	30	NA	NA	17.3 (2.33)	14 (2.43)	NA	NA	NA
Zinc	109	1300	109	NA	NA	69.2 (4.66)	54.4 (4.85)	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.
5 Boldfaced concentrations exceed the Unrestricted Use SCO.
6 Boldfaced, gray-shaded concentrations exceed the Residential SCO.
7 Underlined concentrations exceed the PEco SCO.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2b
Soil Analytical Results Exceedances Summary (Eastern Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location			C14	C14	D14	D14	D14	D14	E14	E14
Field Sample ID			C14_0.2-2	C14_0-0.2	D14_0.2-2	D14_0-0.2	D14_2-4	D14R-0.5-1	E14_0.2-2	E14_0-0.2
Collection Depth (ft bgs)	Unrestricted Use	Residential	0.2 - 2	0 - 0.2	0.2 - 2	0 - 0.2	2 - 4	0.5 - 1	0.2 - 2	0 - 0.2
Sampler	SCO	SCO	Roux	Roux	Roux	Roux	Roux	Carson Voci	Roux	Roux
Sample Date			6/14/2024	6/14/2024	6/14/2024	6/14/2024	6/14/2024	2/8/2025	6/19/2024	6/19/2024
Comments										
Volatile Organic Compounds										
Acetone	0.03	100	ND (0.013)	NA	ND (0.013)	NA	NA	NA	0.0099 J (0.014)	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides										
alpha-Chlordane	0.014	0.14	ND (0.00217)	0.00252 IP (0.00241)	0.00352 IP (0.00245)	**0.0747 IP (0.00218)**	ND (0.00241)	ND (0.00234)	0.000702 JIP (0.00221)	**0.0381 IP (0.00255)**
4,4'-DDD	0.0033	1.2	ND (0.00174)	ND (0.00193)	ND (0.00196)	**0.00706 (0.00175)**	ND (0.00193)	ND (0.00188)	ND (0.00177)	ND (0.00204)
4,4'-DDE	0.0033	0.78	0.000567 J (0.00174)	**0.00388 (0.00193)**	**0.0048 (0.00196)**	**0.0321 (0.00175)**	0.00047 J (0.00193)	0.0011 JIP (0.00188)	ND (0.00177)	**0.00982 (0.00204)**
4,4'-DDT	0.0033	0.78	ND (0.00174)	0.00253 (0.00193)	ND (0.00196)	**0.0111 (0.00175)**	ND (0.00193)	ND (0.00188)	ND (0.00177)	**0.00362 IP (0.00204)**
Dieldrin	0.005	0.017	ND (0.00109)	ND (0.00121)	**0.0223 (0.00122)**	**0.215 (0.00109)**	0.00138 (0.0012)	ND (0.00117)	0.00351 (0.00111)	**0.175 (0.00128)**
Heptachlor epoxide	0.013	0.12	ND (0.00326)	0.00642 (0.00362)	**0.015 (0.00367)**	**0.118 (0.00328)**	0.00119 J (0.00362)	ND (0.00352)	0.00281 J (0.00332)	**0.123 (0.00383)**
Metals										
Arsenic	13	16	3.05 (0.896)	5.94 (0.996)	11.1 (0.976)	**87.4 (0.905)**	NA	NA	3.41 (0.886)	**124 (1)**
Chromium III	30	30	19.1465 (0.896)	26.4 (0.996)	21.8 (0.976)	**56.4475 (0.905)**	NA	NA	16.6445 (0.886)	**97.68 (1)**
Lead	63	400	11.2 (4.48)	26.4 (4.98)	11.4 (4.88)	18.9 (4.52)	NA	NA	4.95 (4.43)	40.9 (5.01)
Mercury	0.18	0.3	0.058 J (0.078)	**0.192 (0.098)**	0.098 (0.094)	**0.42 (0.088)**	NA	NA	0.064 J (0.072)	**0.97 (0.083)**
Nickel	30	87	13.4 (2.24)	14 (2.49)	15.5 (2.44)	15.7 (2.26)	NA	NA	12.3 (2.21)	14.5 (2.51)
Zinc	109	1300	37.6 (4.48)	82.3 (4.98)	45.4 (4.88)	54.8 (4.52)	NA	NA	33.8 (4.43)	84.6 (5.01)

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Boldfaced concentrations exceed the Unrestricted Use Soil Cleanup Objectives.
5 Boldfaced, gray-shaded concentrations exceed the Residential Soil Cleanup Objectives.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
-- - No published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2b
Soil Analytical Results Exceedances Summary (Eastern Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location			F13	F13	F13	F13	F13	F13	F13	F13
Field Sample ID			F13_0.2-2	F13_0-0.2	F13_2-4	F13_4-6	F13R-0.5-1	F13R-2-4	F13R-4-6	F13R-6-8
Collection Depth (ft bgs)	Unrestricted Use	Residential	0.2 - 2	0 - 0.2	2 - 4	4 - 6	0.5 - 1	2 - 4	4 - 6	6 - 8
Sampler	SCO	SCO	Roux	Roux	Roux	Roux	Carson Voci	Carson Voci	Carson Voci	Carson Voci
Sample Date			6/19/2024	6/19/2024	6/19/2024	6/19/2024	2/3/2025	2/3/2025	2/3/2025	2/3/2025
Comments										
Volatile Organic Compounds										
Acetone	0.03	100	**0.11 (0.012)**	NA	NA	NA	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides										
alpha-Chlordane	0.014	0.14	**0.0345 (0.00222)**	**0.208 IP (0.00227)**	**0.0142 P (0.0024)**	**0.0162 J (0.00225)**	**0.126 IP (0.00208)**	**0.0676 IP (0.00247)**	**0.159 IP (0.00272)**	NA
4,4'-DDD	0.0033	1.2	0.00186 (0.00178)	**0.0174 (0.00181)**	0.000793 JP (0.00192)	0.0011 J (0.0018)	ND (0.00166)	ND (0.00198)	**0.00864 (0.00217)**	ND (0.00182)
4,4'-DDE	0.0033	0.78	**0.004 (0.00178)**	**0.0329 (0.00181)**	ND (0.00192)	0.00288 (0.0018)	**0.0362 (0.00166)**	0.00307 (0.00198)	**0.0182 (0.00217)**	ND (0.00182)
4,4'-DDT	0.0033	0.78	ND (0.00178)	**0.0166 (0.00181)**	ND (0.00192)	ND (0.0018)	**0.0229 (0.00166)**	ND (0.00198)	ND (0.00217)	NA
Dieldrin	0.005	0.017	0.00117 (0.00111)	**0.0141 (0.00113)**	**0.00646 P (0.0012)**	**0.0155 (0.00112)**	**0.00587 (0.00104)**	ND (0.00123)	ND (0.00136)	NA
Heptachlor epoxide	0.013	0.12	ND (0.00333)	**0.12 (0.0034)**	ND (0.0036)	0.00263 J (0.00338)	**0.186 (0.00312)**	ND (0.0037)	ND (0.00408)	NA
Metals										
Arsenic	13	16	9.56 (0.907)	**19.3 (0.88)**	NA	NA	NA	NA	NA	NA
Chromium III	30	30	20.931 (0.907)	21.3365 (0.88)	NA	NA	NA	NA	NA	NA
Lead	63	400	34.1 (4.54)	**68.4 (4.4)**	NA	NA	NA	NA	NA	NA
Mercury	0.18	0.3	0.15 (0.074)	**3.91 (0.147)**	NA	NA	NA	NA	NA	NA
Nickel	30	87	15.1 (2.27)	9.46 (2.2)	NA	NA	NA	NA	NA	NA
Zinc	109	1300	49.2 (4.54)	55.9 (4.4)	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Boldfaced concentrations exceed the Unrestricted Use Soil Cleanup Objectives.
5 Boldfaced, gray-shaded concentrations exceed the Residential Soil Cleanup Objectives.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2b
Soil Analytical Results Exceedances Summary (Eastern Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location			F14	F14	F15	F15	F15	F15	F15	G13
Field Sample ID			F14_0.2-2	F14_0-0.2	F15_0.2-2	F15_0-0.2	F15_2-4	F15R-0.5-1	F15R-1-1.5	G13_0.2-2
Collection Depth (ft bgs)	Unrestricted Use	Residential	0.2 - 2	0 - 0.2	0.2 - 2	0 - 0.2	2 - 4	0.5 - 1	1 - 1.5	0.2 - 2
Sampler	SCO	SCO	Roux	Roux	Roux	Roux	Roux	Carson Voci	Carson Voci	Roux
Sample Date			6/19/2024	6/19/2024	6/19/2024	6/19/2024	6/19/2024	2/8/2025	2/8/2025	6/24/2024
Comments										
Volatile Organic Compounds										
Acetone	0.03	100	ND (0.012)	NA	ND (0.0093)	NA	NA	NA	NA	0.0066 J (0.012)
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides										
alpha-Chlordane	0.014	0.14	ND (0.0022)	0.0058 IP (0.00262)	0.00489 IP (0.00218)	**0.0756 J (0.00239)**	ND (0.00242)	ND (0.0025)	NA	ND (0.00208)
4,4'-DDD	0.0033	1.2	ND (0.00176)	ND (0.0021)	ND (0.00174)	ND (0.00191)	ND (0.00193)	ND (0.002)	NA	ND (0.00166)
4,4'-DDE	0.0033	0.78	ND (0.00176)	0.00116 JIP (0.0021)	0.00277 (0.00174)	**0.0282 (0.00191)**	ND (0.00193)	**0.0108 (0.002)**	0.000496 J (0.00181)	ND (0.00166)
4,4'-DDT	0.0033	0.78	ND (0.00176)	ND (0.0021)	ND (0.00174)	**0.00889 (0.00191)**	ND (0.00193)	0.00264 IP (0.002)	NA	ND (0.00166)
Dieldrin	0.005	0.017	ND (0.0011)	**0.0204 (0.00131)**	**0.0093 (0.00109)**	**0.17 (0.00119)**	ND (0.00121)	**0.024 (0.00125)**	0.00186 (0.00113)	ND (0.00104)
Heptachlor epoxide	0.013	0.12	ND (0.0033)	0.00949 (0.00394)	0.00603 (0.00327)	**0.108 (0.00358)**	ND (0.00362)	ND (0.00375)	NA	ND (0.00311)
Metals										
Arsenic	13	16	2.38 (0.888)	6.54 (1.03)	4.15 (0.875)	4.74 (0.936)	NA	NA	NA	1.38 (0.849)
Chromium III	30	30	18.0435 (0.888)	25.45 (1.03)	16.64 (0.875)	18.108 (0.936)	NA	NA	NA	20.587 J (0.849)
Lead	63	400	5.43 (4.44)	29.1 (5.17)	6.28 (4.38)	6.36 J (4.68)	NA	NA	NA	4.42 (4.24)
Mercury	0.18	0.3	ND (0.073)	**0.328 (0.088)**	ND (0.073)	0.062 J (0.077)	NA	NA	NA	ND (0.074)
Nickel	30	87	13.6 (2.22)	14.9 (2.58)	11.2 (2.19)	12.5 (2.34)	NA	NA	NA	18.7 (2.12)
Zinc	109	1300	29.3 (4.44)	63.4 (5.17)	28.8 (4.38)	30.1 J (4.68)	NA	NA	NA	40 (4.24)

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Boldfaced concentrations exceed the Unrestricted Use Soil Cleanup Objectives.
5 Boldfaced, gray-shaded concentrations exceed the Residential Soil Cleanup Objectives.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
-- - No published Standard or Guidance Value
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I - The lower value for the two columns has been reported due to obvious interference
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Table 2b
Soil Analytical Results Exceedances Summary (Eastern Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location			G13	G14	G14	G15	G15	G15	G15	G15
Field Sample ID			G13_0-0.2	G14_0.2-2	G14_0-0.2	G15_0.2-2	G15_0-0.2	G15_2-4	G15R-0.5-1	G15R-1-1.5
Collection Depth (ft bgs)	Unrestricted Use	Residential	0 - 0.2	0.2 - 2	0 - 0.2	0.2 - 2	0 - 0.2	2 - 4	0.5 - 1	1 - 1.5
Sampler	SCO	SCO	Roux	Roux	Roux	Roux	Roux	Roux	Carson Voci	Carson Voci
Sample Date			6/24/2024	6/24/2024	6/24/2024	6/25/2024	6/25/2024	6/25/2024	2/8/2025	2/8/2025
Comments										
Volatile Organic Compounds										
Acetone	0.03	100	NA	ND (0.011)	NA	0.01 J (0.012)	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides										
alpha-Chlordane	0.014	0.14	0.00308 J (0.00258)	ND (0.00208)	0.00139 JIP (0.00226)	0.00279 IP (0.00217)	**0.0163 J (0.00244)**	NA	NA	NA
4,4'-DDD	0.0033	1.2	ND (0.00207)	ND (0.00166)	ND (0.00181)	ND (0.00174)	ND (0.00195)	NA	NA	NA
4,4'-DDE	0.0033	0.78	**0.0281 (0.00207)**	ND (0.00166)	0.0023 (0.00181)	0.000507 J (0.00174)	**0.0128 (0.00195)**	NA	NA	NA
4,4'-DDT	0.0033	0.78	**0.00994 (0.00207)**	ND (0.00166)	ND (0.00181)	ND (0.00174)	**0.00561 (0.00195)**	NA	NA	NA
Dieldrin	0.005	0.017	**0.00978 (0.00129)**	ND (0.00104)	**0.00703 (0.00113)**	0.00183 (0.00109)	**0.0163 (0.00122)**	NA	NA	NA
Heptachlor epoxide	0.013	0.12	0.00341 J (0.00388)	ND (0.00311)	0.00105 J (0.0034)	0.00104 J (0.00326)	0.00792 (0.00366)	NA	NA	NA
Metals										
Arsenic	13	16	**18.4 (1.01)**	1.62 (0.845)	6.99 (0.94)	1.66 (0.832)	9.08 J (0.94)	1.64 (0.878)	NA	NA
Chromium III	30	30	25.575 J (1.01)	13.867 (0.845)	18.5215 (0.94)	13.364 (0.832)	23.7105 (0.94)	NA	NA	NA
Lead	63	400	46.9 (5.05)	4.94 (4.22)	22.4 (4.7)	4.99 (4.16)	28.5 (4.7)	3.3 J (4.39)	NA	NA
Mercury	0.18	0.3	**0.337 (0.096)**	0.081 (0.076)	**0.738 (0.093)**	**0.196 (0.07)**	**1.27 (0.078)**	ND (0.076)	**0.492 (0.078)**	0.15 (0.074)
Nickel	30	87	18.2 (2.52)	11.2 (2.11)	10 (2.35)	9.08 (2.08)	12.4 J (2.35)	10 (2.2)	NA	NA
Zinc	109	1300	73.1 J (5.05)	25.8 (4.22)	44.7 (4.7)	27.9 (4.16)	55.4 (4.7)	22.2 (4.39)	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Boldfaced concentrations exceed the Unrestricted Use Soil Cleanup Objectives.
5 Boldfaced, gray-shaded concentrations exceed the Residential Soil Cleanup Objectives.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious interference
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2b
Soil Analytical Results Exceedances Summary (Eastern Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location			H12	H12	H12	H12	H13	H13	H13	H13
Field Sample ID			H12_0.2-2	H12_0-0.2	H12_2-4	H12R-0.5-1	H13_0.2-2	H13_0-0.2	H13_2-4	H13R-0.5-1
Collection Depth (ft bgs)	Unrestricted Use	Residential	0.2 - 2	0 - 0.2	2 - 4	0.5 - 1	0.2 - 2	0 - 0.2	2 - 4	0.5 - 1
Sampler	SCO	SCO	Roux	Roux	Roux	Carson Voci	Roux	Roux	Roux	Carson Voci
Sample Date			6/25/2024	6/25/2024	6/25/2024	2/8/2025	6/25/2024	6/25/2024	6/25/2024	2/8/2025
Comments										
Volatile Organic Compounds										
Acetone	0.03	100	ND (0.012)	NA	NA	NA	ND (0.015)	NA	NA	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides										
alpha-Chlordane	0.014	0.14	ND (0.0021)	0.00176 JIP (0.00214)	NA	NA	**0.0526 J (0.00241)**	**0.03 IP (0.00215)**	ND (0.00209)	ND (0.00241)
4,4'-DDD	0.0033	1.2	ND (0.00168)	ND (0.00171)	NA	NA	ND (0.00193)	ND (0.00172)	ND (0.00167)	ND (0.00193)
4,4'-DDE	0.0033	0.78	0.00286 IP (0.00168)	**0.0158 (0.00171)**	NA	NA	**0.0917 (0.00193)**	**0.0931 (0.00172)**	0.0026 (0.00167)	**0.026 (0.00193)**
4,4'-DDT	0.0033	0.78	ND (0.00168)	**0.00503 (0.00171)**	NA	NA	**0.024 (0.00193)**	**0.0256 (0.00172)**	ND (0.00167)	**0.00696 (0.00193)**
Dieldrin	0.005	0.017	0.000962 J (0.00105)	0.00356 (0.00107)	NA	NA	**0.683 (0.0121)**	**0.461 (0.00537)**	0.000592 J (0.00104)	0.00192 (0.0012)
Heptachlor epoxide	0.013	0.12	ND (0.00315)	ND (0.00321)	NA	NA	**0.0993 (0.00362)**	**0.0684 (0.00322)**	ND (0.00313)	ND (0.00361)
Metals										
Arsenic	13	16	8.41 (0.858)	**21 (0.878)**	1.89 (0.796)	NA	**132 J (0.965)**	**161 (0.836)**	0.984 (0.836)	**44.8 (0.955)**
Chromium III	30	30	17.965 (0.858)	28.5545 (0.878)	NA	NA	**105.49 (0.965)**	**125.558 (0.836)**	NA	22.9115 (0.955)
Lead	63	400	21.2 (4.29)	62.4 (4.39)	3.36 J (3.98)	NA	**131 (4.82)**	**181 (4.18)**	2.98 J (4.18)	**120 (4.77)**
Mercury	0.18	0.3	**0.208 (0.076)**	**0.511 (0.09)**	ND (0.075)	0.084 (0.082)	**1.01 (0.082)**	**1.28 (0.071)**	ND (0.071)	**0.275 (0.093)**
Nickel	30	87	10.3 (2.15)	6.84 (2.19)	10.8 (1.99)	NA	8.9 J (2.41)	10.3 (2.09)	6.73 (2.09)	NA
Zinc	109	1300	43.6 (4.29)	43.6 (4.39)	29.3 (3.98)	NA	66.9 (4.82)	82 (4.18)	13.6 (4.18)	NA

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Boldfaced concentrations exceed the Unrestricted Use Soil Cleanup Objectives.
5 Boldfaced, gray-shaded concentrations exceed the Residential Soil Cleanup Objectives.

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Table 2b
Soil Analytical Results Exceedances Summary (Eastern Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location			H13	H13	H14	H14	H14	H14	H14	H14
Field Sample ID			H13R-1.5-2	H13R-1-1.5	H14_0.2-2	H14_0-0.2	H14_2-4	H14R-0.5-1	H14R-1.5-2	H14R-1-1.5
Collection Depth (ft bgs)	Unrestricted Use	Residential	1.5 - 2	1 - 1.5	0.2 - 2	0 - 0.2	2 - 4	0.5 - 1	1.5 - 2	1 - 1.5
Sampler	SCO	SCO	Carson Voci	Carson Voci	Roux	Roux	Roux	Carson Voci	Carson Voci	Carson Voci
Sample Date			2/8/2025	2/8/2025	6/25/2024	6/25/2024	6/25/2024	2/8/2025	2/8/2025	2/8/2025
Comments										
Volatile Organic Compounds										
Acetone	0.03	100	NA	NA	ND (0.012)	NA	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides										
alpha-Chlordane	0.014	0.14	NA	NA	0.00144 JIP (0.00222)	**0.0393 IP (0.0023)**	ND (0.0022)	**0.0306 (0.00222)**	NA	NA
4,4'-DDD	0.0033	1.2	NA	NA	ND (0.00177)	ND (0.00184)	ND (0.00176)	ND (0.00178)	NA	NA
4,4'-DDE	0.0033	0.78	ND (0.002)	**0.00426 (0.00182)**	**0.00442 IP (0.00177)**	**0.0809 (0.00184)**	ND (0.00176)	**0.392 (0.0178)**	**0.073 (0.0016)**	**0.251 (0.00166)**
4,4'-DDT	0.0033	0.78	NA	ND (0.00182)	0.00143 J (0.00177)	**0.0368 (0.00184)**	ND (0.00176)	**0.262 (0.0178)**	**0.0193 (0.0016)**	**0.0488 (0.00166)**
Dieldrin	0.005	0.017	NA	NA	0.00221 (0.00111)	**0.0668 (0.00115)**	ND (0.0011)	**0.246 (0.0111)**	**0.0416 (0.000997)**	**0.121 (0.00104)**
Heptachlor epoxide	0.013	0.12	NA	NA	0.00173 J (0.00333)	**0.0536 (0.00344)**	ND (0.0033)	**0.0581 P (0.00334)**	NA	**0.0311 (0.0031)**
Metals										
Arsenic	13	16	NA	12 (0.938)	6.66 (0.879)	**139 (0.915)**	NA	NA	NA	NA
Chromium III	30	30	NA	NA	24.7415 (0.879)	**52.728 (0.915)**	NA	NA	NA	NA
Lead	63	400	NA	32.7 (4.69)	8.17 (4.4)	**86.8 (4.58)**	NA	NA	NA	NA
Mercury	0.18	0.3	NA	0.078 (0.077)	0.114 (0.073)	**0.731 (0.076)**	NA	NA	NA	NA
Nickel	30	87	NA	NA	15.3 (2.2)	14.9 (2.29)	NA	NA	NA	NA
Zinc	109	1300	NA	NA	73 (4.4)	**294 (4.58)**	NA	NA	NA	NA

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Boldfaced concentrations exceed the Unrestricted Use Soil Cleanup Objectives.
5 Boldfaced, gray-shaded concentrations exceed the Residential Soil Cleanup Objectives.

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Table 2b
Soil Analytical Results Exceedances Summary (Eastern Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location			H15	H15	I12	I12	I12	I12	I12	I12
Field Sample ID			H15_0.2-2	H15_0-0.2	I12_0.2-2	I12_0-0.2	I12_2-4	I12R-0.5-1	I12R-1.5-2	I12R-1-1.5
Collection Depth (ft bgs)	Unrestricted Use	Residential	0.2 - 2	0 - 0.2	0.2 - 2	0 - 0.2	2 - 4	0.5 - 1	1.5 - 2	1 - 1.5
Sampler	SCO	SCO	Roux	Roux	Roux	Roux	Roux	Carson Voci	Carson Voci	Carson Voci
Sample Date			6/25/2024	6/25/2024	6/28/2024	6/28/2024	6/28/2024	2/3/2025	2/3/2025	2/3/2025
Comments										
Volatile Organic Compounds										
Acetone	0.03	100	ND (0.016)	NA	ND (0.022)	NA	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides										
alpha-Chlordane	0.014	0.14	0.00251 IP (0.00217)	ND (0.00211)	**0.0189 J (0.00229)**	**0.028 IP (0.00232)**	ND (0.00212)	0.00965 J (0.00223)	NA	NA
4,4'-DDD	0.0033	1.2	ND (0.00169)	ND (0.00174)	ND (0.00183)	ND (0.00186)	ND (0.0017)	ND (0.00178)	NA	NA
4,4'-DDE	0.0033	0.78	0.00259 (0.00169)	**0.0497 (0.00174)**	**0.0622 (0.00183)**	**0.0952 (0.00186)**	**0.00674 J (0.0017)**	**0.068 (0.00178)**	**0.0284 (0.0018)**	**0.0374 (0.00181)**
4,4'-DDT	0.0033	0.78	ND (0.00169)	**0.0195 (0.00174)**	**0.0156 (0.00183)**	**0.0238 (0.00186)**	0.0024 J (0.0017)	**0.00662 J (0.00178)**	**0.00813 (0.0018)**	**0.00883 (0.00181)**
Dieldrin	0.005	0.017	ND (0.00106)	**0.00883 (0.00109)**	**0.154 (0.00114)**	**0.248 (0.00116)**	**0.0073 J (0.00106)**	**0.258 (0.00112)**	**0.0312 (0.00113)**	**0.0633 (0.00113)**
Heptachlor epoxide	0.013	0.12	ND (0.00316)	0.00174 J (0.00326)	**0.0229 (0.00344)**	**0.0416 (0.00348)**	0.001 NJ (0.00318)	ND (0.00335)	NA	NA
Metals										
Arsenic	13	16	3.05 (0.841)	**17.5 (0.858)**	**77.7 (0.895)**	**150 (0.948)**	3.99 (0.889)	**67 (0.922)**	NA	12.7 (0.912)
Chromium III	30	30	23.865 (0.841)	27.4435 (0.858)	**46.5315 (0.895)**	**69.424 (0.948)**	NA	**30.3295 (0.922)**	NA	NA
Lead	63	400	7.49 (4.2)	**64.6 (4.29)**	**72 (4.48)**	**120 (4.74)**	6.41 (4.45)	22.2 (4.61)	NA	NA
Mercury	0.18	0.3	0.086 (0.069)	**1.06 (0.073)**	**0.545 (0.078)**	**1.16 (0.092)**	0.048 J (0.071)	**0.336 (0.086)**	ND (0.084)	**0.282 (0.091)**
Nickel	30	87	15.1 (2.1)	13.7 (2.14)	9.27 (2.24)	13.2 (2.37)	14 (2.22)	NA	NA	NA
Zinc	109	1300	35.6 (4.2)	62.8 (4.29)	43.4 (4.48)	62.9 (4.74)	29.6 (4.45)	NA	NA	NA

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the *6 NYCRR PART 375-6 Environmental Remediation Programs* (NYSDEC 2023).
4 Boldfaced concentrations exceed the Unrestricted Use Soil Cleanup Objectives.
5 Boldfaced, gray-shaded concentrations exceed the Residential Soil Cleanup Objectives.

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Table 2b
Soil Analytical Results Exceedances Summary (Eastern Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location			I12	I12	I12	I12	I13	I13	I13	I13
Field Sample ID			I12R-2.5-3	I12R-2-2.5	I12R-3.5-4	I12R-3-3.5	I13_0.2-2	I13_0-0.2	I13_2-4	I13R-0.5-1
Collection Depth (ft bgs)	Unrestricted Use	Residential	2.5 - 3	2 - 2.5	3.5 - 4	3 - 3.5	0.2 - 2	0 - 0.2	2 - 4	0.5 - 1
Sampler	SCO	SCO	Carson Voci	Carson Voci	Carson Voci	Carson Voci	Roux	Roux	Roux	Carson Voci
Sample Date			2/3/2025	2/3/2025	2/3/2025	2/3/2025	6/28/2024	6/28/2024	6/28/2024	2/3/2025
Comments										
Volatile Organic Compounds										
Acetone	0.03	100	NA	NA	NA	NA	ND (0.018)	NA	NA	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides										
alpha-Chlordane	0.014	0.14	NA	NA	NA	NA	**0.0334 IP (0.00276)**	**0.0376 IP (0.00257)**	ND (0.00219)	**0.065 J (0.00239)**
4,4'-DDD	0.0033	1.2	NA	NA	NA	NA	ND (0.00221)	ND (0.00206)	ND (0.00175)	**0.0844 J (0.00191)**
4,4'-DDE	0.0033	0.78	ND (0.00168)	0.00129 J (0.00168)	ND (0.00174)	ND (0.00168)	**0.216 (0.00221)**	**0.286 (0.00206)**	ND (0.00175)	**3.88 J (0.0956)**
4,4'-DDT	0.0033	0.78	NA	ND (0.00168)	NA	NA	**0.0689 (0.00221)**	**0.0792 (0.00206)**	ND (0.00175)	**13.1 J (0.0956)**
Dieldrin	0.005	0.017	0.000717 J (0.00105)	0.00239 (0.00105)	ND (0.00109)	ND (0.00105)	**0.451 (0.0069)**	**0.524 (0.00644)**	ND (0.00109)	**0.826 J (0.0598)**
Heptachlor epoxide	0.013	0.12	NA	NA	NA	NA	**0.075 (0.00414)**	**0.0994 (0.00386)**	ND (0.00328)	**0.125 J (0.00359)**
Metals										
Arsenic	13	16	NA	NA	NA	NA	**134 (1.09)**	**193 (1.01)**	5.99 (0.865)	**138 (0.952)**
Chromium III	30	30	NA	NA	NA	NA	**82.63 (1.09)**	**96.08 (1.01)**	NA	**77.695 J (0.952)**
Lead	63	400	NA	NA	NA	NA	**144 (5.46)**	**203 (5.05)**	5.65 (4.33)	**106 (4.76)**
Mercury	0.18	0.3	NA	NA	NA	NA	**0.794 (0.106)**	**1.09 (0.083)**	ND (0.072)	**0.734 (0.088)**
Nickel	30	87	NA	NA	NA	NA	28.3 (2.73)	16.8 (2.52)	**110 (2.16)**	NA
Zinc	109	1300	NA	NA	NA	NA	68.5 (5.46)	86.4 (5.05)	33.9 (4.33)	NA

Notes:

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4 Boldfaced concentrations exceed the Unrestricted Use Soil Cleanup Objectives.
5 Boldfaced, gray-shaded concentrations exceed the Residential Soil Cleanup Objectives.

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Table 2b
Soil Analytical Results Exceedances Summary (Eastern Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location			I13	I13	I13	I13	I13	I13	I14	I14
Field Sample ID			I13R-1.5-2	I13R-1-1.5	I13R-2.5-3	I13R-2-2.5	I13R-3.5-4	I13R-3-3.5	I14_0.2-2	I14_0-0.2
Collection Depth (ft bgs)	Unrestricted Use	Residential	1.5 - 2	1 - 1.5	2.5 - 3	2 - 2.5	3.5 - 4	3 - 3.5	0.2 - 2	0 - 0.2
Sampler	SCO	SCO	Carson Voci	Carson Voci	Carson Voci	Carson Voci	Carson Voci	Carson Voci	Roux	Roux
Sample Date			2/3/2025	2/3/2025	2/3/2025	2/3/2025	2/3/2025	2/3/2025	6/28/2024	6/28/2024
Comments										
Volatile Organic Compounds										
Acetone	0.03	100	NA	NA	NA	NA	NA	NA	ND (0.014)	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides										
alpha-Chlordane	0.014	0.14	NA	NA	NA	NA	NA	NA	ND (0.00207)	ND (0.00222)
4,4'-DDD	0.0033	1.2	ND (0.00182)	**0.0378 (0.00191)**	NA	NA	NA	NA	ND (0.00166)	ND (0.00178)
4,4'-DDE	0.0033	0.78	**0.209 (0.00182)**	**1.82 (0.0956)**	NA	NA	NA	NA	**0.00379 (0.00166)**	**0.0551 (0.00178)**
4,4'-DDT	0.0033	0.78	**0.0979 (0.00182)**	**2.02 (0.0956)**	NA	NA	NA	NA	ND (0.00166)	**0.01 (0.00178)**
Dieldrin	0.005	0.017	**0.0333 (0.00114)**	**0.473 (0.0597)**	NA	NA	NA	NA	ND (0.00104)	0.0018 (0.00111)
Heptachlor epoxide	0.013	0.12	0.00483 (0.00342)	**0.0874 (0.00358)**	NA	NA	NA	NA	ND (0.0031)	ND (0.00334)
Metals										
Arsenic	13	16	8.78 (0.908)	**154 (0.916)**	NA	NA	NA	NA	4.34 (0.845)	**34.7 (0.901)**
Chromium III	30	30	25.023 (0.908)	**69.797 J (0.916)**	NA	NA	NA	NA	16.9665 (0.845)	20.0315 (0.901)
Lead	63	400	12.2 (4.54)	**93.1 (4.58)**	NA	NA	NA	NA	9.8 (4.22)	**105 (4.5)**
Mercury	0.18	0.3	0.067 J (0.087)	**0.658 (0.091)**	NA	NA	NA	NA	ND (0.082)	0.135 (0.083)
Nickel	30	87	NA	NA	14.5 (2.22)	13.1 (2.25)	14.8 (2.29)	17.6 (2.22)	19.2 (2.11)	11.4 (2.25)
Zinc	109	1300	NA	NA	NA	NA	NA	NA	34.1 (4.22)	40 (4.5)

Notes:

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Table 2b
Soil Analytical Results Exceedances Summary (Eastern Parcel)
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location			I14	I14	I14	I14	I15	I15	I15	I15
Field Sample ID			I14_2-4	I14R-0.5-1	I14R-1.5-2	I14R-1-1.5	I15_0.2-2	I15_0-0.2	I15_6-8	I15-0-0.2
Collection Depth (ft bgs)	Unrestricted Use	Residential	2 - 4	0.5 - 1	1.5 - 2	1 - 1.5	0.2 - 2	0 - 0.2	6 - 8	0 - 0.2
Sampler	SCO	SCO	Roux	Carson Voci	Carson Voci	Carson Voci	Roux	Roux	Roux	Carson Voci
Sample Date			6/28/2024	2/8/2025	2/8/2025	2/8/2025	5/22/2024	5/22/2024	5/22/2024	4/30/2025
Comments										
Volatile Organic Compounds										
Acetone	0.03	100	NA	NA	NA	NA	0.0065 J (0.012)	NA	ND (0.0091)	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	ND (0.0002)	NA	ND (0.0002)	**0.000989 (0.0002)**
Pesticides										
alpha-Chlordane	0.014	0.14	ND (0.00222)	ND (0.00241)	NA	NA	ND (0.0022)	0.00299 IP (0.00242)	ND (0.0022)	
4,4'-DDD	0.0033	1.2	ND (0.00177)	ND (0.00193)	NA	NA	ND (0.00176)	ND (0.00193)	ND (0.00176)	NA
4,4'-DDE	0.0033	0.78	ND (0.00177)	**0.0886 (0.00193)**	**0.006 (0.00197)**	**0.0188 (0.00192)**	0.00186 (0.00176)	**0.012 (0.00193)**	ND (0.00176)	NA
4,4'-DDT	0.0033	0.78	ND (0.00177)	**0.018 (0.00193)**	NA	**0.00345 (0.00192)**	ND (0.00176)	0.00265 IP (0.00193)	ND (0.00176)	NA
Dieldrin	0.005	0.017	ND (0.00111)	ND (0.0012)	NA	NA	ND (0.0011)	0.00209 (0.00121)	ND (0.0011)	NA
Heptachlor epoxide	0.013	0.12	ND (0.00333)	ND (0.00362)	NA	NA	ND (0.0033)	0.00259 J (0.00363)	ND (0.00331)	NA
Metals										
Arsenic	13	16	NA	NA	NA	NA	4.42 (0.896)	**36.1 (0.982)**	1.54 (0.877)	NA
Chromium III	30	30	NA	NA	NA	NA	21.932 (0.896)	28.001 (0.982)	11.337 (0.877)	NA
Lead	63	400	NA	NA	NA	NA	10.1 (4.48)	**125 (4.91)**	2.97 J (4.39)	NA
Mercury	0.18	0.3	NA	NA	NA	NA	ND (0.079)	0.159 (0.085)	NDJ (0.076)	NA
Nickel	30	87	NA	NA	NA	NA	14.1 (2.24)	13.5 (2.46)	9.43 (2.19)	NA
Zinc	109	1300	NA	NA	NA	NA	29.8 (4.48)	54.9 (4.91)	23.2 (4.39)	NA

Notes:

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4 Boldfaced concentrations exceed the Unrestricted Use Soil Cleanup Objectives.
5 Boldfaced, gray-shaded concentrations exceed the Residential Soil Cleanup Objectives.

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Table 2c
Limited Delineation Soil Analytical Results Exceedances Summary
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location			A04	A04	A04	A04	A04	A04	A04	A04
AOI			Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel
Field Sample ID	Unrestricted Use	Residential	A4_0-0.2	A04-0-0.2	A4_0.2-2	A04R-0.5-1	A04R-1-1.5	A04R-1.5-2	A4_2-4	A04R-2-4
Collection Depth (ft bgs)	SCO	SCO	0 - 0.2	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5	1.5 - 2	2 - 4	2 - 4
Sampler			Roux	Carson Voci	Roux	Carson Voci	Carson Voci	Carson Voci	Roux	Carson Voci
Sample Date			5/22/2024	4/30/2025	5/22/2024	2/4/2025	2/4/2025	2/4/2025	5/22/2024	2/4/2025
Comments										
Volatile Organic Compounds										
Acetone	0.03	100	NA	NA	ND (0.014)	NA	NA	NA	NA	NA
Semivolatile Organic Compounds										
Benzo(a)anthracene	1	1	NA	NA	0.022 J (0.11)	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	1	NA	NA	ND (0.15)	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1	NA	NA	ND (0.11)	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	NA	NA	ND (0.15)	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	NA	NA	ND (0.11)	NA	NA	NA	NA	NA
Chrysene	1	1.2	NA	NA	0.02 J (0.11)	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	NA	NA	ND (0.11)	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	NA	NA	ND (0.15)	NA	NA	NA	NA	NA
Phenanthrene	1.1	1.2	NA	NA	ND (0.11)	NA	NA	NA	NA	NA
Polychlorinated Biphenyls										
PCBs (total)	0.1	1	NA	NA	ND (0.0575)	NA	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	**0.00105 (0.000199)**	**0.00105 (0.0002)**	NA	NA	NA	NA	0.000094 J (0.000199)
Pesticides										
Chlordane (total)	--	--	0.00775 J (0.00234)	NA	0.00731 J (0.00223)	NA	NA	NA	ND (0.00208)	NA
alpha-Chlordane	0.014	0.14	0.00431 IP (0.00234)	NA	0.00494 IP (0.00223)	NA	NA	NA	ND (0.00208)	NA
4,4'-DDD	0.0033	1.2	0.00137 J (0.00187)	NA	0.0013 J (0.00178)	NA	NA	NA	ND (0.00166)	NA
4,4'-DDE	0.0033	0.78	**0.0943 (0.00187)**	NA	**0.0964 (0.00178)**	NA	NA	NA	ND (0.00166)	NA
4,4'-DDT	0.0033	0.78	**0.0306 (0.00187)**	NA	**0.027 (0.00178)**	NA	NA	NA	ND (0.00166)	NA
Dieldrin	0.005	0.017	0.00372 (0.00117)	NA	0.00461 (0.00111)	NA	NA	NA	ND (0.00104)	NA
Heptachlor epoxide	0.013	0.12	0.00354 (0.00351)	NA	0.00407 (0.00334)	NA	NA	NA	ND (0.00312)	NA
Metals										
Arsenic	13	16	**22 (0.936)**	NA	**17.7 (0.92)**	**19 (0.968)**	**16.6 (0.996)**	NA	2.4 (0.832)	NA
Lead	63	400	**79.2 (4.68)**	NA	**63.2 (4.6)**	NA	NA	NA	4.71 (4.16)	NA
Mercury	0.18	0.3	**3.14 (0.082)**	NA	**2.77 (0.074)**	**4.05 (0.486)**	**3.9 (0.105)**	**2.57 (0.077)**	ND (0.07)	NA
Zinc	109	1300	71.4 (4.68)	NA	61.9 (4.6)	NA	NA	NA	45.1 (4.16)	NA

Notes:
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4 Boldfaced concentrations exceed the Unrestricted Use SCO.
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Volatile Organic Compounds										
Acetone	0.03	100	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds										
Benzo(a)anthracene	1	1	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	1	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1.2	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	1.1	1.2	NA	NA	NA	NA	NA	NA	NA	NA
Polychlorinated Biphenyls										
PCBs (total)	0.1	1	NA	NA	NA	NA	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides										
Chlordane (total)	--	--	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	0.014	0.14	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	0.0033	1.2	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	0.0033	0.78	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	0.0033	0.78	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	0.005	0.017	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	0.013	0.12	NA	NA	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	13	16	**19.8 (0.832)**	3.58 (0.848)	**22.8 (1.21)**	**16.4 (0.897)**	13 (0.899)	4.51 (0.862)	10.5 (0.909)	8.73 (0.91)
Lead	63	400	**71.1 (4.16)**	10.8 (4.24)	57.3 (6.07)	42.6 (4.48)	41 (4.49)	14.2 (4.31)	23.8 (4.55)	28.2 (4.55)
Mercury	0.18	0.3	**2.62 (0.086)**	**0.2 (0.09)**	**6.37 (0.255)**	**2.89 (0.094)**	**2.72 (0.097)**	**0.227 (0.088)**	**9.53 (0.89)**	**3.38 (0.15)**
Zinc	109	1300	76.4 (4.16)	41.1 (4.24)	69.5 (6.07)	48.6 (4.48)	54 (4.49)	53.5 (4.31)	60.8 (4.55)	69.3 (4.55)

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Location AOI Field Sample ID Collection Depth (ft bgs) Sampler Sample Date Comments	Unrestricted Use SCO	Residential SCO	A04SS Western Parcel A04SS-1.5-2 1.5 - 2 Carson Voci 6/27/2025	A04W Western Parcel A04W-1-1.5 1 - 1.5 Carson Voci 6/26/2025	A04W Western Parcel A04W-1.5-2 1.5 - 2 Carson Voci 6/26/2025	A13 Western Parcel A13_0-0.2 0 - 0.2 Roux 5/23/2024	A13 Western Parcel A13-0-0.2 0 - 0.2 Carson Voci 4/30/2025	A13 Western Parcel A13_0.2-2 0.2 - 2 Roux 5/23/2024	A13 Western Parcel A13_2-4 2 - 4 Roux 5/23/2024	A13 Western Parcel A13R-2-2.5 2 - 2.5 Carson Voci 2/7/2025
Volatile Organic Compounds										
Acetone	0.03	100	NA	NA	NA	NA	NA	ND (0.012)	NA	NA
Semivolatile Organic Compounds										
Benzo(a)anthracene	1	1	NA	NA	NA	NA	NA	ND (0.12)	NA	NA
Benzo(a)pyrene	1	1	NA	NA	NA	NA	NA	ND (0.15)	NA	NA
Benzo(b)fluoranthene	1	1	NA	NA	NA	NA	NA	ND (0.12)	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	NA	NA	NA	NA	NA	ND (0.15)	NA	NA
Benzo(k)fluoranthene	0.8	1.2	NA	NA	NA	NA	NA	ND (0.12)	NA	NA
Chrysene	1	1.2	NA	NA	NA	NA	NA	ND (0.12)	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	NA	NA	NA	NA	NA	ND (0.12)	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	NA	NA	NA	NA	NA	ND (0.15)	NA	NA
Phenanthrene	1.1	1.2	NA	NA	NA	NA	NA	ND (0.12)	NA	NA
Polychlorinated Biphenyls										
PCBs (total)	0.1	1	NA	NA	NA	NA	NA	ND (0.0554)	NA	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	0.000586 (0.0002)	0.000702 (0.000187)	NA	NA
Pesticides										
Chlordane (total)	--	--	NA	NA	NA	0.00786 J (0.00278)	NA	0.00271 J (0.00226)	ND (0.00215)	0.01657 J (0.0022)
alpha-Chlordane	0.014	0.14	NA	NA	NA	0.00382 IP (0.00278)	NA	0.00134 JIP (0.00226)	ND (0.00215)	0.00769 IP (0.0022)
4,4'-DDD	0.0033	1.2	NA	NA	NA	ND (0.00222)	NA	ND (0.00181)	ND (0.00172)	**0.00592 (0.00176)**
4,4'-DDE	0.0033	0.78	NA	NA	NA	**0.0287 (0.00222)**	NA	**0.0364 (0.00181)**	**0.00365 (0.00172)**	**0.00495 (0.00176)**
4,4'-DDT	0.0033	0.78	NA	NA	NA	**0.0168 (0.00222)**	NA	**0.014 (0.00181)**	0.00209 (0.00172)	ND (0.00176)
Dieldrin	0.005	0.017	NA	NA	NA	**0.0479 (0.00139)**	NA	**0.0182 (0.00113)**	ND (0.00107)	ND (0.0011)
Heptachlor epoxide	0.013	0.12	NA	NA	NA	0.00267 JIP (0.00417)	NA	0.00144 J (0.0034)	ND (0.00322)	ND (0.0033)
Metals										
Arsenic	13	16	NA	3.39 (0.849)	3.59 (0.867)	**17.7 (1.08)**	NA	11.6 (0.903)	3.93 (0.843)	NA
Lead	63	400	NA	13.6 (4.25)	12.8 (4.34)	49.8 (5.41)	NA	35.1 (4.51)	9.34 (4.21)	NA
Mercury	0.18	0.3	ND (0.079)	**0.562 (0.084)**	**0.251 (0.085)**	**1.06 (0.114)**	NA	**0.75 (0.086)**	**3.15 (0.082)**	0.136 (0.08)
Zinc	109	1300	NA	38.3 (4.25)	49.4 (4.34)	57.7 (5.41)	NA	57.3 (4.51)	36.3 (4.21)	NA

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Volatile Organic Compounds										
Acetone	0.03	100	NA	NA	NA	NA	0.0074 J (0.01)	NA	NA	NA
Semivolatile Organic Compounds										
Benzo(a)anthracene	1	1	NA	NA	NA	NA	ND (0.11)	NA	NA	NA
Benzo(a)pyrene	1	1	NA	NA	NA	NA	ND (0.15)	NA	NA	NA
Benzo(b)fluoranthene	1	1	NA	NA	NA	NA	ND (0.11)	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	NA	NA	NA	NA	ND (0.15)	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	NA	NA	NA	NA	ND (0.11)	NA	NA	NA
Chrysene	1	1.2	NA	NA	NA	NA	ND (0.11)	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	NA	NA	NA	NA	ND (0.11)	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	NA	NA	NA	NA	ND (0.15)	NA	NA	NA
Phenanthrene	1.1	1.2	NA	NA	NA	NA	ND (0.11)	NA	NA	NA
Polychlorinated Biphenyls										
PCBs (total)	0.1	1	NA	NA	NA	NA	ND (0.0541)	NA	NA	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	ND (0.00019)	NA	NA	NA
Pesticides										
Chlordane (total)	--	--	NA	NA	NA	ND (0.00224)	ND (0.00216)	NA	NA	NA
alpha-Chlordane	0.014	0.14	NA	NA	NA	ND (0.00224)	ND (0.00216)	NA	NA	NA
4,4'-DDD	0.0033	1.2	NA	NA	NA	ND (0.0018)	ND (0.00173)	NA	NA	NA
4,4'-DDE	0.0033	0.78	NA	NA	NA	ND (0.0018)	ND (0.00173)	NA	NA	NA
4,4'-DDT	0.0033	0.78	NA	NA	NA	ND (0.0018)	ND (0.00173)	NA	NA	NA
Dieldrin	0.005	0.017	NA	NA	NA	ND (0.00112)	ND (0.00108)	NA	NA	NA
Heptachlor epoxide	0.013	0.12	NA	NA	NA	ND (0.00337)	ND (0.00324)	NA	NA	NA
Metals										
Arsenic	13	16	NA	NA	NA	2.06 (0.896)	2.1 (0.869)	NA	NA	6.29 (0.917)
Lead	63	400	NA	NA	NA	4.97 (4.48)	5.46 (4.34)	NA	NA	21.9 (4.58)
Mercury	0.18	0.3	0.061 J (0.08)	**1.5 (0.102)**	ND (0.08)	**0.297 (0.073)**	NDJ (0.083)	ND (0.087)	ND (0.089)	**0.713 (0.087)**
Zinc	109	1300	NA	NA	NA	41.2 (4.48)	40.5 (4.34)	NA	NA	40.7 (4.58)

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Volatile Organic Compounds										
Acetone	0.03	100	NA	NA	NA	NA	NA	ND (0.015)	NA	NA
Semivolatile Organic Compounds										
Benzo(a)anthracene	1	1	NA	NA	NA	NA	NA	**15 (0.51)**	NA	ND (0.11)
Benzo(a)pyrene	1	1	NA	NA	NA	NA	NA	**16 (0.68)**	NA	ND (0.15)
Benzo(b)fluoranthene	1	1	NA	NA	NA	NA	NA	**20 (0.51)**	NA	ND (0.11)
Benzo(g,h,i)perylene	0.64	1.2	NA	NA	NA	NA	NA	**8.8 (0.68)**	NA	ND (0.15)
Benzo(k)fluoranthene	0.8	1.2	NA	NA	NA	NA	NA	**5.6 (0.51)**	NA	ND (0.11)
Chrysene	1	1.2	NA	NA	NA	NA	NA	**14 (0.51)**	NA	ND (0.11)
Dibenz(a,h)anthracene	0.33	0.33	NA	NA	NA	NA	NA	**2.2 (0.51)**	NA	ND (0.11)
Indeno(1,2,3-cd)pyrene	0.5	0.5	NA	NA	NA	NA	NA	**9.3 (0.68)**	NA	ND (0.15)
Phenanthrene	1.1	1.2	NA	NA	NA	NA	NA	**14 (0.51)**	NA	ND (0.11)
Polychlorinated Biphenyls										
PCBs (total)	0.1	1	NA	NA	NA	NA	NA	**3.69 (1.04)**	**0.242 (0.0564)**	ND (0.0568)
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides										
Chlordane (total)	--	--	NA	NA	NA	NA	0.01342 J (0.00204)	0.00889 J (0.00206)	NA	NA
alpha-Chlordane	0.014	0.14	NA	NA	NA	NA	0.0124 (0.00204)	0.00786 (0.00206)	NA	NA
4,4'-DDD	0.0033	1.2	NA	NA	NA	NA	ND (0.00164)	ND (0.00165)	NA	NA
4,4'-DDE	0.0033	0.78	NA	NA	NA	NA	ND (0.00164)	ND (0.00165)	NA	NA
4,4'-DDT	0.0033	0.78	NA	NA	NA	NA	ND (0.00164)	ND (0.00165)	NA	NA
Dieldrin	0.005	0.017	NA	NA	NA	NA	ND (0.00102)	ND (0.00103)	NA	NA
Heptachlor epoxide	0.013	0.12	NA	NA	NA	NA	ND (0.00307)	ND (0.00309)	NA	NA
Metals										
Arsenic	13	16	0.742 J (0.873)	3.44 (0.854)	3.11 (0.935)	NA	5.08 (0.804)	4.7 (0.785)	NA	NA
Lead	63	400	7.53 (4.37)	8.27 (4.27)	8.38 (4.68)	NA	**114 (4.02)**	**91.9 (3.92)**	NA	NA
Mercury	0.18	0.3	ND (0.091)	**1.05 (0.091)**	ND (0.087)	ND (0.093)	**0.257 (0.073)**	**0.236 (0.067)**	NA	NA
Zinc	109	1300	55.5 (4.37)	20.3 (4.27)	38.3 (4.68)	NA	**144 (4.02)**	**136 (3.92)**	NA	NA

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Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location			F02	F13	F13	F13	F13	F13	F13	F13	F13
AOI			Western Parcel	Eastern Parcel	Eastern Parcel	Eastern Parcel	Eastern Parcel	Eastern Parcel	Eastern Parcel	Eastern Parcel	Eastern Parcel
Field Sample ID	Unrestricted Use SCO	Residential SCO	F2_2-4	F13_0-0.2	F13_0.2-2	F13R-0.5-1	F13R-1-1.5	F13R-1.5-2	F13_2-4	F13R-2-4	
Collection Depth (ft bgs)			2 - 4	0 - 0.2	0.2 - 2	0.5 - 1	1 - 1.5	1.5 - 2	2 - 4	2 - 4	
Sampler			Roux	Roux	Roux	Carson Voci	Carson Voci	Carson Voci	Roux	Carson Voci	
Sample Date			6/21/2024	6/19/2024	6/19/2024	2/3/2025	6/26/2025	6/26/2025	6/19/2024	2/3/2025	
Comments											
Volatile Organic Compounds											
Acetone	0.03	100	NA	NA	**0.11 (0.012)**	NA	NA	NA	NA	NA	
Semivolatile Organic Compounds											
Benzo(a)anthracene	1	1	NA	NA	ND (0.12)	NA	NA	NA	NA	NA	
Benzo(a)pyrene	1	1	NA	NA	ND (0.16)	NA	NA	NA	NA	NA	
Benzo(b)fluoranthene	1	1	NA	NA	ND (0.12)	NA	NA	NA	NA	NA	
Benzo(g,h,i)perylene	0.64	1.2	NA	NA	ND (0.16)	NA	NA	NA	NA	NA	
Benzo(k)fluoranthene	0.8	1.2	NA	NA	ND (0.12)	NA	NA	NA	NA	NA	
Chrysene	1	1.2	NA	NA	ND (0.12)	NA	NA	NA	NA	NA	
Dibenz(a,h)anthracene	0.33	0.33	NA	NA	ND (0.12)	NA	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	0.5	0.5	NA	NA	ND (0.16)	NA	NA	NA	NA	NA	
Phenanthrene	1.1	1.2	NA	NA	ND (0.12)	NA	NA	NA	NA	NA	
Polychlorinated Biphenyls											
PCBs (total)	0.1	1	NA	NA	ND (0.0549)	NA	NA	NA	NA	NA	
Per-and Polyfluoroalkyl Substances											
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	NA	NA	NA	NA	
Pesticides											
Chlordane (total)	--	--	NA	0.405 J (0.00227)	0.0619 J (0.00222)	0.274 J (0.00208)	0.0616 J (0.00231)	0.0085 J (0.00218)	0.0243 J (0.0024)	0.1501 J (0.00247)	
alpha-Chlordane	0.014	0.14	NA	**0.208 IP (0.00227)**	**0.0345 (0.00222)**	**0.126 IP (0.00208)**	**0.0374 IP (0.00231)**	0.00498 IP (0.00218)	**0.0142 P (0.0024)**	**0.0676 IP (0.00247)**	
4,4'-DDD	0.0033	1.2	NA	**0.0174 (0.00181)**	0.00186 (0.00178)	ND (0.00166)	ND (0.00185)	ND (0.00174)	0.000793 JP (0.00192)	ND (0.00198)	
4,4'-DDE	0.0033	0.78	NA	**0.0329 (0.00181)**	**0.004 (0.00178)**	**0.0362 (0.00166)**	**0.00891 (0.00185)**	0.00202 (0.00174)	ND (0.00192)	0.00307 (0.00198)	
4,4'-DDT	0.0033	0.78	NA	**0.0166 (0.00181)**	ND (0.00178)	**0.0229 (0.00166)**	0.00317 (0.00185)	ND (0.00174)	ND (0.00192)	ND (0.00198)	
Dieldrin	0.005	0.017	NA	**0.0141 (0.00113)**	0.00117 (0.00111)	**0.00587 (0.00104)**	**0.0464 (0.00115)**	**0.006 (0.00109)**	**0.00646 P (0.0012)**	ND (0.00123)	
Heptachlor epoxide	0.013	0.12	NA	**0.12 (0.0034)**	ND (0.00333)	**0.186 (0.00312)**	**0.0228 (0.00346)**	0.00394 (0.00327)	ND (0.0036)	ND (0.0037)	
Metals											
Arsenic	13	16	2.49 (0.864)	**19.3 (0.88)**	9.56 (0.907)	NA	NA	NA	NA	NA	
Lead	63	400	19 (4.32)	**68.4 (4.4)**	34.1 (4.54)	NA	NA	NA	NA	NA	
Mercury	0.18	0.3	ND (0.07)	**3.91 (0.147)**	0.15 (0.074)	NA	NA	NA	NA	NA	
Zinc	109	1300	55 (4.32)	55.9 (4.4)	49.2 (4.54)	NA	NA	NA	NA	NA	

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the 6 NYCRR PART 375-6 Environmental Remediation Programs (NYSDEC 2023).
4 Boldfaced concentrations exceed the Unrestricted Use SCO.
5 Boldfaced, gray-shaded concentrations exceed the Residential SCO.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2c
Limited Delineation Soil Analytical Results Exceedances Summary
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location AOI Field Sample ID Collection Depth (ft bgs) Sampler Sample Date Comments	Unrestricted Use SCO	Residential SCO	F13 Eastern Parcel F13R-2-2.5 2 - 2.5 Carson Voci 6/26/2025	F13 Eastern Parcel F13R-2.5-3 2.5 - 3 Carson Voci 6/26/2025	F13 Eastern Parcel F13R-3-3.5 3 - 3.5 Carson Voci 6/26/2025	F13 Eastern Parcel F13R-3.5-4 3.5 - 4 Carson Voci 6/26/2025	F13 Eastern Parcel F13_4-6 4 - 6 Roux 6/19/2024	F13 Eastern Parcel F13R-4-6 4 - 6 Carson Voci 2/3/2025	F13 Eastern Parcel F13R-4-4.5 4 - 4.5 Carson Voci 6/26/2025	F13 Eastern Parcel F13R-4.5-5 4.5 - 5 Carson Voci 6/26/2025
Volatile Organic Compounds										
Acetone	0.03	100	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds										
Benzo(a)anthracene	1	1	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	1	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1.2	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	1.1	1.2	NA	NA	NA	NA	NA	NA	NA	NA
Polychlorinated Biphenyls										
PCBs (total)	0.1	1	NA	NA	NA	NA	NA	NA	NA	NA
Per-and Polyfluoroalkyl Substances										
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides										
Chlordane (total)	--	--	ND (0.00221)	ND (0.00214)	ND (0.00225)	ND (0.00216)	0.0285 J (0.00225)	0.419 J (0.00272)	ND (0.00217)	ND (0.00238)
alpha-Chlordane	0.014	0.14	ND (0.00221)	ND (0.00214)	ND (0.00225)	ND (0.00216)	**0.0162 J (0.00225)**	**0.159 IP (0.00272)**	ND (0.00217)	ND (0.00238)
4,4'-DDD	0.0033	1.2	ND (0.00177)	ND (0.00171)	ND (0.0018)	ND (0.00173)	0.0011 J (0.0018)	**0.00864 (0.00217)**	ND (0.00173)	ND (0.0019)
4,4'-DDE	0.0033	0.78	ND (0.00177)	ND (0.00171)	ND (0.0018)	ND (0.00173)	0.00288 (0.0018)	**0.0182 (0.00217)**	ND (0.00173)	ND (0.0019)
4,4'-DDT	0.0033	0.78	ND (0.00177)	ND (0.00171)	ND (0.0018)	ND (0.00173)	ND (0.0018)	ND (0.00217)	ND (0.00173)	ND (0.0019)
Dieldrin	0.005	0.017	ND (0.00111)	ND (0.00107)	ND (0.00112)	ND (0.00108)	**0.0155 (0.00112)**	ND (0.00136)	ND (0.00108)	ND (0.00119)
Heptachlor epoxide	0.013	0.12	ND (0.00332)	ND (0.0032)	ND (0.00337)	ND (0.00324)	0.00263 J (0.00338)	ND (0.00408)	ND (0.00325)	ND (0.00357)
Metals										
Arsenic	13	16	NA	NA	NA	NA	NA	NA	NA	NA
Lead	63	400	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.18	0.3	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	109	1300	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the 6 NYCRR PART 375-6 Environmental Remediation Programs (NYSDEC 2023).
4 Boldfaced concentrations exceed the Unrestricted Use SCO.
5 Boldfaced, gray-shaded concentrations exceed the Residential SCO.

Abbreviations:
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NA - Not Analyzed
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J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 2c
Limited Delineation Soil Analytical Results Exceedances Summary
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location AOI Field Sample ID Collection Depth (ft bgs) Sampler Sample Date Comments	Unrestricted Use SCO	Residential SCO	F13 Eastern Parcel F13R-5-5.5 5 - 5.5 Carson Voci 6/26/2025	F13 Eastern Parcel F13R-5.5-6 5.5 - 6 Carson Voci 6/26/2025	F13 Eastern Parcel F13R-6-8 6 - 8 Carson Voci 2/3/2025
Volatile Organic Compounds					
Acetone	0.03	100	NA	NA	NA
Semivolatile Organic Compounds					
Benzo(a)anthracene	1	1	NA	NA	NA
Benzo(a)pyrene	1	1	NA	NA	NA
Benzo(b)fluoranthene	1	1	NA	NA	NA
Benzo(g,h,i)perylene	0.64	1.2	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.2	NA	NA	NA
Chrysene	1	1.2	NA	NA	NA
Dibenz(a,h)anthracene	0.33	0.33	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	0.5	NA	NA	NA
Phenanthrene	1.1	1.2	NA	NA	NA
Polychlorinated Biphenyls					
PCBs (total)	0.1	1	NA	NA	NA
Per-and Polyfluoroalkyl Substances					
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.0088	NA	NA	NA
Pesticides					
Chlordane (total)	--	--	ND (0.00249)	ND (0.0021)	ND (0.0151)
alpha-Chlordane	0.014	0.14	ND (0.00249)	ND (0.0021)	NA
4,4'-DDD	0.0033	1.2	ND (0.00199)	ND (0.00168)	ND (0.00182)
4,4'-DDE	0.0033	0.78	ND (0.00199)	ND (0.00168)	ND (0.00182)
4,4'-DDT	0.0033	0.78	ND (0.00199)	ND (0.00168)	NA
Dieldrin	0.005	0.017	ND (0.00124)	ND (0.00105)	NA
Heptachlor epoxide	0.013	0.12	ND (0.00373)	ND (0.00315)	NA
Metals					
Arsenic	13	16	NA	NA	NA
Lead	63	400	NA	NA	NA
Mercury	0.18	0.3	NA	NA	NA
Zinc	109	1300	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Soil Cleanup Objectives are shown.
3 The Soil Cleanup Objectives are from the 6 NYCRR PART 375-6 Environmental Remediation Programs (NYSDEC 2023).
4 Boldfaced concentrations exceed the Unrestricted Use SCO.
5 Boldfaced, gray-shaded concentrations exceed the Residential SCO.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No Published Standard or Guidance Value
J - Estimated Concentration
I - The lower value for the two columns has been reported due to obvious
P - The RPD between the results for the two columns exceeds the method-specified criteria

Table 3
Groundwater Monitoring Well Construction and Elevation
Elmwood Preserve - NYSDEC BCP Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Monitoring Well ID	Well Location	Well Diameter (inches)	Casing	Slot Size	Depth to Bottom (feet)	Screened Interval (feet)		Elevation (Feet NAVD 88)[1]				4/30/2025		
								Inner Casing	Ground Surface	Screen Top (feet NAVD 88)	Screen Bottom (feet NAVD 88)	DTW (feet)	Groundwater Elevation (feet NAVD 88)	DTW (feet bgs)
MW-01D	On-Site	2	PVC	0.010	23	20	23	310.84	307.60	290.88	287.88	22.90	287.94	19.66
MW-09D	On-Site	2	PVC	0.010	20	17	20	327.00	324.40	309.65	306.65	15.12	311.88	12.52
MW-11D	On-Site	2	PVC	0.010	32	28	32	347.40	343.90	319.44	315.44	13.7	333.70	10.20
RMW-03	On-Site	2	PVC	0.010	17	7	17	288.10	284.70	281.11	271.11	10.99	277.11	7.59
RMW-05	On-Site	2	PVC	0.010	20	10	20	292.61	289.50	282.33	272.33	13.23	279.38	10.12
RMW-07	On-Site	2	PVC	0.010	20	10	20	343.58	339.10	333.45	323.45	14.84	328.74	10.36
RMW-08	On-Site	2	PVC	0.010	16	6	16	338.05	334.40	332.48	322.48	DRY	-	-
RMW-10	On-Site	2	PVC	0.010	16	6	16	325.76	322.10	319.91	309.91	6.99	318.77	3.33
RMW-11	On-Site	2	PVC	0.010	18	8	18	-	-	-	-	-	-	-

Notes:
1. Elevation refered to North American Vertical Datum 1988 (NAVD 88) from Statewide Land Surveying, P.C.
2. RMW-11 was damaged during the installation of MW-11D; measurements were not collected for this well.

Acronyms:

bgs =	below ground surface
btoc =	below top of casing
DRY =	well was observed to be dry
feet NAVD 88	feet North American Vertical Datum 88
NA =	not-applicable

Table 4
Groundwater Analytical Results Exceedances Summary
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location Sampler Field Sample ID Sample Date Comments	Source of Drinking Water Standard	Source of Drinking Water Guidance Value	MW-09D Carson Voci MW-09D-250430-UF 4/30/2025	MW-11D Carson Voci MW-11D-250430-UF 4/30/2025	RMW-03 Carson Voci RMW-03-250501 5/1/2025	RMW-07 Carson Voci RMW-07-250501 5/1/2025	RMW-10 Roux RMW-10 7/15/2024	RMW-10 Carson Voci RMW-10-250501 5/1/2025
Polychlorinated Biphenyls								
PCBs (total)	0.09	--	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	**1.14 (0.071)**	ND (0.071)
Per-and Polyfluoroalkyl Substances								
Perfluorooctanesulfonic Acid (PFOS)	--	0.0027	**0.00783 (0.00147)**	0.00198 (0.00163)	**0.00416 (0.00154)**	0.00952 (0.00149)	**0.011 (0.00147)**	0.00539 (0.00157)
Perfluorooctanoic Acid (PFOA)	--	0.0067	**0.0175 (0.00147)**	**0.00917 (0.00163)**	0.00576 (0.00154)	**0.0113 (0.00149)**	**0.0115 (0.00147)**	**0.00832 (0.00157)**

Notes:
1 All concentrations reported in ug/L (ppb); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Ambient Water Quality Standards and Guidance Values are shown.
3 The Ambient Water Quality Standards and Guidance Values are from the *Division of Water Technical and Operation Guidance Series (1.1.1)* (NYSDEC
4 Boldfaced concentrations exceed the Source of Drinking Water Standard.
5 Boldfaced, gray-shaded concentrations exceed the Source of Drinking Water Guidance Value.

Abbreviations:
ND - Not Detected
-- - No published Standard or Guidance Value

Table 5
Soil Vapor Analytical Results Summary
Elmwood Preserve Site - NYSDEC Site No. C36029
850 Dobbs Ferry Road, White Plains, New York

Location	SV-01	SV-02	SV-03	SV-03	SV-03RR	SV-04	SV-05	SV-06	SV-06	SV-06RR	SV-07	SV-07
AOI	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel
Field Sample ID	SV-01	SV-02	SV-03	SV-03R-251124	SV-03RR-260423	SV-04	SV-05	SV-06	SV-06R-251124	SV-06RR-260423	SV-07	SV-07R-251124
Sampler	Roux	Roux	Roux	Terraphase	Terraphase	Roux	Roux	Roux	Terraphase	Terraphase	Roux	Terraphase
Sample Method	Unknown	Unknown	Unknown	Summa Canister	Summa Canister	Unknown	Unknown	Unknown	Summa Canister	Summa Canister	Unknown	Summa Canister
Sample Date	7/12/2024	7/12/2024	7/12/2024	11/24/2025	4/23/2026	7/12/2024	7/12/2024	7/12/2024	11/24/2025	4/23/2026	7/12/2024	11/24/2025
Comments												
Volatile Organic Compounds												
Acetone	401 (2.8)	520 (2.38)	784 (3.92)	31.8 (2.38)	13.2 (2.38)	271 (2.38)	245 (2.38)	492 (2.38)	72.7 (2.38)	4.44 (2.38)	380 (2.38)	33.5 (2.38)
Benzene	0.792 (0.751)	1.1 (0.639)	3.18 (1.05)	0.77 (0.639)	1.77 (0.639)	0.725 (0.639)	1.57 (0.639)	1.13 (0.639)	3.48 (0.639)	ND (0.639)	0.869 (0.639)	ND (0.639)
Benzyl chloride	ND (1.22)	ND (1.04)	ND (1.71)	ND (1.04)	ND (1.04)	ND (1.04)	ND (1.04)	ND (1.04)	ND (1.04)	ND (1.04)	ND (1.04)	ND (1.04)
Bromodichloromethane	ND (1.57)	ND (1.34)	ND (2.21)	ND (1.34)	ND (1.34)	ND (1.34)	ND (1.34)	ND (1.34)	ND (1.34)	ND (1.34)	ND (1.34)	ND (1.34)
Bromoform	ND (2.43)	ND (2.07)	ND (3.41)	ND (2.07)	ND (2.07)	ND (2.07)	ND (2.07)	ND (2.07)	ND (2.07)	ND (2.07)	ND (2.07)	ND (2.07)
Bromomethane	ND (0.913)	ND (0.777)	ND (1.28)	ND (0.777)	ND (0.777)	ND (0.777)	ND (0.777)	ND (0.777)	ND (0.777)	ND (0.777)	ND (0.777)	ND (0.777)
1,3-Butadiene	ND (0.52)	ND (0.442)	ND (0.73)	ND (0.442)	2.41 (0.442)	ND (0.442)	ND (0.442)	ND (0.442)	4.89 (0.442)	2.13 (0.442)	ND (0.442)	ND (0.442)
2-Butanone	35.4 (1.73)	69 (1.47)	124 (2.43)	2.32 (1.47)	4.13 (1.47)	48.4 (1.47)	31 (1.47)	66.1 (1.47)	4.42 (1.47)	ND (1.47)	28.5 (1.47)	ND (1.47)
Carbon Disulfide	ND (0.732)	1.07 (0.623)	4.45 (1.03)	2.45 (0.623)	3.24 (0.623)	0.757 (0.623)	ND (0.623)	2.6 (0.623)	6.23 (0.623)	1.06 (0.623)	ND (0.623)	0.869 (0.623)
Carbon Tetrachloride	ND (1.48)	ND (1.26)	ND (2.08)	ND (1.26)	ND (1.26)	ND (1.26)	ND (1.26)	ND (1.26)	ND (1.26)	ND (1.26)	ND (1.26)	ND (1.26)
3-Chloro-1-propene	ND (0.736)	ND (0.626)	ND (1.03)	ND (0.626)	ND (0.626)	ND (0.626)	ND (0.626)	ND (0.626)	ND (0.626)	ND (0.626)	ND (0.626)	ND (0.626)
Chlorobenzene	ND (1.08)	ND (0.921)	ND (1.52)	ND (0.921)	ND (0.921)	ND (0.921)	ND (0.921)	ND (0.921)	ND (0.921)	ND (0.921)	ND (0.921)	ND (0.921)
Chloroethane	ND (0.62)	ND (0.528)	ND (0.871)	ND (0.528)	ND (0.264)	ND (0.528)	ND (0.528)	ND (0.528)	ND (0.528)	ND (0.264)	ND (0.528)	ND (0.528)
Chloroform	ND (1.15)	ND (0.977)	ND (1.61)	ND (0.977)	ND (0.977)	1.41 (0.977)	ND (0.977)	ND (0.977)	ND (0.977)	ND (0.977)	ND (0.977)	ND (0.977)
Chloromethane	ND (0.485)	0.469 (0.413)	ND (0.681)	ND (0.413)	ND (0.413)	ND (0.413)	0.735 (0.413)	ND (0.413)	ND (0.413)	ND (0.413)	0.733 (0.413)	ND (0.413)
Cyclohexane	6.71 (0.809)	10.3 (0.688)	17.7 (1.14)	ND (0.688)	ND (0.688)	4.85 (0.688)	11.1 (0.688)	7.99 (0.688)	ND (0.688)	ND (0.688)	8.74 (0.688)	ND (0.688)
Dibromochloromethane	ND (2)	ND (1.7)	ND (2.81)	ND (1.7)	ND (1.7)	ND (1.7)	ND (1.7)	ND (1.7)	ND (1.7)	ND (1.7)	ND (1.7)	ND (1.7)
1,2-Dibromoethane	ND (1.81)	ND (1.54)	ND (2.54)	ND (1.54)	ND (1.54)	ND (1.54)	ND (1.54)	ND (1.54)	ND (1.54)	ND (1.54)	ND (1.54)	ND (1.54)
1,2-Dichlorobenzene	ND (1.41)	ND (1.2)	ND (1.98)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)
1,3-Dichlorobenzene	ND (1.41)	ND (1.2)	ND (1.98)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)
1,4-Dichlorobenzene	ND (1.41)	ND (1.2)	ND (1.98)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)
Dichlorodifluoromethane	2.46 (1.16)	2.64 (0.989)	2.76 (1.63)	2.08 J (0.989)	2.71 (0.989)	2.53 (0.989)	2.78 (0.989)	2.73 (0.989)	2.17 J (0.989)	2.61 (0.989)	2.66 (0.989)	2.43 J (0.989)
1,1-Dichloroethane	ND (0.951)	ND (0.809)	ND (1.34)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)
1,2-Dichloroethane	ND (0.951)	ND (0.809)	ND (1.34)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)
1,1-Dichloroethene	ND (0.932)	ND (0.793)	ND (1.31)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)
cis-1,2-Dichloroethene	ND (0.932)	ND (0.793)	ND (1.31)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)
trans-1,2-Dichloroethene	ND (0.932)	ND (0.793)	ND (1.31)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)
1,2-Dichloropropane	ND (1.09)	ND (0.924)	ND (1.53)	ND (0.924)	ND (0.924)	ND (0.924)	ND (0.924)	ND (0.924)	ND (0.924)	ND (0.924)	ND (0.924)	ND (0.924)
1,3-Dichloropropene (total)	ND (1.07)	ND (0.908)	ND (1.5)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)
cis-1,3-Dichloropropene	ND (1.07)	ND (0.908)	ND (1.5)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)
trans-1,3-Dichloropropene	ND (1.07)	ND (0.908)	ND (1.5)	NDJ (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	NDJ (0.908)	ND (0.908)	ND (0.908)	NDJ (0.908)
1,4-Dioxane	ND (0.847)	ND (0.721)	ND (1.19)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)
Ethanol	25.1 (11.1)	40.5 (9.42)	57.5 (15.5)	24.9 (9.42)	ND (9.42)	22.8 (9.42)	18.2 (9.42)	32.8 (9.42)	11.5 (9.42)	ND (9.42)	23.6 (9.42)	ND (9.42)
Acetic acid, ethyl ester	ND (2.12)	ND (1.8)	ND (2.97)	ND (1.8)	ND (1.8)	ND (1.8)	ND (1.8)	ND (1.8)	ND (1.8)	ND (1.8)	ND (1.8)	ND (1.8)
Ethyl Benzene	2.68 (1.02)	3.69 (0.869)	6.34 (1.43)	1 (0.869)	ND (0.869)	3.14 (0.869)	4.86 (0.869)	6.86 (0.869)	0.973 (0.869)	ND (0.869)	2.43 (0.869)	0.969 (0.869)
4-Ethyltoluene	2.7 (1.16)	1.67 (0.983)	2.29 (1.62)	ND (0.983)	ND (0.983)	2.48 (0.983)	2.5 (0.983)	2.86 (0.983)	ND (0.983)	ND (0.983)	1.6 (0.983)	ND (0.983)
Freon 114	ND (1.64)	ND (1.4)	ND (2.31)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)
Heptane	4.07 (0.963)	6.15 (0.82)	9.34 (1.35)	0.992 (0.82)	ND (0.82)	3.69 (0.82)	7.17 (0.82)	5.7 (0.82)	7.09 (0.82)	1.02 (0.82)	4.51 (0.82)	ND (0.82)
Hexachlorobutadiene	ND (0.627)	ND (0.533)	ND (0.88)	ND (2.13)	ND (2.13)	ND (0.533)	ND (0.533)	ND (0.533)	ND (2.13)	ND (2.13)	ND (0.533)	ND (2.13)
Hexane	2.53 (0.828)	5.39 (0.705)	6.41 (1.16)	0.804 (0.705)	1.62 (0.705)	2.54 (0.705)	4.3 (0.705)	3.81 (0.705)	18 (0.705)	3.07 (0.705)	2.75 (0.705)	ND (0.705)
2-Hexanone	9.51 (0.963)	17.8 (0.82)	29.1 (1.35)	ND (0.82)	0.824 (0.82)	13.3 (0.82)	8.52 (0.82)	18.4 (0.82)	1.68 (0.82)	ND (0.82)	6.72 (0.82)	ND (0.82)
Isooctane	15.7 (1.1)	20.2 (0.934)	34.9 (1.54)	ND (0.934)	ND (0.934)	11.6 (0.934)	22 (0.934)	17.6 (0.934)	0.99 (0.934)	ND (0.934)	20.4 (0.934)	ND (0.934)
Isopropanol	6.66 (1.45)	9.54 (1.23)	17.7 (2.03)	2.63 (2.46)	2.48 (2.46)	6.46 (1.23)	3.12 (1.23)	8.58 (1.23)	3 (2.46)	ND (2.46)	6.83 (1.23)	ND (2.46)
Methyl tert-butyl ether	ND (0.847)	ND (0.721)	ND (1.19)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)
4-Methyl-2-pentanone	ND (2.41)	ND (2.05)	ND (3.38)	ND (2.05)	ND (2.05)	ND (2.05)	ND (2.05)	ND (2.05)	ND (2.05)	ND (2.05)	ND (2.05)	ND (2.05)

Table 5
Soil Vapor Analytical Results Summary
Elmwood Preserve Site - NYSDEC Site No. C36029
850 Dobbs Ferry Road, White Plains, New York

Location	SV-01	SV-02	SV-03	SV-03	SV-03RR	SV-04	SV-05	SV-06	SV-06	SV-06RR	SV-07	SV-07
AOI	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel
Field Sample ID	SV-01	SV-02	SV-03	SV-03R-251124	SV-03RR-260423	SV-04	SV-05	SV-06	SV-06R-251124	SV-06RR-260423	SV-07	SV-07R-251124
Sampler	Roux	Roux	Roux	Terraphase	Terraphase	Roux	Roux	Roux	Terraphase	Terraphase	Roux	Terraphase
Sample Method	Unknown	Unknown	Unknown	Summa Canister	Summa Canister	Unknown	Unknown	Unknown	Summa Canister	Summa Canister	Unknown	Summa Canister
Sample Date	7/12/2024	7/12/2024	7/12/2024	11/24/2025	4/23/2026	7/12/2024	7/12/2024	7/12/2024	11/24/2025	4/23/2026	7/12/2024	11/24/2025
Comments												
Methylene Chloride	ND (2.04)	14.8 (1.74)	ND (2.87)	ND (1.74)	ND (1.74)	4.27 (1.74)	ND (1.74)	ND (1.74)	ND (1.74)	ND (1.74)	ND (1.74)	ND (1.74)
Naphthalene	3.57 (1.23)	1.57 (1.05)	ND (1.73)	ND (0.996)	ND (0.262)	3.53 (1.05)	3.06 (1.05)	ND (1.05)	ND (0.996)	ND (0.262)	3.28 (1.05)	ND (0.996)
Styrene	ND (1)	ND (0.852)	ND (1.41)	ND (0.852)	ND (0.852)	ND (0.852)	ND (0.852)	ND (0.852)	ND (0.852)	ND (0.852)	ND (0.852)	ND (0.852)
tert Butyl alcohol	309 (1.78)	391 (7.58)	567 (12.5)	3.09 J (1.52)	ND (1.52)	252 (1.52)	255 (1.52)	349 (7.58)	6.4 J (1.52)	ND (1.52)	254 (1.52)	3.4 J (1.52)
1,1,2,2-Tetrachloroethane	ND (1.61)	ND (1.37)	ND (2.27)	ND (1.37)	ND (1.37)	ND (1.37)	ND (1.37)	ND (1.37)	ND (1.37)	ND (1.37)	ND (1.37)	ND (1.37)
Tetrachloroethene	ND (1.59)	ND (1.36)	ND (2.24)	75.3 (1.36)**	ND (1.36)	ND (1.36)	ND (1.36)	ND (1.36)	46 (1.36)**	ND (1.36)	ND (1.36)	111 (1.36)**
Tetrahydrofuran	2.35 (1.73)	2.86 (1.47)	2.57 (2.43)	ND (1.47)	ND (1.47)	ND (1.47)	ND (1.47)	ND (1.47)	ND (1.47)	ND (1.47)	ND (1.47)	ND (1.47)
Toluene	3.03 (0.886)	6.59 (0.754)	13.3 (1.24)	3.18 (0.754)	1.35 (0.754)	3.76 (0.754)	8.25 (0.754)	10.4 (0.754)	3.67 (0.754)	ND (0.754)	3.27 (0.754)	3.77 (0.754)
1,2,4-Trichlorobenzene	ND (1.74)	ND (1.48)	ND (2.45)	NDJ (1.48)	ND (1.48)	ND (1.48)	ND (1.48)	ND (1.48)	NDJ (1.48)	ND (1.48)	ND (1.48)	NDJ (1.48)
1,1,1-Trichloroethane	ND (1.28)	ND (1.09)	ND (1.8)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)
1,1,2-Trichloroethane	ND (1.28)	ND (1.09)	ND (1.8)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)
Trichloroethene	ND (1.26)	ND (1.07)	ND (1.77)	ND (1.07)	ND (1.07)	ND (1.07)	ND (1.07)	ND (1.07)	ND (1.07)	ND (1.07)	ND (1.07)	ND (1.07)
Trichlorofluoromethane	1.38 (1.32)	1.55 (1.12)	ND (1.85)	ND (1.12)	1.57 (1.12)	1.39 (1.12)	1.56 (1.12)	1.49 (1.12)	ND (1.12)	1.37 (1.12)	9.95 (1.12)	4.81 (1.12)
1,1,2-Trichloro-1,2,2-trifluoroethane	ND (1.8)	ND (1.53)	ND (2.53)	ND (1.53)	ND (1.53)	ND (1.53)	ND (1.53)	ND (1.53)	ND (1.53)	ND (1.53)	ND (1.53)	ND (1.53)
1,2,4-Trimethylbenzene	45.7 (1.16)	27.9 (0.983)	36.3 (1.62)	1.78 (0.983)	ND (0.983)	41.4 (0.983)	42.2 (0.983)	34.5 (0.983)	2.74 (0.983)	ND (0.983)	36 (0.983)	1.37 (0.983)
1,3,5-Trimethylbenzene	16.4 (1.16)	10.6 (0.983)	14.9 (1.62)	ND (0.983)	ND (0.983)	14.8 (0.983)	15.4 (0.983)	13.6 (0.983)	ND (0.983)	ND (0.983)	13.4 (0.983)	ND (0.983)
Vinyl bromide	ND (1.03)	ND (0.874)	ND (1.44)	ND (0.874)	ND (0.874)	ND (0.874)	ND (0.874)	ND (0.874)	ND (0.874)	ND (0.874)	ND (0.874)	ND (0.874)
Vinyl Chloride	ND (0.601)	ND (0.511)	ND (0.844)	ND (0.511)	ND (0.051)	ND (0.511)	ND (0.511)	ND (0.511)	ND (0.511)	ND (0.051)	ND (0.511)	ND (0.511)
m,p-xylene	12.2 (2.04)	14.1 (1.74)	23.4 (2.87)	3.51 (1.74)	ND (1.74)	13.8 (1.74)	19.1 (1.74)	26.1 (1.74)	3.31 (1.74)	ND (1.74)	9.82 (1.74)	3.72 (1.74)
ortho-xylene	12.9 (1.02)	12.9 (0.869)	21.2 (1.43)	1.4 (0.869)	ND (0.869)	11.8 (0.869)	17.3 (0.869)	17.7 (0.869)	1.65 (0.869)	ND (0.869)	11.3 (0.869)	1.55 (0.869)
Xylenes (total)	25.1 (2.04)	27 (1.74)	44.6 (2.87)	4.91 (1.74)	ND (1.74)	25.6 (1.74)	36.4 (1.74)	43.8 (1.74)	4.96 (1.74)	ND (1.74)	21.12 (1.74)	5.27 (1.74)

Notes:

1 All concentrations reported in ug/m^3; detection limits in parentheses.

2 The November 2025 data was rejected by DEC and DOH due to potential equipment cross contamination and is therefore gray-shaded and included for informational purposes only.

** Tetrachloroethene was detected in the field blank for VOC analysis and is associated with impacted silicon tubing used to cap/plug these points for approximately 72 hours prior to sampling. The presence of blank contamination indicates that these tetrachloroethene detections are likely false positives due to off gassing/volatilization of the silicon tubing into the soil vapor well and surrounding sand pack during the 72-hour period prior to sampling.

Abbreviations:

ND - Not Detected
J - Estimated Concentration
VOC - Volatile Organic Compounds

Table 5
Soil Vapor Analytical Results Summary
Elmwood Preserve Site - NYSDEC Site No. C36029
850 Dobbs Ferry Road, White Plains, New York

Location	SV-07RR	SV-08	SV-08	SV-08RR	SV-09	SV-09	SV-09RR	SV-10	SV-11	SV-12	SV-13	SV-14
AOI	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Eastern Parcel	Western Parcel	Western Parcel	Eastern Parcel
Field Sample ID	SV-07RR-260423	SV-08	SV-08R-251124	SV-08RR-260423	SV-09	SV-09R-251124	SV-09RR-260423	SV-10	SV-11	SV-12-250626	SV-13-250625	SV-14-250626
Sampler	Terraphase	Roux	Terraphase	Terraphase	Roux	Terraphase	Terraphase	Roux	Roux	Terraphase	Terraphase	Terraphase
Sample Method	Summa Canister	Unknown	Summa Canister	Summa Canister	Unknown	Summa Canister	Summa Canister	Unknown	Unknown	Summa Canister	Summa Canister	Summa Canister
Sample Date	4/23/2026	7/12/2024	11/24/2025	4/23/2026	7/12/2024	11/24/2025	4/23/2026	7/12/2024	7/12/2024	6/26/2025	6/25/2025	6/26/2025
Comments												
Volatile Organic Compounds												
Acetone	3.66 (2.38)	641 (3.8)	83.1 (2.38)	12.1 (2.38)	245 (2.38)	42.3 (2.38)	5.94 (2.38)	962 (2.52)	1370 (5.01)	39.7 (3.75)	27.8 (5.27)	58 (3.42)
Benzene	0.639 (0.639)	4.6 (1.02)	1.18 (0.639)	14.4 (0.639)	1.85 (0.639)	4.19 (0.639)	1.07 (0.639)	ND (0.68)	4.15 (1.34)	5.94 (1.01)	ND (1.42)	5.11 (0.92)
Benzyl chloride	ND (1.04)	ND (1.65)	ND (1.04)	ND (1.04)	ND (1.04)	ND (1.04)	ND (1.04)	ND (1.1)	ND (2.18)	ND (1.63)	ND (2.3)	ND (1.49)
Bromodichloromethane	ND (1.34)	ND (2.14)	ND (1.34)	ND (1.34)	ND (1.34)	ND (1.34)	ND (1.34)	ND (1.43)	ND (2.82)	ND (2.11)	ND (2.97)	ND (1.93)
Bromoform	ND (2.07)	ND (3.3)	ND (2.07)	ND (2.07)	ND (2.07)	ND (2.07)	ND (2.07)	ND (2.2)	ND (4.35)	ND (3.26)	ND (4.59)	ND (2.98)
Bromomethane	ND (0.777)	ND (1.24)	ND (0.777)	ND (0.777)	ND (0.777)	ND (0.777)	ND (0.777)	ND (0.827)	ND (1.63)	ND (1.22)	ND (1.72)	ND (1.12)
1,3-Butadiene	1.39 (0.442)	ND (0.706)	0.564 (0.442)	58.6 (0.442)	ND (0.442)	10 (0.442)	0.94 (0.442)	0.666 (0.471)	ND (0.931)	ND (0.697)	ND (0.982)	ND (0.637)
2-Butanone	1.5 (1.47)	150 (2.35)	4.13 (1.47)	5.4 (1.47)	475 (7.37)	8.41 (1.47)	ND (1.47)	667 (7.85)	113 (3.1)	10.6 (2.32)	ND (3.27)	13.6 (2.12)
Carbon Disulfide	0.906 (0.623)	15.7 (0.993)	1.9 (0.623)	32.7 (0.623)	4.14 (0.623)	3.86 (0.623)	1.1 (0.623)	1.73 (0.663)	9.65 (1.31)	6.04 (0.981)	ND (1.38)	2.59 (0.897)
Carbon Tetrachloride	ND (1.26)	ND (2.01)	ND (1.26)	ND (1.26)	ND (1.26)	ND (1.26)	ND (1.26)	ND (1.34)	ND (2.65)	ND (1.98)	ND (2.79)	ND (1.81)
3-Chloro-1-propene	ND (0.626)	ND (0.998)	ND (0.626)	ND (0.626)	ND (0.626)	ND (0.626)	ND (0.626)	ND (0.667)	ND (1.32)	ND (0.986)	ND (1.39)	ND (0.901)
Chlorobenzene	ND (0.921)	ND (1.47)	ND (0.921)	ND (0.921)	ND (0.921)	ND (0.921)	ND (0.921)	ND (0.981)	ND (1.94)	ND (1.45)	ND (2.04)	ND (1.33)
Chloroethane	ND (0.264)	ND (0.842)	ND (0.528)	ND (0.264)	ND (0.528)	ND (0.528)	ND J (0.264)	ND (0.562)	ND (1.11)	ND (0.831)	ND (1.17)	ND (0.76)
Chloroform	ND (0.977)	3.15 (1.56)	ND (0.977)	ND (0.977)	3.17 (0.977)	ND (0.977)	ND (0.977)	6.25 (1.04)	2.45 (2.06)	4.87 (1.54)	ND (2.17)	1.63 (1.41)
Chloromethane	ND (0.413)	ND (0.659)	ND (0.413)	ND (0.413)	ND (0.413)	ND (0.413)	ND (0.413)	ND (0.44)	ND (0.869)	ND (0.65)	1.28 (0.917)	ND (0.595)
Cyclohexane	ND (0.688)	17.7 (1.1)	ND (0.688)	ND (0.688)	16.4 (0.688)	ND (0.688)	ND (0.688)	1.52 (0.733)	31.2 (1.45)	ND (1.08)	1.58 (1.53)	3.33 (0.991)
Dibromochloromethane	ND (1.7)	ND (2.72)	ND (1.7)	ND (1.7)	ND (1.7)	ND (1.7)	ND (1.7)	ND (1.81)	ND (3.59)	ND (2.68)	ND (3.78)	ND (2.45)
1,2-Dibromoethane	ND (1.54)	ND (2.45)	ND (1.54)	ND (1.54)	ND (1.54)	ND (1.54)	ND (1.54)	ND (1.64)	ND (3.24)	ND (2.42)	ND (3.41)	ND (2.21)
1,2-Dichlorobenzene	ND (1.2)	ND (1.92)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.28)	ND (2.53)	ND (1.89)	ND (2.67)	ND (1.73)
1,3-Dichlorobenzene	ND (1.2)	ND (1.92)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.28)	ND (2.53)	ND (1.89)	ND (2.67)	ND (1.73)
1,4-Dichlorobenzene	ND (1.2)	ND (1.92)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.28)	ND (2.53)	ND (1.89)	ND (2.67)	ND (1.73)
Dichlorodifluoromethane	2.63 (0.989)	2.87 (1.58)	2.18 J (0.989)	2.53 (0.989)	2.52 (0.989)	2.12 J (0.989)	3.36 (0.989)	2.59 (1.05)	2.96 (2.08)	2.4 (1.56)	2.39 (2.2)	2.52 (1.42)
1,1-Dichloroethane	ND (0.809)	ND (1.29)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.862)	ND (1.7)	ND (1.27)	ND (1.8)	ND (1.17)
1,2-Dichloroethane	ND (0.809)	ND (1.29)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.809)	ND (0.862)	ND (1.7)	ND (1.27)	ND (1.8)	ND (1.17)
1,1-Dichloroethene	ND (0.793)	ND (1.26)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.845)	ND (1.67)	ND (1.25)	ND (1.76)	ND (1.14)
cis-1,2-Dichloroethene	ND (0.793)	ND (1.26)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.845)	ND (1.67)	ND (1.25)	ND (1.76)	ND (1.14)
trans-1,2-Dichloroethene	ND (0.793)	ND (1.26)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.793)	ND (0.845)	ND (1.67)	ND (1.25)	ND (1.76)	ND (1.14)
1,2-Dichloropropane	ND (0.924)	ND (1.47)	ND (0.924)	ND (0.924)	ND (0.924)	ND (0.924)	ND (0.924)	ND (0.984)	ND (1.95)	ND (1.46)	ND (2.05)	ND (1.33)
1,3-Dichloropropene (total)	ND (0.908)	ND (1.45)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.967)	ND (1.91)	ND (1.43)	ND (2.02)	ND (1.31)
cis-1,3-Dichloropropene	ND (0.908)	ND (1.45)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.908)	ND (0.967)	ND (1.91)	ND (1.43)	ND (2.02)	ND (1.31)
trans-1,3-Dichloropropene	ND (0.908)	ND (1.45)	NDJ (0.908)	ND (0.908)	ND (0.908)	NDJ (0.908)	ND (0.908)	ND (0.967)	ND (1.91)	ND (1.43)	ND (2.02)	ND (1.31)
1,4-Dioxane	ND (0.721)	ND (1.15)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.768)	ND (1.52)	ND (1.14)	ND (1.6)	ND (1.04)
Ethanol	ND (9.42)	38.4 (15)	14.6 (9.42)	ND (9.42)	32.4 (9.42)	ND (9.42)	ND J (9.42)	122 (10)	93.8 (19.8)	ND (14.8)	ND (20.9)	ND (13.6)
Acetic acid, ethyl ester	ND (1.8)	ND (2.88)	ND (1.8)	ND (1.8)	ND (1.8)	ND (1.8)	ND (1.8)	ND (1.92)	ND (3.78)	ND (2.84)	ND (4)	ND (2.59)
Ethyl Benzene	ND (0.869)	19.2 (1.39)	ND (0.869)	3.99 (0.869)	21.4 (0.869)	1.08 (0.869)	ND (0.869)	1.58 (0.925)	23.1 (1.83)	4.02 (1.37)	ND (1.93)	2.15 (1.25)
4-Ethyltoluene	ND (0.983)	6 (1.57)	ND (0.983)	ND (0.983)	11.7 (0.983)	ND (0.983)	ND (0.983)	1.86 (1.05)	6.44 (2.07)	1.89 (1.55)	ND (2.18)	ND (1.42)
Freon 114	ND (1.4)	ND (2.23)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.49)	ND (2.94)	ND (2.2)	ND (3.1)	ND (2.01)
Heptane	ND (0.82)	17.6 (1.31)	1.11 (0.82)	34.7 (0.82)	17.3 (0.82)	2.79 (0.82)	ND (0.82)	5.53 (0.873)	33.5 (1.73)	9.79 (1.29)	ND (1.82)	7.58 (1.18)
Hexachlorobutadiene	ND (2.13)	ND (0.851)	ND (2.13)	ND (2.13)	ND (0.533)	ND (2.13)	ND (2.13)	ND (0.567)	ND (1.12)	ND (3.36)	ND (4.74)	ND (3.07)
Hexane	1.05 (0.705)	10.2 (1.12)	1.41 (0.705)	69.8 (0.705)	14.7 (0.705)	5.43 (0.705)	0.98 (0.705)	4.05 (0.751)	21.4 (1.48)	17.5 (1.11)	3.34 (1.56)	22.9 (1.02)
2-Hexanone	ND (0.82)	23.9 (1.31)	ND (0.82)	ND (0.82)	82.4 (0.82)	6.72 (0.82)	ND J (0.82)	124 (0.873)	33.5 (1.73)	3.26 (1.29)	ND (1.82)	7.17 (1.18)
Isooctane	ND (0.934)	34.2 (1.49)	0.943 (0.934)	ND (0.934)	26.3 (0.934)	ND (0.934)	ND (0.934)	2.32 (0.995)	54.6 (1.97)	ND (1.47)	ND (2.07)	ND (1.35)
Isopropanol	ND (2.46)	13.5 (1.96)	3.54 (2.46)	4.62 (2.46)	1.69 (1.23)	ND (2.46)	ND (2.46)	8.87 (1.31)	34.9 (2.58)	ND (3.88)	15.3 (5.46)	28 (3.54)
Methyl tert-butyl ether	ND (0.721)	ND (1.15)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.768)	ND (1.52)	ND (1.14)	ND (1.6)	ND (1.04)
4-Methyl-2-pentanone	ND (2.05)	ND (3.27)	ND (2.05)	ND (2.05)	ND (2.05)	4.71 (2.05)	ND (2.05)	ND (2.18)	ND (4.3)	ND (3.23)	ND (4.55)	7.34 (2.95)

Table 5
Soil Vapor Analytical Results Summary
Elmwood Preserve Site - NYSDEC Site No. C36029
850 Dobbs Ferry Road, White Plains, New York

Location	SV-07RR	SV-08	SV-08	SV-08RR	SV-09	SV-09	SV-09RR	SV-10	SV-11	SV-12	SV-13	SV-14
AOI	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Eastern Parcel	Western Parcel	Western Parcel	Eastern Parcel
Field Sample ID	SV-07RR-260423	SV-08	SV-08R-251124	SV-08RR-260423	SV-09	SV-09R-251124	SV-09RR-260423	SV-10	SV-11	SV-12-250626	SV-13-250625	SV-14-250626
Sampler	Terraphase	Roux	Terraphase	Terraphase	Roux	Terraphase	Terraphase	Roux	Roux	Terraphase	Terraphase	Terraphase
Sample Method	Summa Canister	Unknown	Summa Canister	Summa Canister	Unknown	Summa Canister	Summa Canister	Unknown	Unknown	Summa Canister	Summa Canister	Summa Canister
Sample Date	4/23/2026	7/12/2024	11/24/2025	4/23/2026	7/12/2024	11/24/2025	4/23/2026	7/12/2024	7/12/2024	6/26/2025	6/25/2025	6/26/2025
Comments												
Methylene Chloride	ND (1.74)	ND (2.77)	ND (1.74)	ND (1.74)	2.57 (1.74)	ND (1.74)	ND (1.74)	2.72 (1.85)	ND (3.65)	ND (2.74)	ND (3.86)	ND (2.5)
Naphthalene	ND (0.262)	12.9 (1.67)	ND (0.996)	ND (0.262)	3.5 (1.05)	ND (0.996)	ND J (0.262)	ND (1.12)	ND (2.21)	ND (1.57)	ND (2.21)	1.7 (1.43)
Styrene	ND (0.852)	ND (1.36)	ND (0.852)	0.898 (0.852)	ND (0.852)	ND (0.852)	ND (0.852)	1.27 (0.907)	ND (1.79)	1.37 (1.34)	ND (1.89)	ND (1.23)
tert Butyl alcohol	ND (1.52)	373 (2.42)	8.97 J (1.52)	ND (1.52)	3.76 (1.52)	6.37 J (1.52)	ND J (1.52)	3.79 (1.61)	1240 (15.9)	ND (2.39)	ND (3.36)	2.84 (2.18)
1,1,2,2-Tetrachloroethane	ND (1.37)	ND (2.19)	ND (1.37)	ND (1.37)	ND (1.37)	ND (1.37)	ND (1.37)	ND (1.46)	ND (2.89)	ND (2.16)	ND (3.05)	ND (1.98)
Tetrachloroethene	ND (1.36)	ND (2.16)	56.4 (1.36)**	ND (1.36)	ND (1.36)	ND (1.36)	ND (1.36)	ND (1.44)	ND (2.85)	ND (2.14)	ND (3.01)	ND (1.95)
Tetrahydrofuran	ND (1.47)	2.56 (2.35)	ND (1.47)	ND (1.47)	ND (1.47)	ND (1.47)	ND (1.47)	ND (1.57)	4.1 (3.1)	5.1 (2.32)	ND (3.27)	3.75 (2.12)
Toluene	ND (0.754)	55 (1.2)	2.71 (0.754)	13.7 (0.754)	36.5 (0.754)	5.28 (0.754)	ND (0.754)	3.73 (0.803)	64.1 (1.59)	10.4 (1.19)	ND (1.67)	6.26 (1.09)
1,2,4-Trichlorobenzene	ND (1.48)	ND (2.37)	NDJ (1.48)	ND (1.48)	ND (1.48)	NDJ (1.48)	ND (1.48)	ND (1.58)	ND (3.13)	ND (2.34)	ND (3.3)	ND (2.14)
1,1,1-Trichloroethane	ND (1.09)	ND (1.74)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.16)	ND (2.3)	ND (1.72)	ND (2.42)	ND (1.57)
1,1,2-Trichloroethane	ND (1.09)	ND (1.74)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.16)	ND (2.3)	ND (1.72)	ND (2.42)	ND (1.57)
Trichloroethene	ND (1.07)	ND (1.71)	ND (1.07)	ND (1.07)	ND (1.07)	ND (1.07)	ND (1.07)	ND (1.14)	ND (2.26)	ND (1.69)	ND (2.39)	ND (1.55)
Trichlorofluoromethane	20.2 (1.12)	ND (1.79)	ND (1.12)	1.42 (1.12)	2.39 (1.12)	1.19 (1.12)	2.4 (1.12)	1.34 (1.2)	ND (2.37)	ND (1.77)	ND (2.5)	ND (1.62)
1,1,2-Trichloro-1,2,2-trifluoroethane	ND (1.53)	ND (2.45)	ND (1.53)	ND (1.53)	ND (1.53)	ND (1.53)	ND (1.53)	ND (1.63)	ND (3.23)	ND (2.41)	ND (3.4)	ND (2.21)
1,2,4-Trimethylbenzene	ND (0.983)	93.9 (1.57)	2.69 (0.983)	ND (0.983)	95.4 (0.983)	1 (0.983)	ND (0.983)	16.9 (1.05)	64.4 (2.07)	11.1 (1.55)	ND (2.18)	3.24 (1.42)
1,3,5-Trimethylbenzene	ND (0.983)	29.6 (1.57)	ND (0.983)	ND (0.983)	32.9 (0.983)	ND (0.983)	ND (0.983)	5.51 (1.05)	26.2 (2.07)	3.51 (1.55)	ND (2.18)	ND (1.42)
Vinyl bromide	ND (0.874)	ND (1.39)	ND (0.874)	ND (0.874)	ND (0.874)	ND (0.874)	ND (0.874)	ND (0.931)	ND (1.84)	ND (1.38)	ND (1.94)	ND (1.26)
Vinyl Chloride	0.051 (0.051)	ND (0.815)	ND (0.511)	0.054 (0.051)	ND (0.511)	ND (0.511)	ND J (0.051)	ND (0.544)	ND (1.08)	ND (0.805)	ND (1.13)	ND (0.736)
m,p-xylene	ND (1.74)	58.2 (2.78)	2.94 (1.74)	3.48 (1.74)	85.6 (1.74)	3.58 (1.74)	ND (1.74)	7.12 (1.85)	71.7 (3.66)	10.9 (2.74)	ND (3.86)	3.11 (2.5)
ortho-xylene	ND (0.869)	33.8 (1.39)	1.48 (0.869)	1.62 (0.869)	49.5 (0.869)	0.934 (0.869)	ND (0.869)	4.56 (0.925)	43.9 (1.83)	5.26 (1.37)	ND (1.93)	1.79 (1.25)
Xylenes (total)	ND (1.74)	92 (2.78)	4.42 (1.74)	5.1 (1.74)	135.1 (1.74)	4.514 (1.74)	ND (1.74)	11.68 (1.85)	115.6 (3.66)	16.16 (2.74)	ND (3.86)	4.9 (2.5)

Notes:

1 All concentrations reported in ug/m^3; detection limits in parentheses.

2 The November 2025 data was rejected by DEC and DOH due to potential equipment cross contamination and is therefore gray-shaded and included for informational purposes only.

** Tetrachloroethene was detected in the field blank for VOC analysis and is associated with impacted silicon tubing used to cap/plug these points for approximately 72 hours prior to sampling. The presence of blank contamination indicates that these tetrachloroethene detections are likely false positives due to off gassing/volatilization of the silicon tubing into the soil vapor well and surrounding sand pack during the 72-hour period prior to sampling.

Abbreviations:

ND - Not Detected
J - Estimated Concentration
VOC - Volatile Organic Compounds

Table 5
Soil Vapor Analytical Results Summary
Elmwood Preserve Site - NYSDEC Site No. C36029
850 Dobbs Ferry Road, White Plains, New York

Location	SV-15	SV-16	SV-17	SV-17	SV-17RR	SV-18	SV-19
AOI	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Eastern Parcel	Eastern Parcel
Field Sample ID	SV-15-250625	SV-16-250625	SV-17-250625	SV-17R-251124	SV-17RR-260423	SV-18-250626	SV-19-250626
Sampler	Terraphase	Terraphase	Terraphase	Terraphase	Terraphase	Terraphase	Terraphase
Sample Method	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister
Sample Date	6/25/2025	6/25/2025	6/25/2025	11/24/2025	4/23/2026	6/26/2025	6/26/2025
Comments							
Volatile Organic Compounds							
Acetone	ND (5.15)	16.6 (11.3)	147 (2.38)	137 (2.38)	191 (2.38)	18.8 (4.32)	95.7 (3.8)
Benzene	ND (1.39)	ND (3.03)	3.64 (0.639)	2.97 (0.639)	4.28 (0.639)	ND (1.16)	21.9 (1.02)
Benzyl chloride	ND (2.25)	ND (4.92)	ND (1.04)	ND (1.04)	ND (1.04)	ND (1.88)	ND (1.66)
Bromodichloromethane	ND (2.91)	ND (6.36)	ND (1.34)	ND (1.34)	ND (1.34)	ND (2.44)	ND (2.14)
Bromoform	ND (4.5)	ND (9.82)	ND (2.07)	ND (2.07)	ND (2.07)	ND (3.76)	ND (3.31)
Bromomethane	ND (1.69)	ND (3.69)	ND (0.777)	ND (0.777)	ND (0.777)	ND (1.41)	ND (1.24)
1,3-Butadiene	ND (0.962)	ND (2.1)	2.57 (0.442)	2.35 (0.442)	ND (0.442)	ND (0.805)	ND (0.708)
2-Butanone	ND (3.21)	ND (6.99)	38.9 (1.47)	36.6 (1.47)	58.1 (1.47)	ND (2.68)	21.5 (2.36)
Carbon Disulfide	ND (1.35)	ND (2.96)	44.8 (0.623)	43 (0.623)	113 (0.623)	ND (1.13)	6.13 (0.997)
Carbon Tetrachloride	ND (2.74)	ND (5.98)	ND (1.26)	ND (1.26)	ND (1.26)	ND (2.29)	ND (2.01)
3-Chloro-1-propene	ND (1.36)	ND (2.97)	ND (0.626)	ND (0.626)	ND (0.626)	ND (1.14)	ND (1)
Chlorobenzene	ND (2)	ND (4.38)	ND (0.921)	ND (0.921)	ND (0.921)	ND (1.68)	ND (1.47)
Chloroethane	ND (1.15)	ND (2.51)	ND (0.528)	ND (0.528)	ND (0.264)	ND (0.961)	ND (0.844)
Chloroform	ND (2.12)	ND (4.64)	ND (0.977)	ND (0.977)	ND (0.977)	ND (1.78)	ND (1.56)
Chloromethane	ND (0.898)	ND (1.96)	ND (0.413)	ND (0.413)	ND (0.413)	1.23 (0.752)	3.1 (0.661)
Cyclohexane	ND (1.5)	ND (3.27)	2.26 (0.688)	1.9 (0.688)	1.47 (0.688)	ND (1.25)	3.08 (1.1)
Dibromochloromethane	ND (3.71)	ND (8.09)	ND (1.7)	ND (1.7)	ND (1.7)	ND (3.1)	ND (2.73)
1,2-Dibromoethane	ND (3.34)	ND (7.3)	ND (1.54)	ND (1.54)	ND (1.54)	ND (2.8)	ND (2.46)
1,2-Dichlorobenzene	ND (2.62)	ND (5.71)	ND (1.2)	ND (1.2)	ND (1.2)	ND (2.19)	ND (1.92)
1,3-Dichlorobenzene	ND (2.62)	ND (5.71)	ND (1.2)	ND (1.2)	ND (1.2)	ND (2.19)	ND (1.92)
1,4-Dichlorobenzene	ND (2.62)	ND (5.71)	ND (1.2)	ND (1.2)	ND (1.2)	ND (2.19)	ND (1.92)
Dichlorodifluoromethane	2.41 (2.15)	ND (4.7)	1.78 J (0.989)	1.76 J (0.989)	2.54 (0.989)	2.45 (1.8)	2.4 (1.58)
1,1-Dichloroethane	ND (1.76)	ND (3.85)	ND (0.809)	ND (0.809)	ND (0.809)	ND (1.47)	ND (1.3)
1,2-Dichloroethane	ND (1.76)	ND (3.85)	ND (0.809)	ND (0.809)	ND (0.809)	ND (1.47)	ND (1.3)
1,1-Dichloroethene	ND (1.72)	ND (3.77)	ND (0.793)	ND (0.793)	ND (0.793)	ND (1.44)	ND (1.27)
cis-1,2-Dichloroethene	ND (1.72)	ND (3.77)	ND (0.793)	ND (0.793)	ND (0.793)	ND (1.44)	ND (1.27)
trans-1,2-Dichloroethene	ND (1.72)	ND (3.77)	ND (0.793)	ND (0.793)	ND (0.793)	ND (1.44)	ND (1.27)
1,2-Dichloropropane	ND (2.01)	ND (4.39)	ND (0.924)	ND (0.924)	ND (0.924)	ND (1.68)	ND (1.48)
1,3-Dichloropropene (total)	ND (1.97)	ND (4.31)	ND (0.908)	ND (0.908)	ND (0.908)	ND (1.65)	ND (1.45)
cis-1,3-Dichloropropene	ND (1.97)	ND (4.31)	ND (0.908)	ND (0.908)	ND (0.908)	ND (1.65)	ND (1.45)
trans-1,3-Dichloropropene	ND (1.97)	ND (4.31)	NDJ (0.908)	NDJ (0.908)	ND (0.908)	ND (1.65)	ND (1.45)
1,4-Dioxane	ND (1.57)	ND (3.42)	ND (0.721)	ND (0.721)	ND (0.721)	ND (1.31)	ND (1.15)
Ethanol	ND (20.5)	ND (44.7)	ND (9.42)	ND (9.42)	ND (9.42)	ND (17.1)	ND (15.1)
Acetic acid, ethyl ester	ND (3.93)	ND (8.54)	ND (1.8)	ND (1.8)	ND (1.8)	ND (3.28)	ND (2.88)
Ethyl Benzene	ND (1.89)	ND (4.13)	1.39 (0.869)	1.09 (0.869)	ND (0.869)	ND (1.58)	9.82 (1.39)
4-Ethyltoluene	ND (2.14)	ND (4.67)	ND (0.983)	ND (0.983)	ND (0.983)	ND (1.79)	1.63 (1.57)
Freon 114	ND (3.04)	ND (6.64)	ND (1.4)	ND (1.4)	ND (1.4)	ND (2.54)	ND (2.24)
Heptane	ND (1.78)	ND (3.89)	4.84 (0.82)	3.93 (0.82)	5.9 (0.82)	1.63 (1.49)	21.6 (1.31)
Hexachlorobutadiene	ND (4.64)	ND (10.1)	ND (2.13)	ND (2.13)	ND (2.13)	ND (3.88)	ND (3.41)
Hexane	ND (1.53)	6.41 (3.35)	7.72 (0.705)	6.45 (0.705)	7.33 (0.705)	3.29 (1.28)	49.7 (1.13)
2-Hexanone	ND (1.78)	ND (3.89)	7.29 (0.82)	5.86 (0.82)	1.31 (0.82)	ND (1.49)	8.89 (1.31)
Isooctane	ND (2.03)	ND (4.44)	14.5 (0.934)	12 (0.934)	3.49 (0.934)	ND (1.7)	ND (1.49)
Isopropanol	ND (5.33)	21.8 (11.7)	ND (2.46)	ND (2.46)	ND (2.46)	ND (4.47)	ND (3.93)
Methyl tert-butyl ether	ND (1.57)	ND (3.43)	ND (0.721)	ND (0.721)	ND (0.721)	ND (1.31)	ND (1.15)
4-Methyl-2-pentanone	ND (4.47)	ND (9.71)	5.66 (2.05)	4.39 (2.05)	ND (2.05)	ND (3.73)	6.6 (3.28)

Table 5
Soil Vapor Analytical Results Summary
Elmwood Preserve Site - NYSDEC Site No. C36029
850 Dobbs Ferry Road, White Plains, New York

Location	SV-15	SV-16	SV-17	SV-17	SV-17RR	SV-18	SV-19
AOI	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Western Parcel	Eastern Parcel	Eastern Parcel
Field Sample ID	SV-15-250625	SV-16-250625	SV-17-250625	SV-17R-251124	SV-17RR-260423	SV-18-250626	SV-19-250626
Sampler	Terraphase	Terraphase	Terraphase	Terraphase	Terraphase	Terraphase	Terraphase
Sample Method	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister
Sample Date	6/25/2025	6/25/2025	6/25/2025	11/24/2025	4/23/2026	6/26/2025	6/26/2025
Comments							
Methylene Chloride	ND (3.79)	ND (8.23)	ND (1.74)	ND (1.74)	ND (1.74)	ND (3.16)	ND (2.78)
Naphthalene	ND (2.17)	ND (4.73)	ND (0.996)	ND (0.996)	ND (0.262)	ND (1.81)	ND (1.59)
Styrene	ND (1.85)	ND (4.04)	ND (0.852)	ND (0.852)	ND (0.852)	ND (1.55)	4.43 (1.36)
tert Butyl alcohol	ND (3.3)	ND (7.18)	3.33 J (1.52)	2.96 J (1.52)	ND (1.52)	ND (2.76)	3.09 (2.43)
1,1,2,2-Tetrachloroethane	ND (2.99)	ND (6.52)	ND (1.37)	ND (1.37)	ND (1.37)	ND (2.5)	ND (2.2)
Tetrachloroethene	ND (2.95)	ND (6.44)	ND (1.36)	ND (1.36)	ND (1.36)	ND (2.47)	ND (2.17)
Tetrahydrofuran	ND (3.21)	ND (6.99)	ND (1.47)	ND (1.47)	ND (1.47)	ND (2.68)	7.67 (2.36)
Toluene	ND (1.64)	8.33 (3.58)	10.2 (0.754)	8.93 (0.754)	3.52 (0.754)	ND (1.37)	26.6 (1.21)
1,2,4-Trichlorobenzene	ND (3.23)	ND (7.05)	NDJ (1.48)	NDJ (1.48)	ND (1.48)	ND (2.7)	ND (2.38)
1,1,1-Trichloroethane	ND (2.37)	ND (5.18)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.99)	ND (1.75)
1,1,2-Trichloroethane	ND (2.37)	ND (5.18)	ND (1.09)	ND (1.09)	ND (1.09)	ND (1.99)	ND (1.75)
Trichloroethene	ND (2.34)	ND (5.11)	ND (1.07)	ND (1.07)	ND (1.07)	ND (1.96)	ND (1.72)
Trichlorofluoromethane	ND (2.44)	10.3 (5.34)	ND (1.12)	ND (1.12)	1.31 (1.12)	ND (2.05)	ND (1.8)
1,1,2-Trichloro-1,2,2-trifluoroethane	ND (3.33)	ND (7.28)	ND (1.53)	ND (1.53)	ND (1.53)	ND (2.79)	ND (2.45)
1,2,4-Trimethylbenzene	ND (2.14)	ND (4.67)	1.05 (0.983)	ND (0.983)	ND (0.983)	ND (1.79)	7.92 (1.57)
1,3,5-Trimethylbenzene	ND (2.14)	ND (4.67)	ND (0.983)	ND (0.983)	ND (0.983)	ND (1.79)	2.16 (1.57)
Vinyl bromide	ND (1.9)	ND (4.15)	ND (0.874)	ND (0.874)	ND (0.874)	ND (1.59)	ND (1.4)
Vinyl Chloride	ND (1.11)	ND (2.43)	ND (0.511)	ND (0.511)	ND (0.051)	ND (0.93)	ND (0.818)
m,p-xylene	ND (3.78)	9.34 (8.25)	4.47 (1.74)	3.21 (1.74)	ND (1.74)	ND (3.16)	14.5 (2.78)
ortho-xylene	ND (1.89)	ND (4.13)	1.44 (0.869)	1.03 (0.869)	ND (0.869)	ND (1.58)	6.91 (1.39)
Xylenes (total)	ND (3.78)	9.34 (8.25)	5.91 (1.74)	4.24 (1.74)	ND (1.74)	ND (3.16)	21.41 (2.78)

Notes:

1 All concentrations reported in ug/m^3; detection limits in parentheses.

2 The November 2025 data was rejected by DEC and DOH due to potential equipment cross contamination and is therefore gray-shaded and included for informational purposes only.

** Tetrachloroethene was detected in the field blank for VOC analysis and is associated with impacted silicon tubing used to cap/plug these points for approximately 72 hours prior to sampling. The presence of blank contamination indicates that these tetrachloroethene detections are likely false positives due to off gassing/volatilization of the silicon tubing into the soil vapor well and surrounding sand pack during the 72-hour period prior to sampling.

Abbreviations:

ND - Not Detected
J - Estimated Concentration
VOC - Volatile Organic Compounds

Table 6
Surface Water Analytical Results Exceedances Summary
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location Field Sample ID Sampler Sample Date Comments	Aesthetic Fresh Waters Standard	Aesthetic Fresh Waters Guidance Value	Source of Drinking Water Standard	Source of Drinking Water Guidance Value	SW-01 SW-1 Roux 7/15/2024	SW-01R SW-01R-0-0.5 Carson Voci 5/29/2025	SW-02 SW-2 Roux 7/15/2024	SW-02R SW-02R-0-0.5 Carson Voci 5/29/2025	SW-03 SW-3 Roux 7/15/2024	SW-03R SW-03R-0-0.5 Carson Voci 5/29/2025	SW-04 SW-04-4-5 Carson Voci 5/29/2025	SW-05 SW-05-4-5 Carson Voci 5/29/2025	SW-06 SW-06-0-0.5 Carson Voci 5/30/2025
Semivolatile Organic Compounds													
Benzo(b)fluoranthene	--	--	--	0.002	NA	**0.03 J (0.1)**	NA	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Per-and Polyfluoroalkyl Substances													
Perfluorooctanesulfonic Acid (PFOS)	--	--	--	0.0027	NA	**0.0062 (1.53)**	NA	**0.00644 (1.47)**	NA	**0.00589 (1.47)**	**0.00624 (1.47)**	**0.00592 (1.49)**	**0.00813 (1.52)**
Perfluorooctanoic Acid (PFOA)	--	--	--	0.0067	NA	**0.00741 (1.53)**	NA	**0.00742 (1.47)**	NA	**0.00678 (1.47)**	**0.00773 (1.47)**	**0.00817 (1.49)**	**0.0114 (1.52)**
Pesticides													
Dieldrin	--	--	0.004	--	ND (0.04)	ND (0.029)	ND (0.04)	ND (0.029)	ND (0.04)	ND (0.029)	ND (0.029)	ND (0.029)	**0.018 J (0.029)**

Notes:
1 All concentrations reported in ug/L (ppb); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Ambient Water Quality Standards and Guidance Values are shown.
3 The Ambient Water Quality Standards and Guidance Values are from the *Division of Water Technical and Operation Guidance Series (1.1.1)* (NYSDEC 1998).
4 No concentrations exceed the Aesthetic Fresh Waters Standard.
5 No concentrations exceed the Aesthetic Fresh Waters Guidance Value.
6 Boldfaced concentrations exceed the Source of Drinking Water Standard.
7 Boldfaced, gray-shaded concentrations exceed the Source of Drinking Water Guidance Value.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No published Standard or Guidance Value
J - Estimated Concentration

Table 6
Surface Water Analytical Results Exceedances Summary
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location Field Sample ID Sampler Sample Date Comments	Aesthetic Fresh Waters Standard	Aesthetic Fresh Waters Guidance Value	Source of Drinking Water Standard	Source of Drinking Water Guidance Value	SW-07 SW-07-0-0.5 Carson Voci 5/30/2025	SW-08 SW-08-0-0.5 Carson Voci 5/30/2025
Semivolatile Organic Compounds						
Benzo(b)fluoranthene	--	--	--	0.002	ND (0.1)	ND (0.1)
Per-and Polyfluoroalkyl Substances						
Perfluorooctanesulfonic Acid (PFOS)	--	--	--	0.0027	**0.00916 (1.44)**	**0.00788 (1.51)**
Perfluorooctanoic Acid (PFOA)	--	--	--	0.0067	**0.01 (1.44)**	**0.0105 (1.51)**
Pesticides						
Dieldrin	--	--	0.004	--	**0.009 JIP (0.029)**	**0.012 J (0.029)**

Notes:
1 All concentrations reported in ug/L (ppb); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Ambient Water Quality Standards and Guidance Values are shown.
3 The Ambient Water Quality Standards and Guidance Values are from the *Division of Water Technical and Operation Guidance Series (1.1.1)* (NYSDEC 1998).
4 No concentrations exceed the Aesthetic Fresh Waters Standard.
5 No concentrations exceed the Aesthetic Fresh Waters Guidance Value.
6 Boldfaced concentrations exceed the Source of Drinking Water Standard.
7 Boldfaced, gray-shaded concentrations exceed the Source of Drinking Water Guidance Value.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No published Standard or Guidance Value
J - Estimated Concentration

Table 7
Sediment Analytical Results Exceedances Summary
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				SS-01	SS-01	SS-01	SS-01	SS-02	SS-02	SS-02	SS-02
AOI	Class A	Class B	Class C	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Field Sample ID	Freshwater	Freshwater	Freshwater	SS-1	SS-01R-0-0.5	SS-01R-0.5-1	SS-01R-1-2	SS-2	SS-02R-0-0.5	SS-02R-0.5-1	SS-02R-1-2
Collection Depth (ft bgs)	Sediment	Sediment	Sediment	0 - 2	0 - 0.5	0.5 - 1	1 -2	0 - 2	0 - 0.5	0.5 - 1	1 -2
Sample Date	Guidance Value	Guidance Value	Guidance Value	7/15/2024	5/29/2025	5/29/2025	5/29/2025	7/15/2024	5/29/2025	5/29/2025	5/29/2025
Comments				Class B	Class C	Class B	Class C	Class B	Class B	Class B	Class B
Volatile Organic Compounds											
Acetone	< 0.065	0.065	--	NA	**0.34 (0.1)**	NA	NA	NA	0.01 J (0.013)	NA	NA
Semivolatile Organic Compounds											
Benzoic Acid	< 0.019	0.019	--	NA	**1.2 J (3.2)**	NA	NA	NA	ND (0.78)	NA	NA
Phenol	< 0.17	0.17	--	NA	ND (0.98)	NA	NA	NA	ND (0.24)	NA	NA
Pesticides											
Chlordane (total)	< 0.068	0.068	38	0.02452 J (0.00265)	0.0319 J (0.0167)	ND (0.0115)	ND (0.019)	0.0027 J (0.00239)	0.00733 J (0.00284)	**0.1037 J (0.00252)**	**0.0969 J (0.00249)**
DDT (total)	< 0.044	0.044	--	0.00419 J (0.00212)	**0.2298 J (0.0133)**	ND (0.0092)	ND (0.0152)	ND (0.00191)	0.018325 J (0.00227)	0.02369 J (0.00202)	0.006425 J (0.00199)
Metals											
Arsenic	< 10	10	33	3.49 (1.05)	10 (4.63)	ND (4.78)	ND (7.53)	1.93 (0.962)	8.34 (1.17)	2.47 (1.03)	2.09 (1)
Barium	< 20	20	--	**34 (1.05)**	**190 (4.63)**	**99.9 (4.78)**	**106 (7.53)**	**33.8 (0.962)**	**60.7 (1.17)**	**61.5 (1.03)**	**63 (1)**
Cadmium	< 1.0	1.0	5.0	ND (1.05)	**1.52 J (4.63)**	**1.3 J (4.78)**	0.631 J (7.53)	ND (0.962)	ND (1.17)	0.089 J (1.03)	0.065 J (1)
Copper	< 32	32	150	8.43 (1.05)	**75.6 (4.63)**	**33.2 (4.78)**	**64.7 (7.53)**	**59.9 (0.962)**	7.01 (1.17)	26.8 (1.03)	27.2 (1)
Iron	< 20000	20000	--	6460 (5.25)	**28100 (23.1)**	670 (23.9)	12600 (37.6)	7040 (4.81)	14000 (5.86)	12800 (5.13)	10500 (5)
Lead	< 36	36	130	7.17 (5.25)	**112 (23.1)**	2.48 J (23.9)	**104 (37.6)**	7.38 (4.81)	19.3 (5.86)	7 (5.13)	5.46 (5)
Mercury	< 0.20	0.20	1.0	0.07 J (0.086)	**5.23 (0.384)**	ND (0.505)	**1.28 (0.78)**	0.081 (0.079)	0.073 J (0.096)	0.077 J (0.084)	0.076 J (0.083)
Nickel	< 23	23	49	6.19 (2.62)	**30.4 (11.6)**	10 J (11.9)	**24.2 (18.8)**	7.03 (2.41)	6.06 (2.93)	16.7 (2.56)	12.3 (2.5)
Selenium	< 0.80	0.80	--	ND (2.1)	**4.64 J (9.25)**	**2.93 J (9.56)**	ND (15.1)	ND (1.92)	ND (2.34)	ND (2.05)	ND (2)
Vanadium	< 29	29	--	11 (1.05)	**32.7 (4.63)**	**48.6 (4.78)**	17 (7.53)	10.3 (0.962)	18.6 (1.17)	18 (1.03)	16.5 (1)
Zinc	< 120	120	460	62.1 (5.25)	**1160 (23.1)**	7.85 J (23.9)	**222 (37.6)**	73.4 (4.81)	29.5 (5.86)	40.3 (5.13)	35.5 (5)

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Freshwater Sediment Guidance Values are shown.
3 Freshwater Sediment Guidance Values are from the Screening and Assessment of Contaminated Sediment (NYSDEC 2014). Class A thresholds are supplemented by available USEPA Region 4 Soil Ecological Screening Values and Los Alamos National Laboratory ecological screening levels.
4 Constituents that do not have an available benchmark are conservatively assumed to be a Class B result, except for essential nutrients (calcium, magnesium, sodium, and potassium).
5 Boldfaced concentrations exceed the Class B Freshwater Sediment Guidance Value.
6 Boldfaced, gray-shaded concentrations exceed the Class C Freshwater Sediment Guidance Value.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
-- - No published Standard or Guidance Value
J - Estimated Concentration

Table 7
Sediment Analytical Results Exceedances Summary
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				SS-03	SS-03	SS-03	SS-03	SS-04	SS-04	SS-04	SS-05
AOI	Class A	Class B	Class C	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Field Sample ID	Freshwater	Freshwater	Freshwater	SS-3	SS-03R-0-0.5	SS-03R-0.5-1	SS-03R-1-2	SS-04-0-0.5	SS-04-0.5-1	SS-04-1-2	SS-05-0-0.5
Collection Depth (ft bgs)	Sediment	Sediment	Sediment	0 - 2	0 - 0.5	0.5 - 1	1 -2	0 - 0.5	0.5 - 1	1 -2	0 - 0.5
Sample Date	Guidance Value	Guidance Value	Guidance Value	7/15/2024	5/29/2025	5/29/2025	5/29/2025	5/29/2025	5/29/2025	5/29/2025	5/29/2025
Comments				Class B	Class B	Class B	Class B	Class C	Class B	Class C	Class C
Volatile Organic Compounds											
Acetone	< 0.065	0.065	--	NA	0.0072 J (0.011)	ND (0.0099)	NA	**1.2 (0.15)**	NA	NA	**1.8 (0.16)**
Semivolatile Organic Compounds											
Benzoic Acid	< 0.019	0.019	--	NA	ND (0.66)	ND (0.64)	NA	ND (4.5)	NA	NA	**2.8 J (4.8)**
Phenol	< 0.17	0.17	--	NA	ND (0.2)	ND (0.2)	NA	ND (1.4)	NA	NA	**0.8 J (1.5)**
Pesticides											
Chlordane (total)	< 0.068	0.068	38	0.02316 J (0.00251)	ND (0.00241)	ND (0.00234)	ND (0.00235)	ND (0.0254)	**0.281 J (0.0105)**	**1.887 J (0.0112)**	**0.1934 J (0.0174)**
DDT (total)	< 0.044	0.044	--	ND (0.002)	ND (0.00193)	ND (0.00188)	ND (0.00188)	0.031 J (0.0203)	0.024755 J (0.00841)	0.03232 J (0.00892)	**0.09245 J (0.0139)**
Metals											
Arsenic	< 10	10	33	2.49 (0.971)	3.28 (0.984)	2.69 (0.943)	1.28 (0.936)	**28.5 (6.68)**	**24.5 (4.1)**	**37.9 (4.42)**	**21.7 (7.29)**
Barium	< 20	20	--	**37.2 (0.971)**	**35.8 (0.984)**	**45.6 (0.943)**	**49.1 (0.936)**	**214 (6.68)**	**146 (4.1)**	**223 (4.42)**	**265 (7.29)**
Cadmium	< 1.0	1.0	5.0	ND (0.971)	0.086 J (0.984)	0.096 J (0.943)	0.063 J (0.936)	**1.78 J (6.68)**	0.788 J (4.1)	**1.13 J (4.42)**	**1.43 J (7.29)**
Copper	< 32	32	150	7.48 (0.971)	14.6 (0.984)	14.3 (0.943)	15.6 (0.936)	**121 (6.68)**	**85.4 (4.1)**	**132 (4.42)**	**126 (7.29)**
Iron	< 20000	20000	--	7470 (4.86)	12600 (4.92)	16100 (4.72)	13200 (4.68)	**23600 (33.4)**	19400 (20.5)	**29100 (22.1)**	**29500 (36.5)**
Lead	< 36	36	130	4.26 J (4.86)	4.36 J (4.92)	4.94 (4.72)	4.8 (4.68)	**132 (33.4)**	**61.9 (20.5)**	**92.8 (22.1)**	**102 (36.5)**
Mercury	< 0.20	0.20	1.0	ND (0.081)	ND (0.078)	ND (0.083)	ND (0.081)	**1.88 (0.604)**	**0.881 (0.371)**	**0.791 (0.449)**	**1.4 (0.719)**
Nickel	< 23	23	49	6.36 (2.43)	9.34 (2.46)	15.4 (2.36)	13.1 (2.34)	**26.8 (16.7)**	**26.2 (10.2)**	**34.3 (11)**	**40.2 (18.2)**
Selenium	< 0.80	0.80	--	ND (1.94)	ND (1.97)	ND (1.89)	ND (1.87)	ND (13.4)	ND (8.2)	ND (8.84)	ND (14.6)
Vanadium	< 29	29	--	11.1 (0.971)	18.2 (0.984)	26.3 (0.943)	20.8 (0.936)	**34.6 (6.68)**	**33.8 (4.1)**	**48.5 (4.42)**	**51.2 (7.29)**
Zinc	< 120	120	460	39.7 (4.86)	28.3 (4.92)	41 (4.72)	39.8 (4.68)	**1170 (33.4)**	**307 (20.5)**	**573 (22.1)**	**2330 (36.5)**

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Freshwater Sediment Guidance Values are shown.
3 Freshwater Sediment Guidance Values are from the Screening and Assessment of Contaminated Sediment (NYSDEC 2014). Class A thresholds are supplemented by available USEPA Region 4 Soil Ecological Screening Values and Los Alamos National Laboratory ecological screening levels.
4 Constituents that do not have an available benchmark are conservatively assumed to be a Class B result, except for essential nutrients (calcium, magnesium, sodium, and potassium).
5 Boldfaced concentrations exceed the Class B Freshwater Sediment Guidance Value.
6 Boldfaced, gray-shaded concentrations exceed the Class C Freshwater Sediment Guidance Value.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
-- - No published Standard or Guidance Value
J - Estimated Concentration

Table 7
Sediment Analytical Results Exceedances Summary
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Location				SS-05	SS-05	SS-06	SS-07	SS-08	SS-08
AOI	Class A	Class B	Class C	Pond	Pond	Stream	Stream	Stream	Stream
Field Sample ID	Freshwater	Freshwater	Freshwater	SS-05-0.5-1	SS-05-1-2	SS-06-0-0.5	SS-07-0-0.5	SS-08-0-0.5	SS-08-0.5-1
Collection Depth (ft bgs)	Sediment	Sediment	Sediment	0.5 - 1	1 -2	0 - 0.5	0 - 0.5	0 - 0.5	0.5 - 1
Sample Date	Guidance Value	Guidance Value	Guidance Value	5/29/2025	5/29/2025	5/30/2025	5/29/2025	5/29/2025	5/29/2025
Comments				Class C	Class C	Class B	Class B	Class B	Class B
Volatile Organic Compounds									
Acetone	< 0.065	0.065	--	**0.26 (0.1)**	NA	0.01 J (0.021)	0.037 (0.013)	ND (0.012)	0.0055 J (0.011)
Semivolatile Organic Compounds									
Benzoic Acid	< 0.019	0.019	--	ND (3.7)	NA	ND (1)	ND (0.76)	ND (0.69)	ND (0.7)
Phenol	< 0.17	0.17	--	ND (1.1)	NA	ND (0.32)	ND (0.23)	ND (0.21)	ND (0.21)
Pesticides									
Chlordane (total)	< 0.068	0.068	38	**0.1328 J (0.0138)**	**0.299 J (0.0128)**	0.00564 J (0.00389)	0.00528 J (0.00265)	0.00531 J (0.00251)	0.01668 J (0.00254)
DDT (total)	< 0.044	0.044	--	**0.0848 J (0.011)**	**0.1088 J (0.0102)**	0.013455 J (0.00311)	0.00631 J (0.00212)	0.013335 J (0.00201)	**0.0879 J (0.00203)**
Metals									
Arsenic	< 10	10	33	**12.9 (5.3)**	**10.4 (5.12)**	5.92 (1.51)	3.86 (1.11)	5.55 (1.03)	8.27 (0.999)
Barium	< 20	20	--	**124 (5.3)**	**90.6 (5.12)**	**28.7 (1.51)**	**34.2 (1.11)**	**27.6 (1.03)**	**39.6 (0.999)**
Cadmium	< 1.0	1.0	5.0	0.844 J (5.3)	0.608 J (5.12)	ND (1.51)	0.109 J (1.11)	0.372 J (1.03)	0.067 J (0.999)
Copper	< 32	32	150	**68.5 (5.3)**	**52.5 (5.12)**	6.17 (1.51)	6.51 (1.11)	5.24 (1.03)	5.59 (0.999)
Iron	< 20000	20000	--	14100 (26.5)	10600 (25.6)	6090 (7.55)	6420 (5.56)	8400 (5.17)	6910 (5)
Lead	< 36	36	130	**54.1 (26.5)**	**42.8 (25.6)**	10.7 (7.55)	6.15 (5.56)	8.86 (5.17)	11.3 (5)
Mercury	< 0.20	0.20	1.0	**1.18 (0.509)**	**1.54 (0.459)**	ND (0.128)	0.11 (0.103)	**0.207 (0.108)**	**0.227 (0.086)**
Nickel	< 23	23	49	18.6 (13.2)	14.6 (12.8)	5.4 (3.77)	6.35 (2.78)	4.24 (2.59)	5.62 (2.5)
Selenium	< 0.80	0.80	--	ND (10.6)	ND (10.2)	ND (3.02)	ND (2.22)	ND (2.07)	ND (2)
Vanadium	< 29	29	--	24.9 (5.3)	19.3 (5.12)	10.9 (1.51)	10.1 (1.11)	12.6 (1.03)	10.2 (0.999)
Zinc	< 120	120	460	**782 (26.5)**	**290 (25.6)**	16.5 (7.55)	22 (5.56)	22.6 (5.17)	22.6 (5)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one exceedance to the Freshwater Sediment Guidance Values are shown.
3 Freshwater Sediment Guidance Values are from the Screening and Assessment of Contaminated Sediment (NYSDEC 2014). Class A thresholds are supplemented by available USEPA Region 4 Soil Ecological Screening Values and Los Alamos National Laboratory ecological screening levels.
4 Constituents that do not have an available benchmark are conservatively assumed to be a Class B result, except for essential nutrients (calcium, magnesium, sodium, and potassium).
5 Boldfaced concentrations exceed the Class B Freshwater Sediment Guidance Value.
6 Boldfaced, gray-shaded concentrations exceed the Class C Freshwater Sediment Guidance Value.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
-- - No published Standard or Guidance Value
J - Estimated Concentration

Table 8

Proposed Soils to be Excavated (Track 1)

Elmwood Preserve Site - NYSDEC Site No. C360239

850 Dobbs Ferry Road, White Plains, New York

Parcel	Location	Area (ft^2)	Removal Depth (ft)	Removal Volume (yd^3)
Western	A04	51,093	2	3,785
	A04D	3,278	2	243
	A05	42,024	0.5	778
	A06	40,313	0.5	747
	A07	40,046	0.5	742
	A08	41,114	0.5	761
	A09	42,470	2	3,146
	A10	41,024	2	3,039
	A11	39,958	4	5,920
	A12	41,274	6	9,172
	A13	19,470	2.5	1,803
	A13D	2,654	3.5	344
	B04	57,917	-	-
	B05	47,731	2	3,536
	B06	39,813	0.5	737
	B07	38,362	2	2,842
	B08	39,192	6	8,709
	B09	39,079	2	2,895
	B10	39,838	0.5	738
	B11	39,843	2	2,951
	B12	39,465	6	8,770
	B13	32,244	1	1,194
	C03	48,367	4	7,165
	C04	41,390	0.5	766
	C05	39,084	2	2,895
	C06	39,589	6	8,798
	C07	39,724	2	2,943
	C08	38,782	2	2,873
	C09	39,527	-	-
	C10	38,778	4	5,745
	C11	39,853	6	8,856
	C12	38,362	0.5	710
	C13	27,195	0.5	504
	D03	69,001	0.5	1,278
	D04	41,280	2	3,058
	D05	39,744	2	2,944
	D06	39,438	2	2,921
	D07	38,678	0.5	716
	D08	39,323	2	2,913
	D09	39,135	0.5	725
	D10	39,460	2	2,923
	D11	40,142	2	2,974
	D12	32,145	4	4,762
	D13	16,030	2	1,187
	E03	29,098	4	4,311
	E04	43,691	2	3,236
	E05	38,833	0.5	719
	E06	39,080	4	5,790
	E07	39,796	1.5	2,211
	E08	40,565	2	3,005
	E09	39,812	0.5	737
	E10	38,732	4	5,738
	E11	39,921	2	2,957
	E12	30,726	1	1,138
	E13	11,380	0.5	211
	F02	14,390	2	1,066
	F03	44,468	6	9,882
	F04	38,083	2	2,821
	F05	39,591	2	2,933
	F06	47,159	2	3,493
	F07	38,758	2	2,871
	F08	39,473	2	2,924
	F09	39,461	2	2,923
	F10	39,075	2	2,894
	F11	36,141	2	2,677
	F12	17,704	2	1,311
	G01	30,523	-	-
	G02	38,797	6	8,622
	G03	29,390	6	6,531

Table 8

Proposed Soils to be Excavated (Track 1)

Elmwood Preserve Site - NYSDEC Site No. C360239

850 Dobbs Ferry Road, White Plains, New York

Parcel	Location	Area (ft^2)	Removal Depth (ft)	Removal Volume (yd^3)
Western	G04	27,005	6	6,001
	G05	32,578	0.5	603
	G06	19,310	2	1,430
	G07	39,793	4	5,895
	G08	38,664	2	2,864
	G09	38,459	2.5	3,561
	G10	40,709	2	3,015
	G11	34,678	2	2,569
	G12	16,827	2	1,246
	H01	33,820	2	2,505
	H02	47,407	4	7,023
	H03	30,137	0.5	558
	H04	17,039	6	3,786
	H05	13,565	2	1,005
	H06	24,426	6	5,428
	H07	33,616	2	2,490
	H08	44,831	6	9,962
	H09	42,905	8	12,713
	H10	36,713	2	2,719
	H11	18,345	2	1,359
	I01	64,576	4	9,567
	I02	16,773	-	-
	I03	85,310	2	6,319
	I04	69,054	4	10,230
	I05	63,802	4	9,452
	I06	51,219	6	11,382
	I07	21,279	2	1,576
	I08	42,981	2	3,184
	I09	50,309	2	3,727
	I10	29,621	4	4,388
	I11	13,738	0.5	254
Total Removal Volume:				348,323
Western Parcel (Additional Samples)	TS-01	10,277	2	761
	TS-02	3,845	3	427
	TS-03	23,075	2	1,709
	TS-04	13,119	2.5	1,215
	TS-05	7,863	1.5	437
	TS-05S	5,347	1.5	297
	TS-06	5,755	2	426
	TS-06N	7,497	2	555
	TS-07	19,544	1.5	1,086
	TS-08	18,058	4	2,675
	TS-08N	3,776	4	559
	TS-09	7,778	2.5	720
	TS-10	13,681	2.5	1,267
	TS-11	14,886	1.5	827
	TS-12/TEI-SB-03	17,145	2.5	1,588
	TS-13	20,298	1.5	1,128
	TS-14	2,038	4	302
	TS-14S	3,530	4	523
	TS-15	27,113	1.5	1,506
Total Removal Volume:				18,009

Table 8

Proposed Soils to be Excavated (Track 1)

Elmwood Preserve Site - NYSDEC Site No. C360239

850 Dobbs Ferry Road, White Plains, New York

Parcel	Location	Area (ft^2)	Removal Depth (ft)	Removal Volume (yd^3)
Eastern	C14	21,952	0.5	407
	D14	29,474	0.5	546
	E14	51,754	0.5	958
	F13	25,567	2	1,894
	F14	34,438	0.5	638
	F15	42,160	1	1,561
	G13	25,383	0.5	470
	G14	41,206	0.5	763
	G15	65,450	1	2,424
	H12	20,941	0.5	388
	H13	35,747	1.5	1,986
	H14	46,452	2	3,441
	H15	50,950	0.5	944
	I12	41,807	2	3,097
	I13	41,317	2	3,061
	I14	36,650	2	2,715
	I15	31,210	0.5	578
			Total Removal Volume:	25,869
			TOTAL:	**392,200**

Table 9

Proposed Soils to be Excavated (Track 2)

Elmwood Preserve Site - NYSDEC Site No. C360239

850 Dobbs Ferry Road, White Plains, New York

Parcel	Location	Area (ft^2)	Removal Depth (ft)	Removal Volume (yd^3)
Western	A04	51,093	1	1,892
	A04D	5,000	2	370
	A05	42,024	-	-
	A06	40,313	0.5	747
	A07	40,046	0.5	742
	A08	41,114	0.5	761
	A09	42,470	0.5	786
	A10	41,024	0.5	760
	A11	39,958	1	1,480
	A12	41,274	0.5	764
	A13	19,470	0.5	361
	A13D	2,654	3.5	344
	B04	57,917	0.5	1,073
	B05	47,731	-	-
	B06	39,813	0.5	737
	B07	38,362	0.5	710
	B08	39,192	0.5	726
	B08D	5,000	0.5	93
	B09	39,079	-	-
	B10	39,838	0.5	738
	B11	39,843	0.5	738
	B12	39,465	0.5	731
	B13	32,244	1	1,194
	C03	48,367	0.5	896
	C04	41,390	0.5	766
	C05	39,084	0.5	724
	C06	39,589	0.5	733
	C07	39,724	0.5	736
	C08	38,782	0.5	718
	C09	39,527	-	-
	C10	38,778	1	1,436
	C11	39,853	1	1,476
	C11D	5,000	3	556
	C12	10,306	0.5	191
	C13	27,195	0.5	504
	D03	69,001	0.5	1,278
	D04	41,280	0	0
	D04D	5,000	2	370
	D05	39,744	0.5	736
	D06	39,438	-	-
	D07	38,678	0.5	716
	D08	39,323	0.5	728
	D09	39,135	0.5	725
	D10	39,460	0.5	731
	D11	40,142	0.5	743
	D12	32,145	0.5	595
	D13	16,030	0.5	297
	E03	29,098	1	1,078
	E04	43,691	0.5	809
	E05	38,833	0.5	719
	E06	39,080	0.5	724
	E06D	5,000	1.5	278
	E07	39,796	0.5	737
	E07D	5,000	1	185
	E08	40,565	0.5	751
	E09	39,812	0.5	737
	E10	38,732	0.5	717
	E11	39,921	0.5	739
	E12	30,726	1	1,138
	E13	11,380	0.5	211
	F02	14,390	2	1,066
	F02D	5,000	0	0
	F03	44,468	-	-
	F04	38,083	0.5	705
	F05	39,591	0.5	733
	F06	47,159	0.5	873
	F07	38,758	0.5	718

Table 9

Proposed Soils to be Excavated (Track 2)

Elmwood Preserve Site - NYSDEC Site No. C360239

850 Dobbs Ferry Road, White Plains, New York

Parcel	Location	Area (ft^2)	Removal Depth (ft)	Removal Volume (yd^3)
Western	F08	39,473	0.5	731
	F09	39,461	0.5	731
	F10	39,075	0.5	724
	F11	36,141	1	1,339
	F11D	5,000	0	0
	F12	17,704	0.5	328
	G01	30,523	-	-
	G02	38,797	0.5	718
	G03	29,390	0.5	544
	G04	27,005	0.5	500
	G04D	5,000	1.5	278
	G05	32,578	0.5	603
	G06	19,310	0.5	358
	G06D	5,000	1.5	278
	G07	39,793	-	-
	G08	38,664	0	0
	G08D	5,000	2	370
	G09	38,459	0.5	712
	G09D	5,000		0
	G10	40,709	0.5	754
	G11	34,678	0.5	642
	G12	16,827	0.5	312
	H01	33,820	-	-
	H02	47,407	-	-
	H03	30,137	0.5	558
	H04	17,039	1	631
	H04D	5,000	1	185
	H05	13,565	1	502
	H06	24,426	0.5	452
	H06D	5,000	1.5	278
	H07	33,616	-	-
	H08	17,351	0.5	321
	H09	42,905	0.5	795
	H09D	5,000	1.5	278
	H10	36,713	0.5	680
	H11	18,345	0.5	340
	H11D	5,000	1.5	278
	I01	64,576	0.5	1,196
	I02	16,773	-	-
	I03	85,310	0.5	1,580
	I04	69,054	0.5	1,279
	I05	63,802	0.5	1,182
	I06	51,219	0.5	949
	I06D	5,000	1.5	278
	I07	21,279	0.5	394
	I08	42,981	0.5	796
	I09	50,309	1	1,863
	I09D	5,000	3	556
	I10	29,621	1	1,097
	I10D	5,000	1	185
	I11	13,738	0.5	254
	Total Removal Volume:			**71,147**

Table 9

Proposed Soils to be Excavated (Track 2)

Elmwood Preserve Site - NYSDEC Site No. C360239

850 Dobbs Ferry Road, White Plains, New York

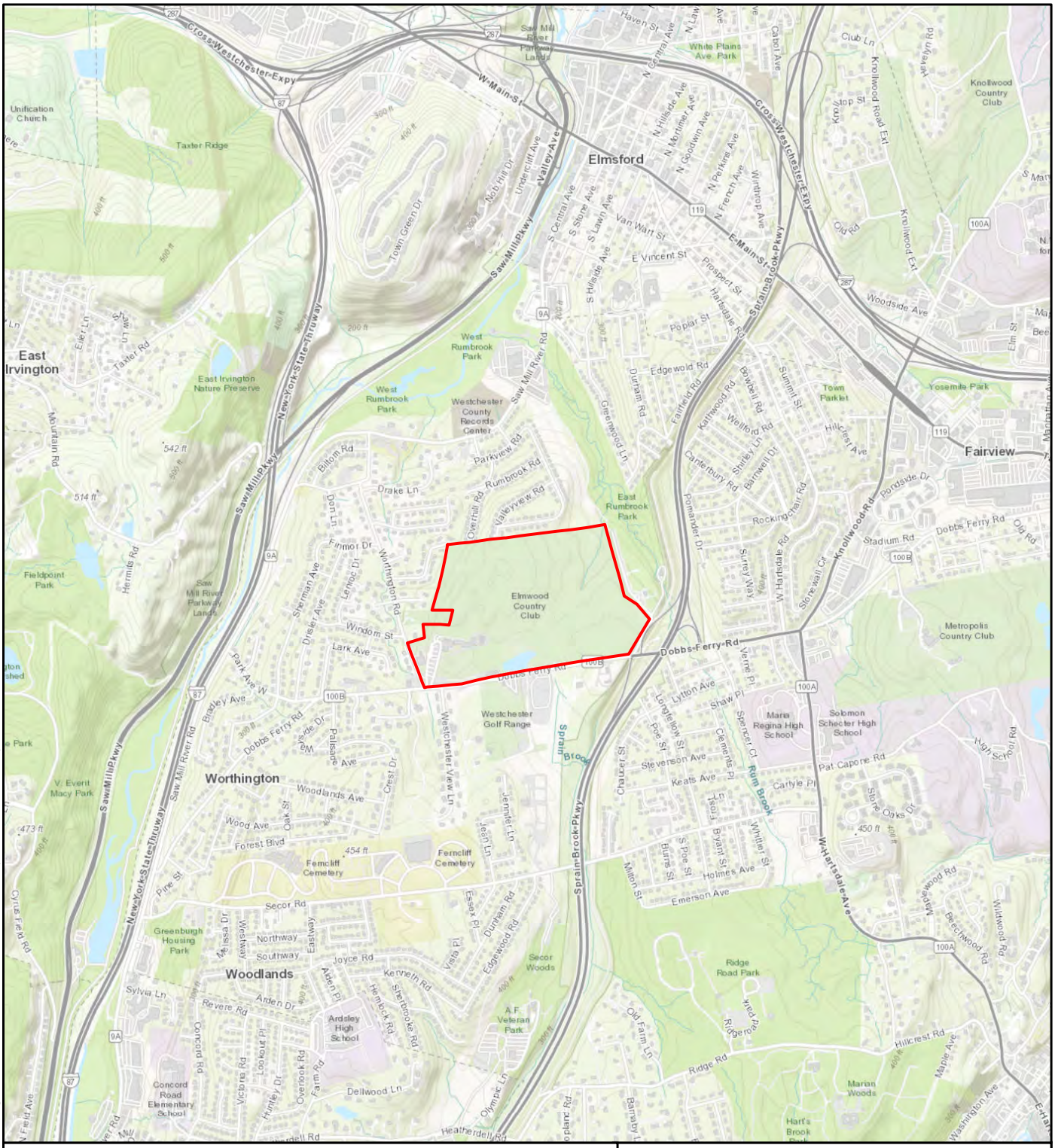
Parcel	Location	Area (ft^2)	Removal Depth (ft)	Removal Volume (yd^3)
Western Parcel (Additional Samples)	TS-01	10,277	2	761
	TS-02	3,845	3	427
	TS-03	23,075	1.5	1,282
	TS-04	13,119	-	-
	TS-05	7,863	1.5	437
	TS-05S	5,347	1.5	297
	TS-06	5,755	2	426
	TS-06N	7,497	1.5	416
	TS-07	19,544	1	724
	TS-08	18,058	4	2,675
	TS-08N	3,776	4	559
	TS-09	7,778	1.5	432
	TS-10	13,681	1.5	760
	TS-11	14,886	1.5	827
	TS-12/TEI-SB-03	17,145	2.5	1,588
	TS-13	20,298	1	752
	TS-14	2,038	4	302
	TS-14S	3,530	3.5	458
	TS-15	27,113	2	2,008
Total Removal Volume:				**15,132**
Eastern	C14	21,952	0.5	407
	D14	29,474	0.5	546
	E14	51,754	0.5	958
	F13	25,567	2	1,894
	F14	34,438	0.5	638
	F15	42,160	1	1,561
	G13	25,383	0.5	470
	G14	41,206	0.5	763
	G15	65,450	1	2,424
	H12	20,941	0.5	388
	H13	35,747	1.5	1,986
	H14	46,452	2	3,441
	H15	50,950	0.5	944
	I12	41,807	2	3,097
	I13	41,317	2	3,061
	I14	36,650	2	2,715
	I15	31,210	0.5	578
Total Removal Volume:				**25,869**
			TOTAL:	**112,148**

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Figures (cont.)

25. Figure 16 – Proposed Pond Sediment to be Removed
26. Figure 17 – Existing Elevation with Alpha Numeric Grid
27. Figure 18 – Truck Transport Routes



0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

N

Legend

Approximate Site Boundary

Base Map: ESRI World Topographic Map
(data providers include HERE, Garmin, USGS, et al.)

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engineering and geology dpc
an affiliate of Terraphase Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

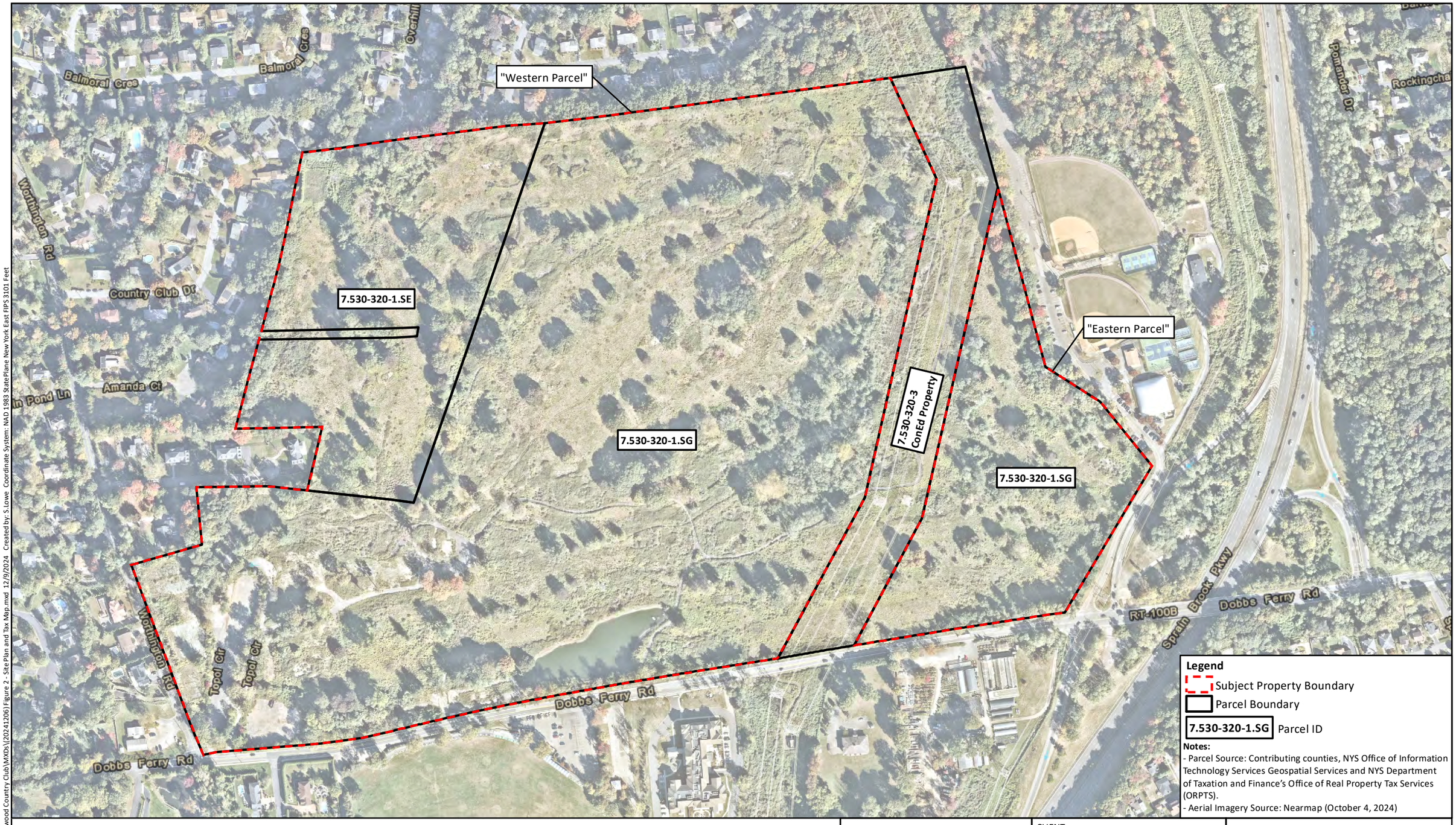
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Site Location

FIGURE 1

File: N:\GIS\Prj\J105.004_Elmwood Country Club\MXDs\(20241206) Figure 1 - Site Location.mxd 12/9/2024 Created by: S.Lowe Coordinate System: NAD 1983 StatePlane New York East FIPS 3101 Feet



File: N:\GIS\Prj\105.004_Elmwood Country Club\WKDs\(20241206) Figure 2 - Site Plan and Tax Map.mxd 12/9/2024 Created by: S.Lowe Coordinate System: NAD 1983 StatePlane New York East FIPS 3101 Feet

DRAFT

0 150 300 600 Feet

1 inch = 300 feet

N

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an affiliate of Terraphase Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Site Plan and Tax Map

FIGURE 2

"Western Parcel"

ConEd Property

"Eastern Parcel"

Legend

- Site Boundary
- Pond
- Proposed Development Plan
- Stream

Note:
Aerial Imagery Source: Nearmap (October 4, 2024)

0 300 600 900 1,200 ft

1 Inch = 300 Feet

N

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an affiliate of Terraphase Engineering Inc

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Future Development Plans

Figure 3

N:\GIS\Prj\105.004_Elmwood Country Club\QGIS\20250707-Terraphase-Elmwood-Eco.qgz 20250708-Figure4-DevelopmentPlan 2024-09-26T18:29:52.000 Created by: M.Ingling Checked by: N. Krasnecky

A

A'

Elevation (feet NAVD88)

Distance (feet)

B-05
C-07
D-08
D-09
E-09
E-10
F-11
G-12/RMW-08
(Dry)
G-13
H-14
I-15/MW-11D
A-04/MW-01D

Legend

- measure lines
- Groundwater Level (Approximate)
- Bedrock Depth (Dashed Where Infered)
- Surface

Lithology

- Sands
- Sandy Gravel
- Silty Sand
- Bedrock

0 100 200 400 Feet

1 inch = 200 ft

Vertical Exaggeration = 12

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CLIENT:	Elmwood Country Club
PROJECT:	Elmwood Preserve Site 850 Dobbs Ferry Road, White Plains, NY
PROJECT NUMBER:	CV04.001.001

Cross Section A-A'

FIGURE 4a

File: N:\GIS\Prj\J105.004_Elmwood Country Club\MXDs\Crossview\MXDs\A-A'v2.mxd 1/20/2026 Created by: S.Lowe Coordinate System:

B

B'

Elevation (feet NAVD88)

Distance (feet)

E-07
F-06
C-10
C-11
G-05/RMW-07
G-04
TS-07
TS-06
TS-05
TS-04
I-01/MW-09D
B-12
A-13/RMW-03

Legend

- Groundwater Level (Approximate)
- Bedrock Depth (Dashed Where Infered)
- Surface

Lithology

- Fill
- Sandy Gravel
- Silty Sand
- Bedrock

0 100 200 400 Feet

1 inch = 200 ft

Vertical Exaggeration = 12

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terraphase engineering

CLIENT:	Elmwood Country Club
PROJECT:	Elmwood Preserve Site 850 Dobbs Ferry Road, White Plains, NY
PROJECT NUMBER:	CV04.001.001

Cross Section B-B'

FIGURE 4b

File: N:\GIS\Prj\105.004_Elmwood Country Club\MXDs\Crossview\MXDs\B-B'v2.mxd 1/20/2026 Created by: S.Lowe Coordinate System:

"Western Parcel"

ConEd Property

"Eastern Parcel"

RMW-03
277.11

RMW-05
279.38

RMW-07
328.74

RMW-10
318.77

280 284 288 292 296 300 304 308 312 316 320 324 328

Legend

- Site Boundary
- Pond
- Proposed Development Plan
- Stream
- Groundwater Flow Direction

Groundwater Elevation Contours (ft)

- Estimated
- Inferred
- Overburden GW Monitoring Well

0 300 600 900 1,200 ft

1 Inch = 300 Feet

N

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CLIENT: Ridgewood Elmwood Owner, LLC

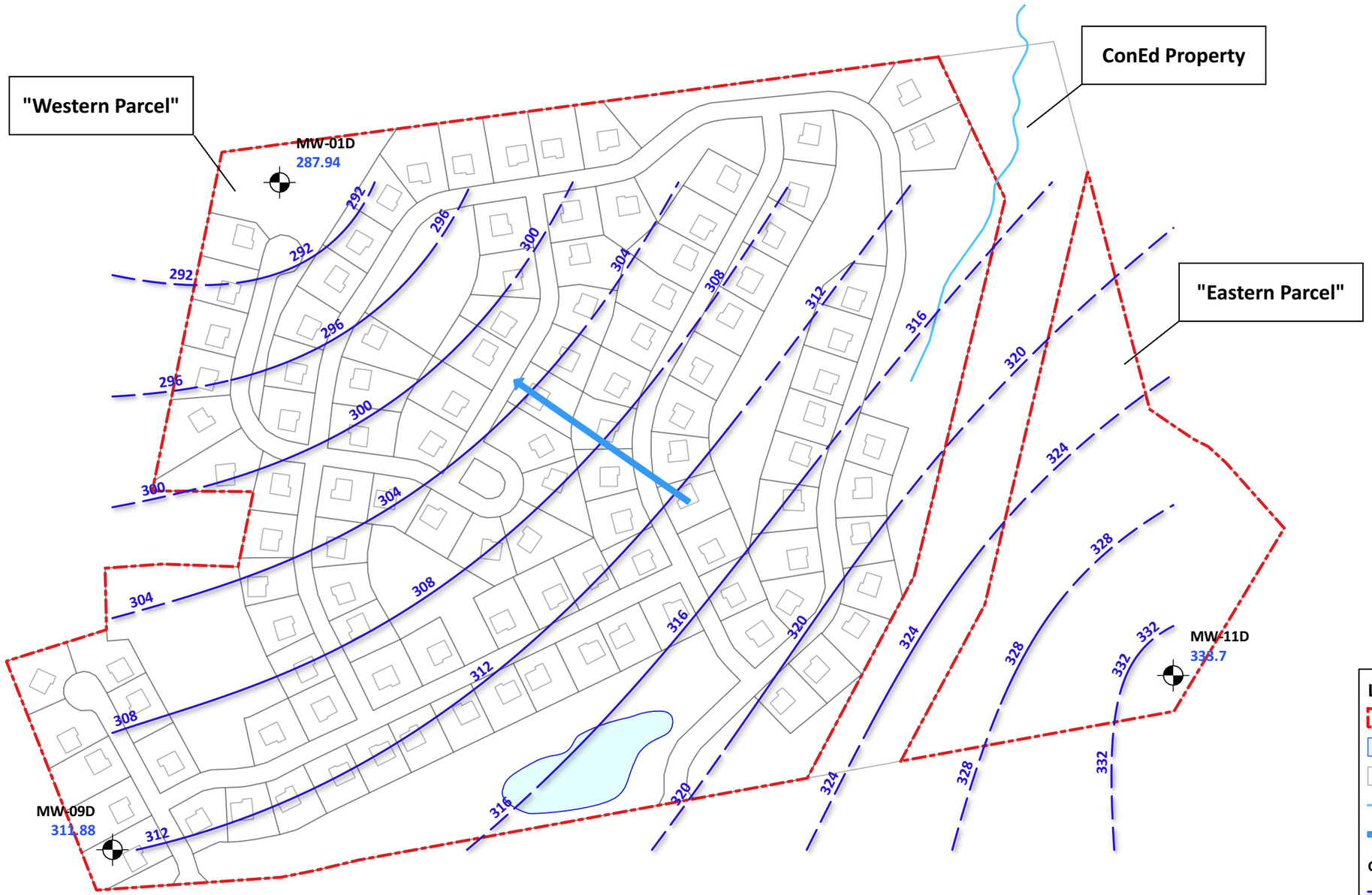
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Groundwater Elevation and Flow Overburden

Figure 5a

N:\GIS\Prj\105.004_Elmwood Country Club\QGIS\20250701-Terraphase-Elmwood-SO.qgz 20250701-Overburden-GWE-Contours 2024-09-26T18:29:52.000 Created by: M.Ingling Checked by: N. Krasnecky



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CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Groundwater Elevation and Flow Bedrock

Figure 5b

N:\GIS\Pr\J105.004_Elmwood Country Club\QGIS\20250701-Terraphase-Elmwood-SO.qgz 20250701-Bedrock-GWE-Contours 2024-09-26T18:29:52.000 Created by: M.Ingling Checked by: N. Krasnecky

"Western Parcel"

"Eastern Parcel"

A04 0.5 ft
A04D 2 ft
A05
A06 0.5 ft
A07 0.5 ft
A08 0.5 ft
A09 0.5 ft
A10 0.5 ft
A11 0.5 ft
A11D 1 ft
A12 0.5 ft
A13 0.5 ft
A13D 3.5 ft
B04 0.5 ft
B05
B06 0.5 ft
B07 0.5 ft
B08 0.5 ft
B08D 1 ft
B09
B10 0.5 ft
B11 0.5 ft
B12 0.5 ft
B13 0.5 ft
B13D 1 ft
C03 0.5 ft
C04 0.5 ft
C05 0.5 ft
C06 0.5 ft
C07 0.5 ft
C08 0.5 ft
C09
C10 0.5 ft
C10D 1 ft
C11 0.5 ft
C11D 4 ft
C12
0.5 ft
C13 0.5 ft
D03 0.5 ft
D04
D04D 2 ft
D05 0.5 ft
D06
D07 0.5 ft
D08 0.5 ft
D09 0.5 ft
D10 0.5 ft
D11 0.5 ft
D12 0.5 ft
D13 0.5 ft
E03 0.5 ft
E03D 1 ft
E04 0.5 ft
E05 0.5 ft
E06 0.5 ft
E06D 2 ft
E07 0.5 ft
E07D 1.5 ft
E08 0.5 ft
E09 0.5 ft
E10 0.5 ft
E11 0.5 ft
E12
0.5 ft
1 ft
E13 0.5 ft
F04 0.5 ft
F05 0.5 ft
F06 0.5 ft
F07 0.5 ft
F08 0.5 ft
F09 0.5 ft
F10 0.5 ft
F11 0.5 ft
F11D 1 ft
F12 0.5 ft
F13 0.5 ft
F13D 2 ft
F14 0.5 ft
F15 0.5 ft
F15D 1 ft
G01
G02 0.5 ft
G03 0.5 ft
G04 0.5 ft
G04D 2 ft
G05 0.5 ft
G06 0.5 ft
G06D 2 ft
G07
G08
G08D 2 ft
G09 0.5 ft
G10 0.5 ft
G11 0.5 ft
G12 0.5 ft
G13 0.5 ft
G14 0.5 ft
G15 0.5 ft
G15D 1 ft
H01
H02
H03 0.5 ft
H04 1 ft
H04D 2 ft
H05 1 ft
H06 0.5 ft
H06D 2 ft
H07
H08
H09 0.5 ft
H09D 2 ft
H10 0.5 ft
H11 0.5 ft
H11D 2 ft
H12 0.5 ft
H13 0.5 ft
H13D 1.5 ft
H14 0.5 ft
H14D 2 ft
H15 0.5 ft
I01 0.5 ft
I02
I03 0.5 ft
I04 0.5 ft
I05 0.5 ft
I06 0.5 ft
I06D 2 ft
I07 0.5 ft
I08 0.5 ft
I09 0.5 ft
I09D 4 ft
I10 0.5 ft
I10D 2 ft
I11 0.5 ft
I12 0.5 ft
I12D 2 ft
I13 0.5 ft
I13D 2 ft
I14 0.5 ft
I14D 2 ft
I15 0.5 ft
F02 2 ft
TS-11E
TS-11 1.5 ft
TS-10E
TS-10 1.5 ft
TS-09 1.5 ft
TS-08W/TS-09E
TS-08N
TS-08 4 ft
TEI-SB-05
TEI-SB-06
TS-04
TS-05S
TS-05 1.5 ft
TS-06 2 ft
TS-06N
TS-06E
TS-07 1 ft
TS-02 1 ft
TS-02D 2 ft
TS-01D 2 ft
TS-01 0.5 ft
TS-03 1.5 ft
TS-12D/TEI-SB-03D 2.5 ft
TS-12/TEI-SB-03 0.5 ft
TS-13D 1 ft
TS09S
TS-13 0.5 ft
TS-15 0.5 ft
TS-15D 2 ft
TS-14 2 ft
TS-14E
TS-14S
TEI-SB-02
TEI-SB-01
TEI-SB-04

Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Stream
- Area Containing Historical Fill

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft

Soil Sampling Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

Abbreviations:
PEco -- Protection of Ecological Resources
SCO -- Soil Cleanup Objective

Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs.
Removal depths are based on comparison to the Residential SCOs in the Western Parcel and Eastern Parcel.
Surface soil collected in the upper 2 feet within the wetlands 100-foot buffer zones in the Western Parcel are also compared to the PEco SCOs. Removal depths are based on the analytical results, with consideration of the conceptual site model where 6-inch interval vertical delineation is not available, and post-excavation sampling will confirm soil in the buffer zones meet the PEco SCOs.

0 110 220 330 440 ft
1 Inch = 110 Feet

N

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CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

Proposed Soils to be Excavated

FIGURE 6

Z:\Projects\335.004_Elmwood County Club\GIS\2020\20210816-Terraphase-Elmwood-GIS-Databases-RAWP.mxd 20250812-SO-RemovalDepths 2025-10-15T22:12:56.000 Created By: M. Ingling Checked by: NK

"Western Parcel"

"Eastern Parcel"

D13	0.2-2(ft)
Acetone	**0.12 {A}**

F13	0.2-2(ft)
Acetone	**0.11 {A}**

TEI-SB-04	1-3(ft)
Acetone	**0.04 {A}**

TS-03	0-1(ft)
Acetone	**0.066 {A}**

Sample Location — Depth Interval Exceeding Applicable SCOs

406	0-0.2(ft)	0.2-2(ft)	← Sampling Depth
Pesticides			
4,4'-DDE	**0.0222 (A)**	**0.0391 (A)**	
4,4'-DDT	**0.0057 JP (A)**	**0.0118 (A)**	
Dieldrin	**0.0282 (A)**	**0.0235 (A)**	← SCO Exceeded
Metals			
Arsenic	**31.3 (AB)**	9.5	
Chromium III	**17.9 (AB)**	23.2	
Mercury	**0.418 (A)**	0.179	
Zinc	**130 (A)**	57.3	← Result

Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Proposed Development Plan
- Area Containing Soil Exceeding Applicable SCOs
- Stream

Soil Sampling Location

- Exceeds Applicable SCOs
- No Applicable SCO Exceedances

Abbreviations:
SCO – Soil Cleanup Objective
VOCs – Volatile Organic Compounds

Exceedance Codes:
[A] - Greater than Unrestricted Use SCO
[AB] - Greater than Residential SCO

Notes:
All concentrations are presented in mg/kg. Results exceeding applicable SCOs are shaded. Soil sampling locations in the Western Parcel are compared against the Residential SCOs and those in the Eastern Parcel are compared against the Unrestricted Use SCOs. All soil sampling locations with the exception of F13 were below their respective SCOs for VOCs.

Soil Cleanup Objectives		
Chemical	{A} Unrestricted Use Soil Cleanup Objectives (mg/kg)	{AB} Residential Soil Cleanup Objectives (mg/kg)
Acetone	0.05	100

0 110 220 330 440 ft

1 Inch = 110 Feet

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CLIENT: Ridgewood Elmwood Owner, LLC

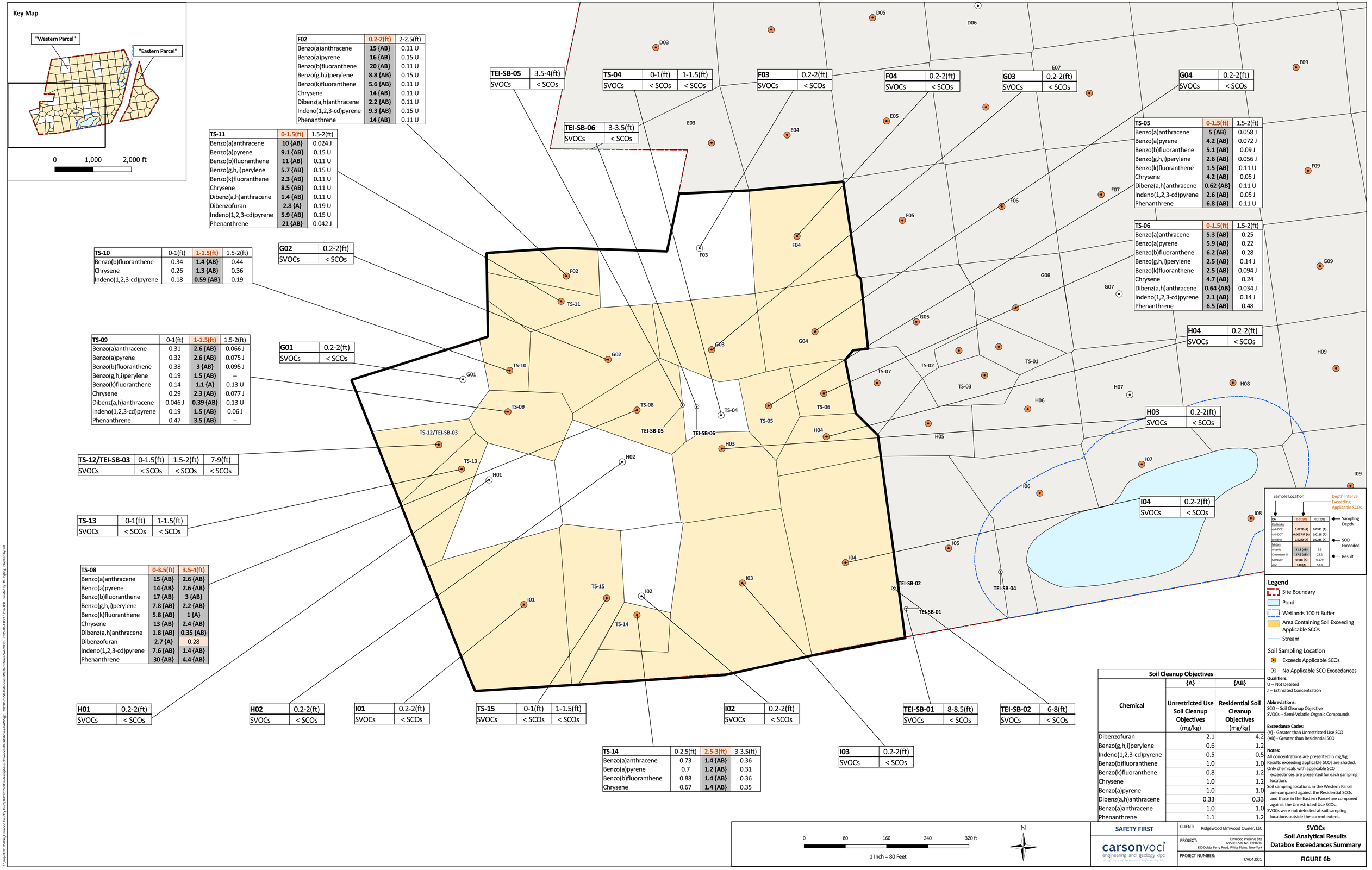
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

VOCs
Soil Analytical Results
Databox Exceedances Summary

FIGURE 6a

Z:\Projects\215.004_Elmwood County Club\GIS\20201116 Terraphase Elmwood SD Databoxes RAWP.mxd 20200624-SD-Databoxes-VOCs 2015-03-13T12:11:54.000 Created By: M. Ingling Checked by: WI


Key Map
"Western Parcel"
"Eastern Parcel"
0
1,000
2,000 ft
F02 | 0.2-2(ft) | 2-2.5(ft)
Benzo(a)anthracene | 15 {AB} | 0.11 U
Benzo(a)pyrene | 16 {AB} | 0.15 U
Benzo(b)fluoranthene | 20 {AB} | 0.11 U
Benzo(g,h,i)perylene | 8.8 {AB} | 0.15 U
Benzo(k)fluoranthene | 5.6 {AB} | 0.11 U
Chrysene | 14 {AB} | 0.11 U
Dibenz(a,h)anthracene | 2.2 {AB} | 0.11 U
Indeno(1,2,3-cd)pyrene | 9.3 {AB} | 0.15 U
Phenanthrene | 14 {AB} | 0.11 U
TEI-SB-05 | 3.5-4(ft)
SVOCs | < SCOs
TS-04 | 0-1(ft) | 1-1.5(ft)
SVOCs | < SCOs | < SCOs
F03 | 0.2-2(ft)
SVOCs | < SCOs
F04 | 0.2-2(ft)
SVOCs | < SCOs
G03 | 0.2-2(ft)
SVOCs | < SCOs
G04 | 0.2-2(ft)
SVOCs | < SCOs
TEI-SB-06 | 3-3.5(ft)
SVOCs | < SCOs
TS-11 | 0-1.5(ft) | 1.5-2(ft)
Benzo(a)anthracene | 10 {AB} | 0.024 J
Benzo(a)pyrene | 9.1 {AB} | 0.15 U
Benzo(b)fluoranthene | 11 {AB} | 0.11 U
Benzo(g,h,i)perylene | 5.7 {AB} | 0.15 U
Benzo(k)fluoranthene | 2.3 {AB} | 0.11 U
Chrysene | 8.5 {AB} | 0.11 U
Dibenz(a,h)anthracene | 1.4 {AB} | 0.11 U
Dibenzofuran | 2.8 {A} | 0.19 U
Indeno(1,2,3-cd)pyrene | 5.9 {AB} | 0.15 U
Phenanthrene | 21 {AB} | 0.042 J
TS-05 | 0-1.5(ft) | 1.5-2(ft)
Benzo(a)anthracene | 5 {AB} | 0.058 J
Benzo(a)pyrene | 4.2 {AB} | 0.072 J
Benzo(b)fluoranthene | 5.1 {AB} | 0.09 J
Benzo(g,h,i)perylene | 2.6 {AB} | 0.056 J
Benzo(k)fluoranthene | 1.5 {AB} | 0.11 U
Chrysene | 4.2 {AB} | 0.05 J
Dibenz(a,h)anthracene | 0.62 {AB} | 0.11 U
Indeno(1,2,3-cd)pyrene | 2.6 {AB} | 0.05 J
Phenanthrene | 6.8 {AB} | 0.11 U
TS-06 | 0-1.5(ft) | 1.5-2(ft)
Benzo(a)anthracene | 5.3 {AB} | 0.25
Benzo(a)pyrene | 5.9 {AB} | 0.22
Benzo(b)fluoranthene | 6.2 {AB} | 0.28
Benzo(g,h,i)perylene | 2.5 {AB} | 0.14 J
Benzo(k)fluoranthene | 2.5 {AB} | 0.094 J
Chrysene | 4.7 {AB} | 0.24
Dibenz(a,h)anthracene | 0.64 {AB} | 0.034 J
Indeno(1,2,3-cd)pyrene | 2.1 {AB} | 0.14 J
Phenanthrene | 6.5 {AB} | 0.48
TS-10 | 0-1(ft) | 1-1.5(ft) | 1.5-2(ft)
Benzo(b)fluoranthene | 0.34 | 1.4 {AB} | 0.44
Chrysene | 0.26 | 1.3 {AB} | 0.36
Indeno(1,2,3-cd)pyrene | 0.18 | 0.59 {AB} | 0.19
G02 | 0.2-2(ft)
SVOCs | < SCOs
H04 | 0.2-2(ft)
SVOCs | < SCOs
TS-09 | 0-1(ft) | 1-1.5(ft) | 1.5-2(ft)
Benzo(a)anthracene | 0.31 | 2.6 {AB} | 0.066 J
Benzo(a)pyrene | 0.32 | 2.6 {AB} | 0.075 J
Benzo(b)fluoranthene | 0.38 | 3 {AB} | 0.095 J
Benzo(g,h,i)perylene | 0.19 | 1.5 {AB} | --
Benzo(k)fluoranthene | 0.14 | 1.1 {A} | 0.13 U
Chrysene | 0.29 | 2.3 {AB} | 0.077 J
Dibenz(a,h)anthracene | 0.046 J | 0.39 {AB} | 0.13 U
Indeno(1,2,3-cd)pyrene | 0.19 | 1.5 {AB} | 0.06 J
Phenanthrene | 0.47 | 3.5 {AB} | --
G01 | 0.2-2(ft)
SVOCs | < SCOs
H03 | 0.2-2(ft)
SVOCs | < SCOs
TS-12/TEI-SB-03 | 0-1.5(ft) | 1.5-2(ft) | 7-9(ft)
SVOCs | < SCOs | < SCOs | < SCOs
TS-13 | 0-1(ft) | 1-1.5(ft)
SVOCs | < SCOs | < SCOs
I04 | 0.2-2(ft)
SVOCs | < SCOs
TS-08 | 0-3.5(ft) | 3.5-4(ft)
Benzo(a)anthracene | 15 {AB} | 2.6 {AB}
Benzo(a)pyrene | 14 {AB} | 2.6 {AB}
Benzo(b)fluoranthene | 17 {AB} | 3 {AB}
Benzo(g,h,i)perylene | 7.8 {AB} | 2.2 {AB}
Benzo(k)fluoranthene | 5.8 {AB} | 1 {A}
Chrysene | 13 {AB} | 2.4 {AB}
Dibenz(a,h)anthracene | 1.8 {AB} | 0.35 {AB}
Dibenzofuran | 2.7 {A} | 0.28
Indeno(1,2,3-cd)pyrene | 7.6 {AB} | 1.4 {AB}
Phenanthrene | 30 {AB} | 4.4 {AB}
H01 | 0.2-2(ft)
SVOCs | < SCOs
H02 | 0.2-2(ft)
SVOCs | < SCOs
I01 | 0.2-2(ft)
SVOCs | < SCOs
TS-15 | 0-1(ft) | 1-1.5(ft)
SVOCs | < SCOs | < SCOs
I02 | 0.2-2(ft)
SVOCs | < SCOs
TEI-SB-01 | 8-8.5(ft)
SVOCs | < SCOs
TEI-SB-02 | 6-8(ft)
SVOCs | < SCOs
TS-14 | 0-2.5(ft) | 2.5-3(ft) | 3-3.5(ft)
Benzo(a)anthracene | 0.73 | 1.4 {AB} | 0.36
Benzo(a)pyrene | 0.7 | 1.2 {AB} | 0.31
Benzo(b)fluoranthene | 0.88 | 1.4 {AB} | 0.36
Chrysene | 0.67 | 1.4 {AB} | 0.35
I03 | 0.2-2(ft)
SVOCs | < SCOs
Sample Location
Depth Interval Exceeding Applicable SCOs
D06 | 0-0.2(ft) | 0.2-2(ft)
Pesticides
4,4'-DDE | 0.0222 (A) | 0.0391 (A)
4,4'-DDT | 0.0057 JP (A) | 0.0118 (A)
Dieldrin | 0.0282 (A) | 0.0235 (A)
Metals
Arsenic | 31.3 (AB) | 9.5
Chromium III | 37.9 (AB) | 23.2
Mercury | 0.418 (A) | 0.179
Zinc | 130 (A) | 57.3
Sampling Depth
SCO Exceeded
Result
Legend
Site Boundary
Pond
Wetlands 100 ft Buffer
Area Containing Soil Exceeding Applicable SCOs
Stream
Soil Sampling Location
Exceeds Applicable SCOs
No Applicable SCO Exceedances
Qualifiers:
U -- Not Deteted
J -- Estimated Concentration
Abbreviations:
SCO -- Soil Cleanup Objective
SVOCs -- Semi-Volatile Organic Compounds
Exceedance Codes:
{A} - Greater than Unrestricted Use SCO
{AB} - Greater than Residential SCO
Notes:
All concentrations are presented in mg/kg.
Results exceeding applicable SCOs are shaded.
Only chemicals with applicable SCO exceedances are presented for each sampling location.
Soil sampling locations in the Western Parcel are compared against the Residential SCOs and those in the Eastern Parcel are compared against the Unrestricted Use SCOs.
SVOCs were not detected at soil sampling locations outside the current extent.
Soil Cleanup Objectives
Chemical | {A} Unrestricted Use Soil Cleanup Objectives (mg/kg) | {AB} Residential Soil Cleanup Objectives (mg/kg)
Dibenzofuran | 2.1 | 4.2
Benzo(g,h,i)perylene | 0.6 | 1.2
Indeno(1,2,3-cd)pyrene | 0.5 | 0.5
Benzo(b)fluoranthene | 1.0 | 1.0
Benzo(k)fluoranthene | 0.8 | 1.2
Chrysene | 1.0 | 1.2
Benzo(a)pyrene | 1.0 | 1.0
Dibenz(a,h)anthracene | 0.33 | 0.33
Benzo(a)anthracene | 1.0 | 1.0
Phenanthrene | 1.1 | 1.2
0
80
160
240
320 ft
1 Inch = 80 Feet
N
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an affiliate of Terraphase Engineering Inc.
CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001
SVOCs
Soil Analytical Results
Databox Exceedances Summary
FIGURE 6b
Z:\Projects\105.004_Elmwood County Club\505\105005\18-Terraphase-Elmwood-SD-Databases-SWAP.ggb 2020626-SD-Databases-WesternParcel-SW-SVOCs 2025-03-13T12:12:56.000 Created by: M. Ingling Checked by: NK

A04	0.2-2(ft)	2-4(ft)
PFOS	**0.00105 {A}**	0.000094 J
PFOA	0.000368	0.000286

A05	0.2-2(ft)
PFOS	0.000066 J
PFOA	0.000168 J

B05	0.2-2(ft)	2-4(ft)
PFOS	0.000912	0.00016 J
PFOA	**0.00125 {A}**	0.00042

E08	0.2-2(ft)
PFOS	0.00015 J
PFOA	0.000278

A09	0.2-2(ft)
PFOS	0.000745
PFOA	0.000585

A13	0.2-2(ft)	7-9(ft)
PFOS	0.000702	0.00019 U
PFOA	0.000426	0.00019 U

"Western Parcel"

B04	0.2-2(ft)
PFOS	0.000522
PFOA	0.000274

C13	0.2-2(ft)	11-13(ft)
PFOS	0.000329	0.000198 U
PFOA	0.00018 J	0.000198 U

C05	0.2-2(ft)
PFOS	0.000125 J
PFOA	0.000196 U

C12	0.2-2(ft)
PFOS	0.000198 U
PFOA	0.000101 J

E05	0.2-2(ft)
PFOS	0.000123 J
PFOA	0.0003

"Eastern Parcel"

G05	0.2-2(ft)	13-15(ft)
PFOS	0.00009 J	0.000199 U
PFOA	0.0002 U	0.000199 U

TS-05	0-1.5(ft)	1.5-2(ft)
PFOS	0.000564	0.000199 U
PFOA	0.000146 J	0.000199 U

TS-10	0-1(ft)	1-1.5(ft)
PFOS	0.00009 J	0.000135 J
PFOA	0.000027 J	0.000199 U

TS-15	0-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)
PFOS	0.000853	**0.000971 {A}**	0.000552	--
PFOA	**0.000834 {A}**	**0.00111 {A}**	**0.000732 {A}**	0.000325

I01	0.2-2(ft)
PFOS	0.000734
PFOA	0.000223

TEI-SB-02	6-8(ft)
PFOS	0.00007 J / 0.000067 J
PFOA	0.0002 U / 0.0002 U

TS-03	0-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)
PFOS	0.000922	0.000708	0.000324	--
PFOA	**0.000974 {A}**	**0.0033 {A}**	**0.00161 {A}**	0.000196 J

I08	0.2-2(ft)	6-8(ft)
PFOS	0.000141 J	0.0002 U
PFOA	0.000081 J	0.0002 U

G12	0.2-2(ft)	9-11(ft)
PFOS	0.000299	0.000079 J
PFOA	0.0002 U	0.0002 U

I15	0.2-2(ft)	6-8(ft)
PFOS	0.0002 U	0.0002 U
PFOA	0.000122 J	0.0002 U

Soil Cleanup Objectives

Chemical	{A} Unrestricted Use Soil Cleanup Objectives (mg/kg)	{AB} Residential Soil Cleanup Objectives (mg/kg)
PFOS	0.00088	0.0088
PFOA	0.00066	0.0066

Sample Location — Depth Interval Exceeding Applicable SCOs

EN	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0222 (A)**	**0.0395 (A)**
4,4'-DDT	**0.0057 P (A)**	**0.0118 (A)**
Dieldrin	**0.0282 (A)**	**0.0235 (A)**
Metals		
Arsenic	**31.3 (AB)**	9.5
Chromium III	**37.9 (AB)**	23.2
Mercury	**0.418 (A)**	0.179
Zinc	**130 (A)**	57.3

Sampling Depth; SCO Exceeded; Result

Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Area Containing Soil Exceeding Applicable SCOs
- Stream

Soil Sampling Location

- Exceeds Applicable SCOs
- No Applicable SCO Exceedances

Qualifiers:
U – Not Deteted
J – Estimated Concentration

Abbreviation:
-- – Not Analyzed
SCO – Soil Cleanup Objective

Exceedance Codes:
{A} - Greater than Unrestricted Use SCO
{AB} - Greater than Residential SCO

Notes:
All concentrations are presented in mg/kg. Results exceeding applicable SCOs are shaded. Soil sampling locations in the Western Parcel are compared against the Residential SCOs and those in the Eastern Parcel are compared against the Unrestricted Use SCOs.

0 110 220 330 440 ft
1 Inch = 110 Feet

N

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an affiliate of Terraphase Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

PFAS
Soil Analytical Results
Databox Exceedances Summary

FIGURE 6c

Z:\Projects\CV\004_Elmwood County Club\GIS\2020\06 Terraphase Elmwood SD Databoxes-EMW.mpr - 20200624-SD-Databoxes-PFAS - 2015-03-13T12:12:54.000 Created By: M. Ingling Checked by: NK

"Western Parcel"

"Eastern Parcel"

F02	0.2-2(ft)	2-2.5(ft)
PCBs (total)	**3.69 {AB}**	0.0568 U

TS-08	0-3.5(ft)	3.5-4(ft)
PCBs (total)	**0.238 {A}**	**0.691 {A}**

Sample Location — Depth Interval Exceeding Applicable SCOs

SS6	0.4-3(ft)	0.2-2(ft)	← Sampling Depth
Pesticides			
4,4'-DDE	0.0222 (A)	0.0391 (A)	← SCO Exceeded
4,4'-DDT	0.0057 P (A)	0.0118 (A)	
Dieldrin	0.0282 (A)	0.0235 (A)	
Metals			
Arsenic	31.3 (AB)	8.5	← Result
Chromium III	37.9 (AB)	23.2	
Mercury	0.418 (A)	0.179	
Zinc	130 (A)	57.3	

Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Area Containing Soil Exceeding Applicable SCOs
- Stream

Soil Sampling Location

- Exceeds Applicable SCOs
- No Applicable SCO Exceedances

Qualifiers:
U – Not Deteted
J – Estimated Concentration

Abbreviation:
SCO – Soil Cleanup Objective

Exceedance Codes:
{A} - Greater than Unrestricted Use SCO
{AB} - Greater than Residential SCO

Notes:
All concentrations are presented in mg/kg.
Results exceeding applicable SCOs are shaded.
Soil sampling locations in the Western Parcel are compared against the Residential SCOs and those in the Eastern Parcel are compared against the Unrestricted Use SCOs.

Soil Cleanup Objectives

Chemical	{A} Unrestricted Use Soil Cleanup Objectives (mg/kg)	{AB} Residential Soil Cleanup Objectives (mg/kg)
PCBs (total)	0.1	1

0 110 220 330 440 ft

1 Inch = 110 Feet

N

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an affiliate of Terraphase Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

PCBs
Soil Analytical Results
Databox Exceedances Summary

FIGURE 6d

Z:\Projects\215.004_Elmwood County Club\GIS\2020\16-Terraphase-Elmwood-SD-Databoxes-PAH\Figs - 20200624-SD-Databoxes PCBs post Exceedances - 2015-03-13T22:21:56.000 - Created By: M. Inglima - Checked by: WK

Key Map

B06	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0112 {A}**	0.00188 U
Dieldrin	**0.0175 {AB}**	0.00117 U
Metals		
Arsenic	**25.9 {AB}**	3.24
Chromium III	**33.7 {AB}**	26
Lead	**88.4 {A}**	11.5

A06	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0274 {A}**	0.000801 JIP
4,4'-DDT	**0.0113 {A}**	0.00183 U
Dieldrin	**0.0103 {A}**	0.00114 U
Metals		
Arsenic	**19 {AB}**	4.9
Mercury	**0.344 {A}**	0.053 J

B07	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.212 {A}**	**0.0134 {A}**	0.00168 U
4,4'-DDT	**0.032 {A}**	0.00243	0.00168 U
Metals			
Arsenic	**71 {AB}**	7.45	0.641 J
Chromium III	**36.7 {AB}**	24.4	--
Lead	**220 {A}**	20.6	4.14 J
Mercury	**6.16 {AB}**	**0.474 {AB}**	0.073 U

C06	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
alpha-Chlordane	**0.0292 IP {A}**	0.00236 IP	0.00208 U
4,4'-DDE	**0.0271 {A}**	**0.00486 {A}**	0.000604 J
4,4'-DDT	**0.00691 {A}**	0.00159 JIP	0.00166 U
Dieldrin	**0.119 {AB}**	**0.0118 {A}**	0.00153
Heptachlor epoxide	**0.0424 {A}**	0.0047	0.00311 U
Metals			
Arsenic	**29.6 {AB}**	3.62	--
Chromium III	**35.3 {AB}**	20.5	--
Mercury	**0.739 {AB}**	0.089 U	--

B08	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	2-4(ft)	4-6(ft)	6-8(ft)
Pesticides							
4,4'-DDE	**0.0273 {A}**	**0.0173 {A}**	--	--	0.00172 U	--	--
4,4'-DDT	**0.00572 {A}**	**0.00346 {A}**	--	--	0.00172 U	--	--
Metals							
Arsenic	**29 {AB}**	**27.7 J {AB}**	**22 {AB}**	**15.8 {A}**	0.761 J	0.25 J	--
Copper	15.5	19.7	--	--	**51.2 {A}**	**62.5 {A}**	39
Lead	**93.4 {A}**	**90.2 J {A}**	--	--	8.67	7.51	--
Mercury	**0.288 {A}**	**0.414 {AB}**	--	--	0.079 U	0.073 U	--

B05	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.00857 {A}**	0.00187
4,4'-DDT	**0.00378 {A}**	0.00183 U
Dieldrin	**0.00552 {A}**	0.000601 J

A05	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.012 {A}**	0.00151 JIP
4,4'-DDT	**0.0082 {A}**	0.00192 U
Metals		
Arsenic	**15.6 {A}**	3.96

A07	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0361 {A}**	0.00198 IP
4,4'-DDT	**0.0117 {A}**	0.00181 U
Metals		
Arsenic	**29.3 J {AB}**	5.25
Chromium III	**34.1 {AB}**	25.5
Lead	**99.2 {A}**	16.9
Mercury	**0.252 {A}**	0.057 J

A08	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0125 {A}**	0.00197 IP
4,4'-DDT	**0.00355 {A}**	0.00184 U
Metals		
Arsenic	**66.1 {AB}**	4.38
Chromium III	**41.3 {AB}**	29.1
Lead	**195 {A}**	13.5
Mercury	**0.272 {A}**	0.077 U

C07	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
alpha-Chlordane	**0.0176 IP {A}**	0.00121 JIP	0.00211 U
4,4'-DDE	**0.0544 {A}**	**0.00346 {A}**	0.00169 U
4,4'-DDT	**0.0135 {A}**	0.00164 U	0.00169 U
Dieldrin	**0.0267 {AB}**	0.00112	0.00105 U
Heptachlor epoxide	**0.0234 {A}**	0.00307 U	0.00316 U
Metals			
Arsenic	**52.9 {AB}**	6.2	--
Chromium III	**46.7 {AB}**	24.4	--
Lead	**94.7 {A}**	18.7	--
Mercury	**0.342 {AB}**	0.081 U	--

A04	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)
Pesticides						
4,4'-DDE	**0.0943 {A}**	**0.0964 {A}**	--	--	--	0.00166 U
4,4'-DDT	**0.0306 {A}**	**0.027 {A}**	--	--	--	0.00166 U
Metals						
Arsenic	**22 {AB}**	**17.7 {AB}**	**19 {AB}**	**16.6 {AB}**	--	2.4
Lead	**79.2 {A}**	**63.2 {A}**	--	--	--	4.71
Mercury	**3.14 {AB}**	**2.77 {AB}**	**4.05 {AB}**	**3.9 {AB}**	**2.57 {AB}**	0.07 U

B04	0-0.2(ft)	0.2-2(ft)	2-4(ft)	4-6(ft)
Pesticides				
4,4'-DDE	0.00273	**0.00336 {A}**	**0.00821 {A}**	0.00187 U
Metals				
Mercury	**0.575 {AB}**	0.099	--	--

C04	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0105 {A}**	0.00322
4,4'-DDT	**0.00381 {A}**	0.00173 U
Metals		
Arsenic	**16.3 {AB}**	2.86
Mercury	**0.975 {AB}**	0.071 U

D06	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.0151 {A}**	**0.0283 {A}**	0.00192 U
4,4'-DDT	**0.00736 {A}**	**0.0158 {A}**	0.00192 U
Metals			
Mercury	**0.253 {A}**	0.102	--

C03	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	2-4(ft)	4-6(ft)
Pesticides					
alpha-Chlordane	**0.0344 IP {A}**	0.00214 J	0.00225 U	0.00232 U	0.00213 U
4,4'-DDE	**0.0232 {A}**	**0.11 {A}**	0.0018 U	**0.0304 {A}**	0.0017 U
4,4'-DDT	**0.00559 {A}**	**0.0126 {A}**	0.0018 U	**0.0101 {A}**	0.0017 U
Dieldrin	**0.0227 {AB}**	**0.106 {AB}**	0.00112 U	0.00318	0.00106 U
Metals					
Arsenic	**14.2 {A}**	**15.4 {A}**	--	8.63	--
Mercury	**1.59 {AB}**	0.085 J	--	0.076 U	--

D07	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0202 {A}**	0.00202 U
4,4'-DDT	**0.00894 {A}**	0.00202 U
Metals		
Arsenic	**35.1 {AB}**	1.4
Lead	**111 J {A}**	7.19

C05	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
alpha-Chlordane	**0.066 IP {A}**	0.00151 JIP	--
4,4'-DDE	**0.186 {A}**	0.00204	--
4,4'-DDT	**0.0848 {A}**	0.00166 U	--
Dieldrin	**0.127 {AB}**	0.00296	--
Heptachlor epoxide	**0.1 {A}**	0.00256 J	--
Metals			
Arsenic	**64.6 {AB}**	1.74	0.64 J
Chromium III	**54.2 {AB}**	29	--
Lead	**101 {A}**	8.04	3 J
Mercury	**9.54 {AB}**	0.073 U	0.083 U
Nickel	20.8	**30.6 {A}**	25.4

D04	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Metals			
Chromium III	17.7 J	**33.4 {AB}**	19.4

D03	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0161 {A}**	0.0017 U
4,4'-DDT	**0.00537 {A}**	0.0017 U
Dieldrin	**0.0279 {AB}**	0.00106 U
Metals		
Arsenic	**15.7 {A}**	1.44
Chromium III	**30.4 {AB}**	27.5 J

E07	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)
Pesticides						
alpha-Chlordane	**0.0365 J {A}**	0.00869 IP	**0.0198 IP {A}**	--	--	--
4,4'-DDE	**0.113 {A}**	**0.0361 {A}**	**0.263 {A}**	**0.0735 {A}**	0.00142 J	--
4,4'-DDT	**0.0226 {A}**	**0.00751 {A}**	**0.0784 {A}**	**0.0174 {A}**	0.00164 U	--
Dieldrin	**0.17 {AB}**	**0.0413 {AB}**	**0.176 {AB}**	**0.043 {AB}**	0.00102 J	--
Heptachlor epoxide	**0.101 {A}**	**0.029 {A}**	**0.0791 {A}**	**0.0185 {A}**	--	--
Metals						
Arsenic	**60.4 {AB}**	**17.5 {AB}**	**67 {AB}**	**30.3 {AB}**	2.47	--
Chromium III	**41.6 {AB}**	29.2	--	--	--	--
Lead	**70.7 {A}**	23.8	--	--	--	--
Mercury	**0.442 {AB}**	**0.194 {A}**	--	--	--	0.082 U

C08	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
alpha-Chlordane	**0.0232 IP {A}**	0.00212 JIP	0.00215 U
4,4'-DDE	**0.0806 {A}**	**0.0168 {A}**	0.00172 U
4,4'-DDT	**0.0218 {A}**	**0.0074 IP {A}**	0.00172 U
Dieldrin	**0.23 {AB}**	**0.0198 {AB}**	0.00108 U
Heptachlor epoxide	**0.0788 {A}**	0.00531	0.00322 U
Metals			
Arsenic	**139 {AB}**	11.2	--
Chromium III	**61.4 {AB}**	28.3	--
Lead	**93.6 {A}**	15	--
Mercury	**0.685 {AB}**	0.077 J	--

E03	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	2-4(ft)	4-6(ft)
Pesticides						
alpha-Chlordane	0.0122 IP	0.00491 J	**0.0238 IP {A}**	--	0.00204 U	--
4,4'-DDE	**0.119 {A}**	**0.0347 {A}**	**0.0784 {A}**	--	0.00163 U	--
4,4'-DDT	**0.021 {A}**	**0.00676 {A}**	**0.0146 {A}**	--	0.00163 U	--
Dieldrin	**0.259 {AB}**	**0.0591 {AB}**	**0.0477 {AB}**	**0.0145 {A}**	0.00102 U	--
Heptachlor epoxide	**0.0303 {A}**	0.0112	**0.0173 IP {A}**	--	0.00306 U	--
Metals						
Arsenic	**14.7 {A}**	7.33	--	--	0.533 J	0.742 J
Chromium III	**32.9 {AB}**	29.8	--	--	--	--
Mercury	**1.5 {AB}**	**0.997 {AB}**	**0.333 {AB}**	--	0.069 U	0.081 U
Nickel	17.8	18.5	--	--	**30.7 {A}**	24.2

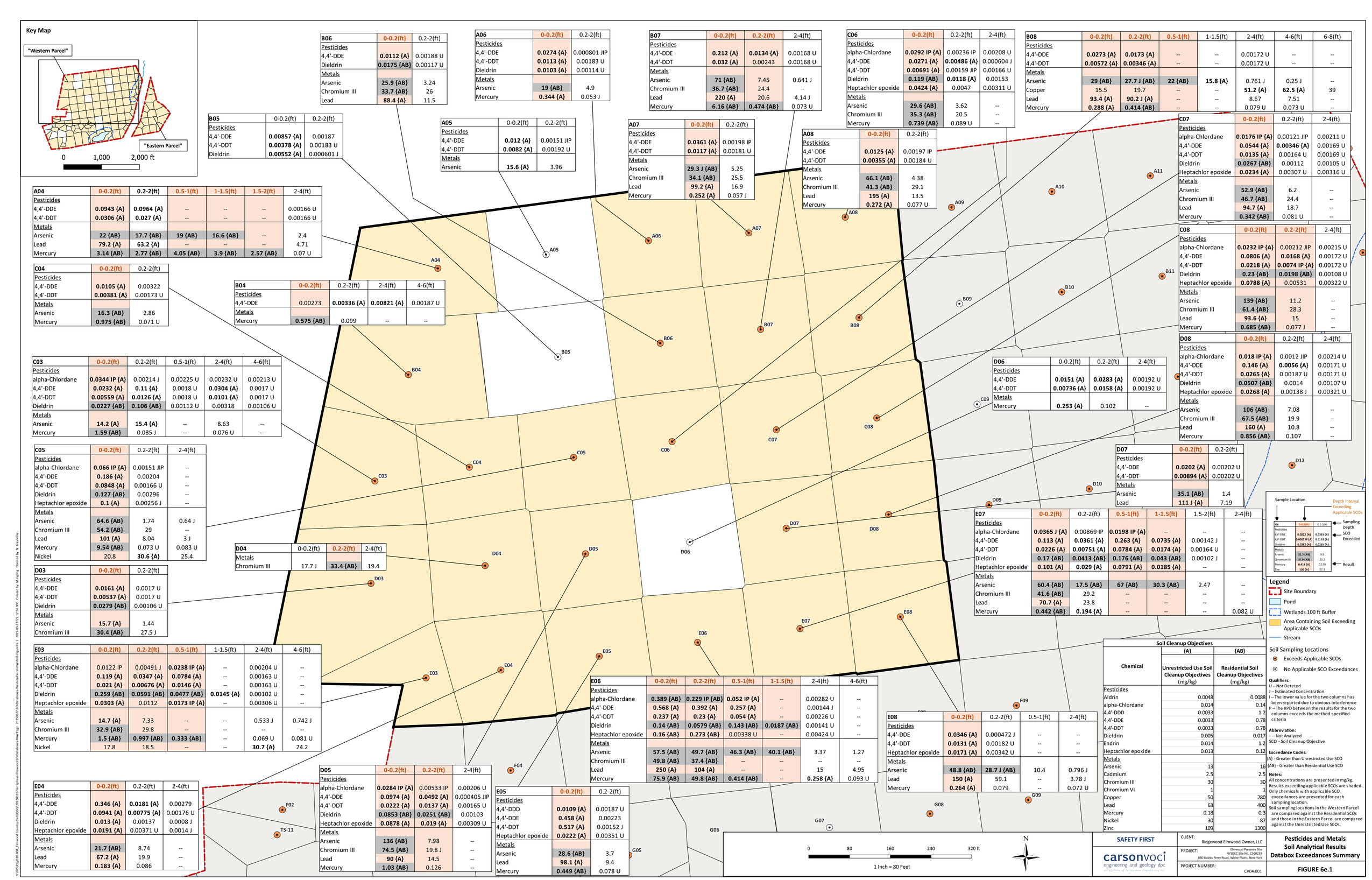
E06	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	2-4(ft)	4-6(ft)
Pesticides						
alpha-Chlordane	**0.389 {AB}**	**0.229 IP {AB}**	**0.052 IP {A}**	--	0.00282 U	--
4,4'-DDE	**0.568 {A}**	**0.392 {A}**	**0.257 {A}**	--	0.00144 J	--
4,4'-DDT	**0.237 {A}**	**0.23 {A}**	**0.054 {A}**	--	0.00226 U	--
Dieldrin	**0.14 {AB}**	**0.0579 {AB}**	**0.143 {AB}**	**0.0187 {AB}**	0.00141 U	--
Heptachlor epoxide	**0.16 {AB}**	**0.273 {AB}**	0.00338 U	--	0.00424 U	--
Metals						
Arsenic	**57.5 {AB}**	**49.7 {AB}**	**46.3 {AB}**	**40.1 {AB}**	3.37	1.27
Chromium III	**49.8 {AB}**	**37.4 {AB}**	--	--	--	--
Lead	**250 {A}**	**104 {A}**	--	--	15	4.95
Mercury	**75.9 {AB}**	**49.8 {AB}**	**0.414 {AB}**	--	**0.258 {A}**	0.093 U

E08	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	2-4(ft)
Pesticides				
4,4'-DDE	**0.0346 {A}**	0.000472 J	--	--
4,4'-DDT	**0.0131 {A}**	0.00182 U	--	--
Heptachlor epoxide	**0.0171 {A}**	0.00342 U	--	--
Metals				
Arsenic	**48.8 {AB}**	**28.7 J {AB}**	10.4	0.796 J
Lead	**150 {A}**	59.1	--	3.78 J
Mercury	**0.264 {A}**	0.079	--	0.072 U

D05	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
alpha-Chlordane	**0.0284 IP {A}**	0.00533 IP	0.00206 U
4,4'-DDE	**0.0974 {A}**	**0.0492 {A}**	0.000405 JIP
4,4'-DDT	**0.0222 {A}**	**0.0137 {A}**	0.00165 U
Dieldrin	**0.0853 {AB}**	**0.0251 {AB}**	0.00103
Heptachlor epoxide	**0.0878 {A}**	**0.019 {A}**	0.00309 U
Metals			
Arsenic	**136 {AB}**	7.98	--
Chromium III	**74.5 {AB}**	19.8 J	--
Lead	**90 {A}**	14.5	--
Mercury	**1.03 {AB}**	0.126	--

E05	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDD	**0.0109 {A}**	0.00187 U
4,4'-DDE	**0.458 {A}**	0.00223
4,4'-DDT	**0.517 {A}**	0.00152 J
Heptachlor epoxide	**0.0222 {A}**	0.00351 U
Metals		
Arsenic	**28.6 {AB}**	3.7
Lead	**98.1 {A}**	9.4
Mercury	**0.449 {AB}**	0.078 U

E04	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.346 {A}**	**0.0181 {A}**	0.00279
4,4'-DDT	**0.0941 {A}**	**0.00775 {A}**	0.00176 U
Dieldrin	**0.013 {A}**	0.00137	0.0008 J
Heptachlor epoxide	**0.0191 {A}**	0.00371 U	0.0014 J
Metals			
Arsenic	**21.7 {AB}**	8.74	--
Lead	**67.2 {A}**	19.9	--
Mercury	**0.183 {A}**	0.086	--



0 80 160 240 320 ft

1 Inch = 80 Feet

N

Sample Location

Depth Interval Exceeding Applicable SCOs

Chromium III	17.7 J	**33.4 {AB}**	19.4

Sampling Depth SCO Exceeded

Result

Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Area Containing Soil Exceeding Applicable SCOs
- Stream

Soil Sampling Locations

- Exceeds Applicable SCOs
- No Applicable SCO Exceedances

Qualifiers:
U – Not Deteted
J – Estimated Concentration
I – The lower value for the two columns has been reported due to obvious interference
P – The RPD between the results for the two columns exceeds the method-specified criteria

Abbreviation:
-- – Not Analyzed
SCO – Soil Cleanup Objective

Exceedance Codes:
{A} - Greater than Unrestricted Use SCO
{AB} - Greater than Residential Use SCO

Notes:
All concentrations are presented in mg/kg.
Results exceeding applicable SCOs are shaded.
Only chemicals with applicable SCO exceedances are presented for each sampling location.
Soil sampling locations in the Western Parcel are compared against the Residential SCOs and those in the Eastern Parcel are compared against the Unrestricted Use SCOs.

Soil Cleanup Objectives		
Chemical	{A} Unrestricted Use Soil Cleanup Objectives (mg/kg)	{AB} Residential Soil Cleanup Objectives (mg/kg)
Pesticides		
Aldrin	0.0048	0.0088
alpha-Chlordane	0.014	0.14
4,4'-DDD	0.0033	1.2
4,4'-DDE	0.0033	0.78
4,4'-DDT	0.0033	0.78
Dieldrin	0.005	0.017
Endrin	0.014	1.2
Heptachlor epoxide	0.013	0.12
Metals		
Arsenic	13	16
Cadmium	2.5	2.5
Chromium III	30	30
Chromium VI	1	1
Copper	50	280
Lead	63	400
Mercury	0.18	0.3
Nickel	30	87
Zinc	109	1300

SAFETY FIRST

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engineering and geology dpc
an affiliate of Terrashore Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

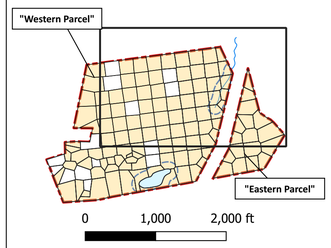
PROJECT NUMBER: CV04.001

Pesticides and Metals Soil Analytical Results Databox Exceedances Summary

FIGURE 6e.1

K:\2019\cv\105.004_Elmwood Country Club\SOD\105\105\15-Terrashore-Elmwood\50-Databases-MAP\Figs\ 20190627-50-Databases-WesternParcel-NW Pest-Figure1.mxd 2019-06-27 12:11:56.000 Created by: M Kapfhammer Checked by: R. Kosovsky

Key Map



A10	0-0.2(ft)	0.2-2(ft)
Pesticides		
alpha-Chlordane	**0.0358 IP {A}**	0.00215 U
4,4'-DDE	**0.0916 {A}**	0.000815 JIP
4,4'-DDT	**0.0184 {A}**	0.00172 U
Dieldrin	**0.112 {AB}**	0.000989 J
Heptachlor epoxide	**0.0402 {A}**	0.00322 U
Metals		
Arsenic	**112 {AB}**	1.93
Chromium III	**61.1 {AB}**	**31.3 {AB}**
Lead	**99.9 {A}**	7.1
Mercury	**0.424 {AB}**	0.074 U

A11	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	2-4(ft)	4-6(ft)
Pesticides						
alpha-Chlordane	**0.0209 IP {A}**	0.00924 IP	--	--	0.000765 JIP	0.00234 U
4,4'-DDE	**0.0612 {A}**	**0.0165 {A}**	--	--	**0.00419 {A}**	0.00187 U
4,4'-DDT	**0.0123 {A}**	**0.00422 {A}**	--	--	0.00194 U	0.00187 U
Dieldrin	**0.0138 {A}**	0.00412	--	--	0.001 J	0.00117 U
Metals						
Arsenic	**20.5 {AB}**	**16.9 {AB}**	**25.2 {AB}**	3.25	4.06	--
Mercury	**1.07 {AB}**	**0.453 {AB}**	0.145	--	0.098 U	--

A12	0-0.2(ft)	0.2-2(ft)	2-4(ft)	4-6(ft)
Pesticides				
alpha-Chlordane	**0.0466 IP {A}**	0.00212 U	--	--
4,4'-DDE	**0.0551 {A}**	0.00182 IP	--	--
4,4'-DDT	**0.0181 {A}**	0.0017 U	--	--
Dieldrin	**0.131 {AB}**	0.00238	--	--
Heptachlor epoxide	**0.124 {AB}**	0.00139 JIP	--	--
Metals				
Arsenic	**72.2 {AB}**	3.72	1.35	1.72 U
Chromium III	**46.2 {AB}**	**36.7 {AB}**	--	--
Lead	**82.9 {A}**	9.61	5.28	4.62
Mercury	**0.401 {AB}**	0.049 J	0.082 U	0.071 U
Nickel	**32.2 {A}**	**38.8 {A}**	**37.2 {A}**	**39.4 {A}**

A13	0-0.2(ft)	0.2-2(ft)	2-4(ft)	2-2.5(ft)	2.5-3(ft)	3-3.5(ft)	3.5-4(ft)	4-6(ft)	7-9(ft)
Pesticides									
4,4'-DDD	0.00222 U	0.00181 U	0.00172 U	**0.00592 {A}**	--	--	--	0.0018 U	0.00173 U
4,4'-DDE	**0.0287 {A}**	**0.0364 {A}**	**0.00365 {A}**	**0.00495 {A}**	--	--	--	0.0018 U	0.00173 U
4,4'-DDT	**0.0168 {A}**	**0.014 {A}**	0.00209	0.00176 U	--	--	--	0.0018 U	0.00173 U
Dieldrin	**0.0479 {AB}**	**0.0182 {AB}**	0.00107 U	0.0011 U	--	--	--	0.00112 U	0.00108 U
Metals									
Arsenic	**17.7 {AB}**	11.6	3.93	--	--	--	--	2.06	2.1
Mercury	**1.06 {AB}**	**0.75 {AB}**	**3.15 {AB}**	0.136	0.061 J	**1.5 {AB}**	0.08 U	**0.297 {A}**	0.083 UJ

A09	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.301 {A}**	**0.0235 {A}**	0.00202 U
4,4'-DDT	**0.0598 {A}**	**0.00632 {A}**	0.00202 U
Dieldrin	**0.0145 {A}**	0.00106 J	0.00126 U
Metals			
Arsenic	**43.8 {AB}**	**16.2 {AB}**	2.49
Chromium III	**35.9 {AB}**	24.1	--
Lead	**127 {A}**	48	6.17
Mercury	**1.09 {AB}**	**0.828 {AB}**	0.066 J

B11	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.00505 {A}**	**0.00346 {A}**	0.00167 U
Metals			
Mercury	**0.514 {AB}**	**0.215 {A}**	0.089 U

B12	0-0.2(ft)	0.2-2(ft)	2-4(ft)	4-6(ft)	6-7(ft)
Pesticides					
4,4'-DDD	**0.00342 {A}**	**0.0194 {A}**	**0.0196 {A}**	**0.00528 {A}**	0.00163 U
4,4'-DDE	**0.163 {A}**	**0.352 {A}**	**0.282 {A}**	**0.118 {A}**	0.00163 U
4,4'-DDT	**0.0449 {A}**	**0.0615 {A}**	**0.0272 {A}**	**0.0214 {A}**	0.00163 U
Dieldrin	0.00292	0.00223	0.00111 U	**0.00507 {A}**	0.00102 U
Metals					
Chromium III	**30.6 {AB}**	28.8 J	--	--	--
Mercury	**0.606 {AB}**	0.164	--	--	--

B10	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0266 {A}**	0.00176 U
4,4'-DDT	**0.00707 {A}**	0.00176 U
Metals		
Arsenic	**85 {AB}**	2.42
Chromium III	**37.5 {AB}**	25.6
Lead	**287 {A}**	5.13
Mercury	**0.484 {AB}**	0.074 U

B09	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.0257 {A}**	**0.0168 {A}**	0.00178 U
4,4'-DDT	**0.00972 {A}**	**0.00746 {A}**	0.00178 U

B13	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	2-4(ft)
Pesticides					
alpha-Chlordane	**0.0698 IP {A}**	0.00634 IP	--	--	0.00236 U
4,4'-DDE	**0.221 {AC}**	**0.0273 {AC}**	--	--	0.00188 U
4,4'-DDT	**0.088 {AC}**	**0.00956 {AC}**	--	--	0.00188 U
Dieldrin	**0.115 {ABC}**	**0.0133 {AC}**	--	--	0.00118 U
Heptachlor epoxide	**0.0895 {A}**	0.0103	--	--	0.00353 U
Metals					
Arsenic	**62 {ABC}**	**13.8 {AC}**	--	--	3.02
Chromium III	**60.6 {AB}**	**31.1 {AB}**	--	--	--
Lead	**180 {AC}**	35.7	--	--	9.2
Mercury	**5.93 {ABC}**	**1.54 {ABC}**	**6.45 {ABC}**	0.104	0.068 J
Zinc	**115 {AC}**	68.6	--	--	61.4

C11	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)	4-6(ft)	6-8(ft)
Pesticides								
alpha-Chlordane	**0.37 IP {AB}**	**0.0173 IP {A}**	--	--	--	0.00271 U	0.00205 J	--
4,4'-DDD	**0.0192 {A}**	0.00263	--	--	--	0.00217 U	0.00173 U	--
4,4'-DDE	**0.452 {A}**	**0.0665 {A}**	--	--	--	**0.00511 {A}**	0.00215	--
4,4'-DDT	**0.141 J {A}**	**0.0233 {A}**	--	--	--	0.00313	0.00173 U	--
Dieldrin	**0.0513 {AB}**	**0.00972 {A}**	--	--	--	0.00135 U	0.00108 U	--
Heptachlor epoxide	**0.203 J {AB}**	**0.0275 {A}**	--	--	--	0.00406 U	0.00325 U	--
Metals								
Arsenic	**59.2 {AB}**	**17.9 {AB}**	**21.3 {AB}**	10.2	--	5.65	0.838 J	--
Chromium III	**49 {AB}**	19.3	--	--	--	--	--	--
Lead	**197 {A}**	19.3	--	--	--	12.4	4.26 J	--
Mercury	**38.1 {AB}**	**1.49 {AB}**	**12.4 {AB}**	**1.29 {AB}**	**0.404 {AB}**	**0.693 {AB}**	**0.22 {A}**	0.073 U

C13	0-0.2(ft)	0.2-2(ft)	11-13(ft)
Pesticides			
4,4'-DDE	**0.013 {AC}**	0.000662 J	0.0017 U
4,4'-DDT	**0.00431 {AC}**	0.00199 U	0.0017 U
Metals			
Arsenic	**17.6 {ABC}**	4.32	2.34
Lead	**65.3 {AC}**	13.5	8.41
Mercury	**0.194 {AC}**	0.072 J	0.077 U

D13	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	2-4(ft)
Pesticides				
alpha-Chlordane	**0.112 IP {A}**	**0.0214 IP {A}**	--	0.000629 JIP
4,4'-DDE	**0.022 {AC}**	**0.0104 {AC}**	--	0.0016 U
4,4'-DDT	**0.0107 {AC}**	**0.00696 {AC}**	--	0.0016 U
Dieldrin	**0.0531 {ABC}**	**0.0125 {AC}**	--	0.001 U
Heptachlor epoxide	**0.099 {A}**	**0.0378 {A}**	--	0.00301 U
Metals				
Arsenic	**121 {ABC}**	**19.2 {ABC}**	4.62	1.62
Chromium III	**46.3 {AB}**	17.3	--	--
Mercury	**0.629 {ABC}**	0.078 U	--	0.073 U

C10	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	2-4(ft)	4-6(ft)
Pesticides						
alpha-Chlordane	**0.168 IP {AB}**	**0.0163 IP {A}**	0.00236 U	--	0.00218 U	0.0022 U
4,4'-DDD	**0.014 {A}**	0.00163 J	0.00189 U	--	0.00175 U	0.00176 U
4,4'-DDE	**1.02 {AB}**	**0.219 {A}**	**0.0116 {A}**	--	**0.00446 {A}**	0.00176 U
4,4'-DDT	**0.62 {A}**	**0.0857 {A}**	0.00224	--	0.00175 U	0.00176 U
Dieldrin	**0.592 {AB}**	**0.0736 {AB}**	**0.00666 {A}**	--	0.00121	0.0011 U
Heptachlor epoxide	**0.307 {AB}**	**0.0416 {A}**	0.00354 U	--	0.00327 U	0.0033 U
Metals						
Arsenic	**218 {AB}**	**39.4 {AB}**	**39.2 {AB}**	0.719 J	2.46	--
Chromium III	**140 {AB}**	29.2	--	--	--	--
Lead	**199 {A}**	23.2	--	--	8.82	--
Mercury	**1.97 {AB}**	0.18	--	--	0.08 U	--

C09	0.2-2(ft)	0-0.2(ft)
Pesticides	< SCOs	< SCOs
Metals	< SCOs	< SCOs

D12	0-0.2(ft)	0.2-2(ft)	2-4(ft)	4-6(ft)
Pesticides				
alpha-Chlordane	**0.0725 IP {A}**	0.00999 IP	0.00379 IP	0.00236 U
4,4'-DDD	**0.00509 {AC}**	0.00108 J	0.00103 J	0.00189 U
4,4'-DDE	**0.303 {AC}**	**0.0826 {AC}**	**0.0263 {A}**	0.00189 U
4,4'-DDT	**0.123 {AC}**	**0.017 {AC}**	**0.00543 IP {A}**	0.00189 U
Dieldrin	**0.179 {ABC}**	**0.0279 {ABC}**	**0.0126 {A}**	0.00118 U
Heptachlor epoxide	**0.144 {ABC}**	**0.0184 IP {A}**	0.00814	0.00354 U
Metals				
Arsenic	**125 {ABC}**	**16.5 {ABC}**	12.3	--
Chromium III	**90.8 {AB}**	22.1	--	--
Lead	**110 {AC}**	27.6	16.4	--
Mercury	**0.692 {ABC}**	0.154	0.075 J	--

D09	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.131 {A}**	0.0013 J
4,4'-DDT	**0.0549 {A}**	0.00172 U
Dieldrin	**0.00642 {A}**	0.00108 U
Metals		
Arsenic	**22.4 {AB}**	2.47
Lead	**63.8 {A}**	10.3
Mercury	**1.68 {AB}**	0.116

E13	0-0.2(ft)	0.2-2(ft)
Pesticides		
alpha-Chlordane	**0.0492 IP {A}**	0.00229 U
4,4'-DDE	**0.0454 {AC}**	0.00118 JIP
4,4'-DDT	**0.0284 {AC}**	0.00183 U
Dieldrin	**0.0424 {ABC}**	0.00115 U
Heptachlor epoxide	**0.12 {A}**	0.00344 U
Metals		
Arsenic	**150 {ABC}**	6.11
Chromium III	**125 {AB}**	17.3 J
Lead	**64.6 {AC}**	9.06
Mercury	**3.07 {ABC}**	0.082

C12	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0429 {AC}**	0.00174 U
4,4'-DDT	**0.00974 {AC}**	0.00174 U

D10	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.0893 {A}**	**0.0742 {A}**	0.00167 U
4,4'-DDT	**0.04 {A}**	**0.0274 {A}**	0.00167 U
Metals			
Arsenic	**18.4 {AB}**	11.6	0.576 J
Lead	**92.7 {A}**	57.6	4.81
Mercury	**0.356 {AB}**	**0.211 {A}**	0.072 U

E11	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
alpha-Chlordane	**0.0475 IP {A}**	0.00434 IP	0.000918 JIP
4,4'-DDE	**0.0987 {A}**	**0.0263 {A}**	0.00188
4,4'-DDT	**0.0246 {A}**	**0.0103 {A}**	0.00178 U
Dieldrin	**0.104 {AB}**	**0.00791 {A}**	0.00409
Heptachlor epoxide	**0.0768 {A}**	0.0053	0.00138 J
Metals			
Arsenic	**148 {AB}**	12	--
Chromium III	**69.4 {AB}**	19.2 J	--
Lead	**119 {A}**	18.4	--
Mercury	**1.13 {AB}**	0.112	--

E12	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	2-4(ft)
Pesticides					
alpha-Chlordane	**0.187 IP {AB}**	**0.0147 J {A}**	--	--	0.00148 J
4,4'-DDE	**0.0392 {AC}**	**0.00519 {AC}**	--	--	0.00199 U
4,4'-DDT	**0.0155 {AC}**	0.00182 U	--	--	0.00199 U
Dieldrin	**0.113 {ABC}**	**0.0156 {AC}**	--	--	0.00128
Heptachlor epoxide	**0.281 {ABC}**	**0.0502 {A}**	--	--	0.00269 J
Metals					
Arsenic	**176 {ABC}**	**35.2 {ABC}**	**22 {ABC}**	5.42	6.75
Chromium III	**137 {AB}**	**30.4 {AB}**	--	--	--
Lead	**94.4 {AC}**	9.4 J	--	--	8.04
Mercury	**3.94 {ABC}**	**0.366 J {ABC}**	--	--	0.066 J

D11	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	2-4(ft)
Pesticides				
alpha-Chlordane	**0.0862 IP {A}**	**0.072 J {A}**	0.00231 U	0.00232 U
4,4'-DDE	**0.604 {A}**	**0.181 {A}**	**0.174 {A}**	0.00284
4,4'-DDT	**0.203 {A}**	**0.052 {A}**	**0.0445 {A}**	0.00186 U
Dieldrin	**0.125 {AB}**	**0.125 J {AB}**	0.00116 U	0.000712 J
Heptachlor epoxide	**0.19 {AB}**	**0.133 J {AB}**	0.00347 U	0.00348 U
Metals				
Arsenic	**173 {AB}**	**121 {AB}**	7.38 J	1.91
Chromium III	**70.3 {AB}**	**63.4 J {AB}**	24.7 J	--
Lead	**202 {A}**	**130 J {A}**	--	5.26
Mercury	**1.29 {AB}**	**1.18 J {AB}**	0.13	0.073 U

E09	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.087 {A}**	0.00136 J
4,4'-DDT	**0.0238 {A}**	0.00181 U
Metals		
Arsenic	**19.7 {AB}**	3.62

E10	0-0.2(ft)	0.2-2(ft)	2-4(ft)	4-6(ft)
Pesticides				
alpha-Chlordane	**0.0892 IP {A}**	0.00334 IP	0.00452 J	0.0021 U
4,4'-DDE	**0.363 {A}**	**0.0129 {A}**	**0.00769 {A}**	0.00057 J
4,4'-DDT	**0.226 {A}**	0.00232	0.00248	0.00168 U
Dieldrin	**0.525 {AB}**	**0.0229 {AB}**	0.0015 J	0.00105 U
Heptachlor epoxide	**0.127 IP {AB}**	0.0111	**0.0214 {A}**	0.00315 U
Metals				
Arsenic	**155 {AB}**	**14.1 {A}**	3.08	--
Chromium III	**88 {AB}**	24.7 J	--	--
Lead	**164 {A}**	13.9	6.64	--
Mercury	**1.21 {AB}**	0.118	0.066 J	--

Soil Cleanup Objectives

Chemical	{A} Unrestricted Use Soil Cleanup Objectives (mg/kg)	{AB}/{ABC} Residential Soil Cleanup Objectives (mg/kg)	{AC}/{ABC} Protection of Ecological Resources Soil Cleanup Objectives (mg/kg)
Pesticides			
Aldrin	0.0048	0.0088	0.14
alpha-Chlordane	0.014	0.14	1.3
4,4'-DDD	0.0033	1.2	0.0033
4,4'-DDE	0.0033	0.78	0.0033
4,4'-DDT	0.0033	0.78	0.0033
Dieldrin	0.005	0.017	0.006
Endrin	0.014	1.2	0.014
Heptachlor epoxide	0.013	0.12	0.14
Metals			
Arsenic	13	16	13
Cadmium	2.5	2.5	4
Chromium III	30	30	160
Chromium VI	1	1	20
Copper	50	280	50
Lead	63	400	63
Mercury	0.18	0.3	0.18
Nickel	30	87	30
Zinc	109	1300	109

Sample Location — Depth Interval Exceeding Applicable SCOs

Chemical	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0222 {A}**	**0.0391 {A}**
4,4'-DDT	**0.0057 IP {A}**	**0.0118 {A}**
Dieldrin	**0.0282 {A}**	**0.0235 {A}**
Metals		
Arsenic	**31.3 {AB}**	9.5
Chromium III	**37.9 {AB}**	23.2
Mercury	**0.418 {A}**	0.179
Zinc	**130 {A}**	57.3

Sampling Depth; SCO Exceeded; Result

Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Area Containing Soil Exceeding Applicable SCOs
- Stream

Soil Sampling Location

- Exceeds Applicable SCOs
- No Applicable SCO Exceedances

Qualifiers:
U -- Not Deteted
J -- Estimated Concentration
I -- The lower value for the two columns has been reported due to obvious interference
P -- The RPD between the results for the two columns exceeds the method-specified criteria

Abbreviations:
-- -- Not Analyzed
SCO -- Soil Cleanup Objective
PEco -- Protection of Environmental Resources

Exceedance Codes:
{A} - Greater than Unrestricted Use SCO
{AB}/{ABC} - Greater than Residential SCO
{AC}/{ABC} - Greater than PEco SCO

Notes:
All concentrations are presented in mg/kg.
Results exceeding applicable SCOs are shaded. Only chemicals with applicable SCO exceedances are presented for each sampling location.
Soil sampling locations in the Western Parcel are compared against the Residential SCOs and those in the Eastern Parcel are compared against the Unrestricted Use SCOs..
Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.

0 80 160 240 320 ft
1 Inch = 80 Feet

N

SAFETY FIRST

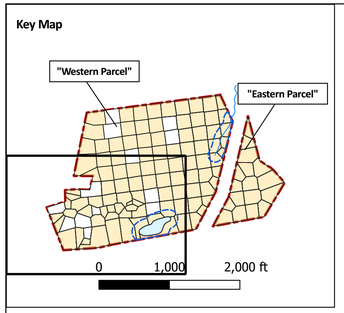
carsonvoci engineering and geology dpc
an affiliate of Arcadis Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site, NYSDEC Site No. C360239, 850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

Pesticides and Metals Soil Analytical Results Databox Exceedances Summary

FIGURE 6e.2

N:\DEP\p1010.004_Elmwood Country Club\SDD\20150119- Stratiphase Elmwood SDI Databases #AKP.gpj - 2015/06/27-SDI Databases Western Parcel-NE Pest Figure.fw 2 - 2015-03-13 T12:12:56.000 - Created By: M. Ingling - Checked By: NK



F02	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Metals			
Lead	**114 {A}**	**91.9 {A}**	19
Mercury	**0.257 {A}**	**0.236 {A}**	0.07 U
Zinc	**144 {A}**	**136 {A}**	55

TS-04	0-1(ft)	1-1.5(ft)	1.5-2(ft)	2-2.5(ft)
Pesticides				
4,4'-DDE	0.00309	**0.00986 {A}**	**0.0118 {A}**	**0.0213 {A}**
4,4'-DDT	**0.00538 {A}**	**0.017 {A}**	**0.0178 {A}**	**0.0305 {A}**
Metals				
Mercury	0.095 U	**0.275 {A}**	0.052 J	--

F03	0-0.2(ft)	0.2-2(ft)	2-4(ft)	4-6(ft)	6-8(ft)
Pesticides					
4,4'-DDD	0.00178 U	**0.0036 J {A}**	**0.0277 {A}**	**0.00654 {A}**	0.00173 U
4,4'-DDE	0.00178 U	**0.0129 J {A}**	**0.1 {A}**	**0.0441 {A}**	0.00173 U
4,4'-DDT	0.00178 U	0.00178 J	**0.0169 {A}**	**0.00567 {A}**	0.00173 U

G04	0-0.2(ft)	0.2-2(ft)	2-4(ft)	2-2.5(ft)	2.5-3(ft)	3-3.5(ft)	3.5-4(ft)	4-6(ft)	6-8(ft)
Pesticides									
alpha-Chlordane	0.00579 J	0.00574 IP	**0.0351 {A}**	--	--	--	--	0.00479	0.00215 U
4,4'-DDD	0.00173 U	0.00164 U	**0.116 {A}**	--	--	--	--	**0.0176 {A}**	0.00172 U
4,4'-DDE	**0.014 J {A}**	**0.0135 {A}**	**0.27 {A}**	--	--	--	--	**0.0451 {A}**	0.00172 U
4,4'-DDT	0.00322 J	0.00281	**0.0536 {A}**	--	--	--	--	**0.00679 {A}**	0.00172 U
Dieldrin	**0.00563 J {A}**	**0.00568 {A}**	**0.0327 J {AB}**	--	--	--	--	0.00442	0.00107 U
Metals									
Mercury	**0.806 {AB}**	**0.672 {AB}**	**1.59 {AB}**	0.078 U	0.097 U	0.085 U	0.088 U	**0.694 {AB}**	0.051 J

TS-11	0-1.5(ft)	1.5-2(ft)
Metals		
Nickel	**35.5 {A}**	19.4

G03	0-0.2(ft)	0.2-2(ft)	2-4(ft)	4-6(ft)	6-7.5(ft)
Pesticides					
4,4'-DDD	**0.00556 {A}**	0.00152 JIP	0.000726 JIP	0.0018 U	0.00206 UJ
4,4'-DDE	**1.16 {AB}**	**0.71 {A}**	**0.049 {A}**	**0.011 {A}**	0.00206 U
4,4'-DDT	**0.929 {AB}**	**0.422 {A}**	**0.0621 {A}**	**0.0114 {A}**	0.00206 U
Metals					
Arsenic	**34.6 {AB}**	12.1	--	--	--
Chromium III	**32.1 {AB}**	23.5	--	--	--
Lead	**132 {A}**	51.3	--	--	--
Mercury	**0.357 {AB}**	0.146	--	--	--

F04	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.108 {A}**	**0.00731 {A}**	0.000782 J
4,4'-DDT	**0.0261 {A}**	0.00311	0.00174 U
Metals			
Arsenic	**28.6 {AB}**	10.2	--
Lead	**88 {A}**	29.4	--
Mercury	**0.216 {A}**	0.069 J	--

TS-05	0-1.5(ft)	1.5-2(ft)
Pesticides		
alpha-Chlordane	**0.0153 {A}**	0.00224 U
4,4'-DDE	**0.00417 {A}**	0.00179 U
4,4'-DDT	**0.0432 {A}**	0.00179 U

TS-06	0-1.5(ft)	1.5-2(ft)	2-2.5(ft)
Pesticides			
4,4'-DDD	**0.00936 {A}**	**0.00406 {A}**	0.00194 U
4,4'-DDE	**0.0188 {A}**	**0.00851 {A}**	0.00104 J
4,4'-DDT	**0.0263 {A}**	**0.00611 {A}**	0.00194 U
Dieldrin	**0.144 {AB}**	**0.0358 {AB}**	0.00337
Metals			
Copper	**62.5 {A}**	48.3	--
Lead	**347 {A}**	**103 {A}**	21.4
Mercury	**0.199 {A}**	0.129	--
Zinc	**203 {A}**	**119 {A}**	83.4

G02	0-0.2(ft)	0.2-2(ft)	2.5-3(ft)	2-4(ft)	4-6(ft)
Metals					
Chromium III	**31 {AB}**	**30.13 J {AB}**	--	--	--
Chromium VI	**1.47 {AB}**	0.67 J	--	--	--
Mercury	**0.976 {AB}**	0.172	--	**0.284 {A}**	0.178
Nickel	25.6	**31 {A}**	22.3	**38.3 {A}**	**34.6 {A}**
Zinc	67.4	74.1	--	**115 {A}**	102

TS-10	0-1(ft)	1-1.5(ft)	1.5-2(ft)	2-2.5(ft)
Pesticides				
4,4'-DDD	**0.0118 J {A}**	0.0032 IP	--	--
4,4'-DDE	**0.0197 J {A}**	**0.00546 IP {A}**	**0.026 {A}**	**0.0239 P {A}**

TS-09	0-1(ft)	1-1.5(ft)	1.5-2(ft)	2-2.5(ft)
Pesticides				
alpha-Chlordane	0.00216 JIP	**0.0152 IP {A}**	--	--
4,4'-DDE	**0.0149 {A}**	0.00243	--	--
4,4'-DDT	**0.00827 {A}**	**0.00528 {A}**	**0.00357 {A}**	**0.0237 {A}**
Metals				
Mercury	**0.208 {A}**	0.11	--	--

G01	0-0.2(ft)	0.2-2(ft)
Pesticides	< SCOs	< SCOs
Metals	< SCOs	< SCOs

TS-12/TEI-SB-03	0-1.5(ft)	1.5-2(ft)	2-2.5(ft)	2.5-3(ft)	7-9(ft)
Pesticides					
4,4'-DDE	**0.00947 {A}**	**0.00641 {A}**	0.000821 J	--	--
4,4'-DDT	**0.00942 {A}**	**0.00868 {A}**	0.00198	--	--
Metals					
Arsenic	8.06	**19.3 {AB}**	**23.4 {AB}**	2.34	--
Copper	25.9	**266 {A}**	45.7	--	--
Mercury	**0.743 {AB}**	**0.336 {AB}**	0.071 J	--	--

TS-13	0-1(ft)	1-1.5(ft)	1.5-2(ft)
Pesticides			
4,4'-DDE	**0.00444 {A}**	0.000943 J	--
4,4'-DDT	**0.00447 {A}**	0.00174 U	--
Metals			
Arsenic	**25 {AB}**	3.67	--
Zinc	95.8 J	**139 {A}**	40.4

TS-08	0-3.5(ft)	3.5-4(ft)
Pesticides		
4,4'-DDE	**0.00599 J {A}**	0.00253
4,4'-DDT	**0.0332 {A}**	**0.0221 IP {A}**
Metals		
Chromium VI	**1.49 {AB}**	0.348 J
Lead	59.4 J	**118 {A}**
Mercury	0.146	**0.208 {A}**
Zinc	103 J	**127 {A}**

H01	0-0.2(ft)	0.2-2(ft)	2-4(ft)	4-6(ft)
Pesticides				
4,4'-DDE	**0.00808 IP {A}**	**0.00431 IP {A}**	0.00178 U	0.00178 U
4,4'-DDT	**0.0173 {A}**	**0.00731 {A}**	0.00178 U	0.00178 U
Metals				
Zinc	**136 {A}**	61.4	--	--

H02	0-0.2(ft)	0.2-2(ft)	2-4(ft)	4-5(ft)
Pesticides				
4,4'-DDD	**0.00563 {A}**	0.00186 U	0.00169 U	--
4,4'-DDE	**0.152 {A}**	**0.0173 {A}**	0.00169 U	--
4,4'-DDT	**0.046 {A}**	**0.00582 {A}**	0.00169 U	--
Heptachlor epoxide	**0.0199 {A}**	0.00106 JIP	0.00317 U	--
Metals				
Arsenic	**13.2 {A}**	**15.4 {A}**	1.22	--
Zinc	50.7	51.9	**283 {A}**	46.8

I01	0-0.2(ft)	0.2-2(ft)	2-4(ft)	4-6(ft)
Pesticides				
4,4'-DDD	**0.00763 {A}**	**0.00455 {A}**	0.00182 U	0.00171 U
4,4'-DDE	**0.107 {A}**	**0.0637 {A}**	**0.00454 {A}**	0.00248
4,4'-DDT	**0.046 {A}**	**0.0293 {A}**	0.00182 U	0.00183
Heptachlor epoxide	**0.0166 {A}**	0.0113	0.00342 U	0.0011 J
Metals				
Arsenic	**23.6 {AB}**	9.98	--	--
Lead	**148 {A}**	59.8	--	--
Mercury	**0.304 {AB}**	0.145	--	--

TS-15	0-1(ft)	1-1.5(ft)	1.5-2(ft)	2-2.5(ft)
Pesticides				
4,4'-DDE	**0.0079 {A}**	**0.0206 {A}**	**0.0281 {A}**	0.00128 J
4,4'-DDT	**0.00363 {A}**	**0.00594 {A}**	**0.00612 {A}**	0.00173 U
Dieldrin	0.00281	**0.0378 {AB}**	**0.0136 {A}**	0.00108 U
Metals				
Arsenic	**24.5 {AB}**	**29.8 {AB}**	12.8	--
Mercury	**1.05 {AB}**	**1.34 {AB}**	**0.478 {AB}**	--

I02	0-0.2(ft)	0.2-2(ft)
Pesticides	< SCOs	< SCOs
Metals	< SCOs	< SCOs

TS-14	0-2.5(ft)	2.5-3(ft)	3-3.5(ft)	3.5-4(ft)
Pesticides				
alpha-Chlordane	**0.0204 IP {A}**	**0.0222 IP {A}**	--	--
4,4'-DDD	**0.0049 {A}**	0.00252	--	--
4,4'-DDE	**0.0134 {A}**	**0.0448 {A}**	**0.0579 {A}**	--
4,4'-DDT	**0.0295 IP {A}**	**0.0155 {A}**	**0.0222 {A}**	--
Dieldrin	0.00119 U	**0.02 {AB}**	**0.028 {AB}**	--
Metals				
Lead	**72.8 {A}**	52	--	--
Mercury	**0.305 {AB}**	**1.28 {AB}**	**2.39 {AB}**	**0.652 {AB}**
Zinc	**139 {A}**	63.4	--	--

TEI-SB-02	6-8(ft)
Pesticides	< SCOs
Metals	< SCOs

I03	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.0119 {A}**	**0.00339 {A}**	0.00164 U
4,4'-DDT	**0.00497 {A}**	0.00179 U	0.00164 U
Metals			
Arsenic	**19.1 {AB}**	8.28	--
Lead	**81.4 {A}**	34.1	--
Mercury	**0.288 {A}**	0.085 J	--

H04	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	2-4(ft)	4-6(ft)
Pesticides						
alpha-Chlordane	**0.0371 IP {A}**	0.00223 IP	--	--	0.00224 U	--
4,4'-DDE	**0.105 {A}**	**0.0128 {A}**	--	--	0.00109 JIP	--
4,4'-DDT	**0.0198 {A}**	0.00166 J	--	--	0.0018 U	--
Dieldrin	**0.31 {AB}**	**0.0341 {AB}**	--	--	0.00133	--
Heptachlor epoxide	**0.0736 {A}**	0.00848	--	--	0.00337 U	--
Metals						
Arsenic	**119 {AB}**	**15.1 {A}**	--	--	1.19	--
Chromium III	**68.4 {AB}**	29.2			--	--
Lead	**88.7 {A}**	34.4			29	--
Mercury	**4.58 {AB}**	**9.06 {AB}**	**0.977 {AB}**	**0.622 {AB}**	0.05 J	--
Nickel	23.8	24.6			**44.6 {A}**	**31 {A}**
Zinc	89.1	72.8	--	--	**115 {A}**	98.2

H03	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	2-4(ft)
Pesticides				
4,4'-DDE	**0.0141 {A}**	0.00195 U	--	--
4,4'-DDT	**0.00781 {A}**	0.00195 U	--	--
Dieldrin	**0.00959 {A}**	0.00122 U	--	--
Metals				
Arsenic	11.7	**27.7 {AB}**	11.7	3.56
Lead	**81.5 {A}**	24.2	--	8.92
Mercury	**0.306 {AB}**	0.107	--	0.08 U
Zinc	**119 {A}**	74.7	--	37.2

I04	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	2-4(ft)	4-6(ft)
Pesticides					
4,4'-DDE	**0.11 {A}**	**0.142 {A}**	0.00152 J	**0.00388 J {A}**	0.00179 J
4,4'-DDT	**0.0228 {A}**	**0.0229 {A}**	0.0018 U	0.0017 U	0.0018 U
Dieldrin	**0.0857 {AB}**	**0.0414 {AB}**	0.00301	0.00106 U	0.00478
Metals					
Arsenic	**73.1 {AB}**	**25.1 {AB}**	10.2	4.57	--
Chromium III	**57.9 {AB}**	29.1 J	--	--	--
Lead	**153 {A}**	53.9	--	8.5	--
Mercury	**1.13 {AB}**	**0.26 {A}**	--	0.051 J	--

Soil Cleanup Objectives	{A}	{AB}
Chemical	Unrestricted Use Soil Cleanup Objectives (mg/kg)	Residential Soil Cleanup Objectives (mg/kg)
Pesticides		
Aldrin	0.0048	0.0088
alpha-Chlordane	0.014	0.14
4,4'-DDD	0.0033	1.2
4,4'-DDE	0.0033	0.78
4,4'-DDT	0.0033	0.78
Dieldrin	0.005	0.017
Endrin	0.014	1.2
Heptachlor epoxide	0.013	0.12
Metals		
Arsenic	13	16
Cadmium	2.5	2.5
Chromium III	30	30
Chromium VI	1	1
Copper	50	280
Lead	63	400
Mercury	0.18	0.3
Nickel	30	87
Zinc	109	1300

Sample Location — Depth Interval Exceeding Applicable SCOs

ID	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0222 (A)**	**0.0391 (A)**
4,4'-DDT	**0.0057 IP (A)**	**0.0118 (A)**
Dieldrin	**0.0282 (A)**	**0.0235 (A)**
Metals		
Arsenic	**31.3 (AB)**	9.5
Chromium III	**37.9 (AB)**	23.2
Mercury	**0.418 (A)**	0.179
Zinc	**130 (A)**	57.3

Sampling Depth
SCO Exceeded
Result

Legend
- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Area Containing Soil Exceeding Applicable SCOs
- Stream

Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances

Qualifiers:
U -- Not Deteted
J -- Estimated Concentration
I -- The lower value for the two columns has been reported due to obvious interference
P -- The RPD between the results for the two columns exceeds the method-specified criteria

Abbreviation:
-- -- Not Analyzed
SCO -- Soil Cleanup Objective

Exceedance Codes:
(A) - Greater than Unrestricted Use SCO
(AB) - Greater than Residential SCO

Notes:
All concentrations are presented in mg/kg.
Results exceeding applicable SCOs are shaded.
Only chemicals with applicable SCO exceedances are presented for each sampling location.
Soil sampling locations in the Western Parcel are compared against the Residential SCOs and those in the Eastern Parcel are compared against the Unrestricted Use SCOs.

0 80 160 240 320 ft
1 Inch = 80 Feet

N

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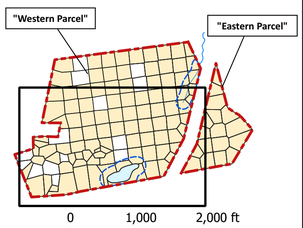
CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site NYSDEC Site No. C360239 850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

Pesticides and Metals Soil Analytical Results Databox Exceedances Summary

FIGURE 6e.3

Z:\Projects\109.004_Elmwood County Club\GIS\MXD\109.004_Elmwood_Databox_Pesticides_Metals_Soil_Results_Summary_6e.mxd 2020-03-17T21:12:56.000 Created by: MJ Highfill Checked by: MK

Key Map



F05	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDD	**0.00484 {A}**	0.00222 U	0.00193 U
4,4'-DDE	**0.248 {A}**	**0.0309 {A}**	0.00193 U
4,4'-DDT	**0.0306 {A}**	**0.00682 {A}**	0.00193 U
Metals			
Arsenic	**52.4 {AB}**	8.28	--
Chromium III	**31 {AB}**	25.4	--
Lead	**176 {A}**	26.6	--
Mercury	**1.08 {AB}**	0.162	--

TS-01	0-1(ft)	1-1.5(ft)	1.5-2(ft)
Pesticides			
alpha-Chlordane	**1.71 {AB}**	**0.134 {A}**	--
4,4'-DDD	**0.0668 P {A}**	**0.00608 {A}**	0.0018 U
4,4'-DDE	**0.766 IP {A}**	**0.38 {A}**	**0.0392 {A}**
4,4'-DDT	**0.595 {A}**	**0.147 {A}**	**0.0083 {A}**
Dieldrin	**0.33 {AB}**	**0.0469 {AB}**	**0.00798 {A}**
Heptachlor epoxide	**0.537 {AB}**	**0.0684 IP {A}**	**0.0177 {A}**
Metals			
Arsenic	**64.5 {AB}**	**63.6 {AB}**	3.28
Cadmium	**9.56 {AB}**	0.963	--
Chromium III	**194 {AB}**	27.6	--
Lead	**963 {AB}**	**110 {A}**	8.45
Mercury	**160 {AB}**	**32 {AB}**	**0.395 {AB}**
Zinc	**150 {A}**	61	--

F06	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.349 {A}**	**0.156 {A}**	0.00212
4,4'-DDT	**0.175 {A}**	**0.0819 {A}**	0.00183 U
Metals			
Arsenic	**65.8 {AB}**	11.7	--
Chromium III	**30.7 {AB}**	22.2	--
Lead	**211 {A}**	33.6	--

F07	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	2-4(ft)
Pesticides				
4,4'-DDD	**0.0123 J {A}**	0.000629 JIP	--	0.00165 U
4,4'-DDE	**1.37 {AB}**	**0.236 {A}**	--	0.00165 U
4,4'-DDT	**2.96 {AB}**	**0.125 {A}**	--	0.00165 U
Dieldrin	**0.0493 {AB}**	**0.0112 {A}**	--	0.00103 U
Heptachlor epoxide	**0.181 {AB}**	**0.0536 {A}**	--	0.00309 U
Metals				
Arsenic	**79.5 {AB}**	**46.5 {AB}**	11.8	0.331 J
Chromium III	**36.1 J {AB}**	22.3	--	--
Lead	**192 J {A}**	**91.9 {A}**	--	3.51 J
Mercury	**0.208 {A}**	0.1	--	0.066 U

G05	0-0.2(ft)	0.2-2(ft)	13-15(ft)
Pesticides			
alpha-Chlordane	**0.258 IP {AB}**	0.00244 U	0.00375 IP
4,4'-DDE	**0.0281 {A}**	0.00196 U	0.00185
4,4'-DDT	**0.0272 {A}**	0.00196 U	0.0021
Heptachlor	**0.0323 {A}**	0.000978 U	0.000747 J
Metals			
Mercury	**0.436 {AB}**	0.085 U	0.069 U

G06	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)
Pesticides						
4,4'-DDE	**0.326 {A}**	**0.215 {A}**	--	--	--	0.00158 J
4,4'-DDT	**0.0631 {A}**	**0.0437 {A}**	--	--	--	0.00185
Dieldrin	**0.0149 {A}**	**0.01 {A}**	--	--	--	0.00103 U
Metals						
Arsenic	**17.4 {AB}**	8.51	--	--	--	1.62 U
Chromium III	**36.001 {AB}**	21.9	--	--	--	--
Mercury	**6.1 {AB}**	**1.91 {AB}**	**2.18 {AB}**	**2.72 {AB}**	**0.854 {AB}**	0.067 U

TS-02	0-1(ft)	1-1.5(ft)	1.5-2(ft)	2-2.5(ft)	2.5-3(ft)
Pesticides					
4,4'-DDE	**1 {AB}**	**0.79 {AB}**	**0.302 {A}**	--	--
4,4'-DDT	**0.283 {A}**	**0.234 {A}**	**0.12 {A}**	--	--
Dieldrin	**0.0541 {AB}**	**0.0332 {AB}**	**0.0096 {A}**	--	--
Heptachlor epoxide	**0.0149 {A}**	0.0098	--	--	--
Metals					
Arsenic	**25.1 {AB}**	**15 {A}**	6.69	--	--
Chromium III	**33.2 {AB}**	28	--	--	--
Lead	**119 {A}**	**79.1 {A}**	22.8	--	--
Mercury	**15.2 {AB}**	**7.52 {AB}**	**2.17 {AB}**	**1.9 {AB}**	**0.312 {AB}**

G07	0-0.2(ft)	0.2-2(ft)	2-4(ft)	4-6(ft)
Pesticides				
4,4'-DDE	**0.0367 {A}**	**0.0156 {A}**	**0.0141 {A}**	0.00176 U
4,4'-DDT	**0.0119 {A}**	**0.00561 {A}**	0.0015 JIP	--
Metals				
Mercury	**0.199 {A}**	0.118	--	--

H07	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.038 {A}**	**0.0299 {A}**	0.00166 U
4,4'-DDT	**0.024 {A}**	**0.017 {A}**	0.00166 U
Metals			
Mercury	**0.241 {A}**	0.118	--

TS-03	0-1(ft)	1-1.5(ft)	1.5-2(ft)
Pesticides			
4,4'-DDE	**0.00362 {A}**	0.00195 U	--
Metals			
Arsenic	**22.5 {AB}**	**19.6 {AB}**	5.15
Lead	**98.5 {A}**	**84.2 {A}**	18.7
Mercury	**0.219 {A}**	0.16	--

I07	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
alpha-Chlordane	**0.122 IP {A}**	0.00197 JIP	--
4,4'-DDE	**0.0433 {AC}**	0.00266 J	--
4,4'-DDT	**0.0408 {AC}**	0.00324 U	--
Dieldrin	**0.274 {ABC}**	0.0022	--
Endrin	**0.0437 {AC}**	0.00135 U	--
Heptachlor epoxide	**0.0915 {A}**	0.00608 U	--
Metals			
Arsenic	**154 {ABC}**	10.8	4.18
Cadmium	**2.94 {AB}**	0.413 J	0.306 J
Chromium III	**93.6 {AB}**	**33.2 {AB}**	--
Lead	**118 {AC}**	**71.8 {AC}**	11.6
Mercury	**1.62 {ABC}**	**0.525 {ABC}**	0.133 J
Zinc	**124 {AC}**	109	34.9

TS-07	0-1(ft)	1-1.5(ft)	1.5-2(ft)
Pesticides			
4,4'-DDE	**0.013 {A}**	0.00297	--
4,4'-DDT	**0.0444 {A}**	**0.00432 {A}**	0.00182 U
Metals			
Lead	**132 {A}**	**84.3 {A}**	9.93
Mercury	**1.02 {AB}**	0.111	--
Zinc	**114 {A}**	**148 J {A}**	70.4

H05	0-0.2(ft)	0.2-2(ft)	1-1.5(ft)	2-4(ft)
Pesticides				
alpha-Chlordane	**0.0351 J {A}**	0.00227 U	--	0.00204 U
4,4'-DDE	**0.0704 {A}**	**0.0188 {A}**	--	0.00163 U
4,4'-DDT	**0.0299 {A}**	**0.004 {A}**	--	0.00163 U
Dieldrin	**0.118 {AB}**	0.00325	--	0.00102 U
Heptachlor epoxide	**0.0237 {A}**	0.0034 U	--	0.00306 U
Metals				
Arsenic	**23.2 J {AB}**	**29.1 {AB}**	6.36	4.86
Lead	**139 J {A}**	**65.3 {A}**	--	6.66
Mercury	**0.632 {AB}**	0.161	--	0.047 J
Zinc	**214 {A}**	52.7	--	38.5

I06	0-0.2(ft)	0.2-2(ft)	2-4(ft)	4-6(ft)	6-8(ft)
Pesticides					
4,4'-DDE	**0.0222 {AC}**	**0.0391 {AC}**	0.00136 J	**0.0613 {A}**	0.00172 U
4,4'-DDT	**0.0057 IP {AC}**	**0.0118 {AC}**	0.00184 U	**0.018 {A}**	0.00172 U
Dieldrin	**0.0282 {ABC}**	**0.0235 {ABC}**	**0.00563 {A}**	**0.0349 {AB}**	--
Metals					
Arsenic	**31.3 {ABC}**	9.5	--	--	--
Chromium III	**37.9 {AB}**	23.2	--	--	--
Mercury	**0.418 {ABC}**	0.179	--	--	--
Zinc	**130 {AC}**	57.3	--	--	--

H06	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)	4-6(ft)	6-8(ft)
Pesticides								
alpha-Chlordane	**0.0722 IP {A}**	0.00562 IP	**0.0902 IP {A}**	--	--	0.00103 JIP	0.00549 IP	--
4,4'-DDE	**0.207 {A}**	**0.025 {A}**	**0.636 {A}**	--	--	**0.00403 {A}**	**0.0117 {A}**	0.00173 U
4,4'-DDT	**0.0452 {A}**	**0.00625 {A}**	**0.205 {A}**	--	--	0.00195 U	0.00238	--
Dieldrin	**0.878 {AB}**	**0.0969 {AB}**	**0.576 {AB}**	**0.458 {AB}**	**0.121 {AB}**	**0.0129 {A}**	**0.0227 {AB}**	0.00108 U
Heptachlor epoxide	**0.146 {AB}**	**0.0156 {A}**	**0.168 {AB}**	--	--	0.00189 J	0.00308 JIP	--
Metals								
Arsenic	**89 {AB}**	6.09	--	--	--	--	--	--
Chromium III	**52.9 {AB}**	18.2	--	--	--	--	--	--
Lead	**77.4 {A}**	8.24	--	--	--	--	--	--
Mercury	**1.04 {AB}**	0.075	--	--	--	--	--	--

I05	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.00479 IP {AC}**	0.000822 J	--
Metals			
Arsenic	**44.5 {ABC}**	**15 {AC}**	5.38
Lead	**127 {AC}**	46.3	14.7
Zinc	77.8	74.7	**113 {A}**

Sample Location
Depth Interval Exceeding Applicable SCOs

I06	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0222 (A)**	**0.0391 (A)**
4,4'-DDT	**0.0057 IP (A)**	**0.0118 (A)**
Dieldrin	**0.0282 (A)**	**0.0235 (A)**
Metals		
Arsenic	**31.3 (AB)**	9.5
Chromium III	**37.9 (AB)**	23.2
Mercury	**0.418 (A)**	0.179
Zinc	**130 (A)**	57.3

Sampling Depth
SCO Exceeded
Result

Legend
- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Area Containing Soil Exceeding Applicable SCOs
- Stream

Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances

Qualifiers:
U -- Not Deteted
J -- Estimated Concentration
I -- The lower value for the two columns has been reported due to obvious interference
P -- The RPD between the results for the two columns exceeds the method-specified criteria

Abbreviations:
-- -- Not Analyzed
SCO -- Soil Cleanup Objective
PEco -- Protection of Environmental Resources

Exceedance Codes:
{A} - Greater than Unrestricted Use SCO
{AB}/{ABC} - Greater than Residential SCO
{AC}/{ABC} - Greater than PEco SCO

Notes:
All concentrations are presented in mg/kg.
Results exceeding applicable SCOs are shaded.
Only chemicals with applicable SCO exceedances are presented for each sampling location.
Soil sampling locations in the Western Parcel are compared against the Residential SCOs and those in the Eastern Parcel are compared against the Unrestricted Use SCOs.
Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.

Soil Cleanup Objectives	{A}	{AB}/ {ABC}	{AC}/{ABC}
Chemical	Unrestricted Use Soil Cleanup Objectives (mg/kg)	Residential Soil Cleanup Objectives (mg/kg)	Protection of Ecological Resources Soil Cleanup Objectives (mg/kg)
Pesticides			
Aldrin	0.0048	0.0088	0.14
alpha-Chlordane	0.014	0.14	1.3
4,4'-DDD	0.0033	1.2	0.0033
4,4'-DDE	0.0033	0.78	0.0033
4,4'-DDT	0.0033	0.78	0.0033
Dieldrin	0.005	0.017	0.006
Endrin	0.014	1.2	0.014
Heptachlor epoxide	0.013	0.12	0.14
Metals			
Arsenic	13	16	13
Cadmium	2.5	2.5	4
Chromium III	30	30	160
Chromium VI	1	1	20
Copper	50	280	50
Lead	63	400	63
Mercury	0.18	0.3	0.18
Nickel	30	87	30
Zinc	109	1300	109

0 80 160 240 320 ft
1 Inch = 80 Feet

N

SAFETY FIRST

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CLIENT: Ridgewood Elmwood Owner, LLC

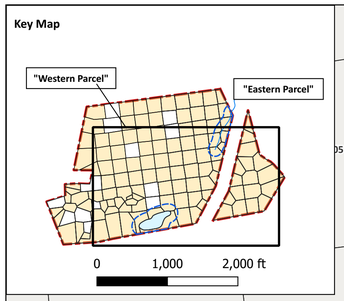
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Pesticides and Metals Soil Analytical Results Databox Exceedances Summary

FIGURE 6e.4

N:\CV\Projects\04.000_Elmwood Country Club\2025\20250216-Terrashore Elmwood SSI\Databoxes RAWP\figs 20250627 SSI-Databoxes-WesternParcel-SM Final Figure.fm 4 2025-03-13T22:12:56.000 Created by: M. Lapkaj Checked by: NK



F09	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.0518 {A}**	**0.00505 {A}**	0.00171 U
4,4'-DDT	**0.0165 {A}**	0.00178 IP	0.00171 U
Dieldrin	**0.00924 {A}**	0.000556 J	0.00107 U
Metals			
Arsenic	**16.2 {AB}**	2.69	--
Mercury	**0.939 {AB}**	0.051 J	--

G10	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.0476 {A}**	**0.0128 {A}**	0.00286
4,4'-DDT	**0.0119 {A}**	**0.0038 {A}**	0.0018 U
Metals			
Arsenic	**25.9 {AB}**	9.01	--
Lead	**90.8 {A}**	31	--
Mercury	**0.311 {AB}**	0.111	--

F10	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	2-4(ft)
Pesticides				
alpha-Chlordane	**0.18 IP {AB}**	**0.0774 J {A}**	0.00618 IP	0.00218 U
4,4'-DDE	**0.21 {A}**	**0.0917 {A}**	**0.0209 {A}**	0.00174 U
4,4'-DDT	**0.0885 {A}**	**0.032 {A}**	**0.00908 {A}**	0.00174 U
Dieldrin	**0.459 {AB}**	**0.223 {AB}**	**0.00955 {A}**	0.00109 U
Heptachlor epoxide	**0.247 {AB}**	**0.154 {AB}**	0.0071 IP	0.00327 U
Metals				
Arsenic	**198 {AB}**	**78 {AB}**	4.86	0.565 J
Chromium III	**66.4 {AB}**	27.2 J	--	--
Lead	**204 {A}**	45.9 J	--	5.07
Mercury	**1.82 {AB}**	**0.318 {AB}**	--	0.072 U

F11	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	2-4(ft)
Pesticides					
alpha-Chlordane	**0.215 IP {AB}**	**0.184 IP {AB}**	0.00651 J	--	0.000923 J
4,4'-DDE	**0.0598 {A}**	**0.0448 {A}**	**0.0131 {A}**	--	0.000418 NJ
4,4'-DDT	**0.0286 {A}**	**0.0239 {A}**	0.0029	--	0.00172 U
Dieldrin	**0.163 {AB}**	**0.134 {AB}**	**0.00613 {A}**	--	0.000723 J
Heptachlor epoxide	**0.4 {AB}**	**0.417 {AB}**	**0.0139 J {A}**	--	0.00229 J
Metals					
Arsenic	**156 {AB}**	**117 {AB}**	**34 J {AB}**	12.1	1.53 J
Chromium III	**86.7 {AB}**	**177 {AB}**	25.3 J	--	--
Lead	**140 {A}**	**89.2 {A}**	--	--	4.49
Mercury	**2.1 {AB}**	**2.4 {AB}**	**0.199 {A}**	--	0.071 U

F12	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
alpha-Chlordane	0.00628 IP	**0.139 IP {A}**	0.00225 U
4,4'-DDE	0.002 J	**0.0415 {A}**	0.0018 U
4,4'-DDT	0.00203 U	**0.0134 {A}**	0.0018 U
Dieldrin	0.000748 J	**0.0153 {A}**	0.00112 U
Heptachlor epoxide	0.00244 J	**0.0635 {A}**	0.00337 U
Metals			
Arsenic	**43.3 {AB}**	3.07	--
Chromium III	**48 {AB}**	20.4	--
Mercury	**0.769 {AB}**	0.055 J	--

F08	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	2-4(ft)
Pesticides				
alpha-Chlordane	**0.0668 IP {A}**	**0.0197 IP {A}**	0.0027 IP	0.00216 U
4,4'-DDE	**1.46 {AB}**	**0.586 {A}**	**0.231 {A}**	0.00173 U
4,4'-DDT	**0.416 {A}**	**0.142 {A}**	**0.048 {A}**	0.00173 U
Dieldrin	**0.475 {AB}**	**0.135 {AB}**	**0.0297 {AB}**	0.00108 U
Heptachlor epoxide	**0.228 {AB}**	**0.068 {A}**	**0.0197 {A}**	0.00324 U
Metals				
Arsenic	**172 {AB}**	**50.4 {AB}**	11.5	0.885 U
Chromium III	**88.6 {AB}**	**41 {AB}**	26.9	--
Lead	**158 {A}**	48.7	--	4.32 J
Mercury	**1.28 {AB}**	**0.312 {AB}**	--	0.071 U

G12	0-0.2(ft)	0.2-2(ft)	2-4(ft)	9-11(ft)
Pesticides				
alpha-Chlordane	**0.0934 IP {A}**	0.00131 JIP	0.00218 U	0.0022 U
4,4'-DDE	**0.0244 {A}**	0.0018 U	0.00174 U	0.00176 U
4,4'-DDT	**0.024 {A}**	0.0018 U	0.00174 U	0.00176 U
Dieldrin	**0.791 {AB}**	**0.012 {A}**	0.0039	0.00214
Heptachlor epoxide	**0.14 {AB}**	0.0029 J	0.00327 U	0.00329 U
Metals				
Arsenic	**111 {AB}**	5.53	--	2.57
Chromium III	**85.6 {AB}**	20.8	--	23.8 J
Mercury	**1.68 {AB}**	0.071 U	--	0.071 U

G09	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-2.5(ft)	2-4(ft)
Pesticides							
4,4'-DDE	**0.0704 {A}**	**0.059 {A}**	**0.00945 {A}**	**0.0762 {A}**	**0.214 {A}**	**0.0199 {A}**	0.00238
4,4'-DDT	**0.0191 {A}**	**0.0535 {A}**	**0.00735 {A}**	**0.0223 {A}**	**0.0229 {A}**	**0.00427 {A}**	0.00166 U
Dieldrin	**0.0515 {AB}**	**0.0468 {AB}**	0.00224	--	--	--	--
Heptachlor epoxide	**0.0251 {A}**	**0.052 {A}**	0.0038 U	--	--	--	--
Metals							
Arsenic	**19 {AB}**	**20.8 {AB}**	1.53	--	--	--	--
Mercury	**1.03 {AB}**	**0.729 {AB}**	--	--	--	--	0.083 U

G11	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
alpha-Chlordane	**0.394 IP {AB}**	0.00325 IP	0.00216 U
4,4'-DDE	**0.0347 {A}**	0.00119 J	0.00172 U
4,4'-DDT	**0.0109 {A}**	0.00213 U	0.00172 U
Dieldrin	**1.13 {AB}**	**0.0193 {AB}**	0.00108 U
Heptachlor epoxide	**0.229 {AB}**	0.00644	0.00323 U
Metals			
Arsenic	**155 {AB}**	6.24	--
Cadmium	**3.32 {AB}**	1.07 U	--
Chromium III	**132 {AB}**	23.1	--
Mercury	**2.85 {AB}**	0.079 J	--
Zinc	**111 {A}**	57.1	--

G08	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.0179 {A}**	**0.00592 {A}**	0.00179
4,4'-DDT	**0.0106 {A}**	0.00238	0.00169 U
Metals			
Chromium III	14.6	**32.2 J {AB}**	18.4 J
Mercury	**0.249 {A}**	0.109	--

H11	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
alpha-Chlordane	**0.0327 IP {A}**	0.00305 IP	0.00217 U
4,4'-DDE	**0.0329 {A}**	**0.00644 {A}**	0.00174 U
4,4'-DDT	**0.0142 {A}**	0.0017	0.00174 U
Dieldrin	**0.268 {AB}**	**0.0343 {AB}**	0.00109 U
Heptachlor epoxide	**0.0474 {A}**	0.00655	0.00326 U
Metals			
Arsenic	**68.2 {AB}**	**15.8 {A}**	1.68
Chromium III	**46.7 {AB}**	**37.2 {AB}**	--
Mercury	**1.48 {AB}**	**0.189 {A}**	0.077 U

H08	0-0.2(ft)	0.2-2(ft)	2-4(ft)	4-6(ft)	6-8(ft)
Pesticides					
alpha-Chlordane	0.00849 IP	**0.0179 J {A}**	0.00245 U	**0.0224 IP {A}**	--
4,4'-DDD	**0.00545 {AC}**	**0.0321 {AC}**	0.00196 U	0.00173 U	--
4,4'-DDE	**0.0998 {AC}**	**0.146 J {AC}**	**0.00631 {A}**	**0.00545 {A}**	0.00173 U
4,4'-DDT	**0.106 {AC}**	**0.0367 {AC}**	0.00178 J	**0.00982 {A}**	0.00173 U
Dieldrin	**0.00617 {AC}**	**0.0068 {AC}**	0.0008 JIP	0.00108 U	--
Metals					
Mercury	**0.27 {AC}**	0.112	--	--	--

H10	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.0758 {A}**	**0.0167 {A}**	0.00052 JIP
4,4'-DDT	**0.0135 {A}**	0.00316	0.00179 U
Metals			
Arsenic	**30.3 {AB}**	10.5	--
Lead	**104 {A}**	35.1	--

H09	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)	4-6(ft)	6-8(ft)	8-10(ft)
Pesticides									
4,4'-DDE	**0.0176 {A}**	**0.0413 {A}**	--	--	--	**0.0394 {A}**	**0.00558 {A}**	**0.172 {A}**	0.00178 U
4,4'-DDT	**0.00517 {A}**	**0.0064 {A}**	--	--	--	**0.00721 {A}**	0.00271	**0.0714 {A}**	0.00178 U
Metals									
Arsenic	12.9	**15.4 {A}**	--	--	--	9.33	5.48	--	--
Chromium III	**32.8 {AB}**	29.5	--	--	--	--	--	--	--
Mercury	**2.59 {AB}**	**2.49 {AB}**	**1.68 {AB}**	**0.996 {AB}**	**0.553 {AB}**	**0.38 {AB}**	0.055 J	--	--

I09	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)	2-4(ft)	4-6(ft)
Pesticides								
alpha-Chlordane	**0.117 {A}**	**0.0691 IP {A}**	0.00289 IP	--	--	*0.0101 IP*	0.00226 U	--
4,4'-DDD	**0.0034 {A}**	0.00169 U	0.002 U	--	--	*0.00177 U*	0.00181 U	--
4,4'-DDE	**0.268 {A}**	**0.179 {A}**	**0.0206 {A}**	--	--	*0.0277 {A}*	0.00181 U	--
4,4'-DDT	**0.0643 {A}**	**0.0501 {A}**	0.002 U	--	--	*0.0094 {A}*	0.00181 U	--
Dieldrin	**0.606 {AB}**	**0.368 {AB}**	0.00234	--	--	*0.0509 {AB}*	0.00113 U	--
Heptachlor epoxide	**0.111 {A}**	**0.0567 {A}**	0.00376 U	--	--	*0.0107*	0.0034 U	--
Metals								
Arsenic	**40.5 {AB}**	**33.5 {AB}**	**24.3 {AB}**	**28.5 {AB}**	**15.3 {A}**	*9.96*	--	--
Chromium III	**32.7 {AB}**	29.4	--	--	--	*--*	--	--
Lead	**118 {A}**	**115 {A}**	--	--	--	*41.7*	--	--
Mercury	**5.25 {AB}**	**3.95 {AB}**	**1.72 {AB}**	**1.99 {AB}**	**0.966 {AB}**	*0.683 {AB}*	--	0.081 U

I10	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)	4-6(ft)
Pesticides							
alpha-Chlordane	**0.088 IP {A}**	**0.0473 IP {A}**	**0.0205 J {A}**	--	--	0.00227 U	0.00236 U
4,4'-DDD	**0.00907 {A}**	0.00175 U	0.00196 U	--	--	0.00182 U	0.00189 U
4,4'-DDE	**0.8 {AB}**	**0.438 {A}**	**0.0675 {A}**	**0.132 {A}**	--	**0.00412 {A}**	0.00189 U
4,4'-DDT	**0.301 {A}**	**0.154 {A}**	0.00196 U	--	--	0.00195	0.00189 U
Dieldrin	**0.768 {AB}**	**0.417 {AB}**	**0.113 {AB}**	**0.213 {AB}**	**0.116 {AB}**	0.00243	0.00118 U
Heptachlor epoxide	**0.207 {AB}**	**0.0966 {A}**	0.0118 J	--	--	0.00341 U	0.00354 U
Metals							
Arsenic	**188 {AB}**	**98.7 {AB}**	**98.6 {AB}**	**76.7 {AB}**	**46 {AB}**	6.21	--
Chromium III	**94 {AB}**	**55.5 {AB}**	**69.5 {AB}**	**52.7 {AB}**	**41.2 {AB}**	--	--
Lead	**206 {A}**	**106 {A}**	--	--	--	7.26	--
Mercury	**1.78 {AB}**	**0.813 {AB}**	--	--	--	0.074 U	--

I11	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDD	**0.00857 {A}**	0.00181 U
4,4'-DDE	**0.221 {A}**	0.00167 J
4,4'-DDT	**0.0726 {A}**	0.00181 U
Metals		
Arsenic	**43.5 {AB}**	4.46
Lead	**140 {A}**	15.9

I08	0-0.2(ft)	0.2-2(ft)	2-4(ft)	6-8(ft)
Pesticides				
alpha-Chlordane	**0.0408 IP {A}**	**0.0423 IP {A}**	0.00236 U	0.00246 U
4,4'-DDE	**0.0135 {AC}**	**0.0158 {AC}**	0.00154 J	0.00197 U
4,4'-DDT	**0.00448 {AC}**	0.00288	0.00189 U	0.00197 U
Dieldrin	**0.0317 {ABC}**	0.00411	0.00118 U	0.00123 U
Metals				
Mercury	**0.244 {AC}**	**0.27 {AC}**	0.075 U	0.091 U

H10	0-0.2(ft)	0.2-2(ft)	2-4(ft)
Pesticides			
4,4'-DDE	**0.0758 {A}**	**0.0167 {A}**	0.00052 JIP
4,4'-DDT	**0.0135 {A}**	0.00316	0.00179 U
Metals			
Arsenic	**30.3 {AB}**	10.5	--
Lead	**104 {A}**	35.1	--

Sample Location
Depth Interval Exceeding Applicable SCOs

006	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0222 (A)**	**0.0395 (A)**
4,4'-DDT	**0.0057 IP (A)**	**0.0118 (A)**
Dieldrin	**0.0282 (A)**	**0.0235 (A)**
Metals		
Arsenic	**31.3 (AB)**	9.5
Chromium III	**37.9 (AB)**	23.2
Mercury	**0.418 (A)**	0.179
Zinc	**130 (A)**	57.3

Sampling Depth
SCO Exceeded
Result

Legend
- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Area Containing Soil Exceeding Applicable SCOs
- Stream

Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances

Qualifiers:
U -- Not Deteted
J -- Estimated Concentration
I -- The lower value for the two columns has been reported due to obvious interference
P -- The RPD between the results for the two columns exceeds the method-specified criteria

Abbreviations:
-- -- Not Analyzed
SCO -- Soil Cleanup Objective
SRI -- Supplemental remedial investigation
PEco -- Protection of Environmental Resources

Exceedance Codes:
{A} - Greater than Unrestricted Use SCO
{AB}/{ABC} - Greater than Residential SCO
{AC}/{ABC} - Greater than PEco SCO

Notes:
All concentrations are presented in mg/kg.
Results exceeding applicable SCOs are shaded.
Only chemicals with applicable SCO exceedances are presented for each sampling location.
Soil sampling locations in the Western Parcel are compared against the Residential SCOs and those in the Eastern Parcel are compared against the Unrestricted Use SCOs.
Gray-font, italicized results are superseded by SRI samples collected at the same interval.
Only soil sampling results within the wetlands buffer zone collected in the upper 2 feet are compared against the PEco SCOs.

Chemical	{A} Unrestricted Use Soil Cleanup Objectives (mg/kg)	{AB}/{ABC} Residential Soil Cleanup Objectives (mg/kg)	{AC}/{ABC} Protection of Ecological Resources Soil Cleanup Objectives (mg/kg)
Pesticides			
Aldrin	0.0048	0.0088	0.14
alpha-Chlordane	0.014	0.14	1.3
4,4'-DDD	0.0033	1.2	0.0033
4,4'-DDE	0.0033	0.78	0.0033
4,4'-DDT	0.0033	0.78	0.0033
Dieldrin	0.005	0.017	0.006
Endrin	0.014	1.2	0.014
Heptachlor epoxide	0.013	0.12	0.14
Metals			
Arsenic	13	16	13
Cadmium	2.5	2.5	4
Chromium III	30	30	160
Chromium VI	1	1	20
Copper	50	280	50
Lead	63	400	63
Mercury	0.18	0.3	0.18
Nickel	30	87	30
Zinc	109	1300	109

0 80 160 240 320 ft
1 Inch = 80 Feet

N

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carsonvoci engineering and geology dpc
an affiliate of Arcadis Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

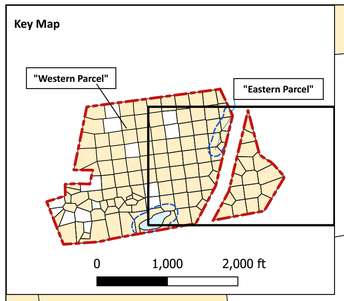
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Pesticides and Metals Soil Analytical Results Databox Exceedances Summary

FIGURE 6e.5

Z:\Projects\105.004_Elmwood Country Club\02\01\20210115 Yonaphase Elmwood SO Databoxes 45mil.mxd 2/2/2021 10:56:00 Created by: M. Inglis Checked by: NK



F13	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	2-4(ft)	2-4(ft)	4-6(ft)	4-6(ft)	6-8(ft)
Pesticides								
alpha-Chlordane	**0.208 IP {AB}**	**0.0345 {A}**	**0.126 IP {A}**	*0.0142 P {A}*	**0.0676 IP {A}**	*0.0162 J {A}*	**0.159 IP {AB}**	0.0151 U*
4,4'-DDD	**0.0174 {A}**	0.00186	0.00166 U	*0.000793 JP*	0.00198 U	*0.0011 J*	**0.00864 {A}**	0.00182 U
4,4'-DDE	**0.0329 {A}**	**0.004 {A}**	**0.0362 {A}**	*0.00192 U*	0.00307	*0.00288*	**0.0182 {A}**	0.00182 U
4,4'-DDT	**0.0166 {A}**	0.00178 U	**0.0229 {A}**	*0.00192 U*	0.00198 U	*0.0018 U*	0.00217 U	--
Dieldrin	**0.0141 {A}**	0.00117	**0.00587 {A}**	*0.00646 P {A}*	0.00123 U	*0.0155 {A}*	0.00136 U	--
Heptachlor epoxide	**0.12 {A}**	0.00333 U	**0.186 {AB}**	*0.0036 U*	0.0037 U	*0.00263 J*	0.00408 U	--
Metals								
Arsenic	**19.3 {ABC}**	9.56	--	--	--	--	--	--
Lead	**68.4 {A}**	34.1	--	--	--	--	--	--
Mercury	**3.91 {ABC}**	0.15	--	--	--	--	--	--

G13	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0281 {A}**	0.00166 U
4,4'-DDT	**0.00994 {A}**	0.00166 U
Dieldrin	**0.00978 {A}**	0.00104 U
Metals		
Arsenic	**18.4 {ABC}**	1.38
Mercury	**0.337 {ABC}**	0.074 U

H14	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)
Pesticides						
alpha-Chlordane	**0.0393 IP {A}**	0.00144 JIP	**0.0306 {A}**	--	--	0.0022 U
4,4'-DDE	**0.0809 {A}**	**0.00442 IP {A}**	**0.392 {A}**	**0.251 {A}**	**0.073 {A}**	0.00176 U
4,4'-DDT	**0.0368 {A}**	0.00143 J	**0.262 {A}**	**0.0488 {A}**	**0.0193 {A}**	0.00176 U
Dieldrin	**0.0668 {AB}**	0.00221	**0.246 {ABC}**	**0.121 {ABC}**	**0.0416 {AB}**	0.0011 U
Heptachlor epoxide	**0.0536 {A}**	0.00173 J	**0.0581 P {A}**	**0.0311 {A}**	--	0.0033 U
Metals						
Arsenic	**139 {ABC}**	6.66	--	--	--	--
Chromium III	**52.7 {AB}**	24.7	--	--	--	--
Lead	**86.8 {A}**	8.17	--	--	--	--
Mercury	**0.731 {ABC}**	0.114	--	--	--	--
Zinc	**294 {A}**	73	--	--	--	--

H13	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)
Pesticides						
alpha-Chlordane	**0.03 IP {A}**	**0.0526 J {A}**	0.00241 U	--	--	0.00209 U
4,4'-DDE	**0.0931 {A}**	**0.0917 {A}**	**0.026 {A}**	**0.00426 {A}**	0.002 U	0.0026
4,4'-DDT	**0.0256 {A}**	**0.024 {A}**	**0.00696 {A}**	0.00182 U	--	0.00167 U
Dieldrin	**0.461 {ABC}**	**0.683 {ABC}**	0.00192	--	--	0.000592 J
Heptachlor epoxide	**0.0684 {A}**	**0.0993 {A}**	0.00361 U	--	--	0.00313 U
Metals						
Arsenic	**161 {ABC}**	**132 J {ABC}**	**44.8 {ABC}**	12	--	0.984
Chromium III	**126 {ABC}**	**105 {AB}**	22.9		--	--
Lead	**181 {A}**	**131 {A}**	**120 {A}**	32.7	--	2.98 J
Mercury	**1.28 {ABC}**	**1.01 {ABC}**	**0.275 {A}**	0.078	--	0.071 U

H12	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	2-4(ft)
Pesticides				
4,4'-DDE	**0.0158 {A}**	0.00286 IP	--	--
4,4'-DDT	**0.00503 {A}**	0.00168 U	--	--
Metals				
Arsenic	**21 {ABC}**	8.41	--	1.89
Mercury	**0.511 {ABC}**	**0.208 {A}**	0.084	0.075 U

I12	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)	2-2.5(ft)	2.5-3(ft)	3-3.5(ft)	3.5-4(ft)
Pesticides										
alpha-Chlordane	**0.028 IP {A}**	**0.0189 J {A}**	0.00965 J	--	--	0.00212 U	--	--	--	--
4,4'-DDE	**0.0952 {A}**	**0.0622 {A}**	**0.068 {A}**	**0.0374 {A}**	**0.0284 {A}**	**0.00674 J {A}**	0.00129 J	0.00168 U	0.00168 U	0.00174 U
4,4'-DDT	**0.0238 {A}**	**0.0156 {A}**	**0.00662 J {A}**	**0.00883 {A}**	**0.00813 {A}**	0.0024 J	0.00168 U	--	--	--
Dieldrin	**0.248 {ABC}**	**0.154 {ABC}**	**0.258 {ABC}**	**0.0633 {AB}**	**0.0312 {AB}**	**0.0073 J {A}**	0.00239	0.000717 J	0.00105 U	0.00109 U
Heptachlor epoxide	**0.0416 {A}**	**0.0229 {A}**	0.00335 U	--	--	0.001 NJ	--	--	--	--
Metals										
Arsenic	**150 {ABC}**	**77.7 {ABC}**	**67 {ABC}**	12.7	--	3.99	--	--	--	--
Chromium III	**69.4 {AB}**	**46.5 {AB}**	**30.3 {AB}**	--	--	--	--	--	--	--
Lead	**120 {A}**	**72 {A}**	22.2	--	--	6.41	--	--	--	--
Mercury	**1.16 {ABC}**	**0.545 {ABC}**	**0.336 {ABC}**	**0.282 {A}**	0.084 U	0.048 J	--	--	--	--

I13	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)	2-2.5(ft)	2.5-3(ft)	3-3.5(ft)	3.5-4(ft)
Pesticides										
alpha-Chlordane	**0.0376 IP {A}**	**0.0334 IP {A}**	**0.065 J {A}**	--	--	0.00219 U	--	--	--	--
4,4'-DDD	0.00206 U	0.00221 U	**0.0844 J {A}**	**0.0378 {A}**	0.00182 U	0.00175 U	--	--	--	--
4,4'-DDE	**0.286 {A}**	**0.216 {A}**	**3.88 J {ABC}**	**1.82 {AB}**	**0.209 {A}**	0.00175 U	--	--	--	--
4,4'-DDT	**0.0792 {A}**	**0.0689 {A}**	**13.1 J {ABC}**	**2.02 {AB}**	**0.0979 {A}**	0.00175 U	--	--	--	--
Dieldrin	**0.524 {ABC}**	**0.451 {ABC}**	**0.826 J {ABC}**	**0.473 {ABC}**	**0.0333 {AB}**	0.00109 U	--	--	--	--
Heptachlor epoxide	**0.0994 {A}**	**0.075 {A}**	**0.125 J {AB}**	**0.0874 {A}**	0.00483	0.00328 U	--	--	--	--
Metals										
Arsenic	**193 {ABC}**	**134 {ABC}**	**138 {ABC}**	**154 {ABC}**	8.78	5.99	--	--	--	--
Chromium III	**96.1 {AB}**	**82.6 {AB}**	**77.7 J {AB}**	**69.8 J {AB}**	25		--	--	--	--
Lead	**203 {A}**	**144 {A}**	**106 {A}**	**93.1 {A}**	12.2	5.65	--	--	--	--
Mercury	**1.09 {ABC}**	**0.794 {ABC}**	**0.734 {ABC}**	**0.658 {ABC}**	0.067 J	0.072 U	--	--	--	--
Nickel	16.8	28.3	--	--	--	**110 {AB}**	13.1	14.5	17.6	14.8

C14	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.00388 {A}**	0.000567 J
Metals		
Mercury	**0.192 {A}**	0.058 J

D14	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	2-4(ft)
Pesticides				
alpha-Chlordane	**0.0747 IP {A}**	0.00352 IP	0.00234 U	0.00241 U
4,4'-DDD	**0.00706 {A}**	0.00196 U	0.00188 U	0.00193 U
4,4'-DDE	**0.0321 {A}**	**0.0048 {A}**	0.0011 JIP	0.00047 J
4,4'-DDT	**0.0111 {A}**	0.00196 U	0.00188 U	0.00193 U
Dieldrin	**0.215 {ABC}**	**0.0223 {AB}**	0.00117 U	0.00138
Heptachlor epoxide	**0.118 {A}**	**0.015 {A}**	0.00352 U	0.00119 J
Metals				
Arsenic	**87.4 {ABC}**	11.1	--	--
Chromium III	**56.4 {AB}**	21.8	--	--
Mercury	**0.42 {ABC}**	0.098	--	--

E14	0-0.2(ft)	0.2-2(ft)
Pesticides		
alpha-Chlordane	**0.0381 IP {A}**	0.000702 JIP
4,4'-DDE	**0.00982 {A}**	0.00177 U
4,4'-DDT	**0.00362 IP {A}**	0.00177 U
Dieldrin	**0.175 {ABC}**	0.00351
Heptachlor epoxide	**0.123 {AB}**	0.00281 J
Metals		
Arsenic	**124 {ABC}**	3.41
Chromium III	**97.7 {AB}**	16.6
Mercury	**0.97 {ABC}**	0.064 J

F14	0-0.2(ft)	0.2-2(ft)
Pesticides		
Dieldrin	**0.0204 {AB}**	0.0011 U
Metals		
Mercury	**0.328 {ABC}**	0.073 U

F15	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	2-4(ft)
Pesticides					
alpha-Chlordane	**0.0756 J {A}**	0.00489 IP	0.0025 U	--	0.00242 U
4,4'-DDE	**0.0282 {A}**	0.00277	**0.0108 {A}**	0.000496 J	0.00193 U
4,4'-DDT	**0.00889 {A}**	0.00174 U	0.00264 IP	--	0.00193 U
Dieldrin	**0.17 {ABC}**	**0.0093 {A}**	**0.024 {AB}**	0.00186	0.00121 U
Heptachlor epoxide	**0.108 {A}**	0.00603	0.00375 U	--	0.00362 U

G14	0-0.2(ft)	0.2-2(ft)
Pesticides		
Dieldrin	**0.00703 {A}**	0.00104 U
Metals		
Mercury	**0.738 {ABC}**	0.081

G15	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	2-4(ft)
Pesticides					
alpha-Chlordane	**0.0163 J {A}**	0.00279 IP	--	--	--
4,4'-DDE	**0.0128 {A}**	0.000507 J	--	--	--
4,4'-DDT	**0.00561 {A}**	0.00174 U	--	--	--
Dieldrin	**0.0163 {A}**	0.00183	--	--	--
Metals					
Mercury	**1.27 {ABC}**	**0.196 {A}**	**0.492 {ABC}**	0.15	0.076 U

H15	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0497 {A}**	0.00259
4,4'-DDT	**0.0195 {A}**	0.00169 U
Dieldrin	**0.00883 {A}**	0.00106 U
Metals		
Arsenic	**17.5 {ABC}**	3.05
Lead	**64.6 {A}**	7.49
Mercury	**1.06 {ABC}**	0.086

I14	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)
Pesticides						
4,4'-DDE	**0.0551 {A}**	**0.00379 {A}**	**0.0886 {A}**	**0.0188 {A}**	**0.006 {A}**	0.00177 U
4,4'-DDT	**0.01 {A}**	0.00166 U	**0.018 {A}**	**0.00345 {A}**	--	0.00177 U
Metals						
Arsenic	**34.7 {ABC}**	4.34	--	--	--	--
Lead	**105 {A}**	9.8	--	--	--	--

I15	0-0.2(ft)	0.2-2(ft)	6-8(ft)
Pesticides			
4,4'-DDE	**0.012 {A}**	0.00186	0.00176 U
Metals			
Arsenic	**36.1 {ABC}**	4.42	1.54
Lead	**125 {A}**	10.1	2.97 J

Chemical	Soil Cleanup Objectives {A} Unrestricted Use Soil Cleanup Objectives (mg/kg)	{AB}/{ABC} Residential Soil Cleanup Objectives (mg/kg)	{ABC} Restricted Residential Soil Cleanup Objectives (mg/kg)
Pesticides			
Aldrin	0.0048	0.0088	0.044
alpha-Chlordane	0.014	0.14	0.65
4,4'-DDD	0.0033	1.2	5.0
4,4'-DDE	0.0033	0.78	3.4
4,4'-DDT	0.0033	0.78	3.8
Dieldrin	0.005	0.017	0.075
Endrin	0.014	1.2	5.3
Heptachlor epoxide	0.013	0.12	0.53
Metals			
Arsenic	13	16	16
Cadmium	2.5	2.5	2.5
Chromium III	30	30	110
Chromium VI	1.0	1.0	1.0
Copper	50	280	280
Lead	63	400	400
Mercury	0.18	0.3	0.3
Nickel	30	87	320
Zinc	109	1300	6600

Sample Location — Depth Interval Exceeding Applicable SCOs

I06	0-0.2(ft)	0.2-2(ft)
Pesticides		
4,4'-DDE	**0.0222 (A)**	**0.0091 (A)**
4,4'-DDT	**0.0057 IP (A)**	**0.0118 (A)**
Dieldrin	**0.0282 (A)**	**0.0255 (A)**
Metals		
Arsenic	**31.3 (AB)**	9.5
Chromium III	**37.9 (AB)**	23.2
Mercury	**0.418 (A)**	0.179
Zinc	**130 (A)**	57.3

Sampling Depth; SCO Exceeded; Result

Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Area Containing Soil Exceeding Applicable SCOs
- Stream

Soil Sampling Location

- Exceeds Applicable SCOs
- Soil Sampling Location

Qualifiers:
U -- Not Deteted
J -- Estimated Concentration
I -- The lower value for the two columns has been reported due to obvious interference
P -- The RPD between the results for the two columns exceeds the method-specified criteria
-- -- Not Analyzed

Abbreviations:
SCO -- Soil Cleanup Objective
SRI -- supplemental remedial investigation

Exceedance Codes:
{A} - Greater than Unrestricted Use SCO
{AB}/{ABC} - Greater than Residential SCO
{ABC} - Greater than Restricted Residential SCO

Notes:
All concentrations are presented in mg/kg.
Results exceeding applicable SCOs are shaded.
Only chemicals with applicable SCO exceedances are presented for each sampling location.
Soil sampling locations in the Western Parcel are compared against the Residential SCOs and those in the Eastern Parcel are compared against the Unrestricted Use SCOs for remedy decision-making.
The results used for remedy decision-making are orange-shaded.
Gray-font, italicized results are superseded by SRI samples collected at the same interval.
* - The result presented is for Chlordane (total).

0 80 160 240 320 ft
1 Inch = 80 Feet

N

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carsonvoci engineering and geology dpc
an affiliate of Terraphase Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site, NYSDEC Site No. C360239, 850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

Pesticides and Metals Soil Analytical Results Databox Exceedances Summary

FIGURE 6e.6

N:\GIS\PJ\105.004_Elmwood County Club\GIS\2019\116 Terraphase Elmwood GIS Databases JEAN.mpp 10/29/19 GIS Databases Exceed Pest Figure.PrjCreated by: JEAN Checked by: NK

A04	5/22/2024	4/30/2025	5/22/2024	2/4/2025	2/4/2025	6/26/2025	2/4/2025	6/26/2025	5/22/2024	2/4/2025
	0-0.2(ft)	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1-1.5(ft)	1.5-2(ft)	1.5-2(ft)	2-4(ft)	2-4(ft)
PFAS										
PFOS	--	**0.00105 {A}**	**0.00105 {A}**	--	--	--	--	--	--	0.000094 J
Pesticides										
4,4-DDE	**0.0943 {A}**	--	**0.0964 {A}**	--	--	--	--	--	0.00166 U	--
4,4-DDT	**0.0306 {A}**	--	**0.027 {A}**	--	--	--	--	--	0.00166 U	--
Metals										
Arsenic	**22 {AB}**	--	**17.7 {AB}**	**19 {AB}**	**16.6 {AB}**	**19.8 {AB}**	--	3.58	2.4	--
Lead	**79.2 {A}**	--	**63.2 {A}**			**71.1 {A}**		10.8	4.71	--
Mercury	**3.14 {AB}**	--	**2.77 {AB}**	**4.05 {AB}**	**3.9 {AB}**	**2.62 {AB}**	**2.57 {AB}**	**0.2 {A}**	0.07 U	--

A04N	6/26/2025	6/26/2025
	1-1.5(ft)	1.5-2(ft)
Metals		
Arsenic	13	4.51
Lead	41	14.2
Mercury	**2.72 {AB}**	**0.227 {A}**

A04E	6/26/2025	6/26/2025
	1-1.5(ft)	1.5-2(ft)
Metals		
Arsenic	**22.8 {AB}**	**16.4 {AB}**
Lead	57.3	42.6
Mercury	**6.37 {AB}**	**2.89 {AB}**

A13W	6/26/2025
	3-3.5(ft)
Metals	
Mercury	0.093 U

A13S	6/26/2025
	3-3.5(ft)
Metals	
Mercury	0.087 U

A13	5/23/2024	4/30/2025	5/23/2024	5/23/2024	2/7/2025	2/7/2025	2/7/2025	2/7/2025	5/23/2024	5/23/2024
	0-0.2(ft)	0-0.2(ft)	0.2-2(ft)	2-4(ft)	2-2.5(ft)	2.5-3(ft)	3-3.5(ft)	3.5-4(ft)	4-6(ft)	7-9(ft)
Pesticides										
4,4-DDD	0.00222 U	--	0.00181 U	0.00172 U	**0.00592 {A}**	--	--	--	0.0018 U	0.00173 U
4,4-DDE	**0.0287 {A}**	--	**0.0364 {A}**	**0.00365 {A}**	**0.00495 {A}**	--	--	--	0.0018 U	0.00173 U
4,4-DDT	**0.0168 {A}**	--	**0.014 {A}**	0.00209	0.00176 U	--	--	--	0.0018 U	0.00173 U
Dieldrin	**0.0479 {B}**	--	**0.0182 {A}**	0.00107 U	0.0011 U	--	--	--	0.00112 U	0.00108 U
Metals										
Arsenic	**17.7 {B}**	--	11.6	3.93	--	--	--	--	2.06	2.1
Mercury	**1.06 {B}**		**0.75 {A}**	**3.15 {B}**	0.136	0.061 J	**1.5 {B}**	0.08 U	**0.297 {A}**	0.083 UJ

A04W	6/26/2025	6/26/2025
	1-1.5(ft)	1.5-2(ft)
Metals		
Arsenic	3.39	3.59
Lead	13.6	12.8
Mercury	**0.562 {AB}**	**0.251 {A}**

A04S	6/26/2025	6/26/2025
	1-1.5(ft)	1.5-2(ft)
Metals		
Arsenic	10.5	8.73
Lead	23.8	28.2
Mercury	**9.53 {AB}**	**3.38 {AB}**

A04SS	6/27/2025
	1.5-2(ft)
Metals	
Mercury	0.079 U

A13SS	6/26/2025	6/26/2025	6/26/2025	6/26/2025
	2-2.5(ft)	2.5-3(ft)	3-3.5(ft)	3.5-4(ft)
Metals				
Arsenic	6.29	0.742 J	3.44	3.11
Lead	21.9	7.53	8.27	8.38
Mercury	**0.713 {AB}**	0.091 U	**1.05 {AB}**	0.087 U

A13SE	6/26/2025
	3-3.5(ft)
Metals	
Mercury	0.089 U

F02	6/21/2024	6/21/2024	6/27/2025	6/21/2024	2/5/2025
	0-0.2(ft)	0.2-2(ft)	0.2-2(ft)	2-4(ft)	2-2.5(ft)
SVOCs					
Benzo(a)anthracene	--	**15 {AB}**	--	--	0.11 U
Benzo(a)pyrene	--	**16 {AB}**	--	--	0.15 U
Benzo(b)fluoranthene	--	**20 {AB}**	--	--	0.11 U
Benzo(g,h,i)perylene	--	**8.8 {AB}**	--	--	0.15 U
Benzo(k)fluoranthene	--	**5.6 {AB}**	--	--	0.11 U
Chrysene	--	**14 {AB}**	--	--	0.11 U
Dibenz(a,h)anthracene	--	**2.2 {AB}**	--	--	0.11 U
Indeno(1,2,3-cd)pyrene	--	**9.3 {AB}**	--	--	0.15 U
Phenanthrene	--	**14 {AB}**	--	--	0.11 U
PCBs					
PCBs (total)	--	**3.69 {AB}**	**0.242 {A}**	--	0.0568 U
Metals					
Lead	**114 {A}**	**91.9 {A}**	--	19	--
Mercury	**0.257 {A}**	**0.236 {A}**	--	0.07 U	--
Zinc	**144 {A}**	**136 {A}**	--	55	--

F13	6/19/2024	6/19/2024	2/3/2025	6/26/2025	6/26/2025	6/19/2024	2/3/2025	6/26/2025	6/26/2025	6/26/2025	6/26/2025	6/19/2024	2/3/2025	6/26/2025	6/26/2025	6/26/2025	6/26/2025	6/26/2025
	0-0.2(ft)	0.2-2(ft)	0.5-1(ft)	1-1.5(ft)	1.5-2(ft)	2-4(ft)	2-4(ft)	2-2.5(ft)	2.5-3(ft)	3-3.5(ft)	3.5-4(ft)	4-6(ft)	4-6(ft)	4-4.5(ft)	4.5-5(ft)	5-5.5(ft)	5.5-6(ft)	6-8(ft)
VOCs																		
Acetone	--	**0.11 {A}**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pesticides																		
alpha-Chlordane	**0.208 IP {AB}**	**0.0345 {A}**	**0.126 IP {A}**	**0.0374 IP {A}**	0.00498 IP	*0.0142 P {A}*	**0.0676 IP {A}**	0.00221 U	0.00214 U	0.00225 U	0.00216 U	*0.0162 J {A}*	**0.159 IP {AB}**	0.00217 U	0.00238 U	0.00249 U	0.0021 U	0.0151 U*
4,4-DDD	**0.0174 {A}**	0.00186	0.00166 U	0.00185 U	0.00174 U	*0.000793 JP*	0.00198 U	0.00177 U	0.00171 U	0.0018 U	0.00173 U	*0.0011 J*	**0.00864 {A}**	0.00173 U	0.0019 U	0.00199 U	0.00168 U	0.00182 U
4,4-DDE	**0.0329 {A}**	**0.004 {A}**	**0.0362 {A}**	**0.00891 {A}**	0.00202	*0.00192 U*	0.00307	0.00177 U	0.00171 U	0.0018 U	0.00173 U	*0.00288*	**0.0182 {A}**	0.00173 U	0.0019 U	0.00199 U	0.00168 U	0.00182 U
4,4-DDT	**0.0166 {A}**	0.00178 U	**0.0229 {A}**	0.00317	0.00174 U	*0.00192 U*	0.00198 U	0.00177 U	0.00171 U	0.0018 U	0.00173 U	*0.0018 U*	0.00217 U	0.00173 U	0.0019 U	0.00199 U	0.00168 U	--
Dieldrin	**0.0141 {A}**	0.00117	**0.00587 {A}**	**0.0464 {AB}**	**0.006 {A}**	*0.00646 P {A}*	0.00123 U	0.00111 U	0.00107 U	0.00112 U	0.00108 U	*0.0155 {A}*	0.00136 U	0.00108 U	0.00119 U	0.00124 U	0.00105 U	--
Heptachlor epoxide	**0.12 {A}**	0.00333 U	**0.186 {AB}**	**0.0228 {A}**	0.00394	*0.0036 U*	0.0037 U	0.00332 U	0.0032 U	0.00337 U	0.00324 U	*0.00263 J*	0.00408 U	0.00325 U	0.00357 U	0.00373 U	0.00315 U	--
Metals																		
Arsenic	**19.3 {AB}**	9.56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	**68.4 {A}**	34.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	**3.91 {AB}**	0.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Chemical	Soil Cleanup Objectives {A} Unrestricted Use Soil Cleanup Objectives (mg/kg)	Soil Cleanup Objectives {AB} Residential Soil Cleanup Objectives (mg/kg)
VOCs		
Acetone	0.030	100
SVOCs		
Benzo(a)anthracene	1.0	1.0
Benzo(a)pyrene	1.0	1.0
Benzo(b)fluoranthene	1.0	1.0
Benzo(g,h,i)perylene	0.64	1.2
Benzo(k)fluoranthene	0.8	1.2
Chrysene	1.0	1.2
Dibenz(a,h)anthracene	0.33	0.33
Indeno(1,2,3-cd)pyrene	0.50	0.50
Phenanthrene	1.1	1.2
PFAS		
PFOS	0.00088	0.0088
Pesticides		
alpha-Chlordane	0.014	0.14
4,4-DDD	0.0033	1.2
4,4-DDE	0.0033	0.78
4,4-DDT	0.0033	0.78
Dieldrin	0.005	0.017
Heptachlor epoxide	0.013	0.12
PCBs		
PCBs (total)	0.10	1.0
Metals		
Arsenic	13	16
Lead	63	400
Mercury	0.18	0.30
Zinc	109	1300

"Western Parcel"

"Eastern Parcel"

Location Code: A04S | Depth Interval Exceeding Applicable SCOs: 1-1.5(ft)

Sample Date	6/26/2025
Sample Depth	1-1.5(ft)
Metals	
Arsenic (Result)	10.5
Lead (Result)	23.8
Mercury (SCO Exceedance)	**9.53 {B}**
Zinc	60.8

Legend
- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Visual Fill Delineation
- Area Containing Soil Exceeding Applicable SCOs
- Stream
- Additional Soil Delineation Sampling Location
- Soil Sampling Location
- UST/AST Soil Sampling Location
- Soil Historic Fill Visual Delineation Location

Qualifiers:
U – Not Detected
J – Estimated Concentration
I – The lower value for the two columns has been reported due to obvious interference
P – The RPD between the results for the two columns exceeds the method-specified criteria

Abbreviations:
--- – Not Analyzed
PFOS – Perfluorooctanesulfonic Acid
SCO – Soil Cleanup Objective
SRI – supplemental remedial investigation

Exceedance Codes:
{A} - Greater than Unrestricted Use SCO
{B} - Greater than Residential SCO

Notes:
All concentrations are presented in mg/kg.
Results exceeding applicable SCOs are shaded.
Gray-font, italicized results are superseded by SRI samples collected at the same interval.
* - The result presented is for Chlordane (total).

0 150 300 450 600 ft
1 Inch = 150 Feet
N

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carsonvoci engineering and geology dpc an affiliate of Hartshorne Engineering PLLC

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site, NYSDEC Site No. C360239, 850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Limited Delineation Soil Analytical Results Databox Exceedances Summary

FIGURE 6f

Z:\Projects\105.004_Elmwood Country Club\GIS\2025\0516 Tsinghua Elmwood SO Databoxes.RWP.bgp 20250821 SO Delin Databoxes.mxd Created by: madison.ingling 2025-05-19T12:12:56.000 Checked by: initial

RMW-03	05/01/2025
VOCs	ND
SVOCs	ND
Herbicides	ND
Pesticides	ND
Metals	NS
PFAS (all others)	
PFOS	**0.00416 {B}**
PFOA	0.00576
PCBs (total)	0.071 U

RMW-07	05/01/2025
VOCs	ND
SVOCs	ND
Herbicides	ND
Pesticides	ND
Metals	NS
PFAS (all others)	
PFOS	**0.00952 {B}**
PFOA	**0.0113 {B}**
PCBs (total)	0.071 U

MW-09D	04/30/2025
VOCs	NS
SVOCs	ND
Herbicides	ND
Pesticides	ND
Metals	NS
PFAS (all others)	
PFOS	**0.00783 {B}**
PFOA	**0.0175 {B}**
PCBs (total)	0.071 U

RMW-10	07/15/2024	05/01/2025
VOCs	ND	--
SVOCs	ND	--
Herbicides	ND	ND
Pesticides	ND	ND
Metals	NS	NS
PFAS (all others)		
PFOS	**0.011 {B}**	**0.00539 {B}**
PFOA	**0.0115 {B}**	**0.00832 {B}**
PCBs (total)	**1.14 {A}**	0.071 U

MW-11D	04/30/2025
VOCs	NS
SVOCs	ND
Herbicides	ND
Pesticides	ND
Metals	NS
PFAS (all others)	
PFOS	0.00198
PFOA	**0.00917 {B}**
PCBs (total)	0.071 U

RMW-03
RMW-07
RMW-10
MW-09D
MW-11D

Sample Location

RMW-07	05/01/2025	← Sample Date
PFASs (all others)		
PFOS	**0.00952 (B)**	← Criteria Exceeded
PFOA	**0.0113 (B)**	
PCBs (total)	0.071 U	← Result

Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- Stream
- Groundwater Monitoring Well

Qualifier:
U – Not Detected

Abbreviation:
-- – Not Analyzed
DW – Drinking Water
ND – All compounds in this analyte group were Non-detect
NS – Compounds in this analyte group were detected, but no compounds exceeed criteria

Exceedance Codes:
(A) - Greater than Source of DW Standard
(B) - Greater than Source of DW Guidance Value

Notes:
All concentrations are presented in ug/L.
Results exceeding the applicable criteria are shaded.

Groundwater Screening Criteria		
	{A}	{B}
Chemical	Source of Drinking Water Standard (ug/L)	Source of Drinking Water Guidance Value (ug/L)
PFAS (al others)		
PFOS	--	0.0027
PFOA	--	0.0067
PCBs (total)	0.09	--

0 110 220 330 440 ft
1 Inch = 110 Feet

N

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engineering and geology dpc
an affiliate of Terraphase Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site NYSDEC Site No. C360239 850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

Groundwater Analytical Databox Exceedances Summary

FIGURE 7

N:\GIS\Prj\105.004_Elmwood County Club\GIS\105\2025\0821-Terraphase Elmwood GV-Databoxes.qgz 20250821-GW-Databoxes 2025-08-13T22:12:56.000 Created By: M. Ingling Checked By: NK

SV-01	07/12/2024
VOCs	
Benzene	0.792
Carbon Tetrachloride	1.48 U
Cyclohexane	6.71
1,1-Dichloroethene	0.932 U
cis-1,2-Dichloroethene	0.932 U
Ethyl Benzene	2.68
Heptane	4.07
Hexane	2.53
Isooctane	15.7
Methylene Chloride	2.04 U
Naphthalene	3.57
Tetrachloroethene	1.59 U
Toluene	3.03
1,1,1-Trichloroethane	1.28 U
Trichloroethene	1.26 U
1,2,4-Trimethylbenzene	45.7
1,3,5-Trimethylbenzene	16.4
Vinyl Chloride	0.601 U
m,p-xylene	12.2
ortho-xylene	12.9

SV-04	07/12/2024
VOCs	
Benzene	0.725
Carbon Tetrachloride	1.26 U
Cyclohexane	4.85
1,1-Dichloroethene	0.793 U
cis-1,2-Dichloroethene	0.793 U
Ethyl Benzene	3.14
Heptane	3.69
Hexane	2.54
isooctane	11.6
Methylene Chloride	4.27
Naphthalene	3.53
Tetrachloroethene	1.36 U
Toluene	3.76
1,1,1-Trichloroethane	1.09 U
Trichloroethene	1.07 U
1,2,4-Trimethylbenzene	41.4
1,3,5-Trimethylbenzene	14.8
Vinyl Chloride	0.511 U
m,p-xylene	13.8
ortho-xylene	11.8

SV-06	7/12/2024	4/23/2026
VOCs		
Benzene	1.13	0.639 U
Carbon Tetrachloride	1.26 U	1.26 U
Cyclohexane	7.99	0.688 U
1,1-Dichloroethene	0.793 U	0.793 U
cis-1,2-Dichloroethene	0.793 U	0.793 U
Ethyl Benzene	6.86	0.869 U
Heptane	5.7	1.02
Hexane	3.81	3.07
Isooctane	17.6	0.934 U
Methylene Chloride	1.74 U	1.74 U
Naphthalene	1.05 U	0.262 U
Tetrachloroethene	1.36 U	1.36 U
Toluene	10.4	0.754 U
1,1,1-Trichloroethane	1.09 U	1.09 U
Trichloroethene	1.07 U	1.07 U
1,2,4-Trimethylbenzene	34.5	0.983 U
1,3,5-Trimethylbenzene	13.6	0.983 U
Vinyl Chloride	0.511 U	0.051 U
m,p-xylene	26.1	1.74 U
ortho-xylene	17.7	0.869 U

SV-16	06/25/2025
VOCs	
Benzene	3.03 U
Carbon Tetrachloride	5.98 U
Cyclohexane	3.27 U
1,1-Dichloroethene	3.77 U
cis-1,2-Dichloroethene	3.77 U
Ethyl Benzene	4.13 U
Heptane	3.89 U
Hexane	6.41
Isooctane	4.44 U
Methylene Chloride	8.23 U
Naphthalene	4.73 U
Tetrachloroethene	6.44 U
Toluene	8.33
1,1,1-Trichloroethane	5.18 U
Trichloroethene	5.11 U
1,2,4-Trimethylbenzene	4.67 U
1,3,5-Trimethylbenzene	4.67 U
Vinyl Chloride	2.43 U
m,p-xylene	9.34
ortho-xylene	4.13 U

SV-09	7/12/2024	4/23/2026
VOCs		
Benzene	1.85	1.07
Carbon Tetrachloride	1.26 U	1.26 U
Cyclohexane	16.4	0.688 U
1,1-Dichloroethene	0.793 U	0.793 U
cis-1,2-Dichloroethene	0.793 U	0.793 U
Ethyl Benzene	21.4	0.869 U
Heptane	17.3	0.82 U
Hexane	14.7	0.98
Isooctane	26.3	0.934 U
Methylene Chloride	2.57	1.74 U
Naphthalene	3.5	0.262 UJ
Tetrachloroethene	1.36 U	1.36 U
Toluene	36.5	0.754 U
1,1,1-Trichloroethane	1.09 U	1.09 U
Trichloroethene	1.07 U	1.07 U
1,2,4-Trimethylbenzene	95.4	0.983 U
1,3,5-Trimethylbenzene	32.9	0.983 U
Vinyl Chloride	0.511 U	0.051 UJ
m,p-xylene	85.6	1.74 U
ortho-xylene	49.5	0.869 U

SV-17	6/25/2025	4/23/2026
VOCs		
Benzene	54.6	4.28
Carbon Tetrachloride	1.89 U	1.26 U
Cyclohexane	41.6	1.47
1,1-Dichloroethene	1.19 U	0.793 U
cis-1,2-Dichloroethene	1.19 U	0.793 U
Ethyl Benzene	144	0.869 U
Heptane	80.3	5.9
Hexane	118	7.33
Isooctane	159	3.49
Methylene Chloride	2.61 U	1.74 U
Naphthalene	2.14	0.262 U
Tetrachloroethene	2.04 U	1.36 U
Toluene	437	3.52
1,1,1-Trichloroethane	1.64 U	1.09 U
Trichloroethene	1.62 U	1.07 U
1,2,4-Trimethylbenzene	241	0.983 U
1,3,5-Trimethylbenzene	85.5	0.983 U
Vinyl Chloride	0.769 U	0.051 U
m,p-xylene	482	1.74 U
ortho-xylene	228	0.869 U

SV-12	06/26/2025
VOCs	
Benzene	5.94
Carbon Tetrachloride	1.98 U
Cyclohexane	1.08 U
1,1-Dichloroethene	1.25 U
cis-1,2-Dichloroethene	1.25 U
Ethyl Benzene	4.02
Heptane	9.79
Hexane	17.5
Isooctane	1.47 U
Methylene Chloride	2.74 U
Naphthalene	1.57 U
Tetrachloroethene	2.14 U
Toluene	10.4
1,1,1-Trichloroethane	1.72 U
Trichloroethene	1.69 U
1,2,4-Trimethylbenzene	11.1
1,3,5-Trimethylbenzene	3.51
Vinyl Chloride	0.805 U
m,p-xylene	10.9
ortho-xylene	5.26

SV-15	06/25/2025
VOCs	
Benzene	1.39 U
Carbon Tetrachloride	2.74 U
Cyclohexane	1.5 U
1,1-Dichloroethene	1.72 U
cis-1,2-Dichloroethene	1.72 U
Ethyl Benzene	1.89 U
Heptane	1.78 U
Hexane	1.53 U
Isooctane	2.03 U
Methylene Chloride	3.79 U
Naphthalene	2.17 U
Tetrachloroethene	2.95 U
Toluene	1.64 U
1,1,1-Trichloroethane	2.37 U
Trichloroethene	2.34 U
1,2,4-Trimethylbenzene	2.14 U
1,3,5-Trimethylbenzene	2.14 U
Vinyl Chloride	1.11 U
m,p-xylene	3.78 U
ortho-xylene	1.89 U

SV-02	07/12/2024
VOCs	
Benzene	1.1
Carbon Tetrachloride	1.26 U
Cyclohexane	10.3
1,1-Dichloroethene	0.793 U
cis-1,2-Dichloroethene	0.793 U
Ethyl Benzene	3.69
Heptane	6.15
Hexane	5.39
Isooctane	20.2
Methylene Chloride	14.8
Naphthalene	1.57
Tetrachloroethene	1.36 U
Toluene	6.59
1,1,1-Trichloroethane	1.09 U
Trichloroethene	1.07 U
1,2,4-Trimethylbenzene	27.9
1,3,5-Trimethylbenzene	10.6
Vinyl Chloride	0.511 U
m,p-xylene	14.1
ortho-xylene	12.9

SV-07	7/12/2024	4/23/2026
VOCs		
Benzene	0.869	0.639
Carbon Tetrachloride	1.26 U	1.26 U
Cyclohexane	8.74	0.688 U
1,1-Dichloroethene	0.793 U	0.793 U
cis-1,2-Dichloroethene	0.793 U	0.793 U
Ethyl Benzene	2.43	0.869 U
Heptane	4.51	0.82 U
Hexane	2.75	1.05
Isooctane	20.4	0.934 U
Methylene Chloride	1.74 U	1.74 U
Naphthalene	3.28	0.262 U
Tetrachloroethene	1.36 U	1.36 U
Toluene	3.27	0.754 U
1,1,1-Trichloroethane	1.09 U	1.09 U
Trichloroethene	1.07 U	1.07 U
1,2,4-Trimethylbenzene	36	0.983 U
1,3,5-Trimethylbenzene	13.4	0.983 U
Vinyl Chloride	0.511 U	0.051
m,p-xylene	9.82	1.74 U
ortho-xylene	11.3	0.869 U

SV-03	7/12/2024	4/23/2026
VOCs		
Benzene	3.18	1.77
Carbon Tetrachloride	2.08 U	1.26 U
Cyclohexane	17.7	0.688 U
1,1-Dichloroethene	1.31 U	0.793 U
cis-1,2-Dichloroethene	1.31 U	0.793 U
Ethyl Benzene	6.34	0.869 U
Heptane	9.34	0.82 U
Hexane	6.41	1.62
Isooctane	34.9	0.934 U
Methylene Chloride	2.87 U	1.74 U
Naphthalene	1.73 U	0.262 U
Tetrachloroethene	2.24 U	1.36 U
Toluene	13.3	1.35
1,1,1-Trichloroethane	1.8 U	1.09 U
Trichloroethene	1.77 U	1.07 U
1,2,4-Trimethylbenzene	36.3	0.983 U
1,3,5-Trimethylbenzene	14.9	0.983 U
Vinyl Chloride	0.844 U	0.051 U
m,p-xylene	23.4	1.74 U
ortho-xylene	21.2	0.869 U

SV-10	07/12/2024
VOCs	
Benzene	0.68 U
Carbon Tetrachloride	1.34 U
Cyclohexane	1.52
1,1-Dichloroethene	0.845 U
cis-1,2-Dichloroethene	0.845 U
Ethyl Benzene	1.58
Heptane	5.53
Hexane	4.05
Isooctane	2.32
Methylene Chloride	2.72
Naphthalene	1.12 U
Tetrachloroethene	1.44 U
Toluene	3.73
1,1,1-Trichloroethane	1.16 U
Trichloroethene	1.14 U
1,2,4-Trimethylbenzene	16.9
1,3,5-Trimethylbenzene	5.51
Vinyl Chloride	0.544 U
m,p-xylene	7.12
ortho-xylene	4.56

SV-13	06/25/2025
VOCs	
Benzene	1.42 U
Carbon Tetrachloride	2.79 U
Cyclohexane	1.58
1,1-Dichloroethene	1.76 U
cis-1,2-Dichloroethene	1.76 U
Ethyl Benzene	1.93 U
Heptane	1.82 U
Hexane	3.34
Isooctane	2.07 U
Methylene Chloride	3.86 U
Naphthalene	2.21 U
Tetrachloroethene	3.01 U
Toluene	1.67 U
1,1,1-Trichloroethane	2.42 U
Trichloroethene	2.39 U
1,2,4-Trimethylbenzene	2.18 U
1,3,5-Trimethylbenzene	2.18 U
Vinyl Chloride	1.13 U
m,p-xylene	3.86 U
ortho-xylene	1.93 U

SV-14	06/26/2025
VOCs	
Benzene	5.11
Carbon Tetrachloride	1.81 U
Cyclohexane	3.33
1,1-Dichloroethene	1.14 U
cis-1,2-Dichloroethene	1.14 U
Ethyl Benzene	2.15
Heptane	7.58
Hexane	22.9
Isooctane	1.35 U
Methylene Chloride	2.5 U
Naphthalene	1.7
Tetrachloroethene	1.95 U
Toluene	6.26
1,1,1-Trichloroethane	1.57 U
Trichloroethene	1.55 U
1,2,4-Trimethylbenzene	3.24
1,3,5-Trimethylbenzene	1.42 U
Vinyl Chloride	0.736 U
m,p-xylene	3.11
ortho-xylene	1.79

SV-05	07/12/2024
VOCs	
Benzene	1.57
Carbon Tetrachloride	1.26 U
Cyclohexane	11.1
1,1-Dichloroethene	0.793 U
cis-1,2-Dichloroethene	0.793 U
Ethyl Benzene	4.86
Heptane	7.17
Hexane	4.3
Isooctane	22
Methylene Chloride	1.74 U
Naphthalene	3.06
Tetrachloroethene	1.36 U
Toluene	8.25
1,1,1-Trichloroethane	1.09 U
Trichloroethene	1.07 U
1,2,4-Trimethylbenzene	42.2
1,3,5-Trimethylbenzene	15.4
Vinyl Chloride	0.511 U
m,p-xylene	19.1
ortho-xylene	17.3

SV-11	07/12/2024
VOCs	
Benzene	4.15
Carbon Tetrachloride	2.65 U
Cyclohexane	31.2
1,1-Dichloroethene	1.67 U
cis-1,2-Dichloroethene	1.67 U
Ethyl Benzene	23.1
Heptane	33.5
Hexane	21.4
Isooctane	54.6
Methylene Chloride	3.65 U
Naphthalene	2.21 U
Tetrachloroethene	2.85 U
Toluene	64.1
1,1,1-Trichloroethane	2.3 U
Trichloroethene	2.26 U
1,2,4-Trimethylbenzene	64.4
1,3,5-Trimethylbenzene	26.2
Vinyl Chloride	1.08 U
m,p-xylene	71.7
ortho-xylene	43.9

SV-18	06/26/2025
VOCs	
Benzene	1.16 U
Carbon Tetrachloride	2.29 U
Cyclohexane	1.25 U
1,1-Dichloroethene	1.44 U
cis-1,2-Dichloroethene	1.44 U
Ethyl Benzene	1.58 U
Heptane	1.63
Hexane	3.29
Isooctane	1.7 U
Methylene Chloride	3.16 U
Naphthalene	1.81 U
Tetrachloroethene	2.47 U
Toluene	1.37 U
1,1,1-Trichloroethane	1.99 U
Trichloroethene	1.96 U
1,2,4-Trimethylbenzene	1.79 U
1,3,5-Trimethylbenzene	1.79 U
Vinyl Chloride	0.93 U
m,p-xylene	3.16 U
ortho-xylene	1.58 U

SV-19	06/26/2025
VOCs	
Benzene	21.9
Carbon Tetrachloride	2.01 U
Cyclohexane	3.08
1,1-Dichloroethene	1.27 U
cis-1,2-Dichloroethene	1.27 U
Ethyl Benzene	9.82
Heptane	21.6
Hexane	49.7
Isooctane	1.49 U
Methylene Chloride	2.78 U
Naphthalene	1.59 U
Tetrachloroethene	2.17 U
Toluene	26.6
1,1,1-Trichloroethane	1.75 U
Trichloroethene	1.72 U
1,2,4-Trimethylbenzene	7.92
1,3,5-Trimethylbenzene	2.16
Vinyl Chloride	0.818 U
m,p-xylene	14.5
ortho-xylene	6.91

SV-01 SV-02 SV-03 SV-04 SV-05 SV-06 SV-07 SV-08 SV-09 SV-10 SV-11 SV-12 SV-13 SV-14 SV-15 SV-16 SV-17 SV-18 SV-19

Sample Location

RMW-07	05/01/2025	← Sampling Date
VOCs		
Benzene	0.071 U	← Result

Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- Stream
- Soil Vapor Sampling Location

Qualifier:
U – Not Deteted
J – Estimated Concentration

Notes:
All concentrations are presented in ug/m^3.
Only NYSDEC Soil Vapor/Indoor Air Decision Matrices analytes are shown.

0 110 220 330 440 ft

1 Inch = 110 Feet

N

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CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Remedial Investigation Soil Vapor Databox Summary

FIGURE 8

Z:\Projects\035.004_Elmwood Country Club\500\10500116 Terraphase-Elmwood\50-Databases-RAWP\gp - 20250821 SV-Databases -VOCs - 2025-03-31T22:13:56.000 Created By: M. Inglhag Checked by: N. Kosnosky

SW-08	05/30/2025
VOCs	NS
Metals	NS
PCBs	NS
SVOCs	
BbF	0.1 U
PFASs	
PFOS	**0.00788 {B}**
PFOA	**0.0105 {B}**
Pesticides	
Dieldrin	**0.012 J {A}**

SW-08

SW-07	05/30/2025
VOCs	NS
Metals	NS
PCBs	NS
SVOCs	
BbF	0.1 U
PFASs	
PFOS	**0.00916 {B}**
PFOA	**0.01 {B}**
Pesticides	
Dieldrin	**0.009 JIP {A}**

SW-07

SW-06	05/30/2025
VOCs	NS
Metals	NS
PCBs	NS
SVOCs	
BbF	0.1 U
PFASs	
PFOS	**0.00813 {B}**
PFOA	**0.0114 {B}**
Pesticides	
Dieldrin	**0.018 J {A}**

SW-06

SW-04	05/29/2025
VOCs	NS
Metals	NS
PCBs	NS
SVOCs	
BbF	0.1 U
PFASs	
PFOS	**0.00624 {B}**
PFOA	**0.00773 {B}**
Pesticides	
Dieldrin	0.029 U

SW-04

SW-05	05/29/2025
VOCs	NS
Metals	NS
PCBs	NS
SVOCs	
BbF	0.1 U
PFASs	
PFOS	**0.00592 {B}**
PFOA	**0.00817 {B}**
Pesticides	
Dieldrin	0.029 U

SW-05

SW-03	07/15/2024	05/29/2025
VOCs	--	NS
Metals	--	NS
PCBs	--	NS
SVOCs		
BbF	--	0.1 U
PFASs		
PFOS	--	**0.00589 {B}**
PFOA	--	0.00678
Pesticides		
Dieldrin	0.04 U	0.029 U

SW-03

SW-02	07/15/2024	05/29/2025
VOCs	--	NS
Metals	--	NS
PCBs	--	NS
SVOCs		
BbF	--	0.1 U
PFASs		
PFOS	--	**0.00644 {B}**
PFOA	--	**0.00742 {B}**
Pesticides		
Dieldrin	0.04 U	0.029 U

SW-02

SW-01	07/15/2024	05/29/2025
VOCs	--	NS
Metals	NS	NS
PCBs	--	NS
SVOCs		
BbF	--	**0.03 J {B}**
PFASs		
PFOS	**0.00995 {B}**	**0.0062 {B}**
PFOA	**0.0109 {B}**	**0.00741 {B}**
Pesticides		
Dieldrin	0.04 U	0.029 U

SW-01

Sample Location

SW-01	07/15/2024
VOCs	--
Metals	NS
PCBs	--
SVOCs	
BbF	--
PFASs	
PFOS	**0.00995 {B}**
PFOA	**0.0109 {B}**
Pesticides	
Dieldrin	0.04 U

← Sampling Date
← SCG Exceeded
← Result

Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- Stream
- Surface Water Sampling Location

Qualifiers:
J – Estimated Concentration
U – Not Detected
I – The lower value for the two columns has been reported due to obvious interference
P – The RPD between the results for the two columns exceeds the method-specific criteria

Abbreviations:
-- – Not Analyzed
BbF – Benzo(b)fluoranthene
DW – Drinking Water
NS – Detected, but Does Not Exceed Criteria

Exceedance Codes:
{A} - Greater than Source of DW Standard
{B} - Greater than Source of DW Guidance Value

Notes:
All concentrations are presented in ug/L.
Results exceeding applicable criteria are shaded.

Surface Water Screening Criteria		
	{A}	{B}
Chemical	Source of Drinking Water Standard (ug/L)	Source of Drinking Water Guidance Value (ug/L)
SVOCs		
BbF	--	0.002
PFASs		
PFOS	--	0.0027
PFOA	--	0.0067
Pesticides		
Dieldrin	0.004	--

0 110 220 330 440 ft

1 Inch = 110 Feet

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PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Surface Water Analytical Databox Exceedances Summary

FIGURE 9

N:\GIS\Prj\105-004_Elmwood Country Club\GIS\GIS\20250821-Terraphase Elmwood GV Databoxes.qgz 2025-09-19T12:12:56.000 Created By: M. Ingling Checked By: MI

SS-08	0-0.5(ft)	0.5-1(ft)
Classification	B	B
Pesticides		
Chlordane (total)	0.00531 J	0.0167 J
Metals		
Arsenic	5.55	8.27
Cadmium	0.372 J	0.067 J
Copper	5.24	5.59
Lead	8.86	11.3
Mercury	**0.207 {B}**	**0.227 {B}**
Nickel	4.24	5.62
Zinc	22.6	22.6

SS-07	0-0.5(ft)
Classification	A
Pesticides	
Chlordane (total)	0.00528 J
Metals	
Arsenic	3.86
Cadmium	0.109 J
Copper	6.51
Lead	6.15
Mercury	0.11
Nickel	6.35
Zinc	22

SS-06	0-0.5(ft)
Classification	A
Pesticides	
Chlordane (total)	0.00564 J
Metals	
Arsenic	5.92
Cadmium	1.51 U
Copper	6.17
Lead	10.7
Mercury	0.128 U
Nickel	5.4
Zinc	16.5

SS-04	0-0.5(ft)	0.5-1(ft)	1-2(ft)
Classification	C	B	C
Pesticides			
Chlordane (total)	0.0254 U	**0.281 J {B}**	**1.89 J {B}**
Metals			
Arsenic	**28.5 {B}**	**24.5 {B}**	**37.9 {C}**
Cadmium	**1.78 J {B}**	0.788 J	**1.13 J {B}**
Copper	**121 {B}**	**85.4 {B}**	**132 {B}**
Lead	**132 {B}**	**61.9 {B}**	**92.8 {B}**
Mercury	**1.88 {C}**	**0.881 {B}**	**0.791 {B}**
Nickel	**26.8 {B}**	**26.2 {B}**	**34.3 {B}**
Zinc	**1170 {C}**	**307 {B}**	**573 {C}**

SS-05	0-0.5(ft)	0.5-1(ft)	1-2(ft)
Classification	C	C	C
Pesticides			
Chlordane (total)	**0.193 J {B}**	**0.133 J {B}**	**0.299 J {B}**
Metals			
Arsenic	**21.7 {B}**	**12.9 {B}**	**10.4 {B}**
Cadmium	**1.43 J {B}**	0.844 J	0.608 J
Copper	**126 {B}**	**68.5 {B}**	**52.5 {B}**
Lead	**102 {B}**	**54.1 {B}**	**42.8 {B}**
Mercury	**1.4 {C}**	**1.18 {C}**	**1.54 {C}**
Nickel	**40.2 {B}**	18.6	14.6
Zinc	**2330 {C}**	**782 {C}**	**290 {B}**

SS-03	0-2(ft)	0-0.5(ft)	0.5-1(ft)	1-2(ft)
Classification	A	A	A	A
Pesticides				
Chlordane (total)	0.0232 J	0.00241 U	0.00234 U	0.00235 U
Metals				
Arsenic	2.49	3.28	2.69	1.28
Cadmium	0.971 U	0.086 J	0.096 J	0.063 J
Copper	7.48	14.6	14.3	15.6
Lead	4.26 J	4.36 J	4.94	4.8
Mercury	0.081 U	0.078 U	0.083 U	0.081 U
Nickel	6.36	9.34	15.4	13.1
Zinc	39.7	28.3	41	39.8

SS-02	0-2(ft)	0-0.5(ft)	0.5-1(ft)	1-2(ft)
Classification	B	A	B	B
Pesticides				
Chlordane (total)	0.0027 J	0.00733 J	**0.104 J {B}**	**0.0969 J {B}**
Metals				
Arsenic	1.93	8.34	2.47	2.09
Cadmium	0.962 U	1.17 U	0.089 J	0.065 J
Copper	**59.9 {B}**	7.01	26.8	27.2
Lead	7.38	19.3	7	5.46
Mercury	0.081	0.073 J	0.077 J	0.076 J
Nickel	7.03	6.06	16.7	12.3
Zinc	73.4	29.5	40.3	35.5

SS-01	0-2(ft)	0-0.5(ft)	0.5-1(ft)	1-2(ft)
Classification	A	C	B	C
Pesticides				
Chlordane (total)	0.0245 J	0.0319 J	0.0115 U	0.019 U
Metals				
Arsenic	3.49	**10 {B}**	4.78 U	7.53 U
Cadmium	1.05 U	**1.52 J {B}**	**1.3 J {B}**	0.631 J
Copper	8.43	**75.6 {B}**	**33.2 {B}**	**64.7 {B}**
Lead	7.17	**112 {B}**	2.48 J	**104 {B}**
Mercury	0.07 J	**5.23 {C}**	0.505 U	**1.28 {C}**
Nickel	6.19	**30.4 {B}**	10 J	**24.2 {B}**
Zinc	62.1	**1160 {C}**	7.85 J	**222 {B}**

Sediment Freshwater Guidance Values for Aquatic Life

Chemical	{A} Class A Freshwater Sediment Guidance Value (mg/kg)	{B} Class B Freshwater Sediment Guidance Value (mg/kg)	{C} Class C Freshwater Sediment Guidance Value (mg/kg)
Pesticides			
Chlordane (total)	< 0.068	0.068	38
Metals			
Arsenic	< 10	10	33
Cadmium	< 1.0	1.0	5.0
Copper	< 32	32	150
Lead	< 36	36	130
Mercury	< 0.20	0.20	1.0
Nickel	< 23	23	49
Zinc	< 120	120	460

Sample Location

SS-02	0-2(ft)	← Sampling Depth
Classification	C	← Overall Classification
Pesticides		
Chlordane (total)	0.0027 J	
Metals		
Arsenic	1.93	← Guidance Value Exceeded
Cadmium	0.962 U	
Copper	**59.9 {C}**	
Lead	7.38	
Mercury	0.081	← Result
Nickel	7.03	
Zinc	73.4	

Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- Stream
- Sediment Sampling Location

Qualifiers:
J – Estimated Concentration
U – Not Detected

Classifications:
{B} - Identified as a Class B Sediment
{C} - Identified as a Class C Sediment

Notes:
All concentrations are presented in mg/kg.
Only compounds with concentrations denoting a Class B or Class C sediment are shown.
Class B sediment concentrations are bolded.
Class C sediment concentrations are bolded and shaded.

0 110 220 330 440 ft
1 Inch = 110 Feet

N

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CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site NYSDEC Site No. C360239 850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

Sediment Analytical Results Databox Exceedances Summary

FIGURE 10

N:\GIS\Prj\105-004_Elmwood County Club\GIS\105\2025\0821 Terraphase Elmwood SV Databoxes.qgz 2025-08-13T22:13:56.000 Created By: M. Ingling Checked By: NK

"Western Parcel"
HAP Soil Impacts

"Eastern Parcel"
HAP Soil Impacts

"Western Parcel"
Historical Fill

"Western Parcel"
Pond Sediment Impacts

Legend

- Site Boundary
- Pond
- Western Parcel HAP Area
- Western Parcel HAP Area
- Area Containing Historical Fill
- Stream

Existing Elevation

- Existing Major Contour (10')
- Existing Minor Contour (2')

Abbreviation:
HAP – Historically Applied Pesticides

0 110 220 330 440 ft

1 Inch = 110 Feet

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PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Areas of Concern

FIGURE 11

N:\GIS\PJ\155.004_Elmwood County Club\GIS\20251001\Terraphase Elmwood 50-Shaldoners.mpr - 20250918 Areas of Concern - 2025-03-13T22:17:56.000 Created By: M. Inglesi Checked by: MK

"Western Parcel"

"Eastern Parcel"

HAP-04

HAP-01

HAP-03

HAP-02

Eastern Parcel HAP

If necessary

344

340

Legend

- Site Boundary
- Pond
- Stream
- Silt Fence
- Material Staging Area
- Stabilized Construction Entrance
- Clean Haul Staging Areas
- Temporary Main Construction Road (On-Site Soil Management)
- Sediment Management/ Dewatering Location
- Temporary Road
- Clean Haul Road
- Wet Wash Decontamination Station

Remediation Phase Area

- HAP-01
- HAP-02
- HAP-03
- HAP-04
- Eastern Parcel HAP

Existing Elevation

- Existing Major Contour (10')
- Existing Minor Contour (2')

Notes:
The locations of soil erosion and sediment control features shown are proposed and locations are to be verified in the field prior to contruction.
Refer to Appendix X for further details.

Abbreviation:
HAP – Historically Applied Pesticides

0 110 220 330 440 ft

1 Inch = 110 Feet

N

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PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Soil Erosion and Sediment Controls

FIGURE 12

Z:\Projects\105.004_Elmwood Country Club\GIS\105004_Terraphase-Elmwood-MD-Database-MXMFiles\ - 20250915-MXMP-SiteUpdateLocations - 2025-09-15T22:11:54.000 - Created By: M. Inglesby - Checked By: NK

"Western Parcel"

"Eastern Parcel"

0 110 220 330 440 ft

1 Inch = 110 Feet

N

Legend

- Site Boundary
- Pond
- Stream
- Area Containing Historical Fill

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft

Existing Elevation

- Existing Major Contour (10')
- Existing Minor Contour (2')

Soil Sampling Location

- Exceeds Applicable SCOs
- No Applicable SCO Exceedances

Abbreviation:
SCO – Soil Cleanup Objective

Note:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs.

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NYSDEC Site No. C360239
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PROJECT NUMBER: CV04.001

Proposed Soils to be Excavated

FIGURE 13A

Z:\Projects\235.004_Elmwood County Club\GIS\2020\20201116 Terraphase Elmwood SIS\Databases\EXMXD.mxd 20250909 GS Removal\Depths_withElevation 2025-03-19T22:12:56.000 Created By: M. Ingling Checked By: RR

"Western Parcel"

"Eastern Parcel"

Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Stream
- Area Containing Historical Fill

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft

Existing Elevation

- Existing Major Contour (10')
- Existing Minor Contour (2')

Soil Sampling Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

Excavation Scenarios

- Surficial (0-0.5 ft) Contamination Only
- Shallow (0.2-2 ft) Contamination, Additional Deeper Base End Point Sampling*
- Deeper or PEco Contamination with Unresolved Vertical Refinement

Abbreviations:
PEco – Protection of Ecological Resources
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs.
Removal depths are based on comparison to the Residential SCOs in the Western Parcel and Eastern Parcel.
Surface soil collected in the upper 2 feet within the wetlands 100-foot buffer zones in the Western Parcel are also compared to the PEco SCOs. Removal depths are based on the analytical results, with consideration of the conceptual site model where 6-inch interval vertical delineation is not available, and post-excavation sampling will confirm soil in the buffer zones meet the PEco SCOs.
Locations with unresolved vertical refinement are proposed for additional characterization sampling and will be re-sampled to confirm the appropriate first cut removal depth as discussed further in Section 3.2.4.1.3 of the RAWP.
* Based on RI results. An additional deeper base end-point sample will be collected for any grid where the excavation extends deeper than 6 inches.

0 110 220 330 440 ft

1 Inch = 110 Feet

N

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carsonvoci
engineering and geology dpc
an affiliate of Terrashore Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Proposed Soils to be Excavated Excavation Scenarios

FIGURE 13B

Z:\Projects\CV\CV04.001_Elmwood Country Club\GIS\ArcGIS\Projects\16-Terrashore-Elmwood-SD-Sitrakonov-RAWP.mpp 2024/07/31 SD Removal Depth Scenarios 2025-03-13T22:21:56.000 Created By: M. Inglisa Checked By: RM

"Western Parcel"

"Eastern Parcel"

Phase 1 (Figure 14a)

Phase 2 (Figure 14b)

Phase 3 (Figure 14c)

Phase 4 (Figure 14d)

Phase 5/6 (Figure 14e)

Pond Sediment Remediation - Phase 5/6 (Figure 16)

Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Stream
- Area Containing Historical Fill

Remediation Phase Area

- HAP-01 (Phase 1 Area)
- HAP-02 (Phase 2 Area)
- HAP-03 (Phase 3 Area)
- HAP-04 (Phase 4 Area)
- Eastern Parcel HAP (Phase 5/6 Area)

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft

Existing Elevation

- Existing Major Contour (10')
- Existing Minor Contour (2')

Soil Sampling Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

Abbreviation:
HAP – Historically Applied Pesticides
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicates the maximum depth from ground surface of exceedance above applicable SCOs.
Remediation will begin in HAP-01 (Phase 1) and progress sequentially to the other phases.

Label Notation:
Location Code
Proposed Excavation Depth

0 110 220 330 440 ft
1 Inch = 110 Feet

N

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carsonvoci
engineering and geology dpc
an affiliate of Hunsaker Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

Remediation Phase Areas

FIGURE 14

Z:\Projects\2015\004_Elmwood Country Club\2020\2020118-Terraphase-Elmwood-DO-Databases-RAWP.mxd - 2020-12-21 at 10:09:07, printed by: M_Wick

Remediation Sequence of Construction

Construction shall be sequenced in such a manner that any Phase Area, or portion thereof, is protected with erosion controls as indicated on this plan prior to ground disturbance. The remedial excavation in each Phase Area will generally begin farthest from, and work back towards, the Material Staging Area (MSA). The remedial work will be sequenced in a manner to remove the impacted material while ensuring remediated areas are not re-contaminated. Specific sequencing requirements are as follows:

Site-Wide Sequencing Items:

1. Prior to site mobilization a pre-construction kick-off meeting shall be conducted with representatives of the Town of Greenburgh, NYSDEC, the applicant, the remedial engineer, and the remedial contractor.
2. Perform public and private utility investigation and mark outs prior to any ground-intrusive activities. Utility mark-outs shall be maintained throughout the remediation process.
3. Contractor shall notify NYS 811 a minimum of three (3) days in advance before initiating ground-intrusive work.
4. Clear and remove trees throughout the site. All efforts shall be made to mitigate ground disturbance during tree clearing activities. Vegetative waste shall be mulched, ground, or chipped to be reused on-site or recycled off-site as directed by the remedial engineer.
5. Install silt fences and hay bales, establish stabilized construction entrance, decontamination areas, access roads, and equipment and MSA as shown on this plan and in accordance with the SWPPP. Locations of erosion and sediment control measures to be confirmed in the field by the remedial contractor and remedial engineer, prior to installation.
6. Mobilization of equipment for the planned remedial activities shall occur concurrently with tree clearing and installation of erosion and sediment control measures.

Phase 1 Sequencing Items:

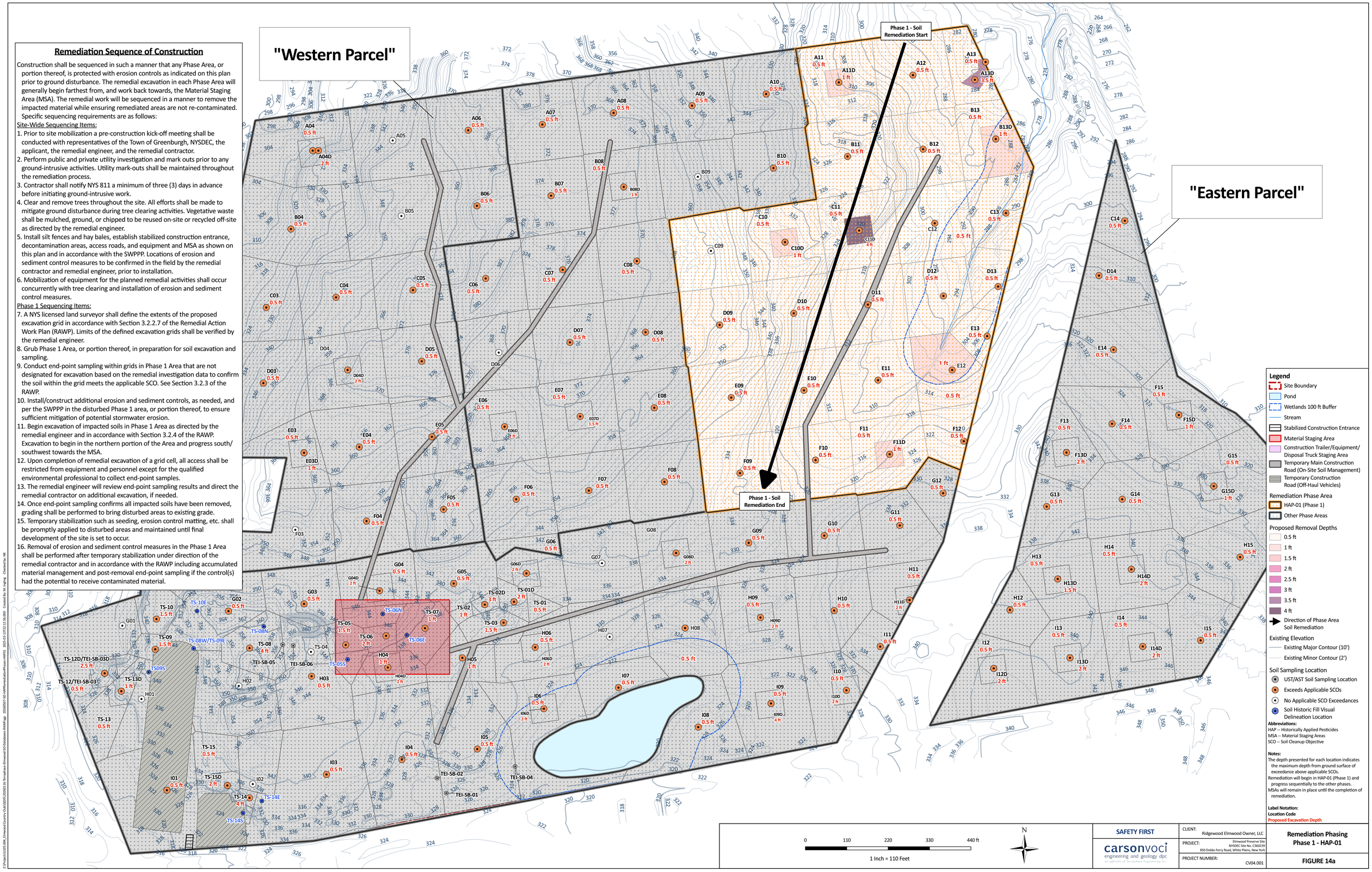
7. A NYS licensed land surveyor shall define the extents of the proposed excavation grid in accordance with Section 3.2.2.7 of the Remedial Action Work Plan (RAWP). Limits of the defined excavation grids shall be verified by the remedial engineer.
8. Grub Phase 1 Area, or portion thereof, in preparation for soil excavation and sampling.
9. Conduct end-point sampling within grids in Phase 1 Area that are not designated for excavation based on the remedial investigation data to confirm the soil within the grid meets the applicable SCO. See Section 3.2.3 of the RAWP.
10. Install/construct additional erosion and sediment controls, as needed, and per the SWPPP in the disturbed Phase 1 area, or portion thereof, to ensure sufficient mitigation of potential stormwater erosion.
11. Begin excavation of impacted soils in Phase 1 Area as directed by the remedial engineer and in accordance with Section 3.2.4 of the RAWP. Excavation to begin in the northern portion of the Area and progress south/ southwest towards the MSA.
12. Upon completion of remedial excavation of a grid cell, all access shall be restricted from equipment and personnel except for the qualified environmental professional to collect end-point samples.
13. The remedial engineer will review end-point sampling results and direct the remedial contractor on additional excavation, if needed.
14. Once end-point sampling confirms all impacted soils have been removed, grading shall be performed to bring disturbed areas to existing grade.
15. Temporary stabilization such as seeding, erosion control matting, etc. shall be promptly applied to disturbed areas and maintained until final development of the site is set to occur.
16. Removal of erosion and sediment control measures in the Phase 1 Area shall be performed after temporary stabilization under direction of the remedial contractor and in accordance with the RAWP including accumulated material management and post-removal end-point sampling if the control(s) had the potential to receive contaminated material.

"Western Parcel"

"Eastern Parcel"

Phase 1 - Soil Remediation Start

Phase 1 - Soil Remediation End



Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Stream
- Stabilized Construction Entrance
- Material Staging Area
- Construction Trailer/Equipment/ Disposal Truck Staging Area
- Temporary Main Construction Road (On-Site Soil Management)
- Temporary Construction Road (Off-Haul Vehicles)

Remediation Phase Area

- HAP-01 (Phase 1)
- Other Phase Areas

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft
- Direction of Phase Area Soil Remediation

Existing Elevation

- Existing Major Contour (10')
- Existing Minor Contour (2')

Soil Sampling Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

Abbreviations:
HAP – Historically Applied Pesticides
MSA – Material Staging Areas
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicates the maximum depth from ground surface of exceedance above applicable SCOs.
Remediation will begin in HAP-01 (Phase 1) and progress sequentially to the other phases.
MSAs will remain in place until the completion of remediation.

Label Notation:
Location Code
Proposed Excavation Depth

0 110 220 330 440 ft

1 Inch = 110 Feet

N

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engineering and geology dpc
an affiliate of Terraphase Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Remediation Phasing Phase 1 - HAP-01

FIGURE 14a

Z:\Projects\335.004_Elmwood Country Club\2025\20250116-Terraphase-Elmwood-GIS-Databases-RAWP.mpr 20260507-SO-HAPRemedialPhases-HAP01 2025-03-13T12:12:56.000 Created By: M. Ingling Checked By: NK

Remediation Sequence of Construction

Construction shall be sequenced in such a manner that any Phase Area, or portion thereof, is protected with erosion controls as indicated on this plan prior to ground disturbance. The remedial excavation in each Phase Area will generally begin farthest from, and work back towards, the Material Staging Area (MSA). The remedial work will be sequenced in a manner to remove the impacted material while ensuring remediated areas are not re-contaminated. Specific sequencing requirements are as follows:

Site-Wide Sequencing Items:

1. Prior to site mobilization a pre-construction kick-off meeting shall be conducted with representatives of the Town of Greenburgh, NYSDEC, the applicant, the remedial engineer, and the remedial contractor.
2. Perform public and private utility investigation and mark outs prior to any ground-intrusive activities. Utility mark-outs shall be maintained throughout the remediation process.
3. Contractor shall notify NYS 811 a minimum of three (3) days in advance before initiating ground-intrusive work.
4. Clear and remove trees throughout the site. All efforts shall be made to mitigate ground disturbance during tree clearing activities. Vegetative waste shall be mulched, ground, or chipped to be reused on-site or recycled off-site as directed by the remedial engineer.
5. Install silt fences and hay bales, establish stabilized construction entrance, decontamination areas, access roads, and equipment and MSA as shown on this plan and in accordance with the SWPPP. Locations of erosion and sediment control measures to be confirmed in the field by the remedial contractor and remedial engineer, prior to installation.
6. Mobilization of equipment for the planned remedial activities shall occur concurrently with tree clearing and installation of erosion and sediment control measures.

Phase 2 Sequencing Items:

7. A NYS licensed land surveyor shall define the extents of the proposed excavation grid in accordance with Section 3.2.2.7 of the Remedial Action Work Plan (RAWP). Limits of the defined excavation grids shall be verified by the remedial engineer.
8. Grub Phase 2 Area, or portion thereof, in preparation for soil excavation and sampling.
9. Conduct end-point sampling within grids in Phase 2 Area that are not designated for excavation based on the remedial investigation data to confirm the soil within the grid meets the applicable SCO. See Section 3.2.3 of the RAWP.
10. Install/construct additional erosion and sediment controls, as needed, and per the SWPPP in the disturbed Phase 2 area, or portion thereof, to ensure sufficient mitigation of potential stormwater erosion.
11. Begin excavation of impacted soils in Phase 2 Area as directed by the remedial engineer and in accordance with Section 3.2.4 of the RAWP. Excavation to begin in the northern portion of the Area and progress south/ southwest towards the MSA.
12. Upon completion of remedial excavation of a grid cell, all access shall be restricted from equipment and personnel except for the qualified environmental professional to collect end-point samples.
13. The remedial engineer will review end-point sampling results and direct the remedial contractor on additional excavation, if needed.
14. Once end-point sampling confirms all impacted soils have been removed, grading shall be performed to bring disturbed areas to existing grade.
15. Temporary stabilization such as seeding, erosion control matting, etc. shall be promptly applied to disturbed areas and maintained until final development of the site is set to occur.
16. Removal of erosion and sediment control measures in the Phase 2 Area shall be performed after temporary stabilization under direction of the remedial contractor and in accordance with the RAWP including accumulated material management and post-removal end-point sampling if the control(s) had the potential to receive contaminated material.
17. The MSA, equipment area, stabilized construction entrance, roads leading to MSA and Phase 3 and 4 Areas to remain. These controls will be removed upon completion of remedial activities on the Western Parcel.

"Western Parcel"

"Eastern Parcel"

Phase 2 - Soil Remediation Start

Phase 2 - Soil Remediation End

Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Stream
- Area Containing Historical Fill
- Stabilized Construction Entrance
- Material Staging Area
- Construction Trailer/Equipment/ Disposal Truck Staging Area
- Temporary Main Construction Road (On-Site Soil Management)
- Temporary Construction Road (Off-Haul Vehicles)

Remediation Phase Area

- HAP-02 (Phase 2)
- Other Phase Areas

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft
- Direction of Phase Area Soil Remediation

Existing Elevation

- Existing Major Contour (10')
- Existing Minor Contour (2')

Soil Sampling Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

Abbreviations:
HAP -- Historically Applied Pesticides
MSA -- Material Staging Areas
SCO -- Soil Cleanup Objective

Notes:
The depth presented for each location indicates the maximum depth from ground surface of exceedance above applicable SCOs.
Remediation will begin in HAP-01 (Phase 1) and progress sequentially to the other phases.
MSAs will remain in place until the completion of remediation.

Label Notation:
Location Code
Proposed Excavation Depth

0 110 220 330 440 ft
1 Inch = 110 Feet

N

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carsonvoci engineering and geology dpc
an affiliate of Terrashore Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

Remediation Phasing Phase 2 - HAP-02

FIGURE 14b

Z:\Projects\CV04.001_Elmwood Country Club\GIS\2020\0219-Terrashore-Elmwood-SO-Subdivision-RAWP.mxd 2020/03/07 SO HAPRemediationPhase-HAP02 2020-03-13T22:12:56.000 Created By: AA Signing Checked by: MK

Remediation Sequence of Construction

Construction shall be sequenced in such a manner that any Phase Area, or portion thereof, is protected with erosion controls as indicated on this plan prior to ground disturbance. The remedial excavation in each Phase Area will generally begin farthest from, and work back towards, the Material Staging Area (MSA). The remedial work will be sequenced in a manner to remove the impacted material while ensuring remediated areas are not re-contaminated. Specific sequencing requirements are as follows:

Site-Wide Sequencing Items:

1. Prior to site mobilization a pre-construction kick-off meeting shall be conducted with representatives of the Town of Greenburgh, NYSDEC, the applicant, the remedial engineer, and the remedial contractor.
2. Perform public and private utility investigation and mark outs prior to any ground-intrusive activities. Utility mark-outs shall be maintained throughout the remediation process.
3. Contractor shall notify NYS 811 a minimum of three (3) days in advance before initiating ground-intrusive work.
4. Clear and remove trees throughout the site. All efforts shall be made to mitigate ground disturbance during tree clearing activities. Vegetative waste shall be mulched, ground, or chipped to be reused on-site or recycled off-site as directed by the remedial engineer.
5. Install silt fences and hay bales, establish stabilized construction entrance, decontamination areas, access roads, and equipment and MSA as shown on this plan and in accordance with the SWPPP. Locations of erosion and sediment control measures to be confirmed in the field by the remedial contractor and remedial engineer, prior to installation.
6. Mobilization of equipment for the planned remedial activities shall occur concurrently with tree clearing and installation of erosion and sediment control measures.

Phase 3 Sequencing Items:

7. A NYS licensed land surveyor shall define the extents of the proposed excavation grid in accordance with Section 3.2.2.7 of the Remedial Action Work Plan (RAWP). Limits of the defined excavation grids shall be verified by the remedial engineer.
8. Grub Phase 3 Area, or portion thereof, in preparation for soil excavation and sampling.
9. Conduct end-point sampling within grids in Phase 3 Area that are not designated for excavation based on the remedial investigation data to confirm the soil within the grid meets the applicable SCO. See Section 3.2.3 of the RAWP.
10. Install/construct additional erosion and sediment controls, as needed, and per the SWPPP in the disturbed Phase 3 area, or portion thereof, to ensure sufficient mitigation of potential stormwater erosion.
11. Begin excavation of impacted soils in Phase 3 Area as directed by the remedial engineer and in accordance with Section 3.2.4 of the RAWP. Excavation to begin in the northern portion of the Area and progress south/ southwest towards the MSA.
12. Upon completion of remedial excavation of a grid cell, all access shall be restricted from equipment and personnel except for the qualified environmental professional to collect end-point samples.
13. The remedial engineer will review end-point sampling results and direct the remedial contractor on additional excavation, if needed.
14. Once end-point sampling confirms all impacted soils have been removed, grading shall be performed to bring disturbed areas to existing grade.
15. Temporary stabilization such as seeding, erosion control matting, etc. shall be promptly applied to disturbed areas and maintained until final development of the site is set to occur.
16. Removal of erosion and sediment control measures in the Phase 3 Area shall be performed after temporary stabilization under direction of the remedial contractor and in accordance with the RAWP including accumulated material management and post-removal end-point sampling if the control(s) had the potential to receive contaminated material.

"Western Parcel"

"Eastern Parcel"

Phase 3 - Soil Remediation Start

Phase 3 - Soil Remediation End

Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Stream
- Stabilized Construction Entrance
- Material Staging Area
- Construction Trailer/Equipment/ Disposal Truck Staging Area
- Temporary Main Construction Road (On-Site Soil Management)
- Temporary Construction Road (Off-Haul Vehicles)

Remediation Phase Area

- HAP-03 (Phase 3)
- Other Phase Areas

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft
- Direction of Phase Area Soil Remediation

Existing Elevation

- Existing Major Contour (10')
- Existing Minor Contour (2')

Soil Sampling Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

Abbreviations:
HAP -- Historically Applied Pesticides
MSA -- Material Staging Areas
SCO -- Soil Cleanup Objective

Notes:
The depth presented for each location indicates the maximum depth from ground surface of exceedance above applicable SCOs.
Remediation will begin in HAP-01 (Phase 1) and progress sequentially to the other phases.
MSAs will remain in place until the completion of remediation.

Label Notation:
Location Code
Proposed Excavation Depth

0 110 220 330 440 ft

1 Inch = 110 Feet

N

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carsonvoci engineering and geology dpc
an affiliate of Terraphase Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Remediation Phasing Phase 3 - HAP-03

FIGURE 14c

Z:\Projects\235.004_Elmwood Country Club\GDO\20001\8-Terraphase-Elmwood-SG-Databases-RAWP.ggr 2026/02/27 SG-MAPRemediationPhases-HAP03 2025-03-13 T12:12:56.000 Created By: M. Ingling Checked by: MK

Remediation Sequence of Construction

Construction shall be sequenced in such a manner that any Phase Area, or portion thereof, is protected with erosion controls as indicated on this plan prior to ground disturbance. The remedial excavation in each Phase Area will generally begin farthest from, and work back towards, the Material Staging Area (MSA). The remedial work will be sequenced in a manner to remove the impacted material while ensuring remediated areas are not re-contaminated. Specific sequencing requirements are as follows:

Site-Wide Sequencing Items:

1. Prior to site mobilization a pre-construction kick-off meeting shall be conducted with representatives of the Town of Greenburgh, NYSDEC, the applicant, the remedial engineer, and the remedial contractor.
2. Perform public and private utility investigation and mark outs prior to any ground-intrusive activities. Utility mark-outs shall be maintained throughout the remediation process.
3. Contractor shall notify NYS 811 a minimum of three (3) days in advance before initiating ground-intrusive work.
4. Clear and remove trees throughout the site. All efforts shall be made to mitigate ground disturbance during tree clearing activities. Vegetative waste shall be mulched, ground, or chipped to be reused on-site or recycled off-site as directed by the remedial engineer.
5. Install silt fences and hay bales, establish stabilized construction entrance, decontamination areas, access roads, and equipment and MSA as shown on this plan and in accordance with the SWPPP. Locations of erosion and sediment control measures to be confirmed in the field by the remedial contractor and remedial engineer, prior to installation.
6. Mobilization of equipment for the planned remedial activities shall occur concurrently with tree clearing and installation of erosion and sediment control measures.

Phase 4 Sequencing Items:

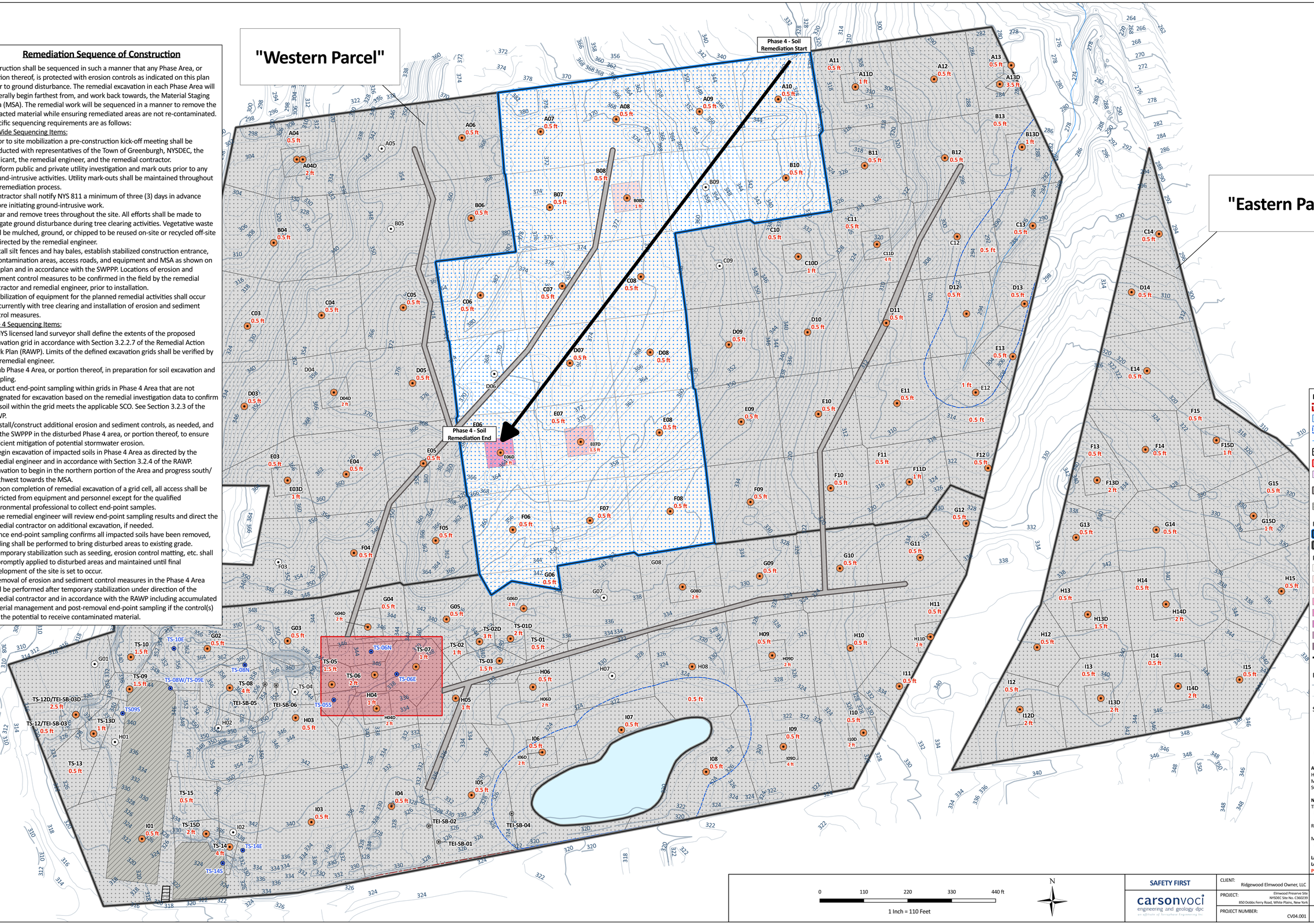
7. A NYS licensed land surveyor shall define the extents of the proposed excavation grid in accordance with Section 3.2.2.7 of the Remedial Action Work Plan (RAWP). Limits of the defined excavation grids shall be verified by the remedial engineer.
8. Grub Phase 4 Area, or portion thereof, in preparation for soil excavation and sampling.
9. Conduct end-point sampling within grids in Phase 4 Area that are not designated for excavation based on the remedial investigation data to confirm the soil within the grid meets the applicable SCO. See Section 3.2.3 of the RAWP.
10. Install/construct additional erosion and sediment controls, as needed, and per the SWPPP in the disturbed Phase 4 area, or portion thereof, to ensure sufficient mitigation of potential stormwater erosion.
11. Begin excavation of impacted soils in Phase 4 Area as directed by the remedial engineer and in accordance with Section 3.2.4 of the RAWP. Excavation to begin in the northern portion of the Area and progress south/ southwest towards the MSA.
12. Upon completion of remedial excavation of a grid cell, all access shall be restricted from equipment and personnel except for the qualified environmental professional to collect end-point samples.
13. The remedial engineer will review end-point sampling results and direct the remedial contractor on additional excavation, if needed.
14. Once end-point sampling confirms all impacted soils have been removed, grading shall be performed to bring disturbed areas to existing grade.
15. Temporary stabilization such as seeding, erosion control matting, etc. shall be promptly applied to disturbed areas and maintained until final development of the site is set to occur.
16. Removal of erosion and sediment control measures in the Phase 4 Area shall be performed after temporary stabilization under direction of the remedial contractor and in accordance with the RAWP including accumulated material management and post-removal end-point sampling if the control(s) had the potential to receive contaminated material.

"Western Parcel"

"Eastern Parcel"

Phase 4 - Soil Remediation Start

Phase 4 - Soil Remediation End



Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Stream
- Stabilized Construction Entrance
- Material Staging Area
- Construction Trailer/Equipment/ Disposal Truck Staging Area
- Temporary Main Construction Road (On-Site Soil Management)
- Temporary Construction Road (Off-Haul Vehicles)

Remediation Phase Area

- HAP-04 (Phase 4)
- Other Phase Areas

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft
- Direction of Phase Area Soil Remediation

Existing Elevation

- Existing Major Contour (10')
- Existing Minor Contour (2')

Soil Sampling Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

Abbreviations:
HAP -- Historically Applied Pesticides
MSA -- Material Staging Areas
SCO -- Soil Cleanup Objective

Notes:
The depth presented for each location indicates the maximum depth from ground surface of exceedance above applicable SCOs.
Remediation will begin in HAP-01 (Phase 1) and progress sequentially to the other phases.
MSAs will remain in place until the completion of remediation.

Label Notation:
Location Code
Proposed Excavation Depth

0 110 220 330 440 ft

1 Inch = 110 Feet

N

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engineering and geology dpc
an affiliate of Terraphase Engineering Inc.

CLIENT:	Ridgewood Elmwood Owner, LLC
PROJECT:	Elmwood Preserve Site NYSDEC Site No. C360239 850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER:	CV04.001

Remediation Phasing
Phase 4 - HAP-04

FIGURE 14d

Z:\Projects\105-004_Elmwood Country Club\GIS\105-004-15 - Terraphase-Elmwood-GIS-Databases-RAWP.mpk 2026-02-27 SO-HAPRemediationPhases-HAP04 2025-03-19T12:12:56.000 Created By: M Ingling Checked By: MI

Remediation Sequence of Construction

Construction shall be sequenced in such a manner that any Phase Area, or portion thereof, is protected with erosion controls as indicated on this plan prior to ground disturbance. The remedial excavation in each Phase Area will generally begin farthest from, and work back towards, the Material Staging Area (MSA). The remedial work will be sequenced in a manner to remove the impacted material while ensuring remediated areas are not re-contaminated. Specific sequencing requirements are as follows:

Site-Wide Sequencing Items:

1. Prior to site mobilization a pre-construction kick-off meeting shall be conducted with representatives of the Town of Greenburgh, NYSDEC, the applicant, the remedial engineer, and the remedial contractor.
2. Perform public and private utility investigation and mark outs prior to any ground-intrusive activities. Utility mark-outs shall be maintained throughout the remediation process.
3. Contractor shall notify NYS 811 a minimum of three (3) days in advance before initiating ground-intrusive work.
4. Clear and remove trees throughout the site. All efforts shall be made to mitigate ground disturbance during tree clearing activities. Vegetative waste shall be mulched, ground, or chipped to be reused on-site or recycled off-site as directed by the remedial engineer.
5. Install silt fences and hay bales, establish stabilized construction entrance, decontamination areas, access roads, and equipment and MSA as shown on this plan and in accordance with the SWPPP. Locations of erosion and sediment control measures to be confirmed in the field by the remedial contractor and remedial engineer, prior to installation.
6. Mobilization of equipment for the planned remedial activities shall occur concurrently with tree clearing and installation of erosion and sediment control measures.

Phase 5/6 Sequencing Items:

7. A NYS licensed land surveyor shall define the extents of the proposed excavation grid in accordance with Section 3.2.2.7 of the Remedial Action Work Plan (RAWP). Limits of the defined excavation grids shall be verified by the remedial engineer.
8. Grub Phase 5/6 Area, or portion thereof, in preparation for soil excavation and sampling.
9. Conduct end-point sampling within grids in Phase 5/6 Area that are not designated for excavation based on the remedial investigation data to confirm the soil within the grid meets the applicable SCO. See Section 3.2.3 of the RAWP.
10. Install/construct additional erosion and sediment controls, as needed, and per the SWPPP in the disturbed Phase 5/6 area, or portion thereof, to ensure sufficient mitigation of potential stormwater erosion.
11. Begin excavation of impacted soils in Phase 5/6 Area as directed by the remedial engineer and in accordance with Section 3.2.4 of the RAWP. Excavation to begin in the northern portion of the Area and progress south/ southwest towards the MSA.
12. Upon completion of remedial excavation of a grid cell, all access shall be restricted from equipment and personnel except for the qualified environmental professional to collect end-point samples.
13. The remedial engineer will review end-point sampling results and direct the remedial contractor on additional excavation, if needed.
14. Once end-point sampling confirms all impacted soils have been removed, grading shall be performed to bring disturbed areas to existing grade.
15. Temporary stabilization such as seeding, erosion control matting, etc. shall be promptly applied to disturbed areas and maintained until final development of the site is set to occur.
16. Removal of erosion and sediment control measures in the Phase 5/6 Area shall be performed after temporary stabilization under direction of the remedial contractor and in accordance with the RAWP including accumulated material management and post-removal end-point sampling if the control(s) had the potential to receive contaminated material.

"Western Parcel"

"Eastern Parcel"

Phase 5/6 - Soil Remediation Start

Phase 5/6 - Soil Remediation End

Legend

- Site Boundary
- Pond
- Wetlands 100 ft Buffer
- Stream
- Stabilized Construction Entrance
- Material Staging Area
- Construction Trailer/Equipment/ Disposal Truck Staging Area
- Temporary Main Construction Road (On-Site Soil Management)
- Temporary Construction Road (Off-Haul Vehicles)

Remediation Phase Area

- HAP-05 (Phase 5/6)
- Other Phase Areas

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft
- Direction of Phase Area Soil Remediation

Existing Elevation

- Existing Major Contour (10')
- Existing Minor Contour (2')

Soil Sampling Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

Abbreviations:
HAP -- Historically Applied Pesticides
MSA -- Material Staging Areas
SCO -- Soil Cleanup Objective

Notes:
The depth presented for each location indicates the maximum depth from ground surface of exceedance above applicable SCOs.
Remediation will begin in HAP-01 (Phase 1) and progress sequentially to the other phases.
MSAs will remain in place until the completion of remediation.

Label Notation:
Location Code
Proposed Excavation Depth

0 110 220 330 440 ft
1 Inch = 110 Feet

N

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CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

Remediation Phasing Phase 5/6 - HAP-05

FIGURE 14e

Z:\Projects\195.004_Elmwood Country Club\500\500.0108.19-Terraphase-Elmwood\50-Data\exec-RAWP\ggr_20260507-50-HAPRemediationPhases-HAP05_2025-03-13T23:21:56.000 Created By: M. Ingling Checked by: MK

"Area of Detail"

"Area of Detail"

"Area of Detail"

0 110 220 330 440 ft

1 Inch = 110 Feet

N

Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- 70ft x 70ft Grid
- Area Containing Historical Fill
- Stream

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft

Sidewall Sample Quantity

- 1
- 2
- 3
- 4

Soil Sample Location

- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- UST/AST Soil Sampling Location
- Soil Historic Fill Visual Delineation Location

Proposed End Point Sample Location

- Base (1 per 5,000 sq ft)
- Sidewall (1 per 75 linear feet of sidewall, with a min of 1 per sidewall)
- Additional Residential Base (to meet 1 sample per 2,500 sq ft or a max of 9 samples per residential lot)
- Deeper Sample (2 feet below the base of excavation)

Abbreviation:
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs.
**Sidewall samples to be collected as shown on Figure 15.
Deeper samples will be collected below the base of the excavation to confirm remediation for the grid is complete as discussed further in Section 5.2.1 of the RAWP. A deeper sample will be collected for any grid where the excavation extends deeper than 6 inches.

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CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

End Point Sample Locations

FIGURE 15

Z:\Projects\V\04.000_Elmwood Country Club\00\05\05\05\0425-Terrashore-Elmwood-SIS-EndPointSampling.dgn 20260123 EndpointSampling-Overall 2025-03-19T23:12:56.000 Created by: madison.ingling Checked by: N. Kosnocky

Key Map



A04 0.5 ft
A04D 2 ft
A05
24928 sq ft
A06 0.5 ft
21136 sq ft
20978 sq ft
A07 0.5 ft
21239 sq ft
A08 0.5 ft
20162 sq ft
A09 0.5 ft
A10 0.5 ft
A11D 1 ft
A11 0.5 ft
18575 sq ft
18252 sq ft
18287 sq ft
18623 sq ft
B11 0.5 ft
B10 0.5 ft
B09
B08 0.5 ft
18312 sq ft
20242 sq ft
B08D 1 ft
19015 sq ft
B07 0.5 ft
B06 0.5 ft
19502 sq ft
18499 sq ft
18656 sq ft
17687 sq ft
B05
B04 0.5 ft
22112 sq ft
C10 0.5 ft
22517 sq ft
C10D 1 ft
18421 sq ft
19390 sq ft
C09
C08 0.5 ft
18349 sq ft
17656 sq ft
22904 sq ft
17673 sq ft
C07 0.5 ft
C06 0.5 ft
18760 sq ft
18618 sq ft
C05 0.5 ft
17532 sq ft
C04 0.5 ft
18788 sq ft
18308 sq ft
C03 0.5 ft
22200 sq ft
22692 sq ft
18743 sq ft
17731 sq ft
D10 0.5 ft
18703 sq ft
D09 0.5 ft
D08 0.5 ft
17457 sq ft
18826 sq ft
18178 sq ft
D04
D07 0.5 ft
17959 sq ft
21502 sq ft
D05 0.5 ft
D06
23501 sq ft
21178 sq ft
D04D 2 ft
17490 sq ft
18698 sq ft
D03 0.5 ft
E10 0.5 ft
20183 sq ft
E09 0.5 ft
28136 sq ft
21298 sq ft
22315 sq ft
24569 sq ft
E08 0.5 ft
E07 0.5 ft
E07D 1.5 ft
E06 0.5 ft
E06D 2 ft
18522 sq ft
28893 sq ft
E03 0.5 ft
E05 0.5 ft
E04 0.5 ft
19147 sq ft
E03D 1 ft
17472 sq ft
22674 sq ft
18340 sq ft
17762 sq ft
19290 sq ft
F09 0.5 ft
F08 0.5 ft
20525 sq ft
F07 0.5 ft
18190 sq ft
17854 sq ft
F06
15987 sq ft
17620 sq ft
21581 sq ft
F05 0.5 ft

Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- 70ft x 70ft Grid
- Area Containing Historical Fill
- Stream

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft

Proposed End Point Soil Sample Location

- Base (1 per 5,000 sq ft)
- Additional Residential Base (to meet 1 sample per 2,500 sq ft or a max of 9 samples per residential lot)
- Deeper Sample (2 feet below the base of excavation)

Abbreviation:
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs
*Sidewall samples to be collected as shown on Figure 15.
Deeper samples will be collected below the base of the excavation to confirm remediation for the grid is complete as discussed further in Section 5.2.1 of the RAWP. A deeper sample will be collected for any grid where the excavation extends deeper than 6 inches.
Area (sq ft) values presented in blue font are individual residential lot sizes.

0 60 120 180 240 ft
1 Inch = 60 Feet
N

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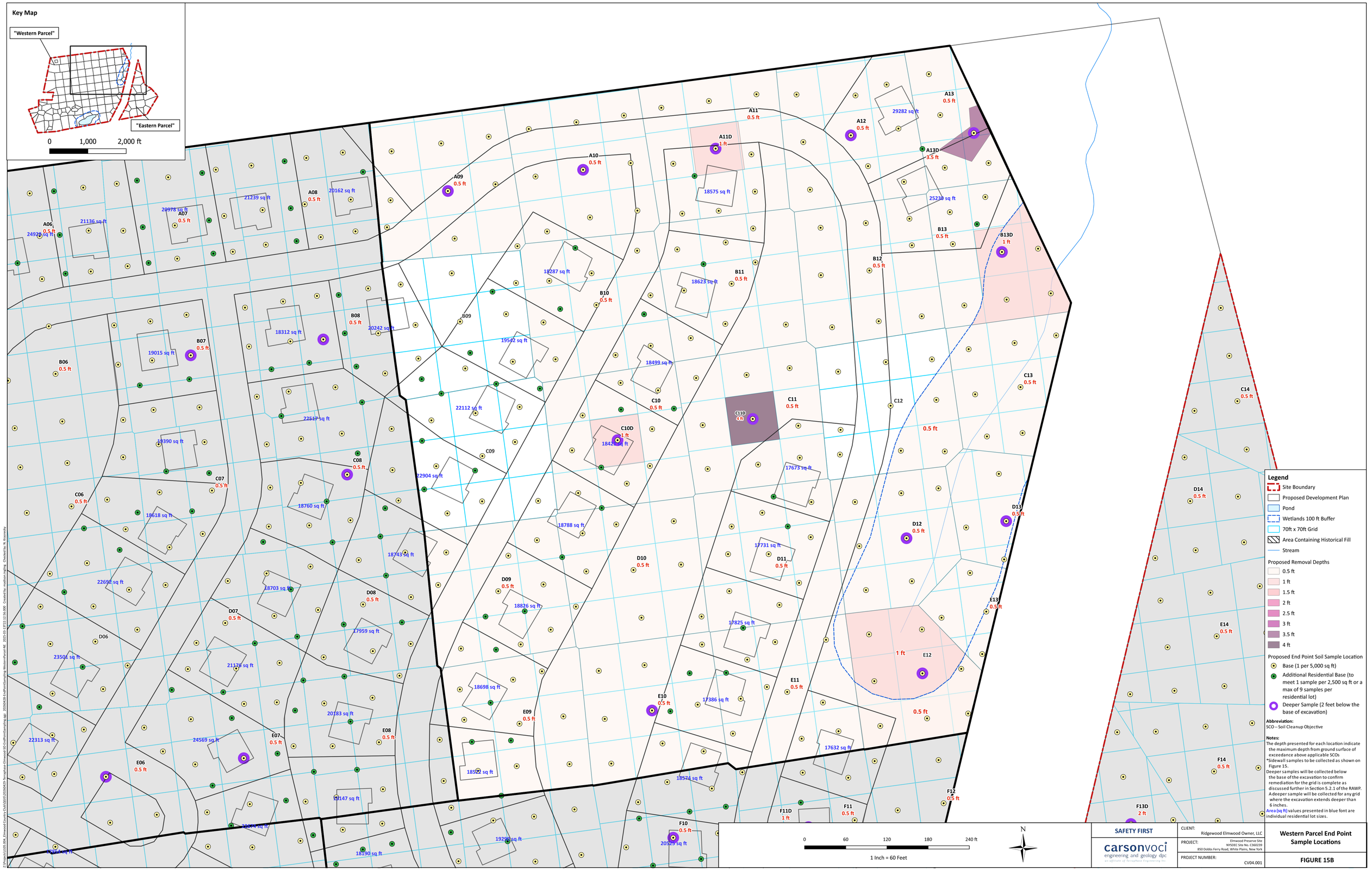
CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

Western Parcel End Point Sample Locations

FIGURE 15A

Z:\Projects\105.006_Elmwood Country Club\005\105\005\20250429-TerraphaseElmwood-DO-EndPointSampling-WesternParcel.MXD 2025-03-13T22:13:56.000 Created by: mwilson Ingling Checked by: N. Kosowitz

Key Map



Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- 70ft x 70ft Grid
- Area Containing Historical Fill
- Stream

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft

Proposed End Point Soil Sample Location

- Base (1 per 5,000 sq ft)
- Additional Residential Base (to meet 1 sample per 2,500 sq ft or a max of 9 samples per residential lot)
- Deeper Sample (2 feet below the base of excavation)

Abbreviation:
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs
*Sidewall samples to be collected as shown on Figure 15.
Deeper samples will be collected below the base of the excavation to confirm remediation for the grid is complete as discussed further in Section 5.2.1 of the RAWP. A deeper sample will be collected for any grid where the excavation extends deeper than 6 inches.
Area (sq ft) values presented in blue font are individual residential lot sizes.

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an affiliate of Terraphase Engineering PC

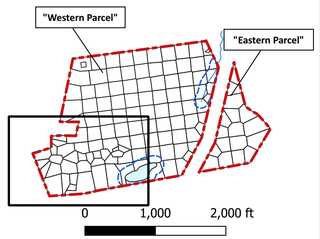
CLIENT:	Ridgewood Elmwood Owner, LLC
PROJECT:	Elmwood Preserve Site NYSDEC Site No. C360239 850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER:	CV04.001

Western Parcel End Point Sample Locations

FIGURE 15B

K:\Projects\105.004_Elmwood Country Club\GIS\20150429 Terraphase Elmwood GIS Ed\Post Scoping.aprx 2016/4/19 Ed\Post Scoping Western Parcel.Mxd 2015-03-13 12:11:56.000 Created by: madison.nguyen Checked by: N. Kosinski

Key Map



28136 sq ft
28893 sq ft
E03D
1 ft
17472 sq ft
E04
0.5 ft
18340 sq ft
E05
0.5 ft
17762 sq ft
22313 sq ft
24569 sq ft
18147 sq ft
22674 sq ft
F07
0.5 ft
18190 sq ft
17854 sq ft
F06
0.5 ft
24793 sq ft
F05
0.5 ft
21581 sq ft
15987 sq ft
17620 sq ft
F04
0.5 ft
F03
16557 sq ft
17561 sq ft
F02
2 ft
17241 sq ft
18559 sq ft
G06
0.5 ft
18322 sq ft
G07
G04
0.5 ft
G04D
2 ft
G05
0.5 ft
18317 sq ft
17811 sq ft
17648 sq ft
TS-11
1.5 ft
G02
0.5 ft
G03
0.5 ft
TS-02D
3 ft
TS-01D
2 ft
TS-02
1 ft
TS-01
0.5 ft
17134 sq ft
17377 sq ft
TS-10
1.5 ft
G01
19925 sq ft
TS-07
1 ft
TS-06
2 ft
17644 sq ft
TS-03
1.5 ft
20306 sq ft
H07
H06
0.5 ft
17553 sq ft
21369 sq ft
TS-09
1.5 ft
TS-08
1 ft
17282 sq ft
TS-05
1.5 ft
TS-04
H05
1 ft
H04
1 ft
TS-12D/TEI-SB-03D
2.5 ft
17703 sq ft
H04D
2 ft
17750 sq ft
17288 sq ft
TS-12/TEI-SB-03
0.5 ft
TS-13D
1 ft
H02
H03
0.5 ft
17136 sq ft
22309 sq ft
H01
18324 sq ft
I07
0.5 ft
I06
0.5 ft
17674 sq ft
TS-13
0.5 ft
17987 sq ft
17544 sq ft
22614 sq ft
17313 sq ft
I05
0.5 ft
I04
0.5 ft
17682 sq ft
23827 sq ft
TS-15D
2 ft
17907 sq ft
I02
17585 sq ft
I03
0.5 ft
I01
0.5 ft
TS-14
1 ft
TS-15
0.5 ft
25304 sq ft

Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- 70ft x 70ft Grid
- Area Containing Historical Fill
- Stream

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft

Proposed End Point Soil Sample Location

- Base (1 per 5,000 sq ft)
- Additional Residential Base (to meet 1 sample per 2,500 sq ft or a max of 9 samples per residential lot)
- Deeper Sample (2 feet below the base of excavation)

Abbreviation:
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs
*Sidewall samples to be collected as shown on Figure 15.
Deeper samples will be collected below the base of the excavation to confirm remediation for the grid is complete as discussed further in Section 5.2.1 of the RAWP. A deeper sample will be collected for any grid where the excavation extends deeper than 6 inches.
Area (sq ft) values presented in blue font are individual residential lot sizes.

0 60 120 180 240 ft

1 Inch = 60 Feet

N

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engineering and geology dpc
an affiliate of Terraphase Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

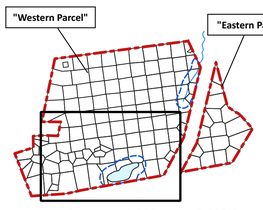
PROJECT NUMBER: CV04.001

Western Parcel End Point Sample Locations

FIGURE 15C

Z:\Projects\195.004_Elmwood Country Club\00\03\04\09-Terraphase-Elmwood-SSCF-EndPointSampling.dgn 2020/04/08 EndPointSampling WesternParcel.SW 2025-05-13T12:13:56.000 Created by: madison.tagliaf Checked by: N. Krasovsky

Key Map



Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- 70ft x 70ft Grid
- Area Containing Historical Fill
- Stream

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft

Proposed End Point Soil Sample Location

- Base (1 per 5,000 sq ft)
- Additional Residential Base (to meet 1 sample per 2,500 sq ft or a max of 9 samples per residential lot)
- Deeper Sample (2 feet below the base of excavation)

Abbreviation:
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs
*Sidewall samples to be collected as shown on Figure 15.
Deeper samples will be collected below the base of the excavation to confirm remediation for the grid is complete as discussed further in Section 5.2.1 of the RAWP. A deeper sample will be collected for any grid where the excavation extends deeper than 6 inches.
Area (sq ft) values presented in blue font are individual residential lot sizes.

0 60 120 180 240 ft

1 Inch = 60 Feet

N

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CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Western Parcel End Point Sample Locations

FIGURE 15D

Z:\Projects\15.006_Elmwood Country Club\005\2019\0429 Terraphase Elmwood GIS Eng\Work\Sampling.aprx 20200428 EndPointSampling_WesternParcel.tif 2019-05-13T22:12:52.000 Created By: mwilson Styling Checked by: K. Kennedy

Key Map

"Western Parcel"

"Eastern Parcel"

0 1,000 2,000 ft

17959 sq ft
21176 sq ft
18876 sq ft
17825 sq ft
18698 sq ft
17386 sq ft
20283 sq ft
24569 sq ft
18522 sq ft
17632 sq ft
18574 sq ft
20147 sq ft
17762 sq ft
22674 sq ft
19290 sq ft
20525 sq ft
17687 sq ft
17854 sq ft
18190 sq ft
17620 sq ft
24793 sq ft
19212 sq ft
17190 sq ft
21581 sq ft
17241 sq ft
21922 sq ft
18559 sq ft
18644 sq ft
17561 sq ft
18322 sq ft
17320 sq ft
18676 sq ft
18317 sq ft
17395 sq ft
17648 sq ft
17377 sq ft
18696 sq ft
17793 sq ft
17334 sq ft
17544 sq ft
20306 sq ft
17553 sq ft
17750 sq ft
17719 sq ft
17136 sq ft
17674 sq ft
17544 sq ft

F05 0.5 ft
F06 0.5 ft
F07 0.5 ft
F08 0.5 ft
F09 0.5 ft
F10 0.5 ft
F11 0.5 ft
F11D 1 ft
F12 0.5 ft
F13 0.5 ft
F13D 2 ft
F14 0.5 ft

G05 0.5 ft
G06 0.5 ft
G07
G08
G08D 2 ft
G09 0.5 ft
G10 0.5 ft
G11 0.5 ft
G12 0.5 ft
G13 0.5 ft
G14 0.5 ft

H05 1 ft
H06 0.5 ft
H07
H08
H09 0.5 ft
H09D 2 ft
H10 0.5 ft
H11 0.5 ft
H12 0.5 ft
H13 0.5 ft
H13D 1.5 ft
H14D 2 ft

I05 0.5 ft
I06 0.5 ft
I07 0.5 ft
I08 0.5 ft
I09 0.5 ft
I09D 4 ft
I10 0.5 ft
I10D 2 ft
I11 0.5 ft
I12 0.5 ft
I12D 2 ft
I13D 2 ft

TS-01 0.5 ft
TS-01D 2 ft
TS-02 1 ft
TS-02D 3 ft
TS-03 1.5 ft
TS-07 1 ft

0.5 ft

Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- 70ft by 70ft Grid
- Area Containing Historical Fill
- Stream

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft

Proposed End Point Soil Sample Location

- Base (1 per 5,000 sq ft)
- Additional Residential Base (to meet 1 sample per 2,500 sq ft or a max of 9 samples per residential lot)
- Deeper Sample (2 feet below the base of excavation)

Abbreviation:
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs
*Sidewall samples to be collected as shown on Figure 15.
Deeper samples will be collected below the base of the excavation to confirm remediation for the grid is complete as discussed further in Section 5.2.1 of the RAWP. A deeper sample will be collected for any grid where the excavation extends deeper than 6 inches.
Area (sq ft) values presented in blue font are individual residential lot sizes.

0 60 120 180 240 ft

1 Inch = 60 Feet

N

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CLIENT: Ridgewood Elmwood Owner, LLC

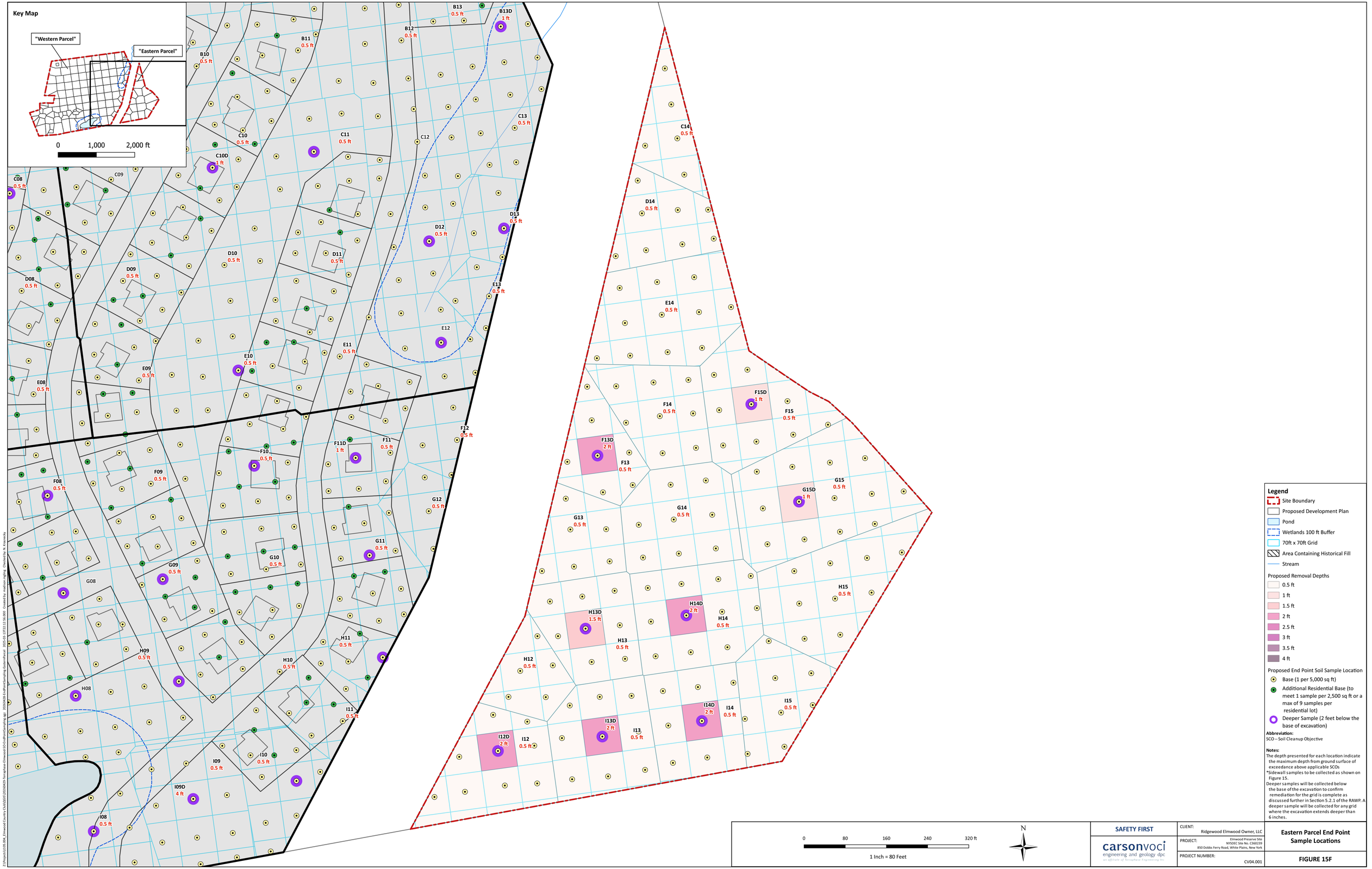
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Western Parcel End Point Sample Locations

FIGURE 15E

Z:\Projects\CV_004_Elmwood County Club\GIS\2025\20250429 Tarrytown Elmwood GIS Exports\Sampling.aprx 20250428 ExcBoundSampling WesternParcel.tif 2025-03-13T21:13:56.000 Created by: madison.ingling Checked by: N. Kosinsky


Key Map
"Western Parcel"
"Eastern Parcel"
0
1,000
2,000 ft
B13
0.5 ft
B13D
1 ft
B12
0.5 ft
B11
0.5 ft
B10
0.5 ft
C13
0.5 ft
C14
0.5 ft
C12
C11
0.5 ft
C10
0.5 ft
C10D
1 ft
C09
C08
0.5 ft
D14
0.5 ft
D13
0.5 ft
D12
0.5 ft
D11
0.5 ft
D10
0.5 ft
D09
0.5 ft
D08
0.5 ft
E13
0.5 ft
E14
0.5 ft
E12
E11
0.5 ft
E10
0.5 ft
E09
0.5 ft
E08
0.5 ft
F15D
1 ft
F14
0.5 ft
F15
0.5 ft
F13D
2 ft
F13
0.5 ft
F12
0.5 ft
F11D
1 ft
F11
0.5 ft
F10
0.5 ft
F09
0.5 ft
F08
0.5 ft
G15
0.5 ft
G15D
1 ft
G14
0.5 ft
G13
0.5 ft
G12
0.5 ft
G11
0.5 ft
G10
0.5 ft
G09
0.5 ft
G08
H15
0.5 ft
H14D
2 ft
H14
0.5 ft
H13D
1.5 ft
H13
0.5 ft
H12
0.5 ft
H11
0.5 ft
H10
0.5 ft
H09
0.5 ft
H08
I15
0.5 ft
I14D
2 ft
I14
0.5 ft
I13D
2 ft
I13
0.5 ft
I12D
2 ft
I12
0.5 ft
I11
0.5 ft
I10
0.5 ft
I09
0.5 ft
I09D
4 ft
I08
0.5 ft
Legend
Site Boundary
Proposed Development Plan
Pond
Wetlands 100 ft Buffer
70ft x 70ft Grid
Area Containing Historical Fill
Stream
Proposed Removal Depths
0.5 ft
1 ft
1.5 ft
2 ft
2.5 ft
3 ft
3.5 ft
4 ft
Proposed End Point Soil Sample Location
Base (1 per 5,000 sq ft)
Additional Residential Base (to meet 1 sample per 2,500 sq ft or a max of 9 samples per residential lot)
Deeper Sample (2 feet below the base of excavation)
Abbreviation:
SCO – Soil Cleanup Objective
Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs
*Sidewall samples to be collected as shown on Figure 15.
Deeper samples will be collected below the base of the excavation to confirm remediation for the grid is complete as discussed further in Section 5.2.1 of the RAWP. A deeper sample will be collected for any grid where the excavation extends deeper than 6 inches.
0
80
160
240
320 ft
1 Inch = 80 Feet
N
SAFETY FIRST
carsonVOCI
engineering and geology dpc
an affiliate of Terraphase Engineering Inc.
CLIENT:
Ridgewood Elmwood Owner, LLC
PROJECT:
Elmwood Preserve Site
NYSDEC Site No. C360238
850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER:
CV04.001
Eastern Parcel End Point Sample Locations
FIGURE 15F
Z:\Projects\105.004_Elmwood Country Club\005\015\015.0429_Sunnyhow-Elmwood-SO-Eval\Work\Sampling\dgn 2020429 EndPointSampling EasternParcel 2021-05-13T22:17:56.000 Created by: mwalker Last Edited By: N. Krakowsky

"Western Parcel"

"Eastern Parcel"

SS-08

SS-07

SS-06

SS-03
2 ft

SS-04
2 ft

SS-05
2 ft

SS-02
2 ft

SS-01
2 ft

Location	Area (ft^2)	Removal Depth (ft)	Removal Volume (yd^3)
SS-01	5,700	2	430
SS-02	9,200	2	680
SS-03	7,000	2	520
SS-04	22,100	2	1,640
SS-05	18,500	2	1,370
Total Removal Volume:			**4,640**

Legend
- Site Boundary
- Pond
- Proposed Sediment Removal Area
- Stream
- Sediment Sampling Location

Existing Elevation
- Existing Major Contour (10')
- Existing Minor Contour (2')

Note:
Sediment sampling locations identfied to exceed Class A concentrations are proposed for removal.

Label Notation:
Location Code
Proposed Removal Depth

0 110 220 330 440 ft

1 Inch = 110 Feet

N

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carsonvoci engineering and geology dpc
an affiliate of Terrastone Engineering, Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Proposed Pond Sediment to be Removed

FIGURE 16

N:\2019\cv\103.004_Elmwood Country Club\DOCS\DOCS\SS1 Terrastone Elmwood SD Data\Sheets.dgn 2020-09-18 ProposedSedimentRemoval 2020-09-13T12:12:56.000 Created By: M. Ingling Checked by: MK

"Western Parcel"

"Eastern Parcel"

Legend

- Site Boundary
- Pond
- Stream
- Alpha-Numeric Grid Cell

Existing Elevation

- Existing Major Contour (10')
- Existing Minor Contour (2')

0 110 220 330 440 ft

1 Inch = 110 Feet

N

SAFETY FIRST

carsonvoci
engineering and geology dpc
an affiliate of Terraphase Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Existing Elevation with Alpha-Numeric Grid

FIGURE 17

N:\GIS\PJ\155.004_Elmwood County Club\GIS\2025\0821\Terraphase Elmwood 50-Shalsbeers.mpr - 20250909 (ExistingConditions_withElevation - 2025-09-13T22:17:56.000 Created By: M. Inglieg Checked By: NK

I-287

Legend

- Site Boundary
- Pond
- Material Staging Area
- Stabilized Construction Entrance
- Construction Trailer/Equipment/ Disposal Truck Staging Area
- Temporary Main Construction Road (On-Site Soil Management)
- Temporary Construction Road (Off-Haul Vehicles)
- Stream

Truck Transport Route

- Off-Site
- Return to Site

Notes:
Refer to Appendix X for further details.
Aerial imagery source: Nearmap (July 16, 2025)

0 350 700 1,050 1,400 ft

1 Inch = 350 Feet

N

SAFETY FIRST

carsonvoci
engineering and geology dpc
an affiliate of Terrashore Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Truck Transport Route

FIGURE 18

N:\DS\PJ\005.004_Elmwood Country Club\DOCS\DELIVERY\ Semiphase Elmwood SD-Sitedrawn.dgn 2025/09/16 AAWP, ProjMotion 2025-03-31T22:21:56.000 Created By: M. Inglhag Checked by: RK

Appendix A

Preliminary Development Plans
(Provided under Separate Cover)

Appendix B

Estimated Remedial Costs

Remedial Cost Estimate - Alternative 1

Elmwood Preserve – NYSDEC BCP Site No. C360239

Item No.	Item Description	Estimated Qty	Unit	Unit Price	Cost
1	**Impacted Soil Excavation, Management, Transportion, and Disposal**				
1.1	Site Preparation - Including Clearing and Grubbing	106	Acre	$ 2,500.00	$ 265,000.00
1.2	Excavation, Material Management, and Load-out	390,000	c.y.	$ 20.00	$ 7,800,000.00
1.3	Transportation and Disposal				
1.3.1	BUD Soil - NY or Out-of-State	456,950	Tons	$ 35.00	$ 15,993,250.00
1.3.2	Non-Hazardous Soil - Solid Waste Landfill/Daily Cover	35,750	Tons	$ 55.00	$ 1,966,250.00
1.3.3	Non-Hazardous - Elevated Metals Soil	14,300	Tons	$ 70.00	$ 1,001,000.00
1.4	Lab Analysis				
1.4.1	End-Point Sampling	1,400	Each	$ 250.00	$ 350,000.00
1.4.2	Waste Characterization	700	Each	$ 750.00	$ 525,000.00
				Item No. 1 Subtotal	**$ 27,901,000.00**

2	**Impacted Pond Sediment Dredging/Excavation, Management, Transportion, and Disposal**				
2.1	FWRIA Part 2, Permitting, Design Document	1	Est.	$ 75,000.00	$ 75,000.00
2.2	Pond/Sediment Dewatering (and treatment if required)	1	Est.	$ 150,000.00	$ 150,000.00
2.3	Excavation/Dredging, Material Management, and Load-out	4,600	c.y.	$ 50.00	$ 230,000.00
2.4	Transportation and Disposal				
2.4.1	Non-Hazardous Soil - Solid Waste Landfill/Daily Cover	7,820	Tons	$ 55.00	$ 430,100.00
2.5	Lab Analysis				
2.5.1	End-Point Sampling	15	Each	$ 250.00	$ 3,750.00
2.5.2	Waste Characterization	9	Each	$ 750.00	$ 6,750.00
				Item No. 2 Subtotal	**$ 896,000.00**

3	**Consulting and Engineering**				
3.1	Remedial Oversight (including CAMP Monitoring)	18	Month	$ 100,000.00	$ 1,800,000.00
3.2	BCP Correspondence, Monthly Reporting, Final Engineering Report	1	Est.	$ 200,000.00	$ 200,000.00
				Item No. 3 Subtotal	**$ 2,000,000.00**

Alternative 1 - Remedial Action Total $ 30,797,000.00

Notes:

- Costs provided are estimates and have been prepared for the purpose of comparing remedial alternatives only.
- Soil is estimated to have a density of 1.3 tons per cubic yard for the purposes of transportion and disposal estimates.

Remedial Cost Estimate - Alternative 2

Elmwood Preserve – NYSDEC BCP Site No. C360239

Item No.	Item Description	Estimated Qty	Unit	Unit Price	Cost
1	**Impacted Soil Excavation, Management, Transportion, and Disposal**				
1.1	Site Preparation - Including Clearing and Grubbing	106	Acre	$ 2,500.00	$ 265,000.00
1.2	Excavation, Material Management, and Load-out	110,000	c.y.	$ 20.00	$ 2,200,000.00
1.3	Transportation and Disposal				
1.3.1	BUD Soil - NY or Out-of-State	92,950	Tons	$ 35.00	$ 3,253,250.00
1.3.2	Non-Hazardous Soil - Solid Waste Landfill/Daily Cover	35,750	Tons	$ 55.00	$ 1,966,250.00
1.3.3	Non-Hazardous - Elevated Metals Soil	14,300	Tons	$ 70.00	$ 1,001,000.00
1.4	Lab Analysis				
1.4.1	End-Point Sampling	1,400	Each	$ 250.00	$ 350,000.00
1.4.2	Waste Characterization	220	Each	$ 750.00	$ 165,000.00
				Item No. 1 Subtotal	**$ 9,201,000.00**

2	**Impacted Pond Sediment Dredging/Excavation, Management, Transportion, and Disposal**				
2.1	FWRIA Part 2, Permitting, Design Document	1	Est.	$ 75,000.00	$ 75,000.00
2.2	Pond/Sediment Dewatering (and treatment if required)	1	Est.	$ 150,000.00	$ 150,000.00
2.3	Excavation/Dredging, Material Management, and Load-out	4,600	c.y.	$ 50.00	$ 230,000.00
2.4	Transportation and Disposal				
2.4.1	Non-Hazardous Soil - Solid Waste Landfill/Daily Cover	7,820	Tons	$ 55.00	$ 430,100.00
2.5	Lab Analysis				
2.5.1	End-Point Sampling	15	Each	$ 250.00	$ 3,750.00
2.5.2	Waste Characterization	9	Each	$ 750.00	$ 6,750.00
				Item No. 2 Subtotal	**$ 896,000.00**

3	**Consulting and Engineering**				
3.1	Remedial Oversight (including CAMP Monitoring)	8	Month	$ 100,000.00	$ 800,000.00
3.2	BCP Correspondence, Monthly Reporting, Final Engineering Report	1	Est.	$ 125,000.00	$ 125,000.00
				Item No. 3 Subtotal	**$ 925,000.00**

Alternative 2 - Remedial Action Total $ 11,022,000.00

Notes:

- Costs provided are estimates and have been prepared for the purpose of comparing remedial alternatives only.
- Soil is estimated to have a density of 1.3 tons per cubic yard for the purposes of transportion and disposal estimates.

Appendix C

Green and Sustainable Remediation Analysis

Climate Screening Checklist

Background Information

- Project Manager: Nicholas Krasnecky, P.E.
- Site Name: Elmwood Preserve
- Site Number: C360239
- Site Location: 850 Dobbs Ferry Road, White Plains, New York
- Site Elevation (average above sea level): 270-380 feet
- ClimAID Region (Responding Climate Change in New York State (ClimAID) - NYSERDA): Region 5 – East Hudson and Mohawk River Valleys
- Remedial Stage/site classification:
  - Remedial Action Work Plan

- Contamination - Media Impacted/ Contaminants of Concern:
  - Soil - Semivolatile Organic Compounds (SVOCs), Metals, Polychlorinated Biphenyls (PCBs), pesticides
  - Sediment – pesticides and metals

- Proposed Remedy:
  - Excavation and off-site disposal of soils/fill above Residential/Track 2 Soil Criteria Objectives (SCOs)
  - Temporary dewatering of the pond, excavation of the pond sediments (dewatering and stabilization of sediments if needed), and off-site removal of all sediments exceeding Class A Freshwater Sediment Guidance Values
  - Screening for indications of contamination (by visual means, odor, monitoring with photoionization detector and/or X-ray fluorescence analyzer) of all excavated soil during any intrusive Site work

- What is the predicted timeframe of the remedy? Will components of the remedy still be in place in 10+ years?
  - The remedy is estimated to be implemented in approximately 9 months.
  - The remedy contains no long-term components (i.e. institutional or engineering controls) therefore it will be considered complete upon completion of active remedial components.

- Is the site in proximity to any sensitive receptors? (e.g. wetlands, waterbodies, residential properties, hospitals, schools, drinking water supplies, etc.)
  - No, the Site is not in proximity to sensitive receptors.

Is the site in a disadvantaged community (DAC) or potential environmental justice area (PEJA) (Use DECinfolocator: DECinfo Locator (ny.gov))?

☒ Yes ☐ No

If the site is in a DAC or PEJA, will climate impacts be magnified? If yes, list how and why.

☐ Yes ☒ No

The Site is located in a PEJA, but the remedy is designed to protect public health and the environment by removing contaminated materials from the community; therefore, the remedy poses no environmental justice concerns.

Should thresholds of concern be lowered to account for magnification of impacts? If yes, indicate how lower thresholds will be used in the screening.

☐ Yes ■ No

Climate Screening Table*

Potential Climate Hazards	**Relevant to the Site Location** (Y/N/NA)[1]	**Projected Change** (Reference data source/Model)[3]	**Potential to Impact Remedy** (Y/N)	**Is remedy/site already resilient?** (Y/N)[4]
Precipitation	Y	N- Based upon (Resilience Analysis and Planning Tool (RAPT) (arcgis.com))	N	N
Temperature[2] (Extreme Heat or Cold Weather Impacts)	Y	N - NYSDOH Heat Vulnerability Index - Low	N	N
Sea Level Rise	N	N/A - Site is ~270-380 feet amsl	N/A	N/A
Flooding	N	N/A - FEMA maps indicate the Site is not in a flooding hazard area	N/A	N/A
Storm Surge	N	N/A (NOAA, National Weather Service, NHC Storm Surge Risk Maps)	N/A	N/A
Wildfire	N	N/A	N/A	N/A
Drought	N	N/A	N/A	N/A
Storm Severity	N	N – Based Upon (Resilience Analysis and Planning Tool (RAPT) (arcgis.com))	N/A	N/A
Landslides	N	N/A	N/A	N/A
Other Hazards:	N	N/A	N/A	N/A

* Links to potential data sources can be found on the following page

[1] If the first column is N --> The rest of the columns will be N/A, the hazard is not applicable to the site.

[2] Extreme Heat: periods of three or more days above 90°F- Extreme Cold: Individual days with minimum temperatures at or below 0 degrees F (NYSERDA ClimAID report)

[3] List the projected change in specific terms or units e.g. inches of rain fall, feet of sea level rise, etc.

[4] If final column is Y, provide reasoning, if the final column is N --> Climate Vulnerability Assessment (CVA) required.

Required Next Steps (If no further action is required, provide justification):

No further action required. The onsite remedy includes the removal of material above residential SCOs and development of the site with single family housing. Best practices enacted during remediation mitigates and provides resiliency against potential climate change hazards.

Potential Data Sources (not an exhaustive list)- from Superfund Climate Resilience: Vulnerability Assessment | US EPA

NYSERDA ClimAID report- Responding Climate Change in New York State (ClimAID) - NYSERDA

FEMA- National Flood Hazard Layer | FEMA.gov

NOAA- National Storm Surge Risk Maps - Version 3 (noaa.gov)

Department of Agriculture Forest Service Wildfire Risk to Communities

EPA Climate Change Indicators in the United States

EPA Climate Resilience Evaluation & Awareness Tool (CREAT) | U.S. Climate Resilience Toolkit

EPA National Stormwater Calculator

National Integrated Drought Information System U.S. Drought Portal

National Interagency Coordination Center National Interagency Fire Center

National Oceanic and Atmospheric Administration Coastal Services Digital Coast

- Resources to help communities assess coastal hazards, such as the Sea Level Rise Viewer for visualizing community-level impacts of flooding or sea level rise and downloadable LIDAR data

National Oceanic and Atmospheric Administration National Centers for Environmental Information website

National Oceanic and Atmospheric Administration Sea Level Trends

National Weather Service Climate Prediction Center

National Weather Service National Hurricane Center

National Weather Service Sea, Lake, and Overland Surges from Hurricanes (SLOSH)

National Weather Service Storm Surge Hazard Maps

U.S. Federal Government Climate Resilience Toolkit: The Climate Explorer

U.S. Army Corps of Engineers Climate Prepardness and Resilience

U.S. Geological Survey Coastal Change Hazards Portal

U.S. Geological Survey Landslide Hazards Program

U.S. Geological Survey National Ground-water Monitoring Network Data Portal

U.S. Geological Survey National Climate Change Viewer

U.S. Geological Survey National Water Dashboard

U.S. Geological Survey StreamStats

NYS Department of State- Assess | Department of State (ny.gov)

NYSERDA NY Costal Floodplain Mapper- Home Page (ny.gov)

NYSDEC Costal Erosion Hazards- Coastal Areas Regulated By The CEHA Permit Program - NYDEC

NYSDOH Heat Index- health.ny.gov/environmental/weather/vulnerability_index/county_maps.htm

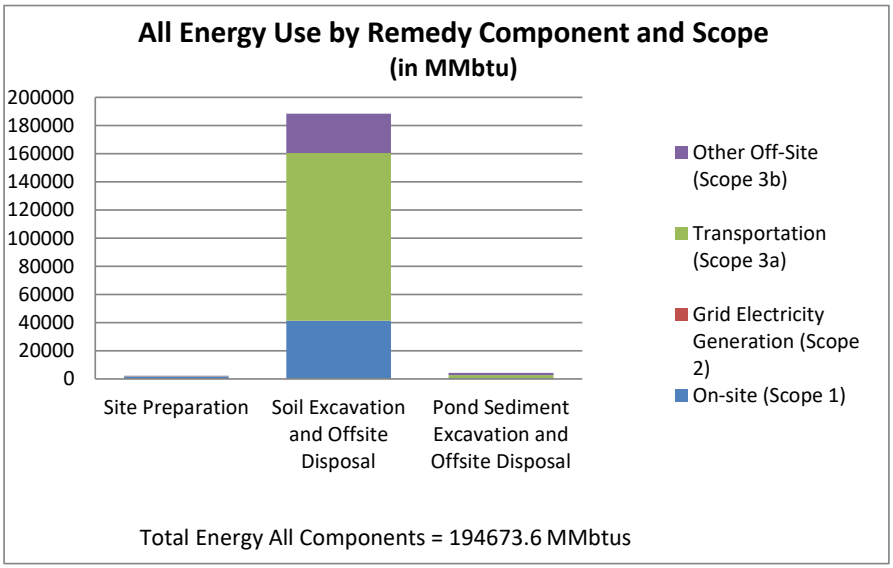
Environmental Footprint Summary

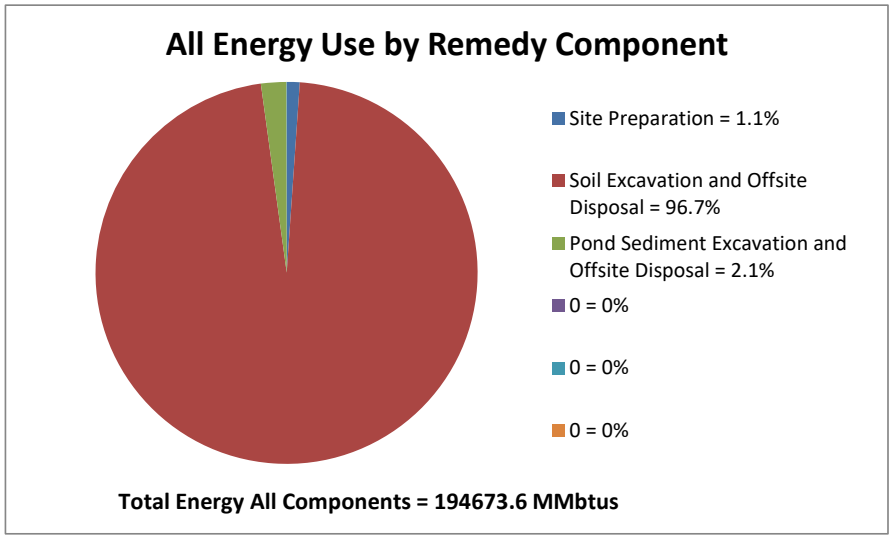
Core Element	Metric		Unit of Measure	Footprint			
				Site Preparation	Soil Excavation and Offsite Disposal	Pond Sediment Excavation and Offsite Disposal	Total
Materials & Waste	M&W-1	Refined materials used on-site	Tons	1,000.0	0.0	0.0	1,000.0
	M&W-2	% of refined materials from recycled or reused material	%	0.0%			0.0%
	M&W-3	Unrefined materials used on-site	Tons	0.000	0.000	0.000	0.0
	M&W-4	% of unrefined materials from recycled or reused material	%				
	M&W-5	On-site hazardous waste disposed of off-site	Tons	0.0	0.0	0.0	0.0
	M&W-6	On-site non-hazardous waste disposed of off-site	Tons	0.0	50,050.0	7,820.0	57,870.0
	M&W-7	Recycled or reused waste	Tons	1,000.0	457,000.0	0.0	458,000.0
	M&W-8	% of total potential waste recycled or reused	%	100.0%	90.1%	0.0%	88.8%
Water (used on-site)	W-1	Public water use	MG	0.0	0.0	0.0	0.0
	W-2	Groundwater use	MG	0.0	0.0	0.0	0.0
	W-3	Surface water use	MG	0.0	0.0	0.0	0.0
	W-4	Reclaimed water use	MG	0.0	0.0	0.0	0.0
	W-5	Storm water use	MG	0.0	0.0	0.0	0.0
	W-6	User-defined water resource #1	MG	0.0	0.0	0.0	0.0
	W-7	User-defined water resource #2	MG	0.0	0.0	0.0	0.0
	W-8	Wastewater generated	MG	0.0	0.0	0.0	0.0
Energy	E-1	Total energy used (on-site and off-site)	MMBtu	2,166.7	188,314.1	4,176.8	194,657.7
	E-2	Energy voluntarily derived from renewable resources					
	E-2A	On-site renewable energy generation or use + on-site biodiesel use + biodiesel and other renewable resource use for transportation	MMBtu	0.0	0.0	0.0	0.0
	E-2B	Voluntary purchase of renewable electricity	MWh	0.0	0.0	0.0	0.0
	E-3	Voluntary purchase of RECs	MWh	0.0	0.0	0.0	0.0
	E-4	On-site grid electricity use	MWh	0.000	0.000	0.000	0.0
Air	A-1	On-site NOx, SOx, and PM emissions	Pounds	1,714.8	34,401.6	714.4	36,830.8
	A-2	On-site HAP emissions	Pounds	0.5	11.9	0.3	12.6
	A-3	Total NOx, SOx, and PM emissions	Pounds	2,238.1	233,940.8	8,145.1	244,324.0
	A-3A	Total NOx emissions	Pounds	1,956.5	189,118.1	3,895.4	194,970.0
	A-3B	Total SOx emissions	Pounds	103.0	16,899.5	798.2	17,800.8
	A-3C	Total PM emissions	Pounds	178.5	27,923.2	3,451.5	31,553.2
	A-4	Total HAP emissions	Pounds	18.5	1,583.5	36.1	1,638.2
	A-5	Total greenhouse gas emissions	Tons CO2e*	173.4	15,312.6	332.7	15,818.7
Land & Ecosystems	Qualitative Description						

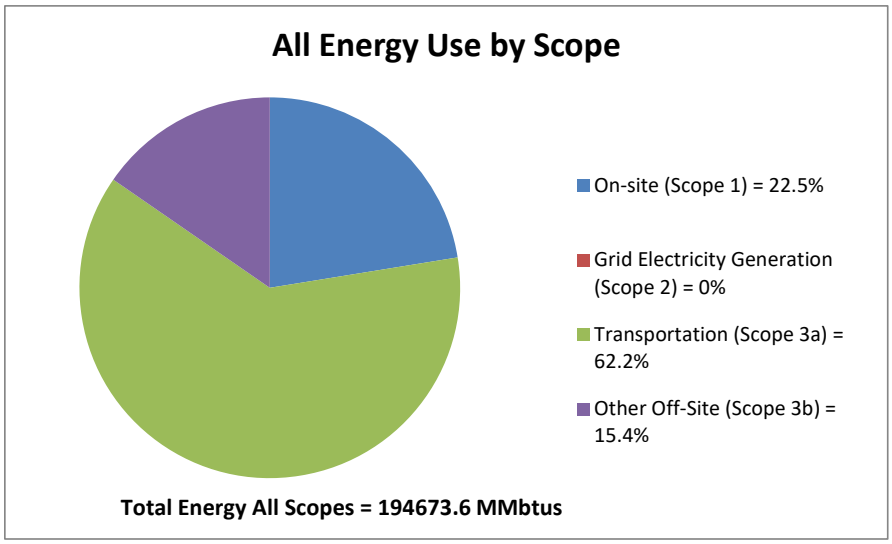
** Total greenhouse gases emissions (in CO2e) include consideration of CO2, CH4, and N2O (Nitrous oxide) emissions.*
"MMBtu" = millions of Btus
"MG" = millions of gallons
"CO2e" = carbon dioxide equivalents of global warming potential
"MWh" = megawatt hours (i.e., thousands of kilowatt-hours or millions of Watt-hours)
"Tons" = short tons (2,000 pounds)

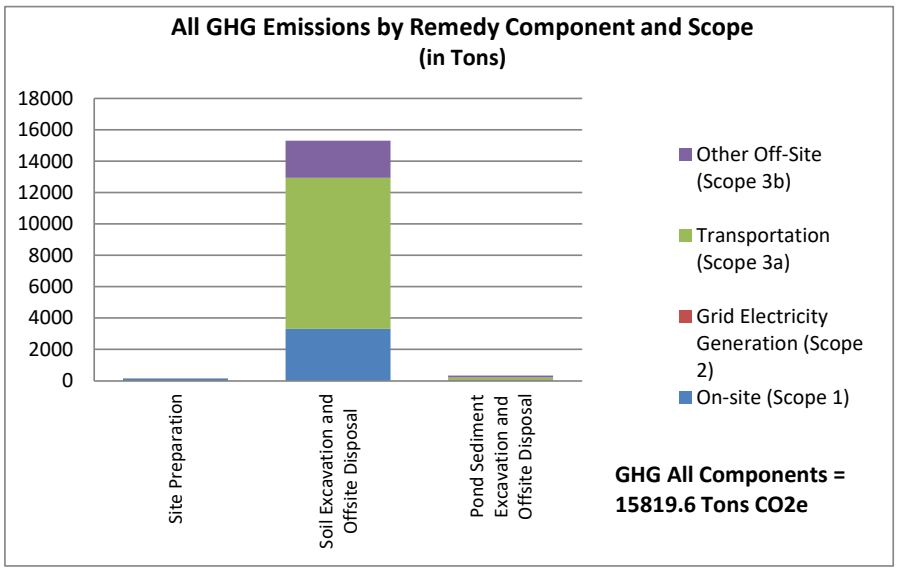
for Understanding and Reducing a Project's Environmental Footprint (EPA 542-R-12-002), February

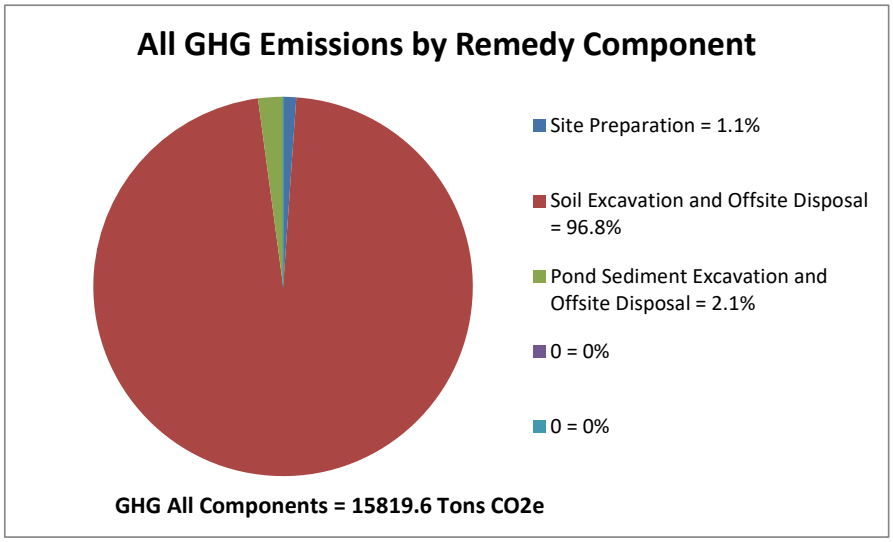
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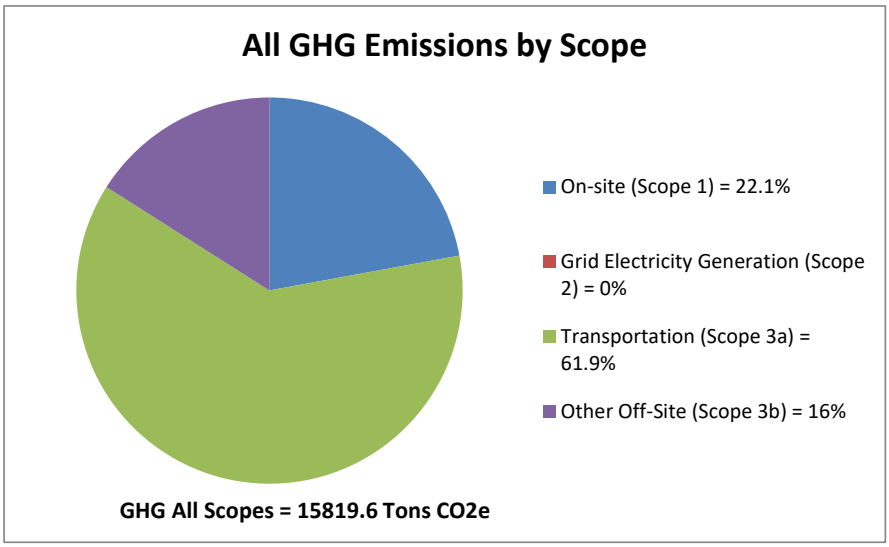

All Energy Use by Remedy Component and Scope
(in MMbtu)
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
Site Preparation
Soil Excavation and Offsite Disposal
Pond Sediment Excavation and Offsite Disposal
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
Total Energy All Components = 194673.6 MMbtus

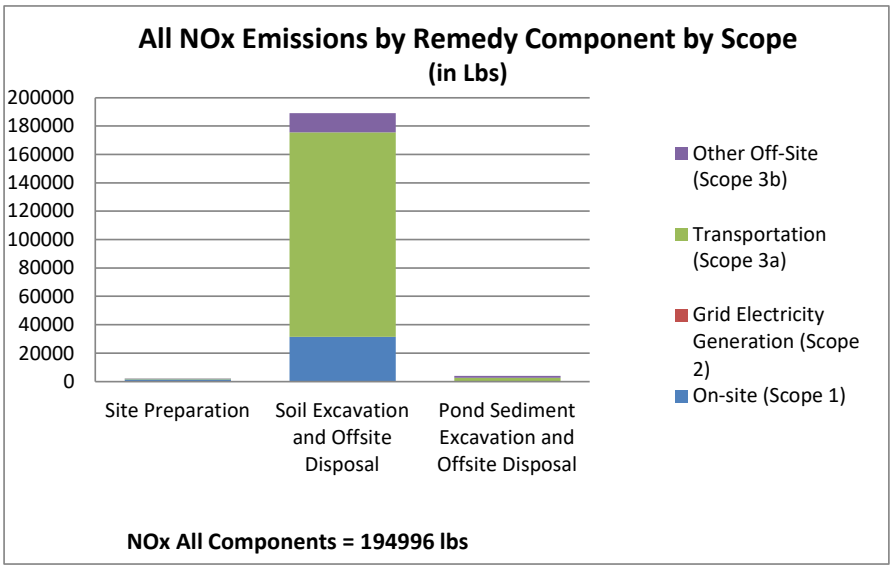

All Energy Use by Remedy Component
Site Preparation = 1.1%
Soil Excavation and Offsite Disposal = 96.7%
Pond Sediment Excavation and Offsite Disposal = 2.1%
0 = 0%
0 = 0%
0 = 0%
Total Energy All Components = 194673.6 MMbtus

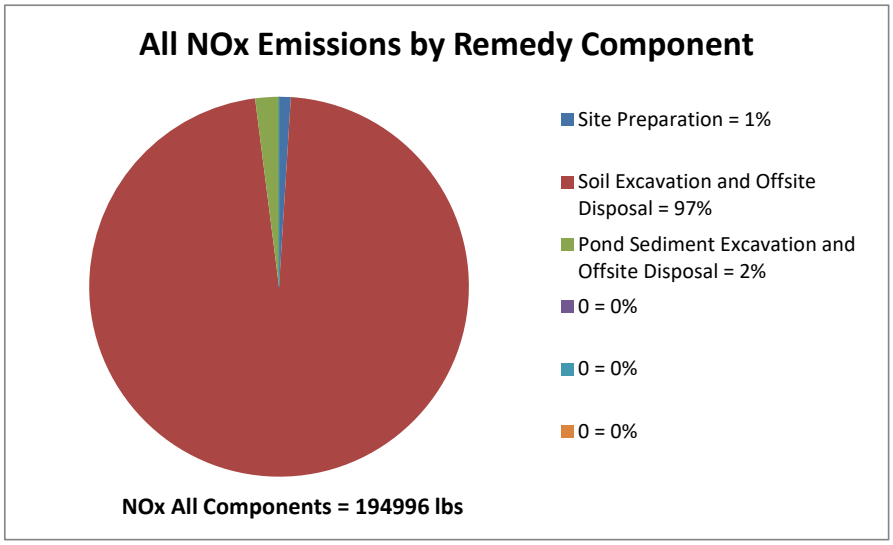

All Energy Use by Scope
On-site (Scope 1) = 22.5%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 62.2%
Other Off-Site (Scope 3b) = 15.4%
Total Energy All Scopes = 194673.6 MMbtus

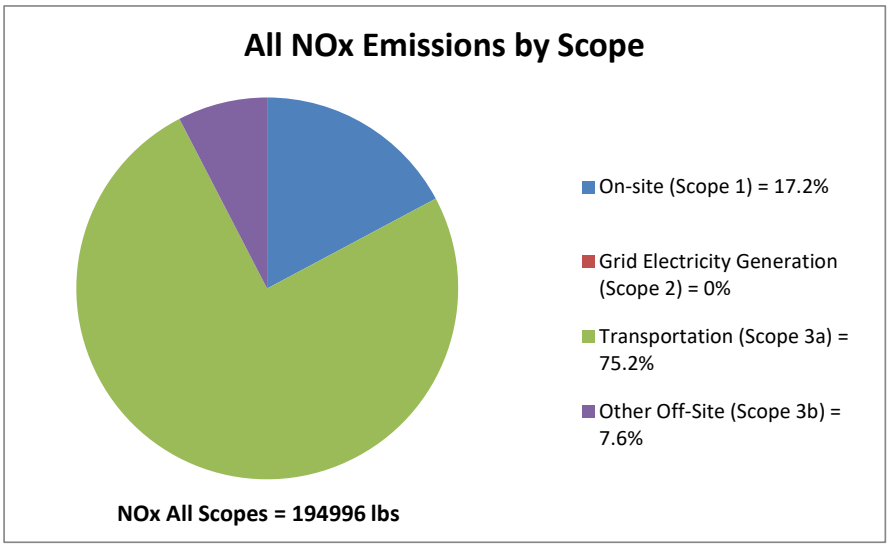

All GHG Emissions by Remedy Component and Scope
(in Tons)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Site Preparation
Soil Excavation and Offsite Disposal
Pond Sediment Excavation and Offsite Disposal
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
GHG All Components = 15819.6 Tons CO2e

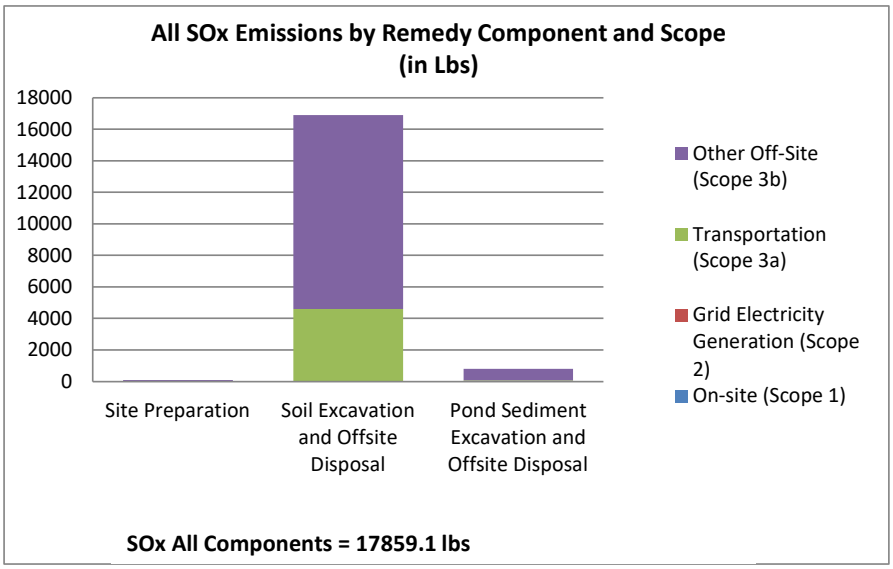

All GHG Emissions by Remedy Component
Site Preparation = 1.1%
Soil Excavation and Offsite Disposal = 96.8%
Pond Sediment Excavation and Offsite Disposal = 2.1%
0 = 0%
0 = 0%
GHG All Components = 15819.6 Tons CO2e

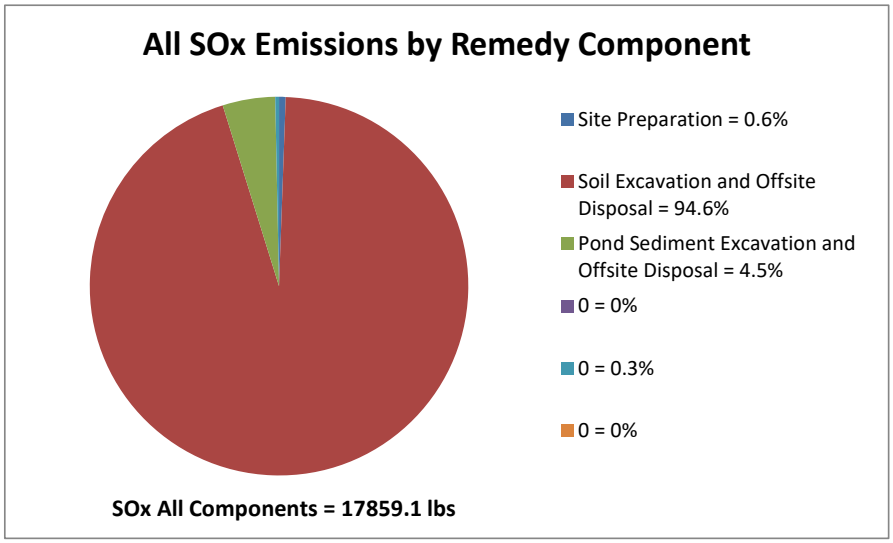

All GHG Emissions by Scope
On-site (Scope 1) = 22.1%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 61.9%
Other Off-Site (Scope 3b) = 16%
GHG All Scopes = 15819.6 Tons CO2e

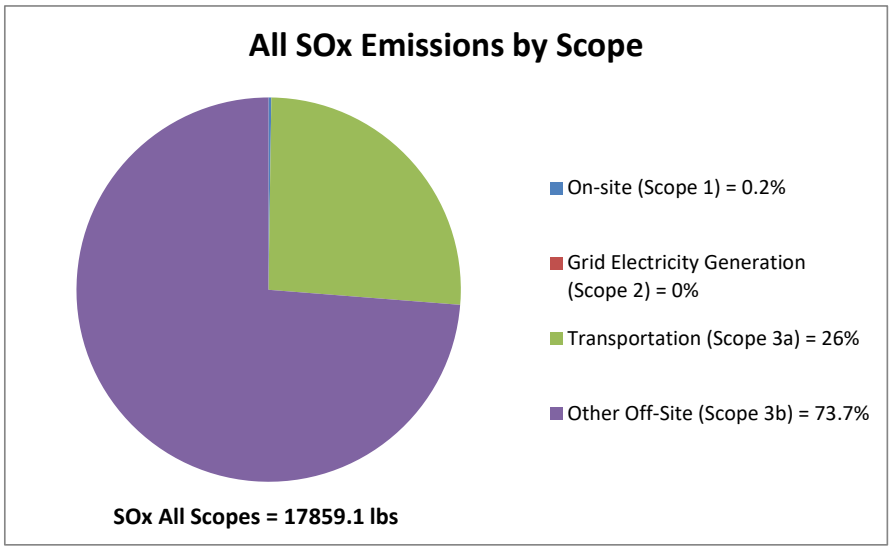

All NOx Emissions by Remedy Component by Scope
(in Lbs)
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
Site Preparation
Soil Excavation and Offsite Disposal
Pond Sediment Excavation and Offsite Disposal
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
NOx All Components = 194996 lbs

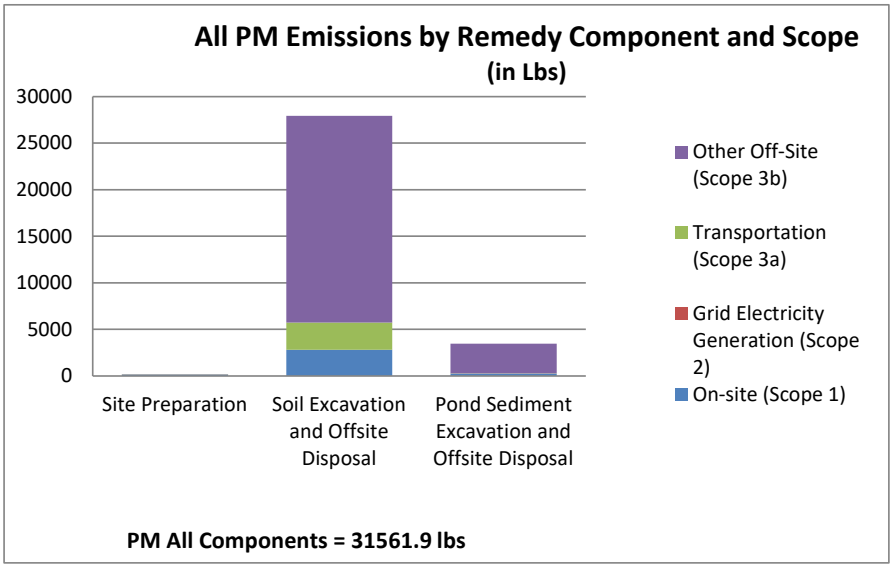

All NOx Emissions by Remedy Component
Site Preparation = 1%
Soil Excavation and Offsite Disposal = 97%
Pond Sediment Excavation and Offsite Disposal = 2%
0 = 0%
0 = 0%
0 = 0%
NOx All Components = 194996 lbs

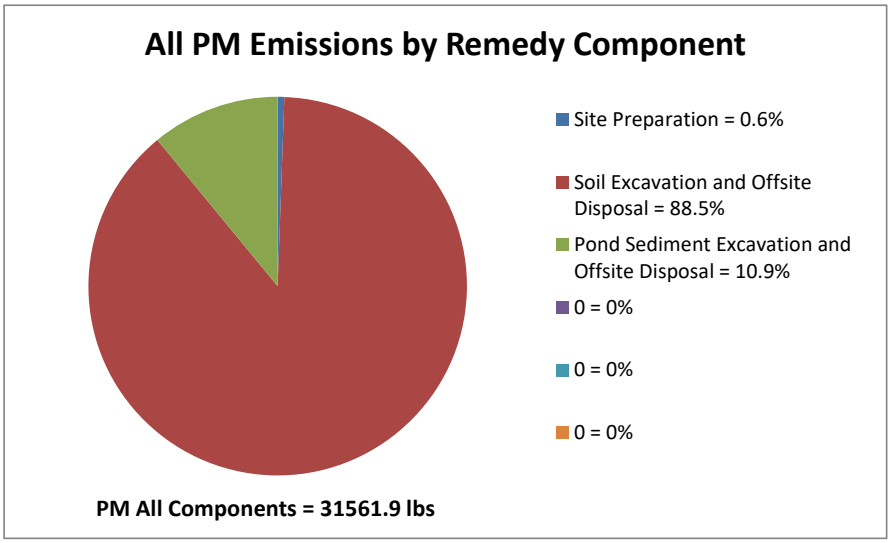

All NOx Emissions by Scope
On-site (Scope 1) = 17.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 75.2%
Other Off-Site (Scope 3b) = 7.6%
NOx All Scopes = 194996 lbs

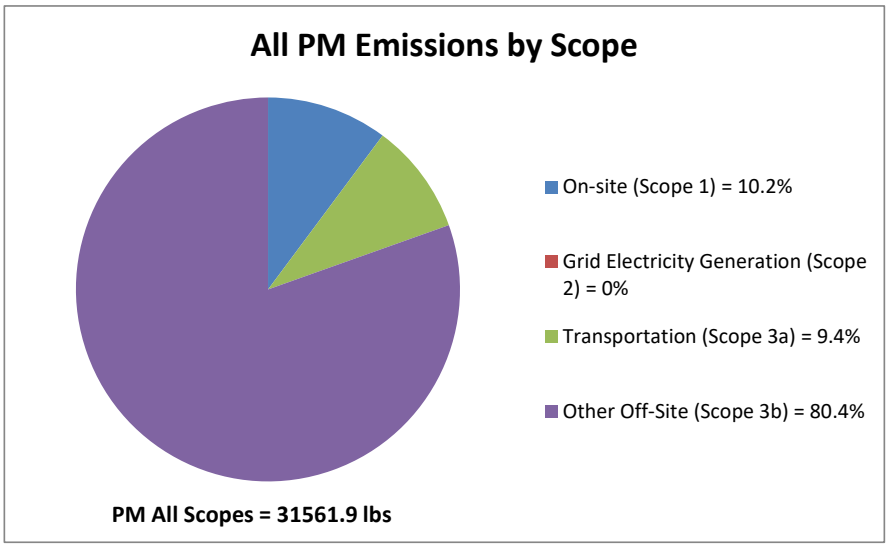

All SOx Emissions by Remedy Component and Scope (in Lbs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Site Preparation
Soil Excavation and Offsite Disposal
Pond Sediment Excavation and Offsite Disposal
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
SOx All Components = 17859.1 lbs

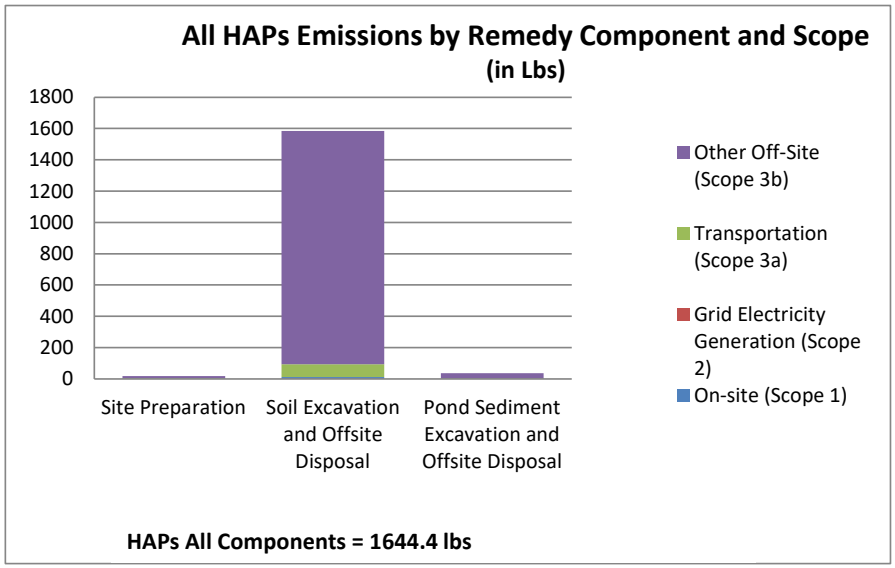

All SOx Emissions by Remedy Component
Site Preparation = 0.6%
Soil Excavation and Offsite Disposal = 94.6%
Pond Sediment Excavation and Offsite Disposal = 4.5%
0 = 0%
0 = 0.3%
0 = 0%
SOx All Components = 17859.1 lbs

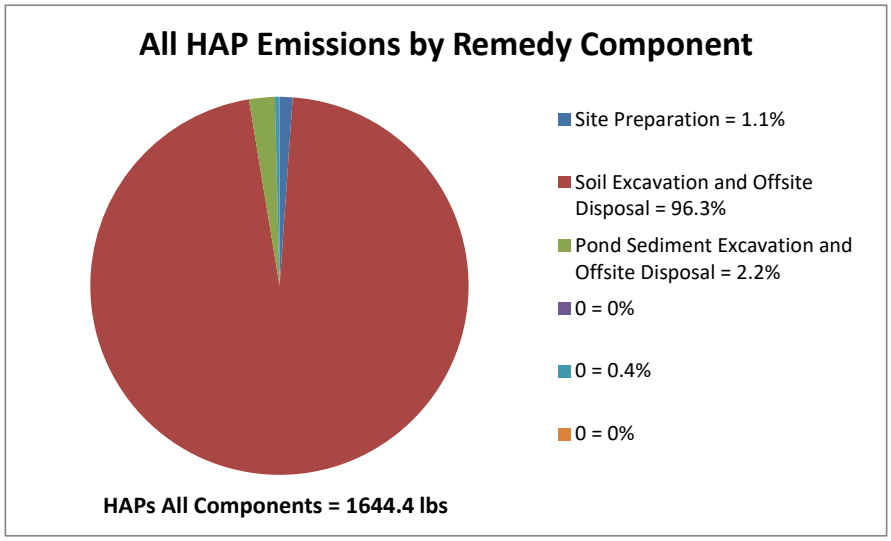

All SOx Emissions by Scope
On-site (Scope 1) = 0.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 26%
Other Off-Site (Scope 3b) = 73.7%
SOx All Scopes = 17859.1 lbs

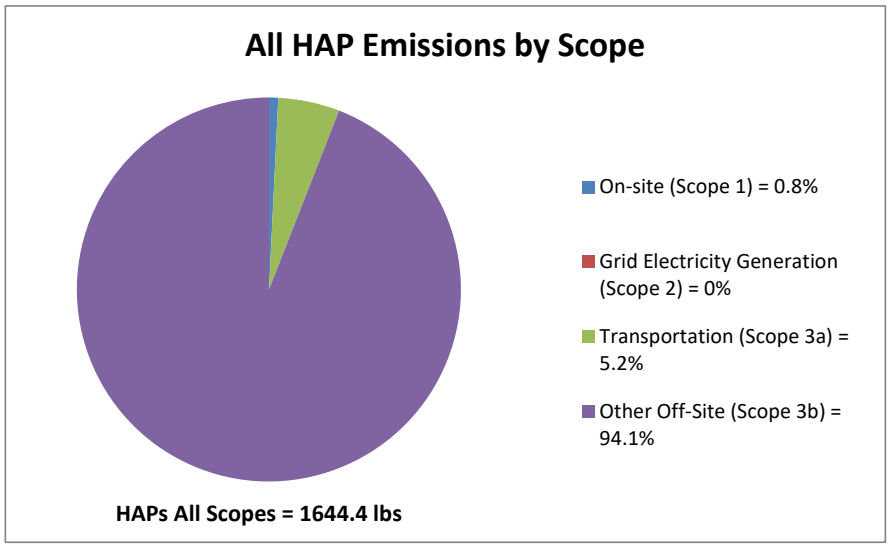

All PM Emissions by Remedy Component and Scope
(in Lbs)
30000
25000
20000
15000
10000
5000
0
Site Preparation
Soil Excavation and Offsite Disposal
Pond Sediment Excavation and Offsite Disposal
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
PM All Components = 31561.9 lbs


All PM Emissions by Remedy Component
Site Preparation = 0.6%
Soil Excavation and Offsite Disposal = 88.5%
Pond Sediment Excavation and Offsite Disposal = 10.9%
0 = 0%
0 = 0%
0 = 0%
PM All Components = 31561.9 lbs


All PM Emissions by Scope
On-site (Scope 1) = 10.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 9.4%
Other Off-Site (Scope 3b) = 80.4%
PM All Scopes = 31561.9 lbs


All HAPs Emissions by Remedy Component and Scope
(in Lbs)
1800
1600
1400
1200
1000
800
600
400
200
0
Site Preparation
Soil Excavation and Offsite Disposal
Pond Sediment Excavation and Offsite Disposal
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
HAPs All Components = 1644.4 lbs


All HAP Emissions by Remedy Component
Site Preparation = 1.1%
Soil Excavation and Offsite Disposal = 96.3%
Pond Sediment Excavation and Offsite Disposal = 2.2%
0 = 0%
0 = 0.4%
0 = 0%
HAPs All Components = 1644.4 lbs


All HAP Emissions by Scope
On-site (Scope 1) = 0.8%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 5.2%
Other Off-Site (Scope 3b) = 94.1%
HAPs All Scopes = 1644.4 lbs

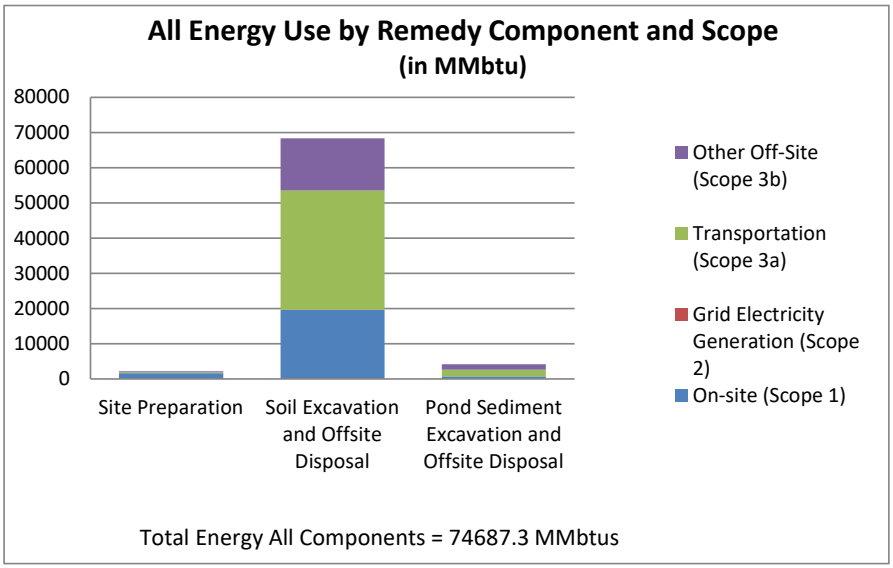
Environmental Footprint Summary

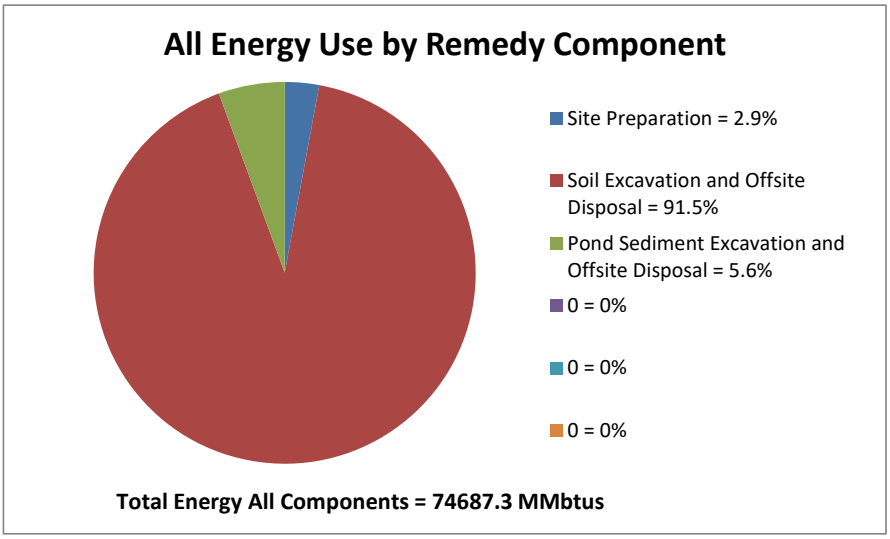
Core Element	Metric		Unit of Measure	Footprint			
				Site Preparation	Soil Excavation and Offsite Disposal	Pond Sediment Excavation and Offsite Disposal	Total
Materials & Waste	M&W-1	Refined materials used on-site	Tons	1,000.0	0.0	0.0	1,000.0
	M&W-2	% of refined materials from recycled or reused material	%	0.0%			0.0%
	M&W-3	Unrefined materials used on-site	Tons	0.000	0.000	0.000	0.0
	M&W-4	% of unrefined materials from recycled or reused material	%				
	M&W-5	On-site hazardous waste disposed of off-site	Tons	0.0	0.0	0.0	0.0
	M&W-6	On-site non-hazardous waste disposed of off-site	Tons	0.0	50,000.0	7,820.0	57,820.0
	M&W-7	Recycled or reused waste	Tons	1,000.0	93,000.0	0.0	94,000.0
	M&W-8	% of total potential waste recycled or reused	%	100.0%	65.0%	0.0%	61.9%
Water (used on-site)	W-1	Public water use	MG	0.0	0.0	0.0	0.0
	W-2	Groundwater use	MG	0.0	0.0	0.0	0.0
	W-3	Surface water use	MG	0.0	0.0	0.0	0.0
	W-4	Reclaimed water use	MG	0.0	0.0	0.0	0.0
	W-5	Storm water use	MG	0.0	0.0	0.0	0.0
	W-6	User-defined water resource #1	MG	0.0	0.0	0.0	0.0
	W-7	User-defined water resource #2	MG	0.0	0.0	0.0	0.0
	W-8	Wastewater generated	MG	0.0	0.0	0.0	0.0
Energy	E-1	Total energy used (on-site and off-site)	MMBtu	2,166.7	68,341.4	4,179.3	74,687.3
	E-2	Energy voluntarily derived from renewable resources					
	E-2A	On-site renewable energy generation or use + on-site biodiesel use + biodiesel and other renewable resource use for transportation	MMBtu	0.0	0.0	0.0	0.0
	E-2B	Voluntary purchase of renewable electricity	MWh	0.0	0.0	0.0	0.0
	E-3	Voluntary purchase of RECs	MWh	0.0	0.0	0.0	0.0
	E-4	On-site grid electricity use	MWh	0.000	0.000	0.000	0.0
Air	A-1	On-site NOx, SOx, and PM emissions	Pounds	1,714.8	15,566.5	714.4	17,995.7
	A-2	On-site HAP emissions	Pounds	0.5	5.7	0.3	6.4
	A-3	Total NOx, SOx, and PM emissions	Pounds	2,238.1	96,371.6	8,148.1	106,757.8
	A-3A	Total NOx emissions	Pounds	1,956.5	64,572.3	3,898.2	70,427.0
	A-3B	Total SOx emissions	Pounds	103.0	8,836.1	798.4	9,737.5
	A-3C	Total PM emissions	Pounds	178.5	22,963.1	3,451.6	26,593.2
	A-4	Total HAP emissions	Pounds	18.5	688.9	36.2	743.6
	A-5	Total greenhouse gas emissions	Tons CO2e*	173.4	5,529.6	332.9	6,035.8
Land & Ecosystems	Qualitative Description						

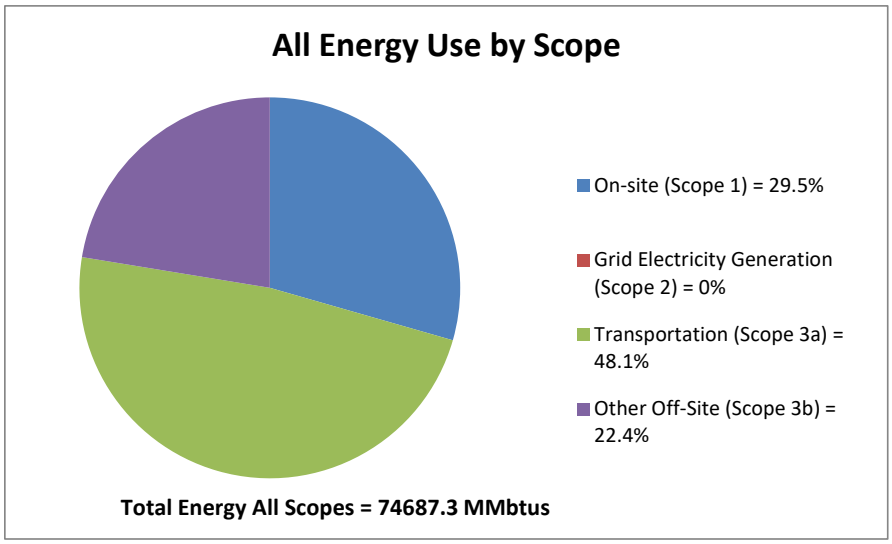
** Total greenhouse gases emissions (in CO2e) include consideration of CO2, CH4, and N2O (Nitrous oxide) emissions.*
"MMBtu" = millions of Btus
"MG" = millions of gallons
"CO2e" = carbon dioxide equivalents of global warming potential
"MWh" = megawatt hours (i.e., thousands of kilowatt-hours or millions of Watt-hours)
"Tons" = short tons (2,000 pounds)

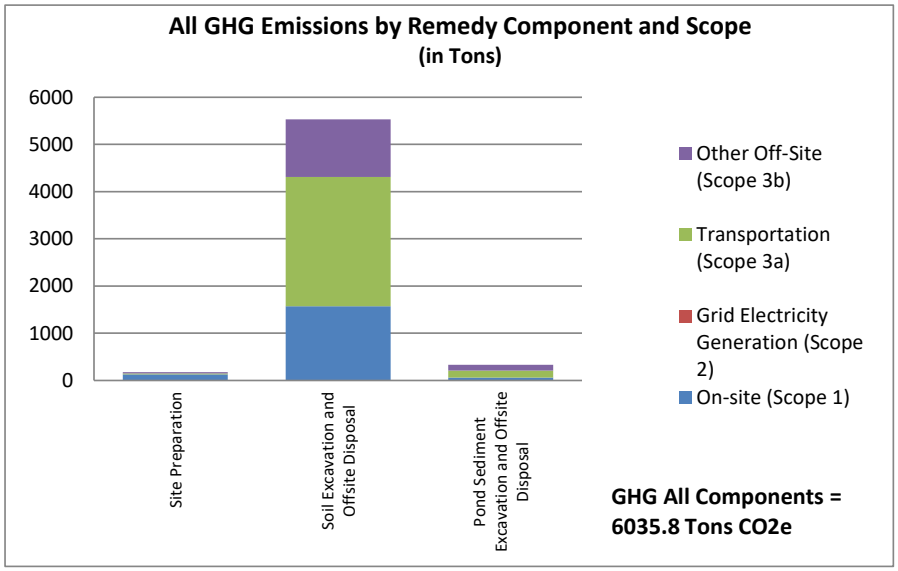
for Understanding and Reducing a Project's Environmental Footprint (EPA 542-R-12-002), February

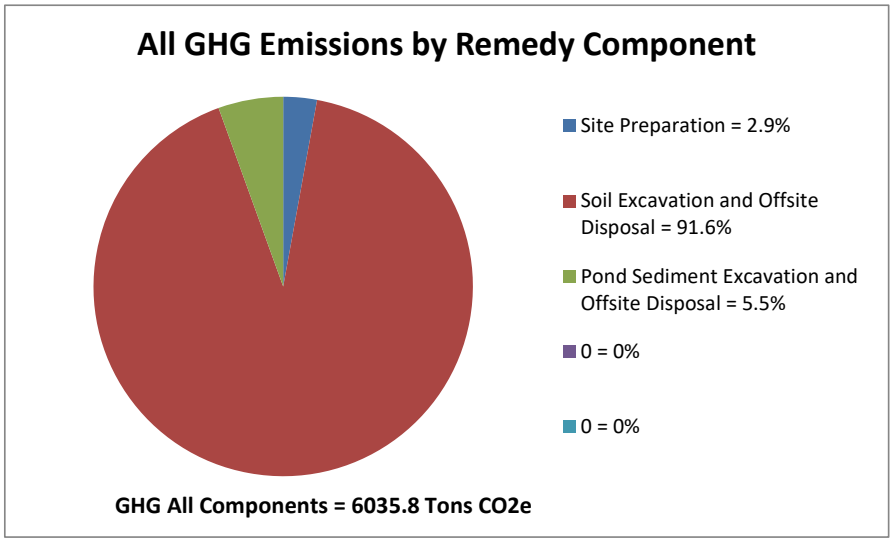
Notes:

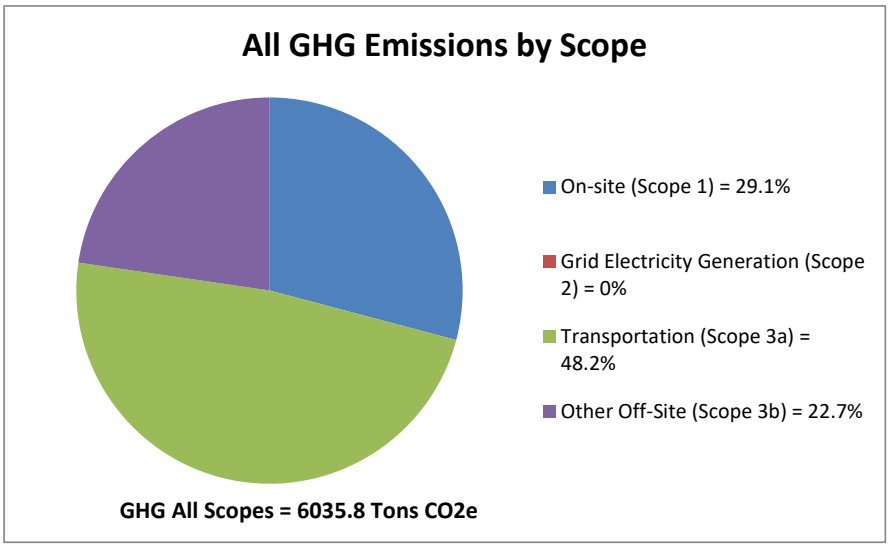

All Energy Use by Remedy Component and Scope
(in MMbtu)
80000
70000
60000
50000
40000
30000
20000
10000
0
Site Preparation
Soil Excavation and Offsite Disposal
Pond Sediment Excavation and Offsite Disposal
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
Total Energy All Components = 74687.3 MMbtus

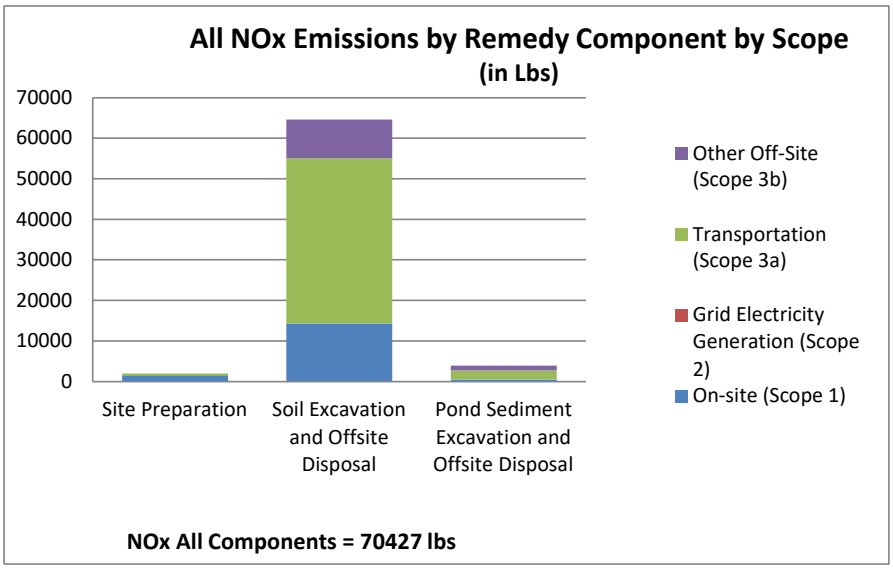

All Energy Use by Remedy Component
Site Preparation = 2.9%
Soil Excavation and Offsite Disposal = 91.5%
Pond Sediment Excavation and Offsite Disposal = 5.6%
0 = 0%
0 = 0%
0 = 0%
Total Energy All Components = 74687.3 MMbtus

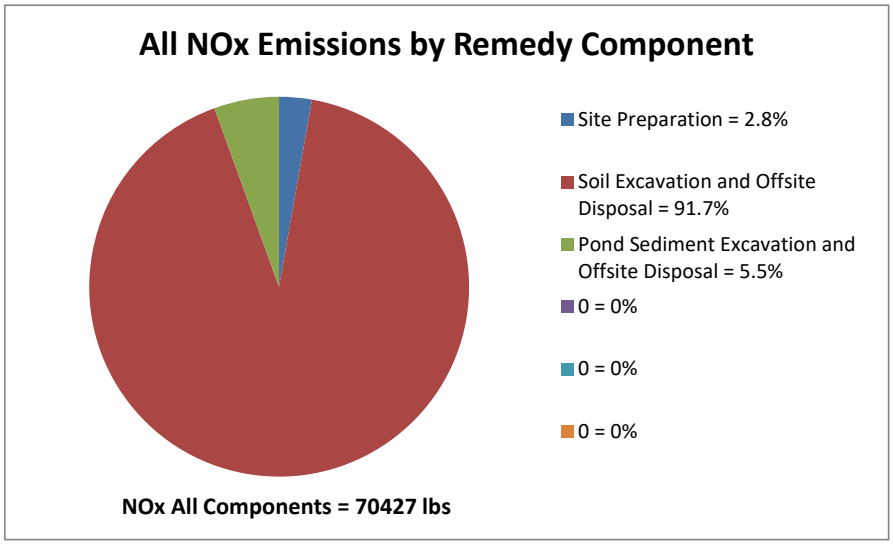

All Energy Use by Scope
On-site (Scope 1) = 29.5%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 48.1%
Other Off-Site (Scope 3b) = 22.4%
Total Energy All Scopes = 74687.3 MMbtus

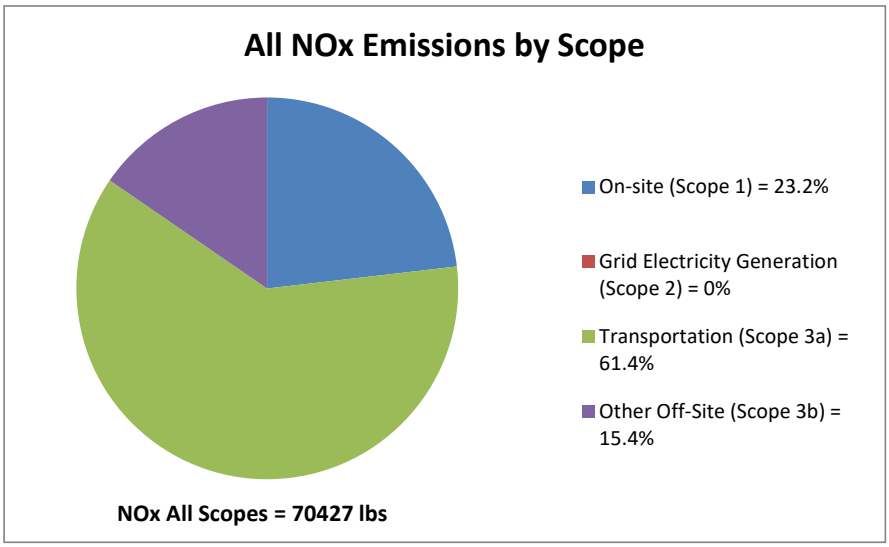

All GHG Emissions by Remedy Component and Scope
(in Tons)
6000
5000
4000
3000
2000
1000
0
Site Preparation
Soil Excavation and Offsite Disposal
Pond Sediment Excavation and Offsite Disposal
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
GHG All Components = 6035.8 Tons CO2e

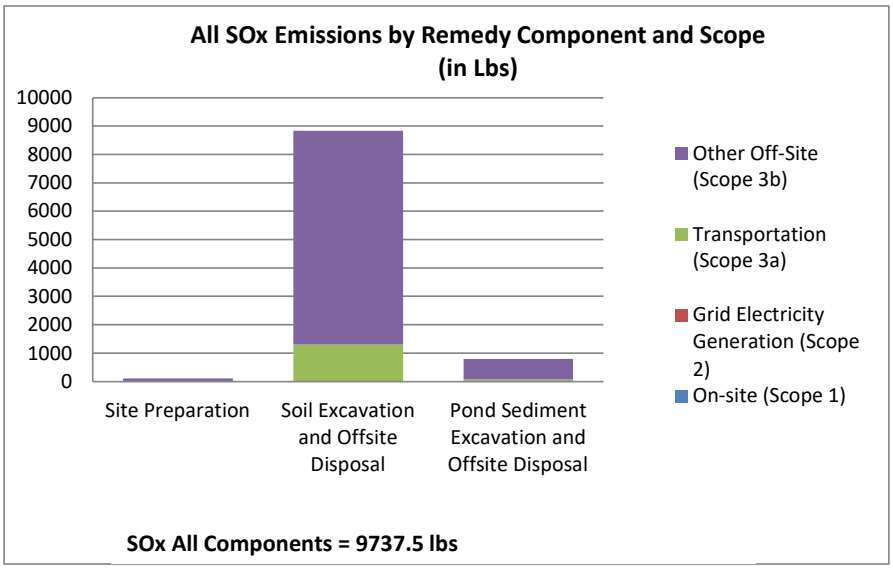

All GHG Emissions by Remedy Component
Site Preparation = 2.9%
Soil Excavation and Offsite Disposal = 91.6%
Pond Sediment Excavation and Offsite Disposal = 5.5%
0 = 0%
0 = 0%
GHG All Components = 6035.8 Tons CO2e

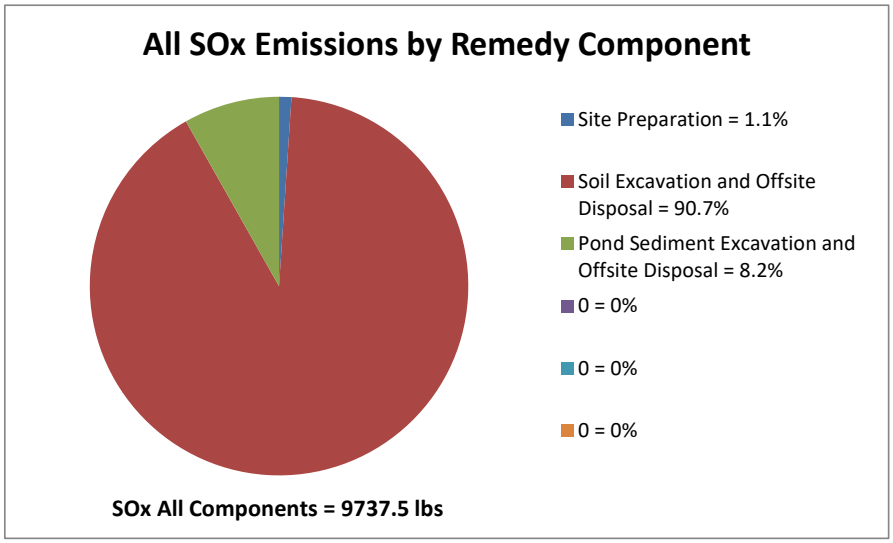

All GHG Emissions by Scope
On-site (Scope 1) = 29.1%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 48.2%
Other Off-Site (Scope 3b) = 22.7%
GHG All Scopes = 6035.8 Tons CO2e

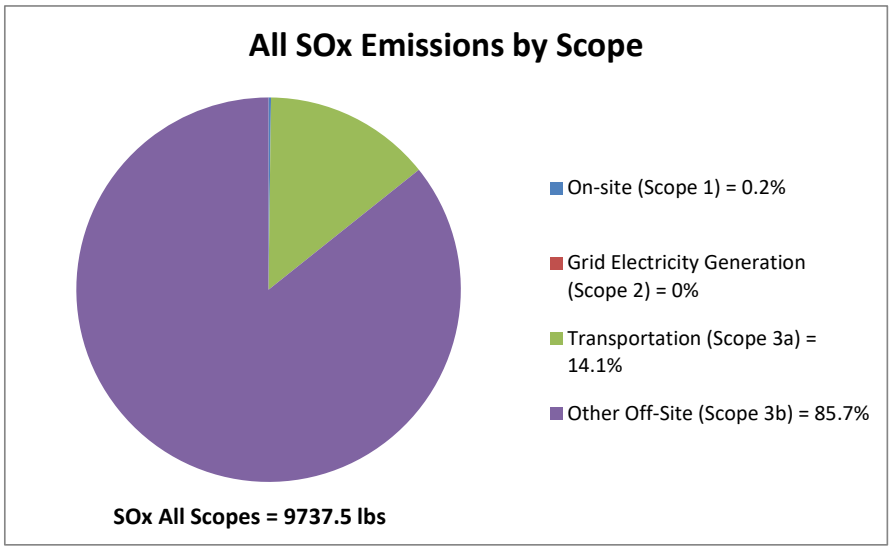

All NOx Emissions by Remedy Component by Scope
(in Lbs)
70000
60000
50000
40000
30000
20000
10000
0
Site Preparation
Soil Excavation and Offsite Disposal
Pond Sediment Excavation and Offsite Disposal
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
NOx All Components = 70427 lbs

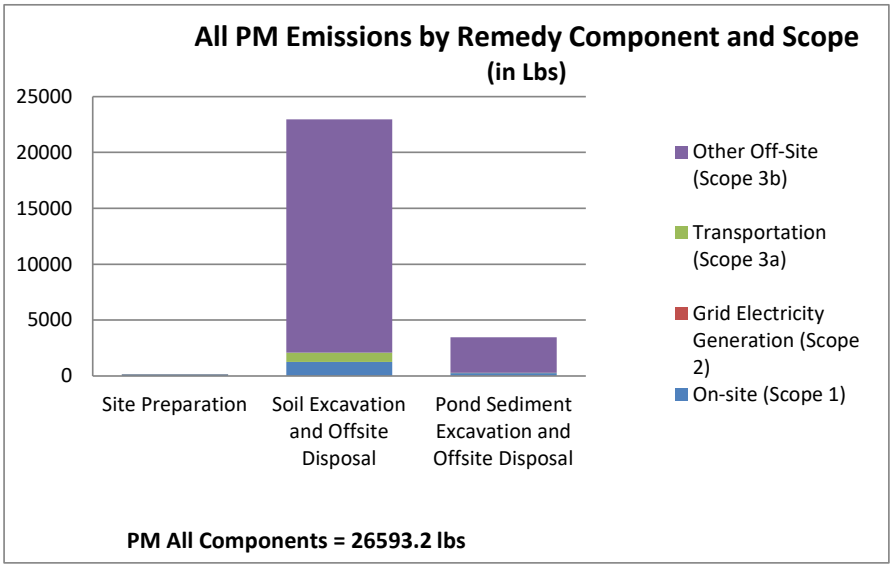

All NOx Emissions by Remedy Component
Site Preparation = 2.8%
Soil Excavation and Offsite Disposal = 91.7%
Pond Sediment Excavation and Offsite Disposal = 5.5%
0 = 0%
0 = 0%
0 = 0%
NOx All Components = 70427 lbs

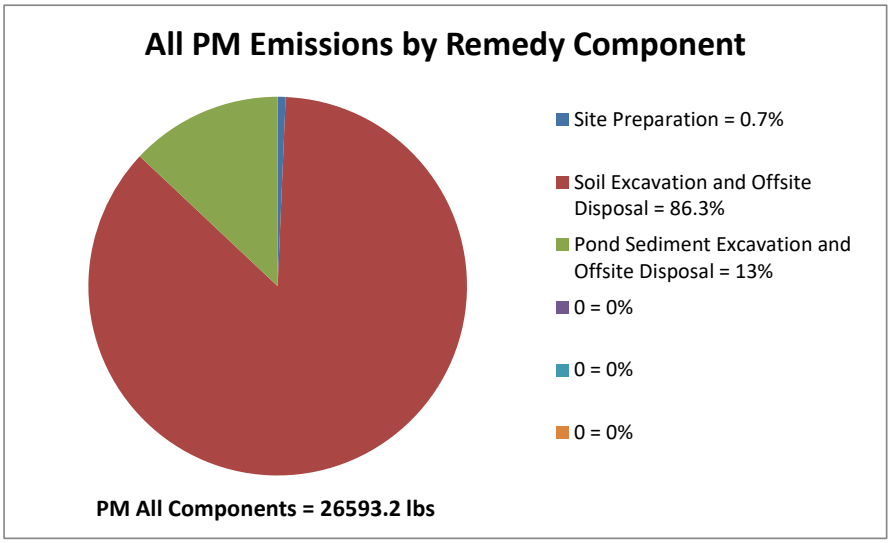

All NOx Emissions by Scope
On-site (Scope 1) = 23.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 61.4%
Other Off-Site (Scope 3b) = 15.4%
NOx All Scopes = 70427 lbs

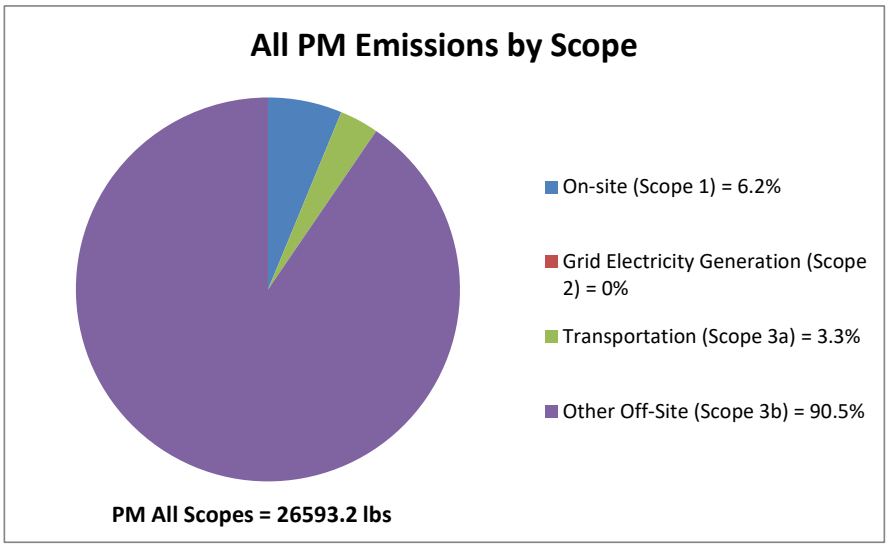

All SOx Emissions by Remedy Component and Scope (in Lbs)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Site Preparation
Soil Excavation and Offsite Disposal
Pond Sediment Excavation and Offsite Disposal
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
SOx All Components = 9737.5 lbs

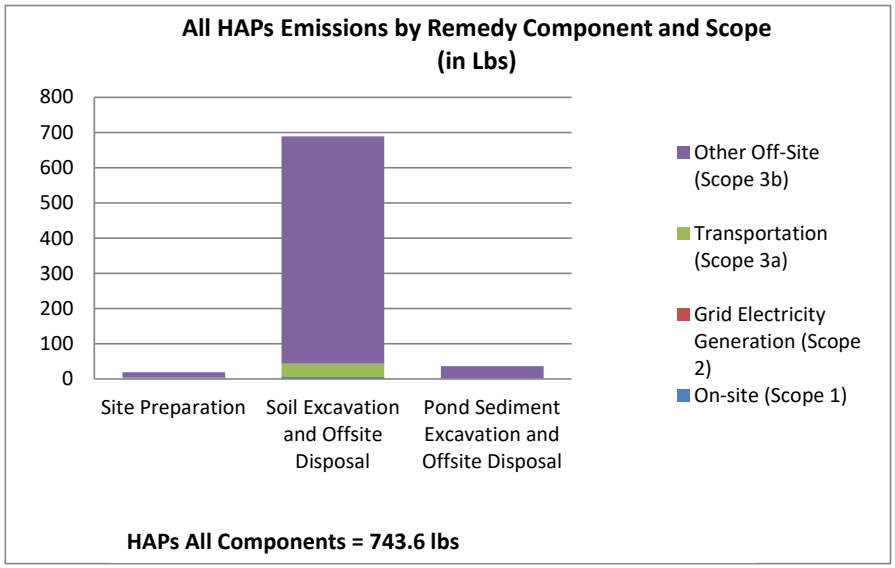

All SOx Emissions by Remedy Component
Site Preparation = 1.1%
Soil Excavation and Offsite Disposal = 90.7%
Pond Sediment Excavation and Offsite Disposal = 8.2%
0 = 0%
0 = 0%
0 = 0%
SOx All Components = 9737.5 lbs

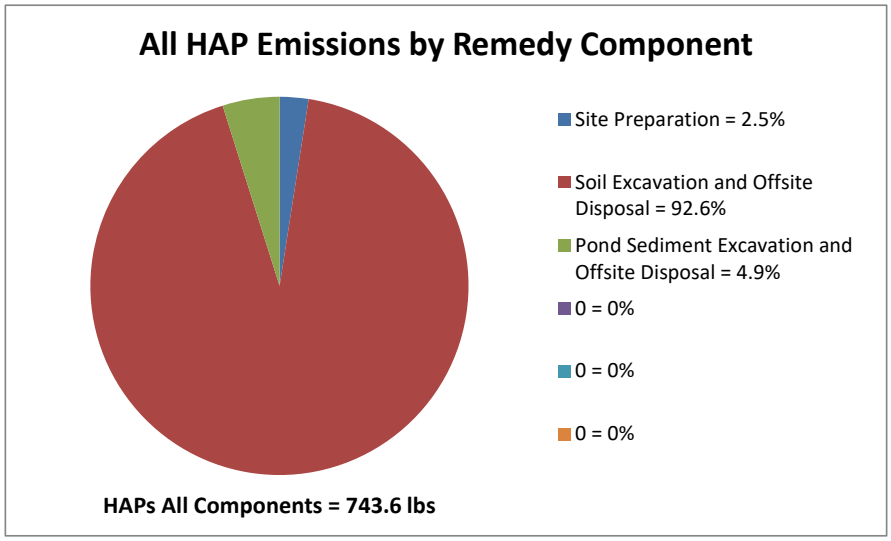

All SOx Emissions by Scope
On-site (Scope 1) = 0.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 14.1%
Other Off-Site (Scope 3b) = 85.7%
SOx All Scopes = 9737.5 lbs

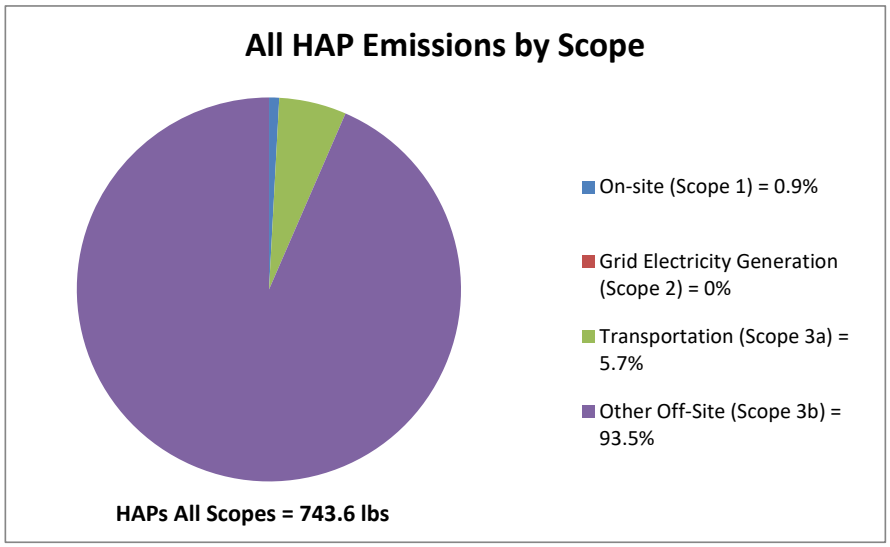

All PM Emissions by Remedy Component and Scope
(in Lbs)
25000
20000
15000
10000
5000
0
Site Preparation
Soil Excavation and Offsite Disposal
Pond Sediment Excavation and Offsite Disposal
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
PM All Components = 26593.2 lbs


All PM Emissions by Remedy Component
Site Preparation = 0.7%
Soil Excavation and Offsite Disposal = 86.3%
Pond Sediment Excavation and Offsite Disposal = 13%
0 = 0%
0 = 0%
0 = 0%
PM All Components = 26593.2 lbs


All PM Emissions by Scope
On-site (Scope 1) = 6.2%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 3.3%
Other Off-Site (Scope 3b) = 90.5%
PM All Scopes = 26593.2 lbs


All HAPs Emissions by Remedy Component and Scope (in Lbs)
800
700
600
500
400
300
200
100
0
Site Preparation
Soil Excavation and Offsite Disposal
Pond Sediment Excavation and Offsite Disposal
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
HAPs All Components = 743.6 lbs


All HAP Emissions by Remedy Component
Site Preparation = 2.5%
Soil Excavation and Offsite Disposal = 92.6%
Pond Sediment Excavation and Offsite Disposal = 4.9%
0 = 0%
0 = 0%
0 = 0%
HAPs All Components = 743.6 lbs


All HAP Emissions by Scope
On-site (Scope 1) = 0.9%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 5.7%
Other Off-Site (Scope 3b) = 93.5%
HAPs All Scopes = 743.6 lbs

Appendix D

Community Air Monitoring Plan

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion 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 over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m^3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m^3 or less at the monitoring point.

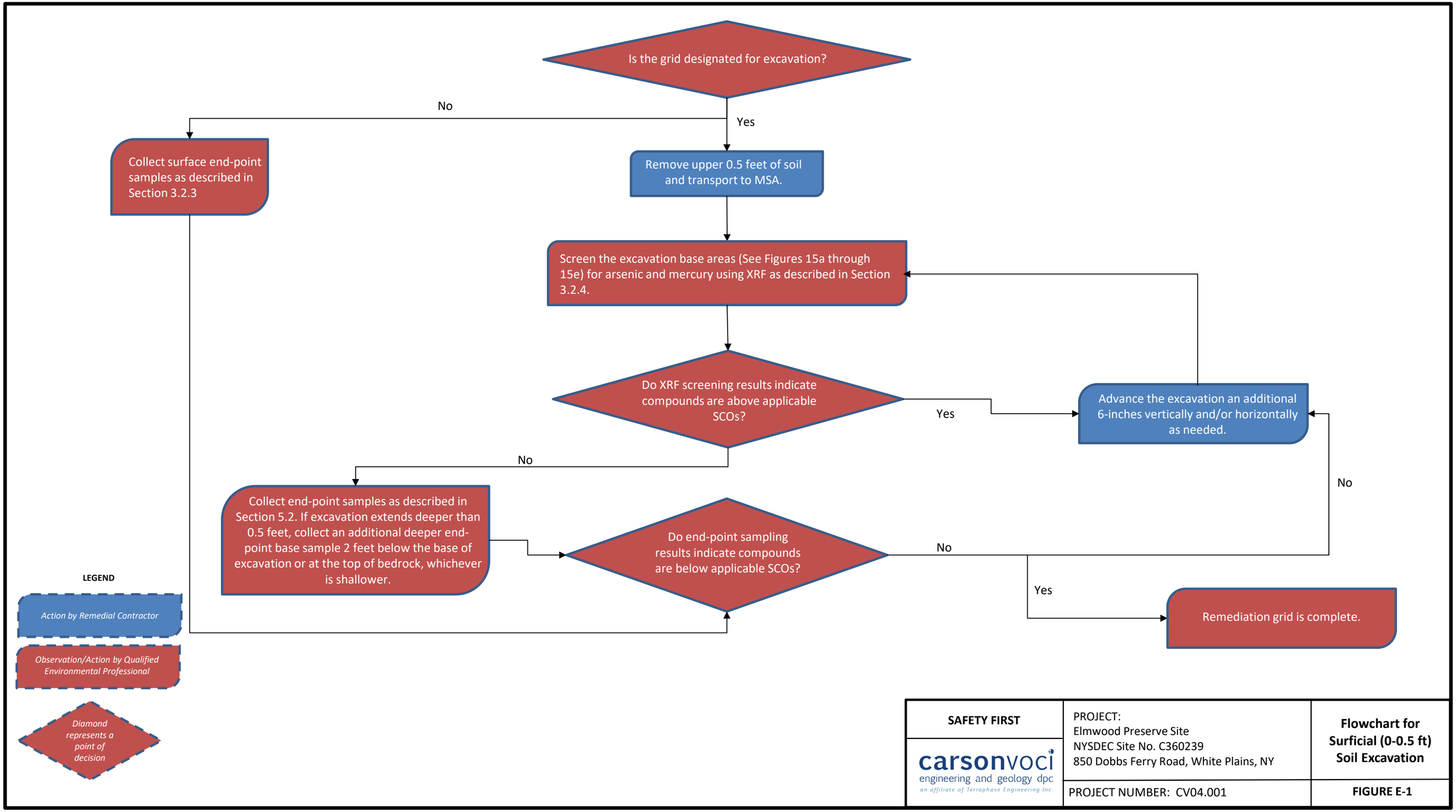
- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

Special Requirements for Indoor Work With Co-Located Residences or Facilities

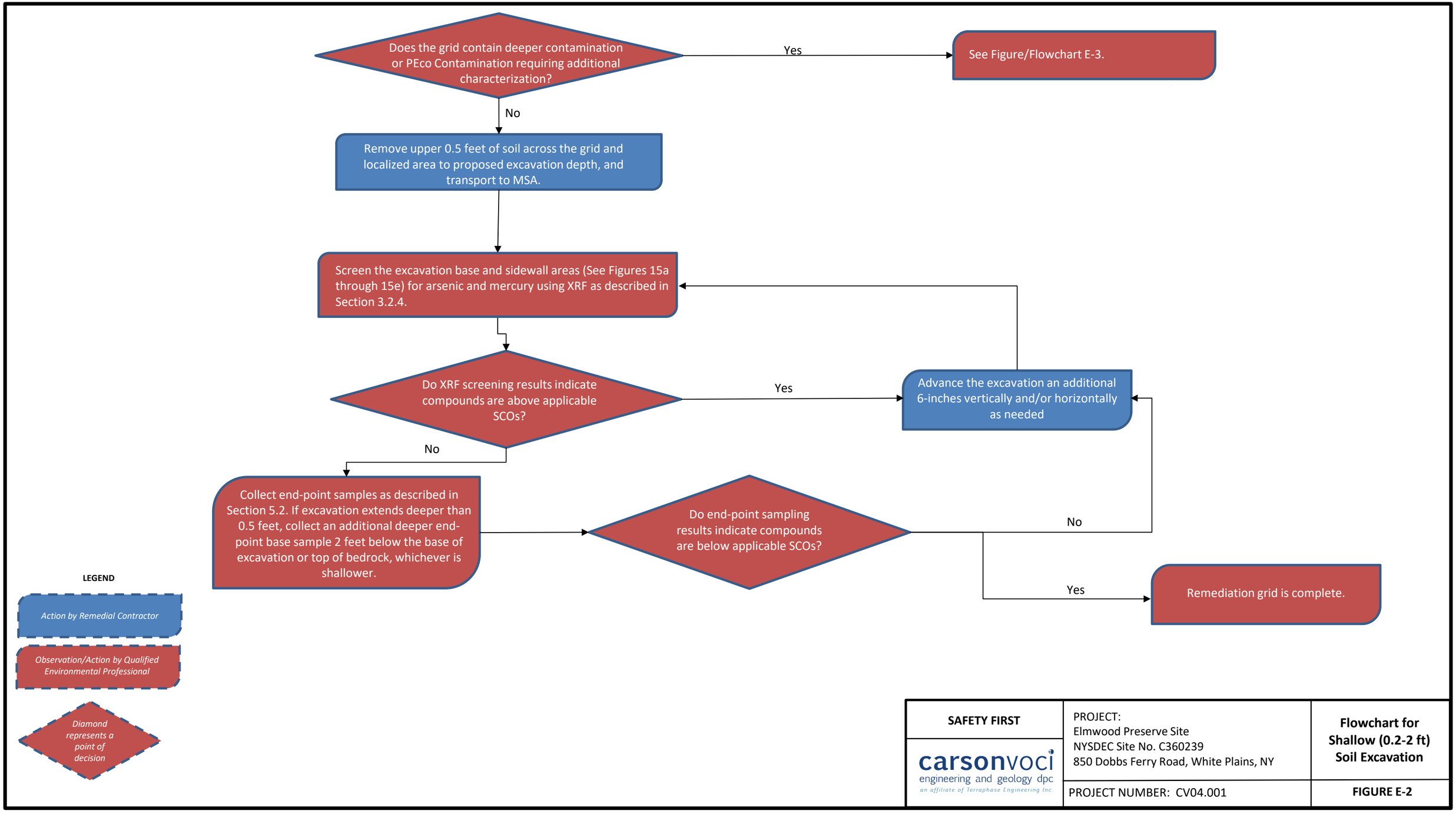
Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements shall be as stated above under "Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures" except that in this instance "nearby/occupied structures" would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential vapor pathways (openings, conduits, etc.) relative to adjoining rooms, should be understood and the monitoring locations established accordingly. In these situations, it is strongly recommended that exhaust fans or other engineering controls be used to create negative air pressure within the work area during remedial activities. Additionally, it is strongly recommended that the planned work be implemented during hours (e.g. weekends or evenings) when building occupancy is at a minimum.

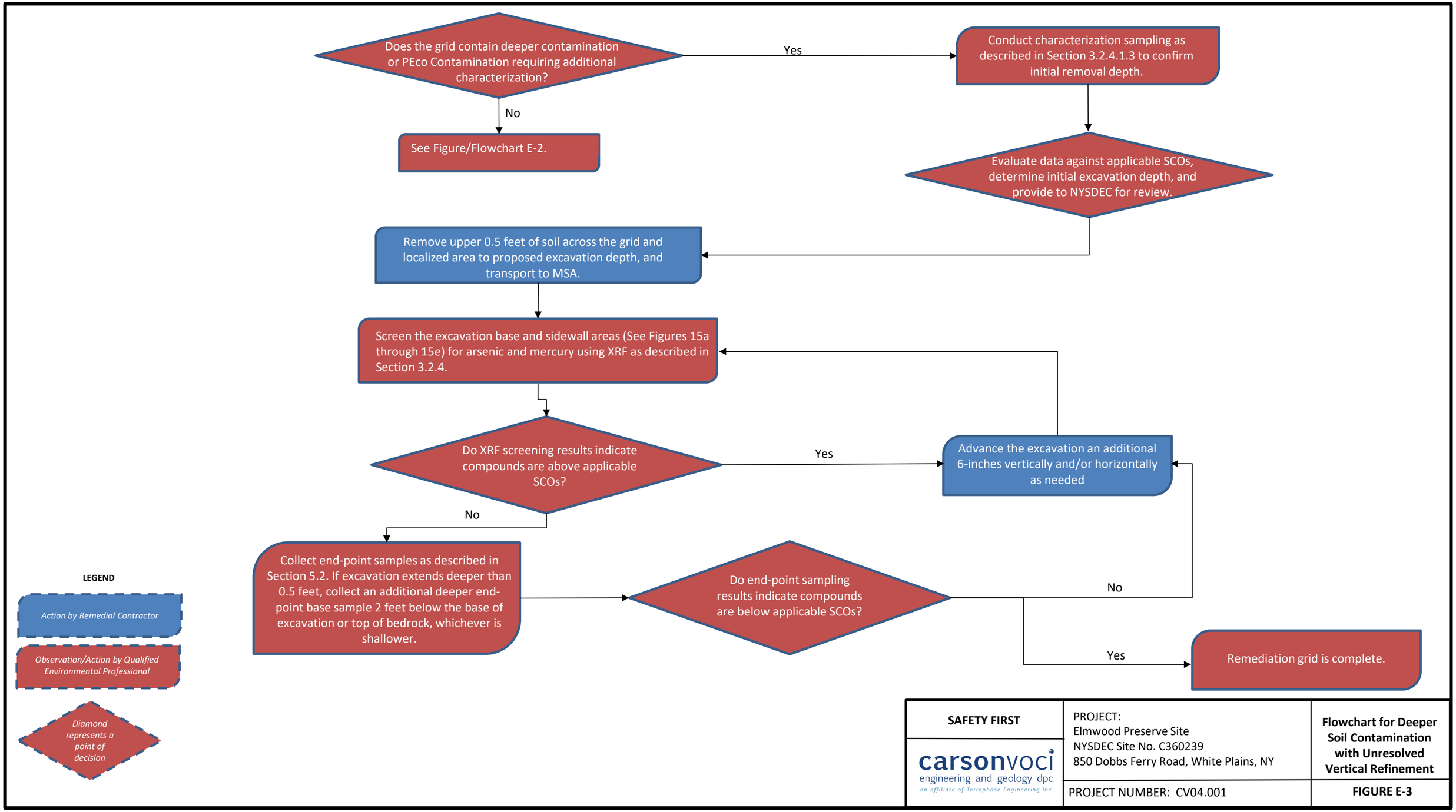
Appendix E

Excavation Scenario Flowcharts



SAFETY FIRST	PROJECT: Elmwood Preserve Site NYSDEC Site No. C360239 850 Dobbs Ferry Road, White Plains, NY	**Flowchart for Surficial (0-0.5 ft) Soil Excavation**
carsonVOCI engineering and geology dpc an affiliate of Terraphase Engineering Inc.	PROJECT NUMBER: CV04.001	**FIGURE E-1**


Does the grid contain deeper contamination or PEco Contamination requiring additional characterization?
Yes
See Figure/Flowchart E-3.
No
Remove upper 0.5 feet of soil across the grid and localized area to proposed excavation depth, and transport to MSA.
Screen the excavation base and sidewall areas (See Figures 15a through 15e) for arsenic and mercury using XRF as described in Section 3.2.4.
Do XRF screening results indicate compounds are above applicable SCOs?
Yes
Advance the excavation an additional 6-inches vertically and/or horizontally as needed
No
Collect end-point samples as described in Section 5.2. If excavation extends deeper than 0.5 feet, collect an additional deeper end-point base sample 2 feet below the base of excavation or top of bedrock, whichever is shallower.
Do end-point sampling results indicate compounds are below applicable SCOs?
No
Yes
Remediation grid is complete.
LEGEND
Action by Remedial Contractor
Observation/Action by Qualified Environmental Professional
Diamond represents a point of decision
SAFETY FIRST
carsonVOCI
engineering and geology dpc
an affiliate of Terraphase Engineering Inc.
PROJECT:
Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, NY
PROJECT NUMBER: CV04.001
Flowchart for Shallow (0.2-2 ft) Soil Excavation
FIGURE E-2



SAFETY FIRST	PROJECT: Elmwood Preserve Site NYSDEC Site No. C360239 850 Dobbs Ferry Road, White Plains, NY	**Flowchart for Deeper Soil Contamination with Unresolved Vertical Refinement**
carsonVOCI engineering and geology dpc an affiliate of Terraphase Engineering Inc.	PROJECT NUMBER: CV04.001	**FIGURE E-3**

Appendix F

Soil Vapor Intrusion Evaluation

Appendix E. Example Matrix for Supporting Lines-of-Evidence Approach in Evaluation of Vapor Intrusion Potential

DRAFT

Sample ID	Known/ Suspected VOC Source?	Analyte	Soil Vapor Analytical Results			Nature/Extent				Pathway Complete or Potentially Complete? (Yes/No)	Conclusions [c]	
			Pre-remediation Detected Concentration	*Post-remediation Detected Concentration (if collected)*	*Data Quality Flags*	*Detected in Soil?*	*Detected in Groundwater?*	*Detected in Ambient Air?* [a]	*Concentration > Ambient Air?*		*VI Concern? (Yes/No)*	*Rationale*
SV-#	(yes/no)-if yes, specify (fill, building debris, former tank location etc.)	Analyte #1										
		Analyte #2										
		Analyte #3										
		Analyte #4										

Notes:

a. Collection of outdoor air samples recommended to characterize ambient/background VOC concentrations. If outdoor air samples are not collected, then use NYSDOH residential outdoor air concentrations, Table C1: Study of volatile organic chemicals in air of fuel oil heated homes, of NYSDOH 2006, Guidance for Evaluating Soil Vapor Intrusion, Appendix C.

b. NYSDOH air screening criteria divided by default attenuation factor. Where NYSDOH criteria are not available, screening criteria will be obtained from the USEPA residential soil gas vapor intrusion screening level, based on a hazard quotient of 0.1 and cancer risk

c. The following will be used for the lines-of-evidence approach in assessment of vapor intrusion potential:

1. If detected in soil gas and soil and/or groundwater --> considered site-related. Continue to Step #3.
2. If not detected in either soil or groundwater but detected in soil gas at similar levels in ambient air then considered background related; exclude as COC.

Appendix G

Citizen Participation Plan

NEW YORK STATE | Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan
for
Elmwood Preserve

February 2024

C360239
850 Dobbs Ferry Road
White Plains
Westchester County, New York

Contents

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Appendix B - Site Contact List..... 16

Appendix C - Site Location Map..... 21

Appendix D - Brownfield Cleanup Program Process..... 22

* * * * *

Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's investigation and cleanup process.

Applicant: **Ridgewood Elmwood Owner, L.L.C. ("Applicant")**
Site Name: **Elmwood Preserve ("Site")**
Site Address: **850 Dobbs Ferry Road, White Plains**
Site County: **Westchester County**
Site Number: **C360239**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants who conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at:
http://www.dec.ny.gov/chemical/8450.html .

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well-being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision makers form or adopt final positions.

Involving citizens affected and interested in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment

- Improving public access to, and understanding of, issues and information related to a particular site and that site's investigation and cleanup process

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC web site. If this occurs, NYSDEC will inform the public in fact sheets distributed about the site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.
The site contact list includes, at a minimum:

- chief executive officer and planning board chairperson of each county, city, town and village in which the site is located;
- residents, owners, and occupants of the site and properties adjacent to the site;
- the public water supplier which services the area in which the site is located;
- any person who has requested to be placed on the site contact list;
- the administrator of any school or day care facility located on or near the site for purposes of posting and/or dissemination of information at the facility;
- location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

Note: The first site fact sheet (usually related to the draft Remedial Investigation Work Plan) is distributed both by paper mailing through the postal service and through DEC Delivers, its email listserv service. The fact sheet includes instructions for signing up with the appropriate county listserv to receive future notifications about the site. See http://www.dec.ny.gov/chemical/61092.html .

Subsequent fact sheets about the site will be distributed exclusively through the listserv, except for households without internet access that have indicated the need to continue to receive site information in paper form. Please advise the NYSDEC site project manager identified in Appendix A if that is the case. Paper mailings may continue during the investigation and cleanup process for some sites, based on public interest and need.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the site's investigation and cleanup program. The

flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

A local document repository has been established at the following location:
Greenburgh Public Library
300 Tarrytown Road
Elmsford, NY 10523
Phone: (914) 721-8200

The public is encouraged to contact project staff at any time during the site's investigation and cleanup process with questions, comments, or requests for information.

This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

NYSDEC must determine if the site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the site, as described in Section 5.

If the site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the site.

As of the date the declaration (page 2) was signed by the NYSDEC project manager, the significant threat determination for the site had not yet been made.

To verify the significant threat status of the site, the interested public may contact the NYSDEC project manager identified in Appendix A.

For more information about TAGs, go online at
http://www.dec.ny.gov/regulations/2590.html

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows on the next page:

Citizen Participation Activities	Timing of CP Activity(ies)
Application Process:	
• Prepare site contact list • Establish document repository(ies)	At time of preparation of application to participate in the BCP.
• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period • Publish above ENB content in local newspaper • Mail above ENB content to site contact list • Conduct 30-day public comment period	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, and notice to the site contact list should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement (BCA):	
• Prepare Citizen Participation (CP) Plan	Before start of Remedial Investigation **Note:** Applicant must submit CP Plan to NYSDEC for review and approval within 20 days of the effective date of the BCA.
Before NYSDEC Approves Remedial Investigation (RI) Work Plan:	
• Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan • Conduct 30-day public comment period	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, public comment periods will be combined and public notice will include fact sheet. Thirty-day public comment period begins/ends as per dates identified in fact sheet.
After Applicant Completes Remedial Investigation:	
• Distribute fact sheet to site contact list that describes RI results	Before NYSDEC approves RI Report
Before NYSDEC Approves Remedial Work Plan (RWP):	
• Distribute fact sheet to site contact list about draft RWP and announcing 45-day public comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) • Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
• Distribute fact sheet to site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that NYSDEC is reviewing the Final Engineering Report • Distribute fact sheet to site contact list announcing NYSDEC approval of Final Engineering Report and issuance of Certificate of Completion (COC)	At the time the cleanup action has been completed. **Note:** The two fact sheets are combined when possible if there is not a delay in issuing the COC.

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the site. Additional major issues of public concern may be identified during the course of the site's investigation and cleanup process.

The Applicant is committed to informing and involving the public during the investigation and remediation of the project. The objective of the CP Plan is to promote communication and to assist the public in understanding the project process. Citizen participation in the project process provides the Applicant and the NYSDEC with an opportunity to obtain public input as part of the comprehensive redevelopment process.

No major issues of public concern have been identified relative to the Site as of yet and there is no potential impact to nearby wells identified at this time. The Site will generate some noise during daytime working hours due to construction-related activities and vehicular traffic associated with the potential investigation and remediation activities throughout the cleanup process.

The Site is located within a Potential Environmental Justice Area according to the NYSDEC maps for Potential Environmental Justice Areas. Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Environmental justice efforts focus on improving the environment in communities, specifically minority and low-income communities, and addressing disproportionate adverse environmental impacts that may exist in those communities. This CP Plan serves as a guide to better enable communication between the community and the proposed BCP project. The community will be informed as the project continues through the BCP process. S:\Clients\Con Edison\419 East 36th Street\SIR

The program will include procedures for protection of public health and safety during investigation and remediation activities. During investigation and remediation, worker and community health and safety activities will be conducted, including:

- Securing the work perimeter with a chain-link fence during remediation/construction;
- On-Site air monitoring for worker protection, if warranted;
- Perimeter air monitoring for community protection, if warranted; and
- Using odor, vapor, and dust controls such as water or foam sprays, if needed.

Details on the Site Health and Safety Plan (HASP) and the Community Air Monitoring Plan (CAMP) will be included in the documents generated in support of the remediation.

4. Site Information

Appendix C contains a map identifying the location of the site.

Site Description

The site is located at 850 Dobbs Ferry Road, White Plains, Town of Greenburgh, New York, as shown on the Figure in Appendix C. The Site is comprised of two separate tax lots with the same addresses in the City of White Plains, Town of Greenburgh, as listed below:

- 850 Dobbs Ferry Road 7.530-320-1.SG
- 850 Dobbs Ferry Road 7.530.320-1.SE

The site is improved by a 106.8 acre former 18-hole golf course, situated within a suburban area, that included several buildings for the main clubhouse, maintenance and storage shops. The site is surrounded by the following properties, as summarized by the table below:

Adjacent Property Direction	Property Use
North	Eleven (11) residential detached two-story single-family homes.
South	Two (2) residential single-family homes, a golf driving range with an asphalt-paved parking lot, and a parcel of vacant land.
East	A municipal park called Rumbrook park East and the exit ramp of the Sprain Brook Parkway.
West	Thirteen (13) residential single-family homes and the Fairview Fire Department with an asphalt-paved parking lot.

History of Site Use, Investigation, and Cleanup

The Site was first developed as a golf course in 1924 and it was identified as Pelhamhurst Golf & Country Club. In 1946, the ownership transferred from John C. Von Glahn, a Trustee, to Elmwood Country Club Inc. Since then, the property has continued to be managed as a private club and golf course until it was closed in 2017 and taken over by the Applicant. Previous investigations (i.e. Phase I ESA and Phase II ESA) performed by the Applicant have indicated the presence of impacts in soil and will be further investigation during the Remedial Investigation. Demolition activities were performed at the site to raze previously existing structures. As of the date of this CPP,

all known underground storage tanks (USTs) and/or above ground storage tanks (ASTs) have been removed from the site.

Based upon information identified in historic documents, the following areas of concern (AOCs) were identified:

- USTs; and
- Metals and Pesticides in Site soil.

5. Investigation and Cleanup Process

Application

The Applicant has applied for and been accepted into New York's Brownfield Cleanup Program as a Participant. This means that the Applicant was the owner of the site at the time of the disposal or discharge of contaminants or was otherwise liable for the disposal or discharge of the contaminants. The Participant must fully characterize the nature and extent of contamination onsite, as well as the nature and extent of contamination that has migrated from the site. The Participant also must conduct a "qualitative exposure assessment," a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the site and to contamination that has migrated from the site.

The Applicant in its Application proposes that the site will be used for unrestricted purposes.

To achieve this goal, the Applicant will conduct investigation and/or cleanup activities at the site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement executed by NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the site.

Investigation

The Applicant will conduct an investigation of the site officially called a "remedial investigation" (RI). This investigation will be performed with NYSDEC oversight. The Applicant must develop a remedial investigation workplan, which is subject to public comment.

The site investigation has several goals:

1) define the nature and extent of contamination in soil, surface water, groundwater and any other parts of the environment that may be affected;
2) identify the source(s) of the contamination;

3) assess the impact of the contamination on public health and the environment; and
4) provide information to support the development of a proposed remedy to address the contamination or the determination that cleanup is not necessary.

The Applicant submits a draft “Remedial Investigation Work Plan” to NYSDEC for review and approval. NYSDEC makes the draft plan available to the public review during a 30-day public comment period.

When the investigation is complete, the Applicant will prepare and submit a report that summarizes the results. This report also will recommend whether cleanup action is needed to address site-related contamination. The investigation report is subject to review and approval by NYSDEC.

NYSDEC will use the information in the investigation report to determine if the site poses a significant threat to public health or the environment. If the site is a “significant threat,” it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

Interim Remedial Measures

An Interim Remedial Measure (IRM) is an action that can be undertaken at a site when a source of contamination or exposure pathway can be effectively addressed before the site investigation and analysis of alternatives are completed. If an IRM is likely to represent all or a significant part of the final remedy, NYSDEC will require a 30-day public comment period.

Remedy Selection

When the investigation of the site has been determined to be complete, the project likely would proceed in one of two directions:

1. The Applicant may recommend in its investigation report that no action is necessary at the site. In this case, NYSDEC would make the investigation report available for public comment for 45 days. NYSDEC then would complete its review, make any necessary revisions, and, if appropriate, approve the investigation report. NYSDEC would then issue a “Certificate of Completion” (described below) to the Applicant.

or

2. The Applicant may recommend in its investigation report that action needs to be

taken to address site contamination. After NYSDEC approves the investigation report, the Applicant may then develop a cleanup plan, officially called a “Remedial Work Plan”. The Remedial Work Plan describes the Applicant’s proposed remedy for addressing contamination related to the site.

When the Applicant submits a draft Remedial Work Plan for approval, NYSDEC would announce the availability of the draft plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy. The selected remedy is formalized in the site Decision Document.

The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a final engineering report that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the site.

Certificate of Completion

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the site, it will approve the final engineering report. NYSDEC then will issue a Certificate of Completion (COC) to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the site after it receives a COC.

Site Management

The purpose of site management is to ensure the safe reuse of the property if contamination will remain in place. Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan.

An *institutional control* is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the site suitable for some, but not all uses.

An *engineering control* is a physical barrier or method to manage contamination. Examples include: caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that pumps and treats groundwater. Site management continues until NYSDEC determines that it is no longer needed.

Appendix A -
Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Oliver Wolfe
Project Manager
NYSDEC
Division of Environmental Remediation
625 Broadway, Albany, NY 12233
Oliver.wolfe@dec.ny.gov

Stephanie Mossey
Citizen Participation Specialist
NYSDEC
21 S Putt Corners Rd
New Paltz, NY
845-256-3154

New York State Department of Health (NYSDOH):
Renata Ockerby
NYSDOH, Bureau of Environmental
Exposure Investigation
Empire State Plaza, Corning Tower,
Room 1787
Albany, NY 12233
BEEI@health.ny.gov

Locations of Reports and Information

The facilities identified below are being used to provide the public with convenient access to important project documents: **{Instruction to preparer: add additional location(s) if appropriate.}**

Greenburgh Public Library
300 Tarrytown Road
Elmsford, NY 10523
Attn: Cory Deitchman
Phone: 914- 721-8200
Hours:
M, Th, Fr, S 9:30 AM – 5:00 PM
T, W – 9:30 AM – 8:30 PM
Sn – 1:00 PM – 5:00 PM

NYSDEC Division of Environmental Remediation
Attn: Oliver Wolfe
Phone: 518-402-9732
Hours: 8:30 AM – 4:45 PM Monday through Friday (call for appointment)

Appendix B - Site Contact List

i. Local and State Officials

Hon. Charles Schumer
United States Senate
780 Third Avenue, Suite 2301
New York, NY 10017

Hon. Kirsten E. Gillibrand
United States Senate
780 Third Avenue, Suite 2601
New York, NY 10017

NYSDEC Public Participation Specialist
Region 3
21 South Putt Corners Road
New Paltz, NY 12561

Paul Feiner
Town of Greenburgh Supervisor
177 Hillside Ave.
Greenburgh, NY 10607

George Latimer
Westchester County Executive
148 Martine Avenue
White Plains, NY 10601

Norma Drummond
Westchester County Planning Commissioner
148 Martine Avenue
White Plains, NY 10601

Joseph Danko
Town of Greenburgh Town Attorney
177 Hillside Ave.
Greenburgh, NY 10607

Frank Morabito
Town of Greenburgh Building Inspector
177 Hillside Ave.
Greenburgh, NY 10607

Gary Link
Town of Greenburgh Deputy Town Assessor
177 Hillside Ave.
Greenburgh, NY 10607

Richard C. Fon
Town of Greenburgh Commissioner of Public Works
177 Hillside Ave.
Greenburgh, NY 10607

Brian Simmons, P.E.
Town of Greenburgh Deputy Commissioner of Public Works
177 Hillside Ave.
Greenburgh, NY 10607

ii. Current Site Owner

Ridgewood Elmwood Owner, L.L.C.
250A Hanover Road, Suite 310
Florham Park, NJ 07932

iii. Current Site Operators

None

iv. Current Owners and Occupants of Adjacent Sites

7.460-267-35	**7.460-264-18..SE**
7.460-264-39	**7.51-2-2.SE**
7.460-264-41	**7.460-264-36**
7.460-264-43	**8.50-28-8**
7.460-267-1	**7.520-319-9**
7.450-258-35	**8.50-28-7**
7.450-258-36	**8.120-70-3**
7.460-264-38	**7.460-264-18..SG**
7.460-264-40	**8.180-128-28..SG**
7.460-264-42	**7.460-264-37**
7.460-264-44	**7.460-264-45**
7.450-258-37	**8.50-28-6**
7.450-258-1	**8.50-28-8**
7.450-258-38	**8.120-70-4**

7.450-258-39

7.520-315-2

7.520-315-5.4

8.50-28-1

8.50-28-9

8.40-27-1

7.520-315-5.5

8.40-27-3.1

7.520-319-7..SG

7.520-319-3..SG

7.450-258-40

7.520-315-3

7.520-315-6

8.50-28-2

8.120-70-2

8.40-26-2.1

7.520-315-5.3

8.40-26-1.3

7.520-319-5..SG

7.520-319-1..SG

v. Religious Authorities

Saint Joseph of Arimathea Episcopal Church
2172 Saw Mill River Road
White Plains, NY 10607
Phone: (914) 592-7163

vi. Parks and Recreation

Greenburgh Parks & Recreation
11 Olympic Lane
Ardsley, NY 10502
Phone: (914) 989-1800

vii. Day Cares and Schools within Quarter Mile Radius

Elmwood Day School
900 Dobbs Ferry Road
White Plains, NY 10550
Phone: (914) 665-5050

viii. Local Water Supply

Greenburgh Consolidated Water
181 Knollwood Road
White Plains, NY 10607
Phone: (914) 989-1900

ix. Local News and Media

News 12 Westchester
6 Executive Plaza
Yonkers, NY 10701

Journal News
1 Gannet Drive
White Plains, NY 10604
Phone: (914) 693-9300

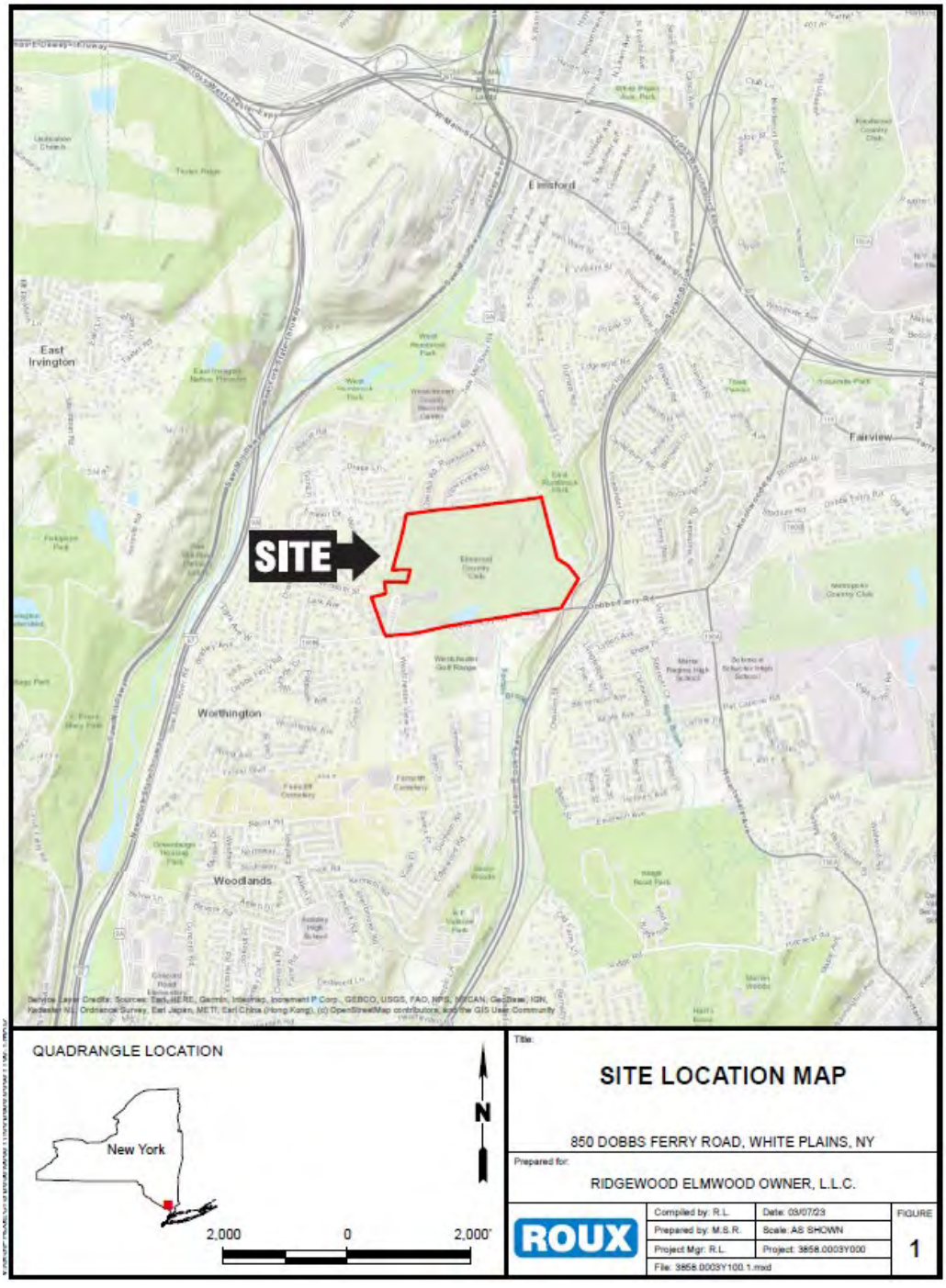
x. Any Person, Community Based Organization, or Local Media Who Has Requested to be placed on the contact list

No persons have requested to be on the Site Contact List.

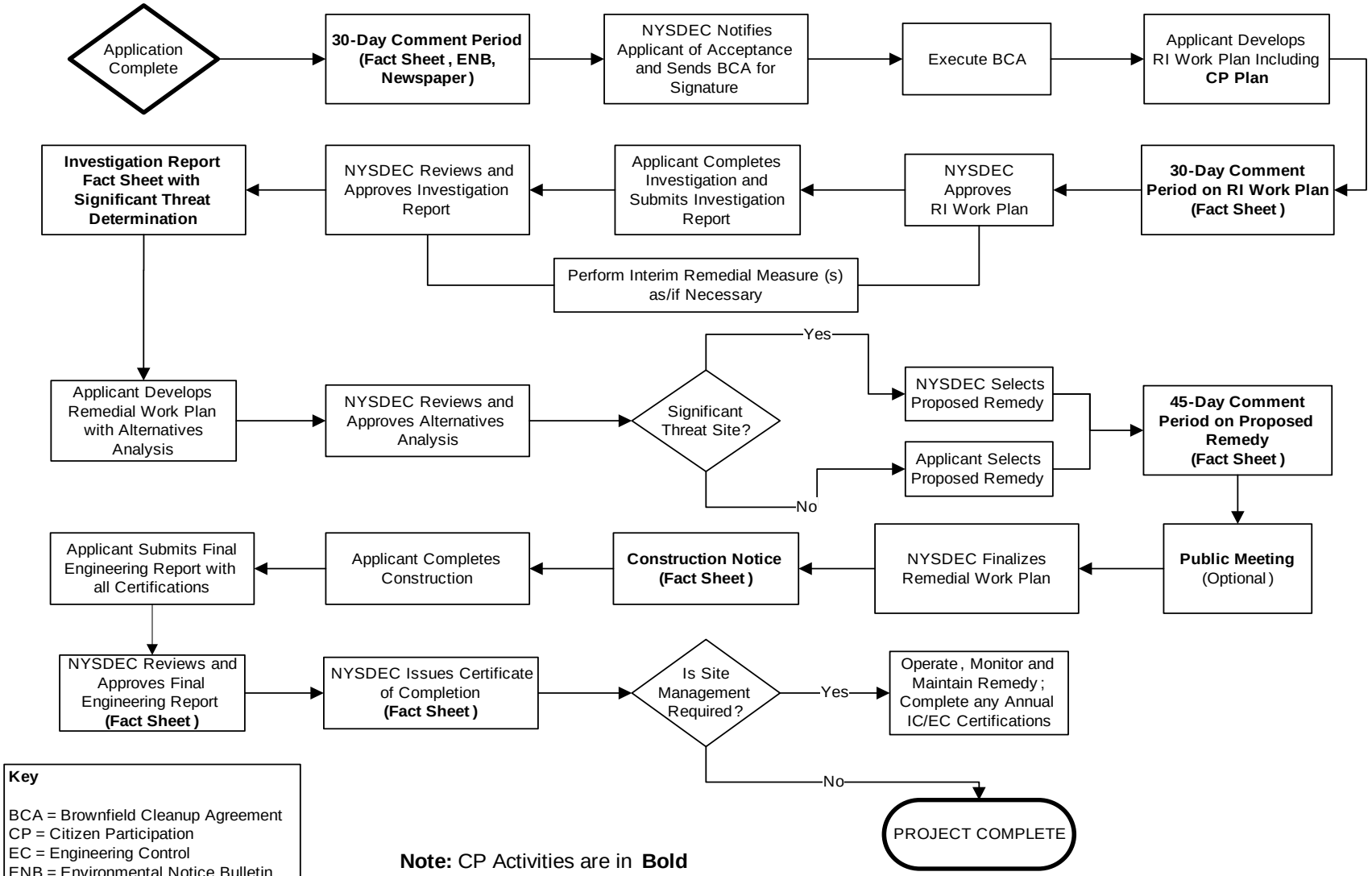
xi. Document Repository

Greenburgh Public Library
300 Tarrytown Road
Elmsford, NY 10523
Phone: (914) 721-8200

Appendix C - Site Location Map



Appendix D– Brownfield Cleanup Program Process



Key

BCA = Brownfield Cleanup Agreement
CP = Citizen Participation
EC = Engineering Control
ENB = Environmental Notice Bulletin
IC = Institutional Control
RI = Remedial Investigation

Note: CP Activities are in **Bold**

Division of Environmental Remediation

Remedial Programs
Scoping Sheet for Major Issues of Public Concern

Instructions

This Scoping Sheet assesses major issues of public concern; impacts of the site and its remedial program on the community; community interest in the site; information the public needs; and information needed from the public.

The information generated helps to plan and conduct required citizen participation (CP) activities, and to choose and conduct additional CP activities, if appropriate. The scoping sheet can be revisited and updated as appropriate during the site's remedial process to more effectively implement the site's CP program.

Note: Use the information as an aid to prepare and update the Major Issues of Public Concern section of the site CP Plan.

General Instructions

- When to prepare: During preparation of the CP Plan for the site. It can be revisited and updated anytime during the site remedial process.
- Fill in site name and other information as appropriate.
- The Scoping Sheet may be prepared by DEC or a remedial party, but must be reviewed and approved by the DER site project manager or his/her designee.

Instructions for Numbered Parts

Consider the bulleted issues and questions below and any others that may be unique or appropriate to the site and the community to help complete the five Parts of this Scoping Sheet. Identify the issue stakeholders in Parts 1 through 3 and adjust the site's contact list accordingly.

Part 1. List Major Issues of Public Concern and Information the Community Wants.

- Is our health being impacted? (e.g. Are there problems with our drinking water or air? Are you going to test our water, yards, sumps, basements? Have health studies been done?)
- There are odors in the neighborhood. Do they come from the site and are they hazardous?
- Are there restrictions on what we may do (e.g. Can our children play outside? Can we garden? Must we avoid certain areas? Can we recreate (fish, hunt, hike, etc. on/around the site?)
- How and when were the site's contamination problems created?
- What contaminants are of concern and why? How will you look for contamination and find out where it is going? What is the schedule for doing that?
- The site is affecting our property values!
- How can we get more information (e.g. who are the project contacts?)
- How will we be kept informed and involved during the site remedial process?
- Who has been contacted in the community about site remedial activities?
- What has been done to this point? What happens next and when?
- The site is going to be cleaned up for restricted use. What does that mean? We don't want redevelopment on a "dirty" site.

Part 2. List Important Information Needed From the Community, if Applicable.

- Can the community supplement knowledge about past/current uses of the site?
- Does the community have knowledge that the site may be significantly impacting nearby people, properties, natural resources, etc.?
- Are activities currently taking place at the site or at nearby properties that may need to be restricted?
- Who may be interested or affected by the site that has not yet been identified?
- Are there unique community characteristics that could affect how information is exchanged?
- Does the community and/or individuals have any concerns they want monitored?
- Does the community have information about other sources in the area for the contamination?

Part 3. List Major Issues and Information That Need to be Communicated to the Community.

- Specific site investigation or remediation activities currently underway, or that will begin in the near future.
- The process and general schedule to investigate, remediate and, if applicable, redevelop the site.
- Current understanding about the site contamination and effects, if any, on public health and the environment.
- Site impacts on the community and any restrictions on the public's use of the site and/or nearby properties.
- Planned CP activities, their schedule, and how they relate to the site's remedial process.
- Ways for the community to obtain/provide information (document repositories, contacts, etc.).

Part 4. Community Characteristics

a. - e. Obtain information from local officials, property owners and residents, site reports, site visits, "windshield surveys," other staff, etc.

f. Has the affected community experienced other **significant** present or past environmental problems unrelated to this site? Such experiences could significantly affect public concerns and perspectives about the site; how the community will relate to project staff; the image and credibility of project staff within the community; and the ways in which project staff communicate with the community.

g. In its remedial programs, DER seeks to integrate, and be consistent with, environmental justice principles set forth in *DEC Commissioner Policy 29 on Environmental Justice* and *DER 23 – Citizen Participation Handbook for Remedial Programs*. Is the site and/or affected community wholly or partly in an Environmental Justice (EJ) Area? Use the Search feature on DEC's public web site for "environmental justice". DEC's EJ pages define an EJ area, and link to county maps to help determine if the site and/or community are in an EJ area.

h. Consider factors such as:

- Is English the primary language of the affected community? If not, provisions should be considered regarding public outreach activities such as fact sheets, meetings, door-to-door visits and other activities to ensure their effectiveness.
- The age demographics of the community. For example, is there a significant number of senior citizens in the community? It may be difficult for some to attend public meetings and use document repositories. This may suggest adopting more direct interaction with the community with activities such as door-to-door visits, additional fact sheets, visits to community and church centers, nursing homes, etc.
- How do people travel about the community? Would most people drive to a public meeting or document repository? Is there adequate public transportation?

Part 5. Affected/Interested Public.

Individuals and organizations who need or want information and input can change during the site's remedial process. This need is influenced by real, potential, or perceived impacts of the site or the remedial process. Some people may want information and input throughout the remedial process. Others may participate only during specific remedial stages, or may only be interested in particular issues.

It is important to revisit this question when reviewing this scoping sheet. Knowing who is interested in the site – and the issues that are important to them – will help to select and conduct appropriate outreach activities, and to identify their timing and the information to be exchanged.

Check all affected/interested parties that apply to the site. **Note: Adjust the site's contact list appropriately.** The following are some ways to identify affected/interested parties:

- Tax maps of adjacent property owners
- Attendees at public meetings
- Telephone discussions
- Letters and e-mails to DER, the remedial party, and other agencies
- Political jurisdictions and boundaries
- Media coverage
- Current/proposed uses of site and/or nearby properties (recreational, commercial, industrial)
- Discussions with community organizations: grass roots organizations, local environmental groups, environmental justice groups, churches, and neighborhood advisory groups

Division of Environmental Remediation

Remedial Programs
Scoping Sheet for Major Issues of Public Concern (see instructions)

Site Name: Elmwood Preserve

Site Number: C360239

Site Address and County: 850 Dobbs Ferry Road, Westchester County

Remedial Party(ies): Ridgewood Elmwood Owners, L.L.C.

Note: For Parts 1. – 3. the individuals, groups, organizations, businesses and units of government identified should be added to the site contact list as appropriate.

Part 1. List major issues of public concern and information the community wants. Identify individuals, groups, organizations, businesses and/or units of government related to the issue(s) and information needs. **Use this information as an aid to prepare or update the Major Issues of Public Concern section of the site Citizen Participation Plan.**
No major issues of public concern as of the date of this CP Plan

How were these issues and/or information needs identified?
NA

Part 2. List important information needed **from** the community, if applicable. Identify individuals, groups, organizations, businesses and/or units of government related to the information needed.
None.

How were these information needs identified?
NA

Part 3. List major issues and information that need to be communicated **to** the community. Identify individuals, groups, organizations, businesses and/or units of government related to the issue(s) and/or information.
None.

How were these issues and/or information needs identified?
NA

Part 4. Identify the following characteristics of the affected/interested community. This knowledge will help to identify and understand issues and information important to the community, and ways to effectively develop and implement the site citizen participation plan (mark all that apply):

a. Land use/zoning at and around site:
☒ **Residential** ☐ **Agricultural** ☐ **Recreational** ☒ **Commercial** ☐ **Industrial**

b. Residential type around site:
☐ **Urban** ☒ **Suburban** ☐ **Rural**

c. Population density around site:
☐ **High** ☐ **Medium** ☒ **Low**

d. Water supply of nearby residences:
☐ **Public** ☐ **Private Wells** ☒ **Mixed**

e. Is part or all of the water supply of the affected/interested community currently impacted by the site?
☐ **Yes** ☒ **No**

Provide details if appropriate:
NA

f. Other environmental issues significantly impacted/impacting the affected community?
☐ **Yes** ☒ **No**

Provide details if appropriate:
Click here to enter text.

g. Is the site and/or the affected/interested community wholly or partly in an Environmental Justice Area?
☐ **Yes** ☒ **No**

h. Special considerations:
☐ **Language** ☐ **Age** ☐ **Transportation** ☐ **Other**

Explain any marked categories in **h:**
Click here to enter text.

Part 5. The site contact list must include, at a minimum, the individuals, groups, and organizations identified in Part 2. of the Citizen Participation Plan under 'Site Contact List'. Are *other* individuals, groups, organizations, and units of government affected by, or interested in, the site, or its remedial program? (Mark and identify all that apply, then adjust the site contact list as appropriate.)

☒ **Non-Adjacent Residents/Property Owners:** Click here to enter text.

☒ **Local Officials:** Click here to enter text.

☒ **Media:** Click here to enter text.

☒ **Business/Commercial Interests:** Click here to enter text.

☐ **Labor Group(s)/Employees:** Click here to enter text.

☐ **Indian Nation:** Click here to enter text.

☐ **Citizens/Community Group(s):** Click here to enter text.

☐ **Environmental Justice Group(s):** Click here to enter text.

☐ **Environmental Group(s):** Click here to enter text.

☐ **Civic Group(s):** Click here to enter text.

☐ **Recreational Group(s):** Click here to enter text.

☐ **Other(s):** Click here to enter text.

Prepared/Updated By: Ron Lombino **Date:** February 6, 2024

ReviewedApproved By: Click here to enter text. **Date:** Click here to enter text.

Appendix H

Quality Assurance Project Plan

Quality Assurance Project Plan

Elmwood Preserve

NYSDEC BCP Site No. C360239

850 Dobbs Ferry Road, White Plains, New York

Prepared for

Ridgewood Elmwood Owner, L.L.C.
25A Hanover Road, Suite 310
Florham Park, New Jersey 079324

Prepared by

Carson Voci Engineering and Geology, D.P.C.
an affiliate of Terraphase Engineering Inc.
1100 East Hector Street, Suite 400
Conshohocken, Pennsylvania 19428

December 10, 2024,
Revised May 20, 2026

Project Number CV04.001.003

carsonvoci
engineering and geology dpc
an affiliate of Terraphase Engineering Inc.

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ACRONYMS AND ABBREVIATIONS

ASP	analytical services protocol
AWQS	ambient water quality standards
BCP	Brownfield Cleanup Program
bgs	below ground surface
Carson Voci	Carson Voci Engineering and Geology, D.P.C.
COCs	chain of custody
ConEd	Consolidated Edison
DER	Division of Environmental Remediation
DER-10	*DER 10 / Technical Requirements for Site Investigation and Remediation*
DKQP	Data of Known Quality Protocols
DQO	data quality objectives
DUSR	data usability summary report
EPA	United States Environmental Protection Agency
g	grams
GC/MS	gas chromatography/mass spectrometry
L	liters
LIMS	laboratory information management system
mL	milliliters
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSWER	Office of Solid Waste and Emergency Response
PCBs	Polychlorinated Biphenyls
PFAS	per- and polyfluoroalkyl substances
PFAS Guidance	*Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS)*
PID	photo-ionization detector
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan

RI	remedial investigation
RIWP	remedial investigation work plan
SCOs	soil criteria objectives
SV	soil vapor
SVI Guidance	*Guidance for Evaluating Soil Vapor Intrusion in the State of New York*
SV/IA	Soil Vapor/Indoor Air (Decision Matrices)
SVOC	semi-volatile organic compound
TAL	Target Analyte List
TCL	Target Compound List
TO-15	EPA Air Method, Toxic Organics - 15
TOGS	Technical and Operational Guidance Series
Terraphase	Terraphase Engineering Inc.
USGS	United States Geological Survey
VOC	volatile organic compound

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) is prepared on behalf of Ridgewood Elmwood Owner, L.L.C. (the "Applicant and "Participant") to support the Supplemental Remedial Investigation Work Plan (SRIWP) and Remedial Action Work Plan (RAWP) activities for the New York State (NYS) Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) Site No. C360239 identified as Elmwood Preserve at 850 Dobbs Ferry Road, White Plains, New York (Site). Implementation of the SRIWP and RAWP will be conducted in support of compliance with NYSDEC requirements related to the BCP.

This QAPP presents the analytical methods and procedures to be followed during implementation of the field activities to ensure that samples are representative of the actual environment from which they were collected and are of sufficient quality and quantity to meet the project objectives.

1.1 Project Scope

The purpose of the supplemental remedial investigation (RI) is to delineate the nature and extent of contamination and allow for effective evaluation of multiple BCP cleanup track alternatives. Data collected during the supplemental RI will determine the basis for future remedial actions for the Site.

All sampling activities will also be conducted in accordance with United States Environmental Protection Agency (EPA) regulations and NYSDEC guidance documents, including but not limited to:

- *DER-10, Technical Guidance for Site Investigation and Remediation.* New York State Department of Environmental Conservation. *May 3, 2010 (DER-10).*
- *DER-31, Green Remediation. August 11, 2010 (DER-31).*
- *Analytical Service Protocol,* New York State Department of Environmental Conservation*. July 2005.*
- *US EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations (EPA QA/R-5, March 2001).*
- *Guidance for Quality Assurance Project Plans (EPA QA/G-5, December 2002).*

1.2 Site Description and Conceptual Site Model Summary

The Site is currently owned by the Applicant, a Participant in the BCP. The approximately 106.8-acre Site consists of two parcels identified as 7.530-320.1..SG and 7.530-320-1..SE in the Town of Greenburgh, New York, Geographic Information System tax map. The Site is transected by parcel 7.530-320-3, owned by Consolidated Edison Company of New York, Inc. (ConEd). The Site is improved by a former 18-hole golf course and country club that included several buildings for the main clubhouse and maintenance and storage shops. The buildings were located on the

southwest portion of the Site and have since been demolished. The Site also included several tennis courts and a pool area. The buildings were accessed by a paved parking lot and two small roads that lead to Dobbs Ferry Road.

The planned redevelopment of the Site consists of the construction of approximately 113 private (single-family) residential homes.

The Site is currently zoned as an R-30 one-family residence and is in a suburban area surrounded by residential and commercial properties. The immediate surrounding properties consist of residential homes to the north, a municipal park to the east, commercial properties to the south, and residential homes and a fire department to the west.

According to the Unites States Geological Survey's *White Plains Quadrangle, New York-Westchester Co., 7.5 Minute Series* topographic map (2013), the Site varies in elevation significantly and generally slopes downward toward the west and northeast. The Site slopes downward from a maximum elevation of approximately 380 feet at the north central portion of the Site, to approximately 320 feet at the western and southern portions of the Site, and to a minimum elevation of approximately 270 feet at the northeastern portion of the Site, referenced to the North American Vertical Datum of 1988 (NAVD 88)Two surface water bodies are present at the Site: a pond at the southern portion and a stream at the northeast portion which drains off Site to the northeast. The pond is believed to have been manmade circa 1930, based on a review of historical topographic maps. The stream appears to have been manmade, or at minimum enhanced, based on the origination point containing subsurface piping evidencing discharge into the stream

According to the Natural Resources Conservation Service Web Soil Survey website,[1] the dominant soil composition in the vicinity of the Site is classified as Charleton fine sandy loam with 3–8, 8–15, 15–25, and 25–35 percent slopes; Charleton-Chatfield Complex with 0–15 percent slopes; Paxton fine sandy loams with 3–8 and 8–15 percent slopes; Sutton loam with 3–8 percent slopes; and Urban Land, which is characterized by a non-homogenous distribution of soil and fill types. The Site is underlain by the Fordham Gneiss formation, which consists of a garnet-biotite-quartz-plagioclase gneiss.

During water level gauging conducted in July 2024 as part of the RI, groundwater was encountered in one overburden well, RMW-10, at 5.04 feet bgs. In April 2025, groundwater was encountered from 3.5 –10.4 feet bgs in the overburden monitoring wells and from 10.3 – 20.0 feet bgs in the bedrock monitoring wells. A potentiometric surface map for overburden and bedrock wells based on the well gauging completed during the RI implied the groundwater flow direction in overburden groundwater is toward the northeast, and to the northwest in bedrock groundwater (Figures 6a and 6b, respectively). The hydraulic gradient of the overburden groundwater is 0.025 ft/ft. The hydraulic gradient of the bedrock groundwater is 0.017 ft/ft..

[1] http://websoilsurvey.nrcs.usda.gov/app/

Additional information on the geology and hydrogeology at the site is provided in the RI Report (RIR) and RAWP.

1.3 Field Sampling Plan Design

In accordance with the aforementioned regulations and guidance documents, Carson Voci prepared the SRIWP scope of work to refine the vertical extent of contaminated soils at the Site based on the evaluation of the data collected during the RI activities. The intent of the supplemental RI sampling plan is to collect sufficient data to determine the basis for future remedial actions for the Site, based on known and potentially unknown impacts to the Site. Based on the RI sampling activities, Carson Voci prepared a scope of work for remedial action that is protective of human health and the environment.

The SRIWP program included:

- Groundwater monitoring well installations
- Groundwater analytical sampling
- Soil borings
- Soil field screening and logging
- Soil analytical sampling

The location of the field samples and a detailed summary of the samples collected are provided within the RIR and RIR-Addendum.

The RAWP program will include:

- Soil borings
- Soil field screening and logging
- Post-excavation soil analytical end-point sampling
- Sub-surface soil analytical sampling
- Post-remedy pond sediment analytical end-point sampling

A detailed summary of the proposed end point sample frequency is provided within the RAWP. Figures depicting the proposed end point sampling frequency are included in Appendix A.

1.4 Impacted Soil Excavation Plan Design

Carson Voci prepared the RAWP scope of work to excavate contaminated soils at the Site based on the evaluation of the data collected during the RI activities and extents of historical fill. The intent of the remedy is to ensure the soil and sediment remaining is protective of human health and the environment.

2.0 DATA EVALUATION

2.1 Data Quality Objectives

Data quality objectives (DQOs) are qualitative specifications designed to ensure that data of known quality are obtained during investigative activities to support decisions regarding the selection of an appropriate remedial action. The overall DQOs for all samples to be obtained through the work encompassed by this QAPP will be to ensure that collection techniques and analyses generate results that are accurate, precise and representative of site conditions, and sufficiently sensitive to meet the most stringent standards and other applicable criteria (see Section 2.2). To further this objective, Terraphase will use the sampling methods and procedures set forth in the DER-10 and applicable Field Sampling Procedures Manual(s). Additionally, the selected NY-accredited laboratory (see Section 3) will perform all analyses in conformance with the Environmental Laboratory Approval Program (ELAP), Contract Laboratory Protocol (CLP), NYSDEC July 2005 ASP, and other applicable industry standards. As such, general DQO information is provided below but does not include all information related to the data quality assessment.

DQOs for this project are established as follows:

2.1.1 Sensitivity DQOs and Data Evaluation

These DQOs relate to the standards and criteria to which the RIWP analytical results will be evaluated. In this regard, the laboratory will be informed of the specific objectives so that the detection and reporting limits will be less than these standards and criteria to the extent feasible, and where such levels cannot be achieved, the basis for that non-conformance will be documented.

Analytical results generated during the RIWP activities addressed herein will be evaluated relative to NYSDEC standards, screening levels and other appropriate criteria applicable to each specific environmental medium, as indicated below.

Soil

- Soil analytical results will be evaluated relative to NYSDEC Standards, Criteria, and Guidance Soil Cleanup Objectives (SCOs), published in 6 NYCCR 375-6.8

Groundwater

- Groundwater analytical results will be compared to Technical Operations and Guidance Memorandum 1.1.1 (TOGS 1.1.1) Ambient Water Quality Standards (AWQS)

Soil Vapor

- Soil vapor analytical results will be compared to the NYS Department of Health (NYSDOH) "Soil Vapor/Indoor Air (SV/IA) Decision Matrices" from the Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

Sediment

- Sediment analytical results will be compared to the NYSDEC Freshwater (FW) Class A Sediment Guidance Values (SGVs; NYSDEC 2014).

2.1.2 Accuracy DQOs

Accuracy is the degree of difference between measured and calculated or true values. In laboratory conditions, accuracy is measured in terms of blank results, the average percent recovery of surrogate compounds or spiked compounds (matrix spike/matrix spike duplicates), and/or laboratory control samples. The acceptable level of accuracy for this project will be based on the acceptable percent recovery/difference of laboratory control spikes for each method. The laboratory will evaluate this DQO for its own laboratory data.

2.1.3 Precision DQOs

Precision expresses the closeness of agreement between data as a measure of the reproducibility of sample results. Precision DQOs are established by defining acceptance criteria for precision between duplicate results for both field duplicates and laboratory duplicates. In general, solid matrices have a greater amount of heterogeneity than liquid and gas matrices. When the RPD for detected constituents is greater than or equal to 50 percent for nonaqueous matrices, greater than or equal to 30 percent for aqueous matrices, or greater than or equal to 25 percent for gaseous matrices the representativeness of the sample results will be evaluated to assess the acceptability and usability of the analytical results.

2.1.4 Representativeness DQOs

These DQOs are established through definition of the field sampling plan, and related procedures for the collection, preservation and transport of samples, as well as through definition of appropriate analytical methodologies. The procedures that will be used to obtain representative samples are documented in Section 6 of this QAPP. Prior field sampling plans are presented in the SRIWP, and the proposed field sampling plan and end-point sampling frequency are presented in the RAWP.

2.1.5 Completeness DQOs

These DQOs are those used to determine the quantity of data needed for project decisions as well as the degree to which the data are appropriate for use based on the data quality assessment. For this project, the specific quantity of sampling to be conducted at the site will include the generation of soil, groundwater, and soil vapor needed to fully characterize and delineate site contamination for purposes of designing any appropriate remedial actions. The completeness of the analytical results will be assessed on an ongoing basis until the NYSDEC concludes that the standards of characterization, delineation and data quality have been met.

2.1.6 Comparability

Comparability is the degree to which one set of data can be accurately compared to another set of data that were collected by a different means or analyzed by a different entity. The objectives of the analytical laboratory for comparability are to:

1. Demonstrate traceability of standards to USEPA or NYSDEC-approved sources;
2. Use standard methodology;
3. Report results from similar matrices in standard units;
4. Apply appropriate levels of quality control within the context of the laboratory QA program, (Level III, USEPA Data Objectives for Remedial Response Activities, 1987, or equivalent); and,
5. Participate in inter-laboratory studies to document laboratory performance.

3.0 LABORATORY

The laboratory to be retained for sample analysis include the following:

Pace Analytical Services
8 Walkup Drive
Westborough, MA 01581

AND

320 Forbes Boulevard
Mansfield, MA 02048

Contact: Cynthia Pagut, Project Manager; Chris Anderson, Project Manager

It is possible that additional laboratories may be retained as subcontractors by the above. Information regarding contract laboratories, if utilized, will be provided within the laboratory data deliverables generated for the analytical work.

4.0 SITE CONTACTS

The following individuals will be responsible for work conducted at this property, including overall project management and coordination, sampling activities, and laboratory activities:

Remedial/Professional Engineer: Nick Krasnecky, PE
Principal Engineer
Carson Voci Engineering and Geology, D.P.C.
an affiliate of Terraphase Engineering Inc.
222 International Drive
Portsmouth, NH 03801
201-552-0224
nicholas.krasnecky@terraphase.com

Project Manager: Chris Voci
Senior Principal Geologist
Carson Voci Engineering and Geology, D.P.C.
an affiliate of Terraphase Engineering Inc.
1100 East Hector Street, Suite 400
Conshohocken, PA 19428609-613-0998
chris.voci@terraphase.com

Quality Assurance Officer: Alexander Strohl
Senior Project Geologist
Terraphase Engineering Inc.
1100 East Hector Street, Suite 400
Conshohocken, PA 19428
570-447-0558
alexander.strohl@terraphase.com

Data/Database Manager: Madison Ingling
Senior Staff II Scientist
Terraphase Engineering Inc.
100 Canal Pointe Boulevard, Suite 110
Princeton, NJ 08540
973-769-8699
madison.ingling@terraphase.com

Health and Safety: Daren Roth
Associate Health and Safety Director
Terraphase Engineering Inc.
7901 Stoneridge Drive, Suite 528
Pleasanton, CA 94588
925-719-5496
daren.roth@terraphase.com

On-site compliance with the required health and safety protocols to be determined based on determination on field sampler(s)

Laboratory Project Manager: Cynthia Pagut
Project Manager
Pace Analytical Services.
201-812-9072
Cynthia.Pagut@pacelabs.com

Laboratory Project Manager: Chris Anderson
Project Manager
Pace Analytical Services.
508-844-4122
Christopher.anderson@pacelabs.com

Third Party Data Validator: Pei Geng
Senior Chemist/Project Manager
Laboratory Data Consultants, Inc.
760-827-1100 ex. 141
pgeng@lab-data.com

Changes to the project team, if any, will be annotated to this QAPP.

Resumes of the pertinent project participants are included in Appendix B.

5.0 FIELD AND ANALYTICAL METHODS/QUALITY ASSURANCE

5.1 Quality Assurance/Quality Control Sampling

Quality Assurance/Quality Control (QAQC) samples will be collected in accordance with the ASP and DER-10, as shown in Table 1. The procedures to obtain the field QAQC samples are discussed below. All samples will be properly labeled, immediately placed in a cooler with ice, and submitted to the laboratory within 48 hours using standard chain-of-custody procedures. Encore soil samples will be received by the laboratory and preserved within 48 hours of collection.

Table 1: QAQC Sampling Frequency

Sample Type	Frequency
Duplicate	One per 20 samples, per matrix
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One per 20 samples, per matrix (soil and groundwater only)
Trip Blank	One per cooler when VOC samples are submitted
Equipment Blank	Once per day for aqueous matrix; 5% of the total number of samples for non-aqueous matrix, not applicable for gaseous matrix

5.1.1 Duplicate Samples

To provide an indication of analytical precision and accuracy, a minimum of 5 percent of all samples, or at least one sample of every 20 samples collected, are to be collected in duplicate. Duplicate samples will be analyzed for the same parameters as the samples. The duplicate samples will receive a sample identification number different from the actual sample location. The Chain-of-Custody Record will note the unique number and describe the sample as "duplicate", without revealing the actual sampling location.

Duplicate soil and sediment samples will be collected by dividing sampled material before placing in duplicate sample containers. Duplicate groundwater and soil vapor samples will be sent for laboratory analysis to evaluate the reproducibility of the sampling technique used.

5.1.2 Matrix Spike and Matrix Spike Duplicate Samples

To provide an indication of analytical precision and accuracy, a minimum of 5 percent of all samples, or at least one sample of every 20 samples collected, are to be collected in triplicate for a matrix spike and matrix spike duplicate (MS/MSD) analysis. The site-specific MS/MSD

samples will be prepared and analyzed by the analytical laboratory by spiking an aliquot of the submitted sample volume with analytes of interest. The MS/MSD samples will be labeled with the sample ID with a -MS or -MSD added on to the end of the sample.

MS/MSD soil and sediment samples will be collected by dividing sampled material before placing in duplicate sample containers. MS/MSD groundwater samples will be collected by filling one sample jar after the other for each analysis until samples in triplicate are obtained, and then move on to the next sample jar/analysis and repeat. MS/MSD samples are only required for soil and groundwater samples.

5.1.3 Trip Blanks

Trip blanks will be used to assess whether site samples have been exposed to non-site-related volatile constituents during storage and transport. Trip blanks will be analyzed at a frequency of once per cooler containing samples to be analyzed for volatile organic constituents. A trip blank will consist of a container filled with analyte-free water (supplied by the laboratory) which remains unopened with field samples throughout the sampling event.

Trip blanks will be analyzed for VOCs only to evaluate the potential occurrence of contamination of samples during sample shipment or as a result of laboratory handling. Trip blanks will be prepared for aqueous samples preserved with hydrochloric acid at a rate of one per sample shipment (not to exceed 2 consecutive field days). These samples consist of laboratory-prepared glass bottles (40 milliliters [mL]) with an open-top screw cap and a Teflon septa or other similar sample container. The trip blanks will accompany sample containers to the field and back to the laboratory with the collected samples for analysis, remaining sealed until this time, thus ensuring similar exposure as the collected samples. No trip blanks are required for soil vapor sampling.

5.1.4 Equipment Blanks

Equipment blanks are used to monitor the cleanliness of the sampling equipment and the effectiveness of the cleaning procedures. Equipment blanks will be prepared and submitted for analysis at a frequency of one per day (when sample equipment cleaning occurs) or once for every 20 samples collected, whichever is more. Equipment blanks will be prepared by filling sample containers with deionized water, specifically PFAS free water if a PFAS sample is to be collected, (supplied by the laboratory) which has been routed through a cleaned sampling device. It is anticipated that some of the sampling devices and sample containers used at the site will be dedicated, including dedicated sample tubing. When dedicated sampling devices are used, or sample containers are used to collect the samples, equipment blanks will not be necessary.

Equipment blanks will be prepared by pouring analyte-free water, specifically PFAS free water if a PFAS sample and equipment blank is to be collected with that equipment, over decontaminated sampling equipment as a check that the decontamination procedure has been adequately performed and that cross contamination of samples will not occur due to the equipment. One equipment blank will be collected for each type of equipment used each day a

decontamination event occurs. Equipment blanks will be performed on sampling equipment and other equipment such as water level sensors during groundwater monitoring. The same aliquot of field water may be used on all equipment coming in contact with a particular matrix for analysis for inorganic constituents. A separate equipment blank must be collected for each piece of decontaminated equipment used for a particular sample matrix. Equipment blanks will be collected at the beginning of the day before the sampling event and must accompany the samples collected that day. No equipment blanks are required for soil vapor sampling.

All equipment blanks and trip blanks will be shipped to the laboratory with the sample containers. Blanks and the associated samples will be held onsite in sample coolers with ice (water and/or reusable ice packs) and delivered to the laboratory daily (via laboratory courier pickup at the site) within one day of shipment from the field. All blanks and samples will be maintained at 4°C while stored onsite and during shipment. Sample bottles and blanks will be handled in the same manner prior to their return to the laboratory.

5.2 Analytical Methods

An Analytical Methods / Quality Assurance Summary Table is included below as per DER-10-2.4(a)2.v.. This table includes for each proposed analysis/matrix the analytical method, required sample volume, sample container size and preservative (if any), and analytical holding time. Further, the table provides anticipated sample quantities per analysis and matrix, as well as associated number and frequency of field and trip blanks, as well as for duplicate samples.

Table 2a: Soil/Sediment Methods

Analysis	Mass Required (g)	Bottleware	Laboratory Method (EPA)	Preservation Required	Hold Time
TCL VOCs	15 / 5	Three EnCore samplers OR one Terracore kit	8260C/D	EnCore OR MeOH/$NaHSO_4$	48 hours for lab to prep. 14 days for analysis
TCL SVOCs + 1,4-Dioxane	100	8 oz glass	8270C	None	14 days to extract, 40 days for analysis from extraction
Total Solids Analysis	50	8 oz glass	SM2540G	None	7 days to extract, 40 days for analysis from extraction
TCL Pesticides/Herbicides	100	8 oz glass	8081B/8151A	None	14 days to extract, 40 days

Table 2a: Soil/Sediment Methods

Analysis	Mass Required (g)	Bottleware	Laboratory Method (EPA)	Preservation Required	Hold Time
					for analysis from extraction
TAL Metals	25	8 oz glass	6010C / 7471B	None	Mercury 26 days, other elements 180 days
TCL PCBs	100	8 oz glass	8082A	None	7 days to extract, 40 days for analysis from extraction
Per- and Polyfluoroalkyl Substances (PFAS)	100	8-oz HDPE	EPA Method 1633	None	14 days to extract, 40 days for analysis from extraction

Table 2b: Aqueous Methods

Analysis	Volume Required (mL)	Bottleware	Laboratory Method (EPA)	Preservation Required	Hold Time
TCL VOCs	120	Three 40 ml Vials	8260C/D	HCL < 2	48 hours for lab to prep. 14 days for analysis
TCL SVOC	2,000	Two 1 L Amber Glass	8270E	None	7 days to extract, 40 days for analysis from extraction
TCL Pesticides/Herbicides	2,000	Two 1 L Amber Glass	8081B/8151A	None	7 days to extract, 40 days for analysis from extraction
TAL Total/Dissolved Metals	500	One 500 mL Amber Glass	200.7/7470A	HNO_3 < 2	Mercury 26 days, other elements 180 days

Table 2b: Aqueous Methods					
Analysis	**Volume Required (mL)**	**Bottleware**	**Laboratory Method (EPA)**	**Preservation Required**	**Hold Time**
TCL PCBs	300	Two 300 ml Amber Glass	8082A	None	7 days to extract, 40 days for analysis from extraction
Per- and Polyfluoroalkyl Substances (PFAS)	500	HDPE – 500 ml	1633A	None	14 days to extract, 40 days for analysis from extraction

Table 2c: Gaseous Methods					
Analysis	**Volume Required (L)**	**Bottleware**	**Laboratory Method**	**Preservation Required**	**Hold Time**
Toxic Organics in Air - 15	6	Batch Certified Clean Summa Canisters, laboratory calibrated 8-hour flow controllers	USEPA Method TO-15	None	Analyzed within 14 days of collection

The project compounds summary, pursuant to DER-10, is included in Table 3 below.

Table 3: Project Compounds Summary		
Matrix	**Project Action Limits / Project Quantitative Limits**	**Applicable Analytical Parameters**
Soil	New York State Department of Environmental Conservation Standards, Criteria, and Guidance Soil Cleanup Objectives (SCOs), published in 6 NYCCR Part 375-6.8	VOCs; SVOCs; PCBs; Herbicides/Pesticides; Metals; Total Solids
	NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS). April 2023	PFAS
Groundwater	NYSDEC, Division of Water, Technical and Operational Guidance Series (TOGS) Memorandum 1.1.1, “Ambient	VOCs; SVOCs; PCBs; Herbicides/Pesticides; Total/Dissolved Metals:

Table 3: Project Compounds Summary		
Matrix	**Project Action Limits / Project Quantitative Limits**	**Applicable Analytical Parameters**
	Water Quality Standards and Guidance Values and Groundwater Effluent Limitations"	
	NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS). April 2023	PFAS
Air	New York State Department of Health May 2017 Updates to Soil Vapor/Indoor Air Decision Matrices	VOCs
Abbreviations: VOC -- Volatile Organic Compounds SVOC -- Semi-Volatile Organic Compounds PCB -- Polychlorinated Biphenyls PFAS – Per- and polyfluoroalkyl substances TAL – Target Analyte List TCL – Target Compound List		

5.2.1 PFAS Specific Analytical Methods and Information

Environmental samples collected during the Remedial Investigation to be analyzed for PFAS, will be analyzed via EPA Method 1633. Reporting limits for Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) in aqueous samples should not exceed 2 nanograms per liter (ng/L). Reporting limits for PFOA and PFOS in solid samples should not exceed 0.5 micrograms per kilogram (µg/kg). Reporting limits for all other PFAS in aqueous and solid media should be as close to these limits as possible. If laboratories indicate that they are not able to achieve these reporting limits for the entire PFAS Analyte List, site-specific decisions regarding acceptance of elevated reporting limits for specific PFAS can be made by the DER project manager in consultation with the DER chemist. A comprehensive list of the 40 PFAS compounds to be analyses via EPA Method 1633 is provided in Table 4 below.

Table 4: PFAS Analyte List – EPA Method 1633

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonic acids	Perfluorobutanesulfonic acid	PFBS	375-73-5
	Perfluoropentanesulfonic acid	PFPeS	2706-91-4
	Perfluorohexanesulfonic acid	PFHxS	355-46-4
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanesulfonic acid	PFOS	1763-23-1
Perfluoroalkyl sulfonic acids	Perfluorononanesulfonic acid	PFNS	68259-12-1
	Perfluorodecanesulfonic acid	PFDS	335-77-3
	Perfluorododecanesulfonic acid	PFDoS	79780-39-5

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl carboxylic acids	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	PFHpA	375-85-9
	Perfluorooctanoic acid	PFOA	335-67-1
	Perfluorononanoic acid	PFNA	375-95-1
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUnA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTeDA	376-06-7
Per- and Polyfluoroether carboxylic acids	Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
	4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
	Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
	Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
	Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
Fluorotelomer sulfonic acids	4:2 Fluorotelomer sulfonic acid	4:2-FTS	757124-72-4
	6:2 Fluorotelomer sulfonic acid	6:2-FTS	27619-97-2
	8:2 Fluorotelomer sulfonic acid	8:2-FTS	39108-34-4
Fluorotelomer carboxylic acids	3:3 Fluorotelomer carboxylic acid	3:3 FTCA	356-02-5
	5:3 Fluorotelomer carboxylic acid	5:3 FTCA	914637-49-3
	7:3 Fluorotelomer carboxylic acid	7:3 FTCA	812-70-4
Perfluorooctane sulfonamides	Perfluorooctane sulfonamide	PFOSA	754-91-6
	N-methylperfluorooctane sulfonamide	NMeFOSA	31506-32-8
	N-ethylperfluorooctane sulfonamide	NEtFOSA	4151-50-2
Perfluorooctane sulfonamidoacetic acids	N-methylperfluorooctane sulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethylperfluorooctane sulfonamidoacetic acid	N-EtFOSAA	2991-50-6
Perfluorooctane sulfonamide ethanols	N-methylperfluorooctane sulfonamidoethanol	MeFOSE	24448-09-7
	N-ethylperfluorooctane sulfonamidoethanol	EtFOSE	1691-99-2
Ether sulfonic acids	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (F-53B Major)	9Cl-PF3ONS	756426-58-1
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B Minor)	11Cl-PF3OUdS	763051-92-9
	Perfluoro(2-ethoxyethane) sulfonic acid	PFEESA	113507-82-7

6.0 FIELD SAMPLING METHODS

Clean sample containers will be obtained from the laboratory performing the analyses. The container type and cleaning procedure will depend upon the sample matrix, potential contaminants to be encountered, analytical methods requested, and the laboratory's quality assurance protocols. In selecting the proper container, the following will also be considered: (a) reactivity of container material with sample; (b) volume of container; (c) color of container, and (d) container closure.

An adhesive label will be attached to each bottle. Each label will have the following information written with a waterproof, non-volatile marker: (a) date of sample; (b) time of sample; (c) sample identification; (d) sampler initials; and (e) analytical parameters.

6.1 Decontamination of Sampling Equipment

6.1.1 Decontamination – General Sample Collection

To avoid cross contamination, all sampling equipment shall be clean and free from the residue of any previous samples. The use of new, dedicated sampling equipment and materials is preferred whenever possible. If equipment or materials are re-used, they should be decontaminated using, at a minimum, the following procedure:

- Clean equipment initially and following use with low phosphate detergent;
- Rinse with tap water;
- Rinse with de-ionized (DI) water; and
- Air dry

Decontamination water will be captured and collected in containers for proper off-site disposal pursuant to local and federal regulations. Heavily contaminated materials may require multiple washes and rinses, as well as rinsing in dilute hydrochloric acid.

Field instruments shall be cleaned as per the manufacturer's instructions. Avoid bringing field instruments into contact with heavily contaminated media.

6.1.2 Decontamination – PFAS Sample Collection

In addition to the general decontamination procedures outlined in Section 6.1.1, the following PFAS specific sample non-dedicated equipment decontamination procedures are to be conducted prior to the collection of a PFAS sample:

- Non-dedicated sampling equipment to be cleaned with low phosphate detergent solution consisting of Alconox or Liquinox and DI water.
- The equipment will then be rinsed once with DI water.
- A final rinse will be conducted with laboratory verified PFAS-free water.
- Powderless nitrile (non-latex) gloves will be donned during the handling and decontamination procedures.

- The SDS of detergents used in decontamination will be reviewed to ensure fluoro-surfactants are not listed as ingredients.

6.2 Sampling Methods

All procedures and sampling techniques will be conducted in accordance with the protocols outlined in the SRIWP and RAWP, applicable guidance documents, in accordance with industry practices in effect at the time the sampling is completed, and site conditions. General information pertaining to the field methods to be used is provided in the subsections below.

6.2.1 Soil Sampling

Soil samples will be collected using a hand trowel or hand auger (post-excavation endpoint samples) or Geoprobe® direct push drilling method (deeper soil samples up to 15-foot bgs or bedrock interface) operated by a to-be-determined environmental drilling company. The depth, location, and number of soil borings/samples are specified in the SRIWP and RAWP, and samples will be collected and submitted for laboratory analysis in accordance with the SRIWP and RAWP and this QAPP.

Samples for PFAS will be collected in accordance with the *April 2023 Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) NYSDEC* guidance provided as Appendix C and per Section 6.2.6.

The soil samples will be transferred to the sample containers with a minimum of handling. Following sample collection, soil borings will be abandoned by backfilling with soil cuttings and bentonite to within 3 inches of the ground surface. The surface will be completed with material to match existing surface conditions.

6.2.2 Monitoring Well Installation

Monitoring well installation activities were completed by Coastal Environmental Solutions, a New York-licensed well driller in accordance with the SRIWP, Construction details were logged during and upon completion of the well installations. No addition well installations are proposed for the RAWP.

6.2.3 Groundwater Sampling

Groundwater samples will be collected from permanent wells no sooner than 2 weeks after installation to allow the groundwater to equilibrate. Temporary wells will be sampled within 48 hours of installation. The wells will be sampled following EPA low-flow sampling techniques,[2] and in accordance with the procedure outlined in the SRIWP.

[2] The EPA low-flow sampling techniques can be access at:
https://www.epa.gov/sites/default/files/2017-10/documents/eqasop-gw4.pdf

Samples will be collected and placed in laboratory provided bottles, preserved as appropriate, and sent to the laboratory under proper chain of custody procedures. Purged groundwater will be containerized, characterized, and properly disposed. Field log entries including ground water equivalent heads, well depths, field water quality parameters, samples collected, the time of sample collection, odors, water color and clarity or other pertinent information will be recorded at the time of sampling.

Samples for PFAS will be collected separately in accordance with the *April 2023 Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) NYSDEC* guidance provided as Appendix C and per Section 6.2.6.

6.2.4 Air Sampling

Soil vapor samples will be collected and submitted for laboratory analysis in general accordance with the SRIWP, RAWP, and the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York.*

6.2.5 Sediment Sampling

Post-remedy sediment samples will be collected using a hand trowel, shovel, or hand auger from the dewatered pond. The depth, location, and number of sediment samples are specified in the RAWP, and samples will be collected and submitted for laboratory analysis in accordance with the RAWP and this QAPP. The sediment samples will be transferred to the sample containers with a minimum of handling.

Samples for PFAS will be collected in accordance with the *April 2023 Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) NYSDEC* guidance provided as Appendix C and per Section 6.2.6.

6.2.6 PFAS and Emerging Contaminant Sampling

Soil and groundwater samples collected for analysis of PFAS and 1,4-Dioxane will be collected in accordance with the *April 2023 Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) NYSDEC* guidance provided as Appendix C. Soil and groundwater samples collected from select sample locations will be analyzed for 1,4-Dioxane by EPA Method 8270 SIM and for PFAS by EPA Method 1633.

The following general special considerations apply to the collection of samples for PFAS analysis:

- Food and beverages are prohibited near sampling equipment;
- No cosmetics, moisturizers, hand cream, sun screen, or clothing materials containing Gore-Tex or Tyvek to be work during sampling;
- Gloves to be nitrile (i.e. not latex);
- Field equipment will not contain Teflon®;
- All sampling material will be made from stainless steel, HDPE, acetate, silicon, or polypropylene;

- No waterproof field books;
- No plastic clipboards, binders, or spiral hard cover notebooks;
- No adhesives;
- No sharpies or permanent markers; ball point pens are acceptable;
- No aluminum;
- PFAS samples will be kept in a separate cooler from other sampling containers; and
- Coolers will be filled only with regular ice (No “Blue Ice”).

Soil samples will be homogenized in acetate and/or stainless steel bowls and placed into laboratory provided glass jars via unused acetate spoons and/or decontaminated stainless steel spoons.

Groundwater samples will be collected using a peristaltic pump or submersible stainless steel pump fitted with dedicated, non-Teflon HDPE tubing. Groundwater samples collected for PFAS will be conducted during a separate “event” at least 24 hours prior to the sampling of the monitoring well for additional analytical parameters.

6.3 Sample Labeling

The analytical laboratory will supply appropriate, pre-cleaned sample containers and preservatives, as necessary. A coding system is to be used to identify each sample taken during the sampling program. This coding system will allow for retrieval of information about a particular sample and assure that each sample is uniquely identified.

For soil samples, each sample identification number is to be composed of the soil boring location, as designated in sampling plans, as well as an additional unique field denoting the sampling interval. For groundwater, each sample identification includes a four-character location designation (e.g., MW-01) and an eight-digit date designation. Proposed sample IDs are included in Appendix A. For soil vapor sampling, each sample identification number is to be composed of the soil vapor sample location followed by the date of the sampling (e.g., SV01-YYMMDD).

6.4 Sample Handling

One member of the field sampling crew will be designated as sample manager. It will be the responsibility of this person to perform sample labeling, packaging, and shipping. The sample manager will also be responsible for ensuring that samples are handled and preserved in the proper manner.

Sample containers will be separated from any potential outside source of contamination between the time they are received from the laboratory, and the time the samples are delivered to the laboratory for analysis. Sample handling will be performed so as to guard against outside contamination being introduced to the sample containers before and after sample collection. If the containers are not used immediately, they will be stored in a suitable area, and kept cool.

Following sample collection, the outer surfaces of the containers will undergo any necessary non-submersive decontamination. The samples will then be preserved on ice until they are shipped to the laboratory.

6.5 Sample Packaging

Samples that will be collected as part of this project are anticipated to be "low hazard" samples, based on a review of the analytical results for samples already collected. Therefore, no special packaging requirements are anticipated to be necessary. The samples will be packaged in coolers and appropriately cushioned during transport. The samples will be cooled to approximately 4 degrees Centigrade, using bagged ice.

6.6 Field Analytical Equipment and Associated Calibration and Maintenance Procedures

Field monitoring equipment being used by personnel during the supplemental RI and RAWP implementation will include a MiniRAE 3000 photo-ionization detector (PID), or equivalent instrumentation, both to assess the presence of any zones of potential soil contamination, as identified through readings materially above background, and in accordance with the Health & Safety Plan for the site work. Terraphase will also use a Solinst depth to water meter (or equivalent instrumentation) to determine the depth to groundwater at temporary and permanent wells installed. Groundwater indicator parameters will be collected using a property calibrated Horiba U-52 water quality meter equipped with a flow-through cell or equivalent instrumentation. Screening for indications of contamination of all excavated soil during any intrusive Site work during remedial action will be conducted by multiple means, including with an X-ray Fluorescence (XRF) analyzer. The use of other monitoring equipment is not anticipated.

Field sampling equipment will be procured for rent as needed from Pine Environmental, Inc. of Windsor, New Jersey (or similar company). Each piece of equipment will be calibrated prior to delivery. When a PID will be on-site for more than one day, it will be calibrated daily according to instrument instructions. Records of the time, results, and ambient conditions (i.e., weather, temperature) of calibration will be kept in the project field notebook by the sampling personnel for each instrument. Calibration of the water level meter is not required.

Monitoring equipment is generally delicate and if there are any concerns identified during use of equipment as to the accuracy of the readings being collected, use of that equipment will cease and a maintenance request made with the rental provider. On-site maintenance of field monitoring equipment will not be conducted.

6.7 Duplicate Sample Collection

Duplicate samples collected for soil, sediment, groundwater will be obtained by alternately filling sample containers from the same sampling device. Soil vapor sample duplicates will be taken by utilizing a “T-Splitter” and filling the sample and duplicate sample at the same time. Ambient air duplicate cannisters will be opened and closed at the same time over their respective sampling period.

7.0 EXCAVATION METHODS

The excavation grid and proposed excavation depths are based on the RI data, the remedial action objectives (RAOs), and applicable SCOs. Each grid or associated polygon will be treated as an individual excavation "cell" for the purposes of individual excavation depth and boundary.

The proposed excavation grid will be surveyed by a NYS Licensed Surveyor and the corners and intersection of each grid defined prior to ground intrusive remedial activities. The defined grid boundaries will remain intact until all surrounding excavation grids are determined to be remediated through end-point sampling results.

Once material has been removed to the proposed excavation depth, the excavation will be considered clean and access will be restricted from equipment and personnel, except for the Qualified Environmental Professional (QEP), following dry decontamination procedures, to collect end-point samples. The removal of material impacted above the applicable SCOs in each grid or polygon will be verified with confirmation end-point sampling.

The excavation and off-site disposal of impacted soil will be conducted by the remedial contractor with traditional construction equipment including bulldozers, front end loaders, excavators, and off-road dump trucks. Impacted soil will be loaded and transported to the material and staging area along temporary construction roads, where it will be stockpiled, managed, and loaded for off-site disposal.

8.0 DOCUMENTATION

Proper documentation of all site activities will be maintained to trace the possession and handling of samples from the time of collection through analysis and disposition. The following procedures will be used for documentation purposes.

8.1 Field Log Books

The field logbook, forms or electronic media will be used to note information regarding collection of samples, activities completed, and observations.

Information recorded in the log books will include, but is not limited to: name and exact location of site; date and time of arrival and departure; name of person keeping log; names of all persons on site; all available information on site; composition and concentration of substance; description of sampling plan; field instrument calibration information; location of sampling points; number of samples taken; volume of samples taken; date, time and methods of sample collection and any factors that may affect its quality; name of collector; all sample identification numbers; and weather conditions on the day of sampling. Summary worksheets may also be used to confirm that all pertinent information is recorded.

8.2 Sampling Locations

Sampling points will be documented as to their exact location using GPS and field measurements. All permanent well groundwater sampling points will be surveyed by a licensed professional surveyor.

8.3 Chain of Custody

The custody record for each sample will be documented using a Chain of Custody Form ("COC"). This form will be accompanying the sample containers to the site and will remain with the samples at all times, including during sample collection, transport, and analysis. The COC bears the name of the person(s) assuming responsibility for the samples and the person who collected the sample. The COC will also specify the following information: project name; project client; laboratory conducting analyses; sample matrix; sample identification number; sample time and date; number of containers; analyses to be performed; sampler's name; dates, name, and signatures, printed names and times of personnel relinquishing samples; signature, printed name, date, and time of personnel receiving samples.

When collecting a sample, if applicable, personnel will record the seal number associated with each sample cooler and record whether the seal was intact upon arrival in the field. This assures that the sample containers were not tampered with in the time between their preparation and their arrival on-site. After sample collection, the bottles will again be placed in the cooler. The cooler will be sealed on-site (if such seal is provided by the laboratory) and the number will be recorded in the field book.

8.4 Document Management and Archive Procedures

All field documentation discussed herein, all laboratory deliverables and any other documentation regarding the sampling programs encompassed by this QAPP will be maintained in the original electronic and paper (e.g., field notebooks) formats. Electronic files will be maintained on Carson Voci's network servers, with backup files stored at a secure off-site location.

9.0 LABORATORY SAMPLE STORAGE PROCEDURES

Sample containers will be laboratory-cleaned and provided by the laboratory performing the analysis. Samples will be collected directly into the bottles supplied by the laboratory. Samples will be stored in the laboratory in a manner consistent with the required preservation requirements for each sample matrix and analytical methodology. The laboratory selected to perform analyses of the samples will be NYSDEC-certified and thereafter is expected to follow USEPA and NYSDEC sample storage requirements.

10.0 ANALYTICAL AND OTHER DATA REQUIREMENTS

The analytical and sampling and analysis requirements for the Site are presented in the supplemental RIWP and provided in more detail in the following sections.

10.1 Laboratory Deliverables

The laboratory will provide all soil analytical results in electronic, Category B deliverable format unless otherwise requested. The analytical data package will be accompanied by an electronic data deliverable (EDD). Data for this site will be evaluated and qualified in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, USEPA-540-R-07-003, July 2007 and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA-540-R-04-004, October 2004, as appropriate for the analytical methods employed.

Data generated will be uploaded to the NYSDEC's Environmental Information Management System in accordance with the NYSDEC Electronic Data Deliverable Manual, V. 4 (NYSDEC, 2018). The EDD format required is current format Earthsoft EQuIS® Environmental Data Management Software. Each EDD must be formatted and copied using an MS-DOS operating system. To avoid transcription errors, data will be loaded directly into the ASCII format from the laboratory information management system (LIMS). The laboratory will perform a QC check on the EDD before delivery. The original data, tabulations, and electronic media must be stored in a secure and retrievable fashion.

10.2 Data Records Management

All field information will be recorded in bound field books using permanent ink and recorded in electronic format on the corporate server. Paper records will be archived at the Site Team's office location.

Errors discovered in records will be corrected by entering a single line through the error and writing the corrected information above the error. The person correcting a record will initial the correction and place the date of correction next to the initial. If the person correcting the record is not the person who made the initial record, then the correcting person shall explain the correction in a permanent memo in the project file.

10.3 Data Verification and Validation

Field records and data will be provided to a Project Team member for review as soon as possible after collection or generation. The Project Team member will review field records and data deliverables for legibility, usability, and completeness within 1 week of receipt. Any noted deficiencies will be corrected as soon as possible thereafter.

Field records will conform to the specifications and requirements of the QAPP and referenced documents herein. Data will be compared to the DQOs to evaluate data usability.

An independent third-party quality assurance chemist will review the laboratory data package and prepare a data usability summary report (DUSR). The validation will conform to the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, USEPA-540-R-07-003, July 2007 and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA-540-R-04-004, October 2004, as appropriate for the analytical methods employed.

The DUSR will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method. A detailed assessment of each sample delivery group will be presented in the data validation report. At least 10% of the data in a data set should receive a full validation.

The validated analytical results reported by the laboratory and validated by the third-party validator will be assigned one of the following USEPA-defined data usability qualifiers:

- U – Not detected at given value
- UJ – Estimated not detected at given value (applied by third party validator)
- J – Estimated value
- N – Presumptive evidence at the value given (applied by third party validator)
- R – Result not useable (applied by third party validator)
- No Flag – Result accepted without qualification

10.4 Data Usability Summary Report

The analytical data review will be summarized by a third-party validator in a DUSR, which will include a review and evaluation of all the analytical results. The following parameters will be reviewed to ensure compliance with the analytical method protocols:

- Initial and continuing calibrations
- Blanks
- Laboratory control standards and matrix spikes
- Surrogate recoveries
- Matrix interference checks
- Field and laboratory duplicates
- Sample data
- Chain-of-custody forms
- Holding times

The report will describe the samples and parameters reviewed. Any deficiencies identified during the review will be noted and the effect on the generated data will be discussed. If warranted, the report will include recommendations for re-sampling or re-analysis.

10.5 Data Precision and Assessment Procedures

10.5.1 Field Precision

Field precision is difficult to measure because of temporal variations in field parameters. However, precision will be controlled through the use of experienced field personnel, properly calibrated meters, and duplicate field measurements. Field duplicates will be used to assess precision for the measurement system.

10.5.2 Laboratory Precision

Laboratory data precision for organic analyses will be monitored through the use of surrogate spikes and laboratory duplicates. The precision of data will be measured by calculating the relative percent difference (RPD) by the following equation:

RPD = 100*(A-B) /((A+B)/2)

Where:

A = Analytical result from one of two duplicate measurements

B = Analytical result from the second measurement

Precision objectives for laboratory duplicate analyses are identified in the NYSDEC ASP Revision 2016.

10.5.3 Data Accuracy Assessment Procedures

Experienced field personnel, properly calibrated field meters, and adherence to established protocols will control the accuracy of field measurements. The accuracy of field meters will be assessed by review of calibration and maintenance logs.

Laboratory accuracy will be assessed via the use of surrogate spikes, internal standards, and reference standards. Where available and appropriate, quality assurance performance standards will be analyzed periodically to assess laboratory accuracy.

Accuracy will be calculated in terms of percent recovery as follows:

% Recovery = 100*(A-X)/B

Where:

A = Value measured in spiked sample or standard

X = Value measured in original sample

B = True value of amount added to sample or true value of standard

This formula is derived under the assumption of constant accuracy over the original and spiked measurements. If any accuracy calculated by this formula is outside of the acceptable levels, data will be evaluated to determine whether the deviation represents unacceptable accuracy, or variable, but acceptable accuracy. Accuracy objectives for surrogate recovery objectives are identified in the NYSDEC ASP 2016 Revision.

10.5.4 Data Completeness Assessment Procedures

The laboratory will calculate the completeness of laboratory data sets by comparing the number of valid sample results generated to the total number of results generated.

Completeness = 100*(Number valid results/Total number of results generated)

As a general guideline, overall project completeness is expected to be at least 90%.

10.6 Corrective Actions

The corrective actions typically taken by the laboratory are described below. If the calibration, instrument performance, or blank criteria are not met, the cause of the problem will be investigated and corrected. The analytical system then will be recalibrated. As part of the laboratory's operating protocol, sample analysis does not begin until calibration, instrument performance, and blank criteria are met. If matrix spike, reference standard, or duplicate analyses are found to be out of acceptable limits, the cause of the issue must be researched. Then, depending on the results of the overall QC program for the sample set, the data may be accepted, accepted with qualification, or determined to be unusable. If deemed unusable, the samples either must be reanalyzed, or a new set of samples collected and analyzed.

Deviations from the QAPP will be identified by the QA Coordinator and corrected, to the extent practicable. If the QAPP requires amending, a QAPP amendment will be attached and distributed to affected persons.

10.7 Distribution

A copy of this QAPP and any amendments will be provided to all Team Members and field personnel.

11.0 REFERENCES

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New York State Department of Health (NYSDOH). 2006. *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*. October 26; updated May 2017. https://www.health.ny.gov/environmental/investigations/soil_gas/svi_guidance/docs/svig_final2006_complete.pdf.

United States Environmental Protection Agency (EPA). 2022. *Standard Operating Procedure for Low-Stress (Low Flow) / Minimal Drawdown Ground-Water Sample Collection.* https://www.epa.gov/sites/default/files/2015-06/documents/finalsopls1217.pdf. November 22.

APPENDIX A

PROPOSED SAMPLE LOCATION FIGURES AND SAMPLE SUMMARY TABLES

Appendix A
Table A-1
Proposed Supplemental Soil Sampling Plan
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Area	Location ID	Sample ID	Sample Depth (ft bgs)	Soil Analyses															Sampling Rationale
											Individual Metal Analyses[1]								
				VOCs	SVOCs	PCBs	PFAS	TCL Pesticides	TCL Herbicides	TAL Metals + Hex Chrome	Arsenic	Total + Hex Chrome	Copper	Lead	Mercury	Nickel	Zinc	
Western Parcel	A04R	A04R-0.5-1	0.5-1								X				X			Vertical Refinement - RSCOs Exceedance
		A04R-1-1.5	1-1.5								H				H			
		A04R-1.5-2	1.5-2								H				H			
		A04R-2-4	2-4				X											Vertical Delineation - UUSCOs
		A04R-4-6	4-6				H											
Western Parcel	A05R	A05R-0.2-2	0.2-2				X											Horizontal Delineation - UUSCOs Exceedance
		A05R-2-4	2-4				H											
		A05R-4-6	4-6				H											
Western Parcel	A11R	A11R-0.5-1	0.5-1								X				X			Vertical Refinement - RSCOs Exceedance
		A11R-1-1.5	1-1.5								H				H			
		A11R-1.5-2	1.5-2								H				H			
Western Parcel	A13R	A13R-2-2.5	2-2.5					X							X			Vertical Refinement - RSCOs Exceedance
		A13R-2.5-3	2.5-3					H							H			
		A13R-3-3.5	3-3.5					H							H			
		A13R-3.5-4	3.5-4					H							H			
Western Parcel	B04R	B04R-0.2-2	0.2-2				X											Horizontal Delineation - UUSCOs Exceedance
		B04R-2-4	2-4				H											
		B04R-4-6	4-6				H											
Western Parcel	B05R	B05R-0.2-2	0.2-2				X											Horizontal Delineation - UUSCOs Exceedance
		B05R-2-4	2-4				H											
		B05R-4-6	4-6				H											
Western Parcel	B08R	B08R-0.5-1	0.5-1								X							Vertical Refinement - RSCOs Exceedance
		B08R-1-1.5	1-1.5								H							
		B08R-1.5-2	1.5-2								H							
		B08R-6-8	6-8										X					Vertical Delineation - UUSCOs
		B08R-8-10	8-10										H					
Western Parcel	B12R	B12R-6-8	6-8					X										Vertical Delineation - UUSCOs
		B12R-8-10	8-10					H										
Western Parcel	B13R	B13R-0.5-1	0.5-1												X			Vertical Refinement - RSCOs Exceedance
		B13R-1-1.5	1-1.5												H			
		B13R-1.5-2	1.5-2												H			
Western Parcel	C03R	C03R-0.5-1	0.5-1					X										Vertical Refinement - RSCOs Exceedance
		C03R-1-1.5	1-1.5					H										
		C03R-1.5-2	1.5-2					H										
Western Parcel	C10R	C10R-0.5-1	0.5-1					X			X							Vertical Refinement - RSCOs Exceedance
		C10R-1-1.5	1-1.5					H			H							
		C10R-1.5-2	1.5-2					H			H							
Western Parcel	C11R	C11R-0.5-1	0.5-1								X				X			Vertical Refinement - RSCOs Exceedance
		C11R-1-1.5	1-1.5								H				H			
		C11R-1.5-2	1.5-2								H				H			
		C11R-6-8	6-8												X			Vertical Delineation - UUSCOs
		C11R-8-10	8-10												H			
Western Parcel	D04R	D04R-2-4	2-4									X						Vertical Delineation - UUSCOs
		D04R-4-6	4-6									H						
Western Parcel	D11R	D11R-0.5-1	0.5-1					X			X	X			X			Vertical Refinement - RSCOs Exceedance
		D11R-1-1.5	1-1.5					H			H	H			H			
		D11R-1.5-2	1.5-2					H			H	H			H			
Western Parcel	D13R	D13R-0.5-1	0.5-1								X							Vertical Refinement - RSCOs Exceedance
		D13R-1-1.5	1-1.5								H							
		D13R-1.5-2	1.5-2								H							

Table A-1
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Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Area	Location ID	Sample ID	Sample Depth (ft bgs)	Soil Analyses														Sampling Rationale
											Individual Metal Analyses[1]							
				VOCs	SVOCs	PCBs	PFAS	TCL Pesticides	TCL Herbicides	TAL Metals + Hex Chrome	Arsenic	Total + Hex Chrome	Copper	Lead	Mercury	Nickel	Zinc	
Eastern Parcel	D14R	D14R-0.5-1	0.5-1					X										Vertical Refinement - UUSCOs Exceedance
		D14R-1-1.5	1-1.5					H										
		D14R-1.5-2	1.5-2					H										
Western Parcel	E03R	E03R-0.5-1	0.5-1					X							X			Vertical Refinement - RSCOs Exceedance
		E03R-1-1.5	1-1.5					H							H			
		E03R-1.5-2	1.5-2					H							H			
Western Parcel	E06R	E06R-0.5-1	0.5-1					X			X				X			Vertical Refinement - RSCOs Exceedance
		E06R-1-1.5	1-1.5					H			H				H			
		E06R-1.5-2	1.5-2					H			H				H			
Western Parcel	E07R	E07R-0.5-1	0.5-1					X			X							Vertical Refinement - RSCOs Exceedance
		E07R-1-1.5	1-1.5					H			H							
		E07R-1.5-2	1.5-2					H			H							
		E07R-2-4	2-4					H			H				X			Vertical Delineation - UUSCOs (if needed)
Western Parcel	E08R	E08R-0.5-1	0.5-1								X							Vertical Refinement - RSCOs Exceedance
		E08R-1-1.5	1-1.5								H							
		E08R-1.5-2	1.5-2								H							
Western Parcel	E12R	E12R-0.5-1	0.5-1								X							Vertical Refinement - RSCOs Exceedance
		E12R-1-1.5	1-1.5								H							
		E12R-1.5-2	1.5-2								H							
Western Parcel	F02R	F02R-0.5-1	0.5-1		X	X												Vertical Refinement - RSCOs Exceedance
		F02R-1-1.5	1-1.5		H	H												
		F02R-1.5-2	1.5-2		H	H												
		F02R-2-2.5	2-2.5		H	H												Vertical Delineation - RSCOs (if needed)
		F02R-2.5-3	2.5-3		H	H												
		F02R-3-3.5	3-3.5		H	H												
		F02R-3.5-4	3.5-4		H	H												
Western Parcel	F03R	F03R-6-8	6-8					X										Vertical Delineation - UUSCOs
		F03R-8-10	8-10					H										
Western Parcel	F07R	F07R-0.5-1	0.5-1								X							Vertical Refinement - RSCOs Exceedance
		F07R-1-1.5	1-1.5								H							
		F07R-1.5-2	1.5-2								H							
Western Parcel	F08R	F08R-0.5-1	0.5-1					X			X	X						Vertical Refinement - RSCOs Exceedance
		F08R-1-1.5	1-1.5					H			H	H						
		F08R-1.5-2	1.5-2					H			H	H						
Western Parcel	F10R	F10R-0.5-1	0.5-1					X			X							Vertical Refinement - RSCOs Exceedance
		F10R-1-1.5	1-1.5					H			H							
		F10R-1.5-2	1.5-2					H			H							
Western Parcel	F11R	F11R-0.5-1	0.5-1					X			X	X			X			Vertical Refinement - RSCOs Exceedance
		F11R-1-1.5	1-1.5					H			H	H			H			
		F11R-1.5-2	1.5-2					H			H	H			H			
Eastern Parcel	F13R	F13R-0.5-1	0.5-1					X										Vertical Refinement/Delineation - UUSCOs Exceedance - Resample for Pesticides
		F13R-1-1.5	1-1.5					H										
		F13R-1.5-2	1.5-2					H										
		F13R-2-2.5	2-2.5					H										
		F13R-2.5-3	2.5-3					H										
		F13R-3-3.5	3-3.5					H										
		F13R-3.5-4	3.5-4					H										
		F13R-2-4	2-4					X										
		F13R-4-4.5	4-4.5					H										
		F13R-4.5-5	4.5-5					H										
		F13R-5-5.5	5-5.5					H										
		F13R-5.5-6	5.5-6					H										
		F13R-4-6	4-6					X										
		F13R-6-8	6-8					H										
		F13R-8-10	8-10					H										

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											Individual Metal Analyses[1]								
				VOCs	SVOCs	PCBs	PFAS	TCL Pesticides	TCL Herbicides	TAL Metals + Hex Chrome	Arsenic	Total + Hex Chrome	Copper	Lead	Mercury	Nickel	Zinc		
Eastern Parcel	F15R	F15R-0.5-1	0.5-1					X											Vertical Refinement - UUSCOs Exceedance
		F15R-1-1.5	1-1.5					H											
		F15R-1.5-2	1.5-2					H											
Western Parcel	G02R	G02R-6-8	6-8													X			Vertical Delineation - UUSCOs
		G02R-8-10	8-10													H			
Western Parcel	G03R	G03R-6-8	6-8					X											Vertical Delineation - UUSCOs
		G03R-8-10	8-10					H											
Western Parcel	G04R	G04R-2-2.5	2-2.5												X				Vertical Refinement - RSCOs Exceedance
		G04R-2.5-3	2.5-3												H				
		G04R-3-3.5	3-3.5												H				
		G04R-3.5-4	3.5-4												H				
		G04R-6-8	6-8					X							X				Vertical Delineation - UUSCOs
		G04R-8-10	8-10					H							H				
Western Parcel	G06R	G06R-0.5-1	0.5-1												X				Vertical Refinement - RSCOs Exceedance
		G06R-1-1.5	1-1.5												H				
		G06R-1.5-2	1.5-2												H				
Western Parcel	G07R	G07R-2-4	2-4					X											Vertical Delineation - UUSCOs
		G07R-4-6	4-6					H											
Western Parcel	G08R	G08R-2-4	2-4					X				X							Vertical Delineation - UUSCOs
		G08R-4-6	4-6					H				H							
Western Parcel	G09R	G09R-0.5-1	0.5-1					X			X								Vertical Refinement - RSCOs Exceedance
		G09R-1-1.5	1-1.5					H			H								
		G09R-1.5-2	1.5-2					H			H								
		G09R-2-2.5	2-2.5					H			H								Vertical Delineation - RSCOs (if needed)
		G09R-2.5-3	2.5-3					H			H								
		G09R-3-3.5	3-3.5					H			H								
		G09R-3.5-4	3.5-4					H			H								
		G09R-2-4	2-4					H			H				X				Vertical Delineation - UUSCOs
		G09R-4-6	4-6					H			H				H				
Western Parcel	G10R	G10R-2-4	2-4					X											Vertical Delineation - UUSCOs
		G10R-4-6	4-6					H											
Western Parcel	G11R	G11R-2-4	2-4					X											Vertical Delineation - UUSCOs
		G11R-4-6	4-6					H											
Eastern Parcel	G15R	G15R-0.5-1	0.5-1												X				Vertical Refinement - UUSCOs Exceedance
		G15R-1-1.5	1-1.5												H				
		G15R-1.5-2	1.5-2												H				
Western Parcel	H01R	H01R-2-4	2-4					X											Vertical Delineation - UUSCOs
		H01R-4-6	4-6					H											
Western Parcel	H02R	H02R-4-6	4-6															X	Vertical Delineation - UUSCOs
		H02R-6-8	6-8															H	
Western Parcel	H03R	H03R-0.5-1	0.5-1								X								Vertical Refinement - RSCOs Exceedance
		H03R-1-1.5	1-1.5								H								
		H03R-1.5-2	1.5-2								H								
Western Parcel	H04R	H04R-0.5-1	0.5-1												X				Vertical Refinement - RSCOs Exceedance
		H04R-1-1.5	1-1.5												H				
		H04R-1.5-2	1.5-2												H				
		H04R-4-6	4-6													X	X		Vertical Delineation - UUSCOs
		H04R-6-8	6-8													H	H		
Western Parcel	H05R	H05R-0.5-1	0.5-1								X								Vertical Refinement - RSCOs Exceedance
		H05R-1-1.5	1-1.5								H								
		H05R-1.5-2	1.5-2								H								

Table A-1
Proposed Supplemental Soil Sampling Plan
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Area	Location ID	Sample ID	Sample Depth (ft bgs)	Soil Analyses															Sampling Rationale
											Individual Metal Analyses[1]								
				VOCs	SVOCs	PCBs	PFAS	TCL Pesticides	TCL Herbicides	TAL Metals + Hex Chrome	Arsenic	Total + Hex Chrome	Copper	Lead	Mercury	Nickel	Zinc		
Western Parcel	H06R	H06R-0.5-1	0.5-1					X											Vertical Refinement - RSCOs Exceedance
		H06R-1-1.5	1-1.5					H											
		H06R-1.5-2	1.5-2					H											
		H06R-4-6	4-6					X											Vertical Delineation - UUSCOs
		H06R-6-8	6-8					H											
Western Parcel	H08R	H08R-4-6	4-6					X											Vertical Delineation - UUSCOs
		H08R-6-8	6-8					H											
Western Parcel	H09R	H09R-0.5-1	0.5-1												X				Vertical Refinement - RSCOs Exceedance
		H09R-1-1.5	1-1.5												H				
		H09R-1.5-2	1.5-2												H				
		H09R-6-8	6-8					X											Vertical Delineation - UUSCOs
		H09R-8-10	8-10					H											
Eastern Parcel	H12R	H12R-0.5-1	0.5-1												X				Vertical Refinement - UUSCOs Exceedance
		H12R-1-1.5	1-1.5												H				
		H12R-1.5-2	1.5-2												H				
Eastern Parcel	H13R	H13R-0.5-1	0.5-1					X			X	X		X	X				Vertical Refinement - UUSCOs Exceedance
		H13R-1-1.5	1-1.5					H			H	H		H	H				
		H13R-1.5-2	1.5-2					H			H	H		H	H				
Eastern Parcel	H14R	H14R-0.5-1	0.5-1					X											Vertical Refinement - UUSCOs Exceedance
		H14R-1-1.5	1-1.5					H											
		H14R-1.5-2	1.5-2					H											
Western Parcel	I01R	I01R-4-6	4-6					X											Vertical Delineation - UUSCOs
		I01R-6-8	6-8					H											
Western Parcel	I04R	I04R-0.5-1	0.5-1					X			X								Vertical Refinement - RSCOs Exceedance
		I04R-1-1.5	1-1.5					H			H								
		I04R-1.5-2	1.5-2					H			H								
		I04R-4-6	4-6					X											Vertical Delineation - UUSCOs
		I04R-6-8	6-8					H											
Western Parcel	I06R	I06R-4-6	4-6					X											Vertical Delineation - UUSCOs
		I06R-6-8	6-8					H											
Western Parcel	I09R	I09R-0.5-1	0.5-1					X			X				X				Vertical Refinement - RSCOs Exceedance
		I09R-1-1.5	1-1.5					H			H				H				
		I09R-1.5-2	1.5-2					H			H				H				
		I09R-2-2.5	2-2.5					H											
		I09R-2.5-3	2.5-3					H											
		I09R-3-3.5	3-3.5					H											
		I09R-3.5-4	3.5-4					H											
		I09R-2-4	2-4					X											Vertical Delineation - UUSCOs Exceedance
		I09R-4-6	4-6					H							X				
		I09R-6-8	6-8					H							H				
Western Parcel	I10R	I10R-0.5-1	0.5-1					X			X	X							Vertical Refinement - RSCOs Exceedance
		I10R-1-1.5	1-1.5					H			H	H							
		I10R-1.5-2	1.5-2					H			H	H							
		I10R-4-6	4-6					X											Vertical Delineation - UUSCOs
		I10R-6-8	6-8					H											

Table A-1
Proposed Supplemental Soil Sampling Plan
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Area	Location ID	Sample ID	Sample Depth (ft bgs)	Soil Analyses															Sampling Rationale
											Individual Metal Analyses[1]								
				VOCs	SVOCs	PCBs	PFAS	TCL Pesticides	TCL Herbicides	TAL Metals + Hex Chrome	Arsenic	Total + Hex Chrome	Copper	Lead	Mercury	Nickel	Zinc		
Eastern Parcel	I12R	I12R-0.5-1	0.5-1					X			X	X		X	X				Vertical Refinement - UUSCOs Exceedance
		I12R-1-1.5	1-1.5					H			H	H		H	H				
		I12R-1.5-2	1.5-2					H			H	H		H	H				
		I12R-2-2.5	2-2.5					H											
		I12R-2.5-3	2.5-3					H											
		I12R-3-3.5	3-3.5					H											
		I12R-3.5-4	3.5-4					H											
		I12R-2-4	2-4					H											Vertical Delineation - UUSCOs
		I12R-4-6	4-6					H											
		I12R-6-8	6-8					H											
Eastern Parcel	I13R	I13R-0.5-1	0.5-1					X			X	X		X	X				Vertical Refinement - UUSCOs Exceedance
		I13R-1-1.5	1-1.5					H			H	H		H	H				
		I13R-1.5-2	1.5-2					H			H	H		H	H				
		I13R-2-2.5	2-2.5									H				X			
		I13R-2.5-3	2.5-3									H				H			
		I13R-3-3.5	3-3.5									H				H			
		I13R-3.5-4	3.5-4									H				H			
		I13R-4-6	4-6									H				H			Vertical Delineation - UUSCOs
		I13R-6-8	6-8									H				H			
Eastern Parcel	I14R	I14R-0.5-1	0.5-1					X											Vertical Refinement - UUSCOs Exceedance
		I14R-1-1.5	1-1.5					H											
		I14R-1.5-2	1.5-2					H											
Western Parcel	TS-01R	TS-01R-0-1	0-1	X	X			X		X									Vertical Delineation - RSCOs Exceedance[2]
		TS-01R-1-1.5	1-1.5		X			X		X									
		TS-01R-1.5-2	1.5-2		H			H		H									
		TS-01R-2-2.5	2-2.5		H			H		H									
		TS-01R-2.5-3	2.5-3		H			H		H									
		TS-01R-3-3.5	3-3.5		H			H		H									
		TS-01R-3.5-4	3.5-4		H			H		H									
Western Parcel	TS-02R	TS-02R-0-1	0-1	X	X			X		X									Vertical Delineation - RSCOs Exceedance[2]
		TS-02R-1-1.5	1-1.5		X			X		X									
		TS-02R-1.5-2	1.5-2		H			H		H									
		TS-02R-2-2.5	2-2.5		H			H		H									
		TS-02R-2.5-3	2.5-3		H			H		H									
		TS-02R-3-3.5	3-3.5		H			H		H									
		TS-02R-3.5-4	3.5-4		H			H		H									
Western Parcel	TS-03R	TS-03R-0-1	0-1	X	X		X	X		X									Vertical Delineation - RSCOs Exceedance[2]
		TS-03R-1-1.5	1-1.5		X		X	X		X									
		TS-03R-1.5-2	1.5-2		H		H	H		H									
		TS-03R-2-2.5	2-2.5		H		H	H		H									
		TS-03R-2.5-3	2.5-3		H		H	H		H									
		TS-03R-3-3.5	3-3.5		H		H	H		H									
		TS-03R-3.5-4	3.5-4		H		H	H		H									
Western Parcel	TS-04R	TS-04R-0-1	0-1	X	X	X		X		X									Vertical Delineation - RSCOs Exceedance[2]
		TS-04R-1-1.5	1-1.5		X	H		X		X									
		TS-04R-1.5-2	1.5-2		H	H		H		H									
		TS-04R-2-2.5	2-2.5		H	H		H		H									
		TS-04R-2.5-3	2.5-3		H	H		H		H									
		TS-04R-3-3.5	3-3.5		H	H		H		H									
		TS-04R-3.5-4	3.5-4		H	H		H		H									

Table A-1
Proposed Supplemental Soil Sampling Plan
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

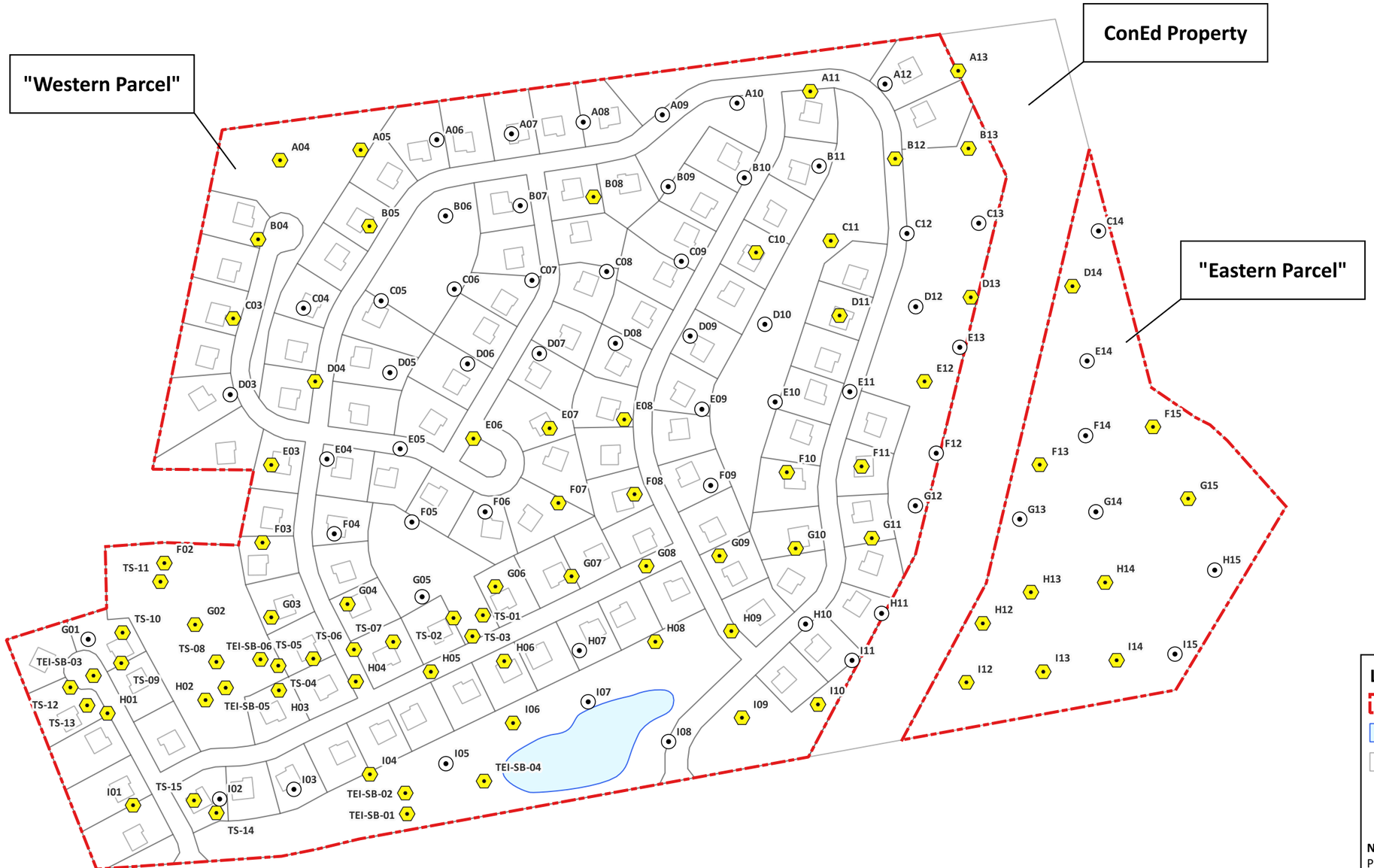
Area	Location ID	Sample ID	Sample Depth (ft bgs)	Soil Analyses															Sampling Rationale
											Individual Metal Analyses[1]								
				VOCs	SVOCs	PCBs	PFAS	TCL Pesticides	TCL Herbicides	TAL Metals + Hex Chrome	Arsenic	Total + Hex Chrome	Copper	Lead	Mercury	Nickel	Zinc		
Western Parcel	TS-05R	TS-05R-0-1	0-1	X	X		X	X		X									Vertical Delineation - RSCOs Exceedance[2]
		TS-05R-1-1.5	1-1.5		X		X	X		X									
		TS-05R-1.5-2	1.5-2		H		H	H		H									
		TS-05R-2-2.5	2-2.5		H		H	H		H									
		TS-05R-2.5-3	2.5-3		H		H	H		H									
		TS-05R-3-3.5	3-3.5		H		H	H		H									
		TS-05R-3.5-4	3.5-4		H		H	H		H									
Western Parcel	TS-06R	TS-06R-0-1	0-1	X	X			X		X									Vertical Delineation - RSCOs Exceedance[2]
		TS-06R-1-1.5	1-1.5		X			X		X									
		TS-06R-1.5-2	1.5-2		H			H		H									
		TS-06R-2-2.5	2-2.5		H			H		H									
		TS-06R-2.5-3	2.5-3		H			H		H									
		TS-06R-3-3.5	3-3.5		H			H		H									
		TS-06R-3.5-4	3.5-4		H			H		H									
Western Parcel	TS-07R	TS-07R-0-1	0-1	X	X			X		X									Vertical Delineation - UUSCOs Exceedance[2]
		TS-07R-1-1.5	1-1.5		X			X		X									
		TS-07R-1.5-2	1.5-2		H			H		H									
		TS-07R-2-2.5	2-2.5		H			H		H									
		TS-07R-2.5-3	2.5-3		H			H		H									
		TS-07R-3-3.5	3-3.5		H			H		H									
		TS-07R-3.5-4	3.5-4		H			H		H									
Western Parcel	TS-08R	TS-08R-0-1	0-1	X	X	X		X		X									Vertical Delineation - RSCOs Exceedance[2]
		TS-08R-1-1.5	1-1.5		X	X		X		X									
		TS-08R-1.5-2	1.5-2		H	H		H		H									
		TS-08R-2-2.5	2-2.5		H	H		H		H									
		TS-08R-2.5-3	2.5-3		H	H		H		H									
		TS-08R-3-3.5	3-3.5		H	H		H		H									
		TS-08R-3.5-4	3.5-4		H	H		H		H									
Western Parcel	TS-09R	TS-09R-0-1	0-1	X	X			X		X									Vertical Delineation - UUSCOs Exceedance[2]
		TS-09R-1-1.5	1-1.5		X	H		X		X									
		TS-09R-1.5-2	1.5-2		H	H		H		H									
		TS-09R-2-2.5	2-2.5		H	H		H		H									
		TS-09R-2.5-3	2.5-3		H	H		H		H									
		TS-09R-3-3.5	3-3.5		H	H		H		H									
		TS-09R-3.5-4	3.5-4		H	H		H		H									
Western Parcel	TS-10R	TS-10R-0-1	0-1	X	X	X	X	X		X									Vertical Delineation - RSCOs Exceedance[2]
		TS-10R-1-1.5	1-1.5		X	H	X	X		X									
		TS-10R-1.5-2	1.5-2		H	H	H	H		H									
		TS-10R-2-2.5	2-2.5		H	H	H	H		H									
		TS-10R-2.5-3	2.5-3		H	H	H	H		H									
		TS-10R-3-3.5	3-3.5		H	H	H	H		H									
		TS-10R-3.5-4	3.5-4		H	H	H	H		H									
Western Parcel	TS-11R	TS-11R-0-1	0-1	X	X	X		X		X									Vertical Delineation - RSCOs Exceedance[2]
		TS-11R-1-1.5	1-1.5		X	X		X		X									
		TS-11R-1.5-2	1.5-2		H	H		H		H									
		TS-11R-2-2.5	2-2.5		H	H		H		H									
		TS-11R-2.5-3	2.5-3		H	H		H		H									
		TS-11R-3-3.5	3-3.5		H	H		H		H									
		TS-11R-3.5-4	3.5-4		H	H		H		H									

Table A-1
Proposed Supplemental Soil Sampling Plan
Elmwood Preserve Site - NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

Area	Location ID	Sample ID	Sample Depth (ft bgs)	Soil Analyses															Sampling Rationale
											Individual Metal Analyses[1]								
				VOCs	SVOCs	PCBs	PFAS	TCL Pesticides	TCL Herbicides	TAL Metals + Hex Chrome	Arsenic	Total + Hex Chrome	Copper	Lead	Mercury	Nickel	Zinc		
Western Parcel	TS-12R	TS-12R-0-1	0-1	X	X			X		X									Vertical Delineation - RSCOs Exceedance[2]
		TS-12R-1-1.5	1-1.5		X			X		X									
		TS-12R-1.5-2	1.5-2		H			H		H									
		TS-12R-2-2.5	2-2.5		H			H		H									
		TS-12R-2.5-3	2.5-3		H			H		H									
		TS-12R-3-3.5	3-3.5		H			H		H									
		TS-12R-3.5-4	3.5-4		H			H		H									
Western Parcel	TS-13R	TS-13R-0-1	0-1	X	X			X		X									Vertical Delineation - UUSCOs Exceedance[2]
		TS-13R-1-1.5	1-1.5		X			X		X									
		TS-13R-1.5-2	1.5-2		H			H		H									
		TS-13R-2-2.5	2-2.5		H			H		H									
		TS-13R-2.5-3	2.5-3		H			H		H									
		TS-13R-3-3.5	3-3.5		H			H		H									
		TS-13R-3.5-4	3.5-4		H			H		H									
Western Parcel	TS-14R	TS-14R-0-1	0-1	X	X			X		X									Vertical Delineation - RSCOs Exceedance[2]
		TS-14R-1-1.5	1-1.5		X			X		X									
		TS-14R-1.5-2	1.5-2		H			H		H									
		TS-14R-2-2.5	2-2.5		H			H		H									
		TS-14R-2.5-3	2.5-3		H			H		H									
		TS-14R-3-3.5	3-3.5		H			H		H									
		TS-14R-3.5-4	3.5-4		H			H		H									
Western Parcel	TS-15R	TS-15R-0-1	0-1	X	X		X	X		X									Vertical Delineation - RSCOs Exceedance[2]
		TS-15R-1-1.5	1-1.5		X		X	X		X									
		TS-15R-1.5-2	1.5-2		H		H	H		H									
		TS-15R-2-2.5	2-2.5		H		H	H		H									
		TS-15R-2.5-3	2.5-3		H		H	H		H									
		TS-15R-3-3.5	3-3.5		H		H	H		H									
		TS-15R-3.5-4	3.5-4		H		H	H		H									
Western Parcel	TEI-SB-01	TEI-SB-01-X.X-X.X	X.X-X.X	X	X														NYSDEC Request - Vicinity of UST[2]
		TEI-SB-01-X.X-X.X	X.X-X.X	H	H														NYSDEC Request - Vicinity of UST[2]
Western Parcel	TEI-SB-02	TEI-SB-02-X.X-X.X	X.X-X.X	X	X	X	X	X	X	X									NYSDEC Request - Vicinity of Septic Tank[2]
		TEI-SB-02-X.X-X.X	X.X-X.X	H	H	H	H	H	H	H									NYSDEC Request - Vicinity of Septic Tank[2]
Western Parcel	TEI-SB-03	TEI-SB-03-X.X-X.X	X.X-X.X	X	X														NYSDEC Request - Vicinity of UST[2]
		TEI-SB-03-X.X-X.X	X.X-X.X	H	H														NYSDEC Request - Vicinity of UST[2]
Western Parcel	TEI-SB-04	TEI-SB-04-X.X-X.X	X.X-X.X	X	X														NYSDEC Request - Vicinity of AST[2]
		TEI-SB-04-X.X-X.X	X.X-X.X	H	H														NYSDEC Request - Vicinity of AST[2]
Western Parcel	TEI-SB-05	TEI-SB-05-X.X-X.X	X.X-X.X	X	X														NYSDEC Request - Vicinity of UST[2]
		TEI-SB-05-X.X-X.X	X.X-X.X	H	H														NYSDEC Request - Vicinity of UST[2]
Western Parcel	TEI-SB-06	TEI-SB-06-X.X-X.X	X.X-X.X	X	X														NYSDEC Request - Vicinity of UST[2]
		TEI-SB-06-X.X-X.X	X.X-X.X	H	H														NYSDEC Request - Vicinity of UST[2]

Abbreviations:
X - run analysis
H - hold analysis
AST - aboveground storage tank
ft bgs - feet below ground surface
PCB - polychlorinated biphenyls
PFAS - per- and polyfluoroalkyl substances
RSCO - residential use soil cleanup objectives
SVOC - semi-volatile organic compounds
TAL - target analyte list
TCL - target compound list
UST - underground storage tank
UUSCO - unrestricted use soil cleanup objectives
VOC - volatile organic compounds

Note:
1 - As applicable, samples will be analyzed for only the specific metal analytes which exceeded SCOs in the RI Data.
2 - See Section 3.2.3 of the Supplemental Remedial Investigation Work Plan for sampling depth interval rationale.



Legend

- Site Boundary
- Pond
- Proposed Development Plan
- RI Soil Sampling Location
- Proposed Supplemental Soil Sampling Location

Note:
Proposed soil sampling locations are located at the RI sampling locations. See Table 2 for the proposed sampling depths and analyses for each location.

Abbreviation:
RI -- Remedial Investigation

DRAFT

0 300 600 900 1,200 ft

1 Inch = 300 Feet

N

SAFETY FIRST

carsonVOCI
engineering and geology dpc
an affiliate of Terraphase Engineering Inc

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Proposed Supplemental Soil Sample Locations

Figure A-1

N:\GIS\Prj\J105.004_Elmwood Country Club\QGIS\20240927-Terraphase-Elmwood-SO.qgz 20241204_ProposedSamplingLocations 2024-09-26T18:29:52.000 Created by: M.Ingling Checked by: NK

"Area of Detail"

"Area of Detail"

"Area of Detail"

Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- Area Containing Historical Fill
- Stream

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3.5 ft
- 4 ft

Soil Sampling Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

End Point Sample Location

- Base
- Sidewall
- Residential

Sidewall Sample Quantity

- 1
- 2
- 3
- 4
- 6

Abbreviation:
SCO – Soil Cleanup Objective

Note:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs.
*Two sidewall samples will be collected in areas of fill (top and bottom).

0 110 220 330 440 ft

1 Inch = 110 Feet

N

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an affiliate of Terrapheal Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

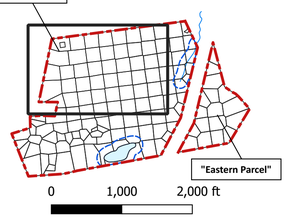
PROJECT NUMBER: CV04.001

End Point Sample Locations

FIGURE 15

J:\Projects\1101.004_Elmwood Country Club\2025\20250429 Terraphase Elmwood SSI Fnd\Point\Sampling.dgn - 20250122 EndpointSampling WesternParcel - 2025-03-13T23:21:56.000 - Created By: M. Inglesi - Checked by: NK

Key Map



A04/A04D 1 ft; 2 ft
A05
A06 0.5 ft
A07 0.5 ft
A08 0.5 ft
A09 0.5 ft
A10 0.5 ft
A11 1 ft
B04 0.5 ft
B05
B06 0.5 ft
B07 0.5 ft
B08 0.5 ft
B09
B10 0.5 ft
B11 0.5 ft
C03 0.5 ft
C04 0.5 ft
C05 0.5 ft
C06 0.5 ft
C07 0.5 ft
C08 0.5 ft
C09
C10 1 ft
C11 1 ft
D03 0.5 ft
D04
D05 0.5 ft
D06
D07 0.5 ft
D08 0.5 ft
D09 0.5 ft
D10 0.5 ft
E03 1 ft
E04 0.5 ft
E05 0.5 ft
E06 0.5 ft
E07 0.5 ft
E08 0.5 ft
E09 0.5 ft
E10 0.5 ft
F06
F07 0.5 ft
F08 0.5 ft
F09 0.5 ft
F10 0.5 ft

24928 sq ft; 21136 sq ft; 20978 sq ft; 21239 sq ft; 20162 sq ft; 18575 sq ft; 18287 sq ft; 18623 sq ft; 18252 sq ft; 18312 sq ft; 20242 sq ft; 19015 sq ft; 19502 sq ft; 18499 sq ft; 18656 sq ft; 17687 sq ft; 22112 sq ft; 22517 sq ft; 19390 sq ft; 18421 sq ft; 17656 sq ft; 18349 sq ft; 22904 sq ft; 17673 sq ft; 18760 sq ft; 18618 sq ft; 17532 sq ft; 18308 sq ft; 22202 sq ft; 22692 sq ft; 18788 sq ft; 18743 sq ft; 17731 sq ft; 18703 sq ft; 17457 sq ft; 18826 sq ft; 18178 sq ft; 21502 sq ft; 23501 sq ft; 17959 sq ft; 21178 sq ft; 17490 sq ft; 18698 sq ft; 28136 sq ft; 21298 sq ft; 22315 sq ft; 20183 sq ft; 24569 sq ft; 18522 sq ft; 28893 sq ft; 17472 sq ft; 18340 sq ft; 17762 sq ft; 19147 sq ft; 22674 sq ft; 19290 sq ft; 20525 sq ft; 18190 sq ft; 17854 sq ft; 15987 sq ft; 17620 sq ft; 21581 sq ft

0 60 120 180 240 ft

1 Inch = 60 Feet

N

Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- Area Containing Historical Fill
- Stream

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3.5 ft
- 4 ft

Soil Sample Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

Proposed Soil Sample Location

- Base
- Residential

Abbreviation:
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs
*Two sidewall samples will be collected in areas of fill (top and bottom).

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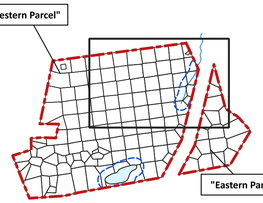
CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

Western Parcel End Point Sample Locations

FIGURE 15A

Z:\Projects\105.004_Elmwood Country Club\605\05\20250429 Terraphase Elmwood GCS Fig\Post Sampling.mxd 20250428 Fig\Post Sampling Western Parcel.MXD 2025-03-13T22:11:56.000 Created by: mscivetti Checked by: N. Krasnicky

Key Map



A13 0.5 ft
A13D 3.5 ft
A12 0.5 ft
29282 sq ft
A11 1 ft
A10 0.5 ft
A09 0.5 ft
A08 0.5 ft
20162 sq ft
21239 sq ft
A07 0.5 ft
20978 sq ft
A06 0.5 ft
21136 sq ft
24937 sq ft
18575 sq ft
25230 sq ft
B13 1 ft
B12 0.5 ft
B11 0.5 ft
B10 0.5 ft
B09
B08 0.5 ft
B07 0.5 ft
B06 0.5 ft
18287 sq ft
18623 sq ft
18312 sq ft
20242 sq ft
19015 sq ft
19542 sq ft
18499 sq ft
C13 0.5 ft
C12 0.5 ft
C11 1 ft
C10 1 ft
C09
C08 0.5 ft
C07 0.5 ft
C06 0.5 ft
19390 sq ft
22112 sq ft
22517 sq ft
18421 sq ft
22904 sq ft
17673 sq ft
18618 sq ft
18760 sq ft
18788 sq ft
18743 sq ft
17731 sq ft
D13 0.5 ft
D12 0.5 ft
D11 0.5 ft
D10 0.5 ft
D09 0.5 ft
D08 0.5 ft
D07 0.5 ft
D06
22692 sq ft
18703 sq ft
18826 sq ft
17825 sq ft
E13 0.5 ft
E12 1 ft
E11 0.5 ft
E10 0.5 ft
E09 0.5 ft
E08 0.5 ft
E07 0.5 ft
E06 0.5 ft
17959 sq ft
23501 sq ft
21128 sq ft
18698 sq ft
17386 sq ft
20183 sq ft
22313 sq ft
24569 sq ft
17632 sq ft
18522 sq ft
18574 sq ft
F12 0.5 ft
F11 1 ft
F10 0.5 ft
19147 sq ft
19298 sq ft
20525 sq ft
18190 sq ft
D14 0.5 ft
E14 0.5 ft
F14 0.5 ft
F13 2 ft

Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- Area Containing Historical Fill
- Stream

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3.5 ft
- 4 ft

Soil Sample Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

Proposed Soil Sample Location

- Base
- Residential

Abbreviation:
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs
*Two sidewall samples will be collected in areas of fill (top and bottom).

0 60 120 180 240 ft
1 Inch = 60 Feet

N

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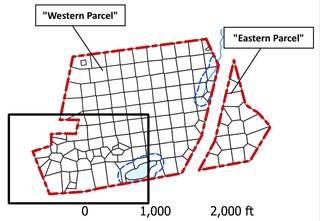
CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

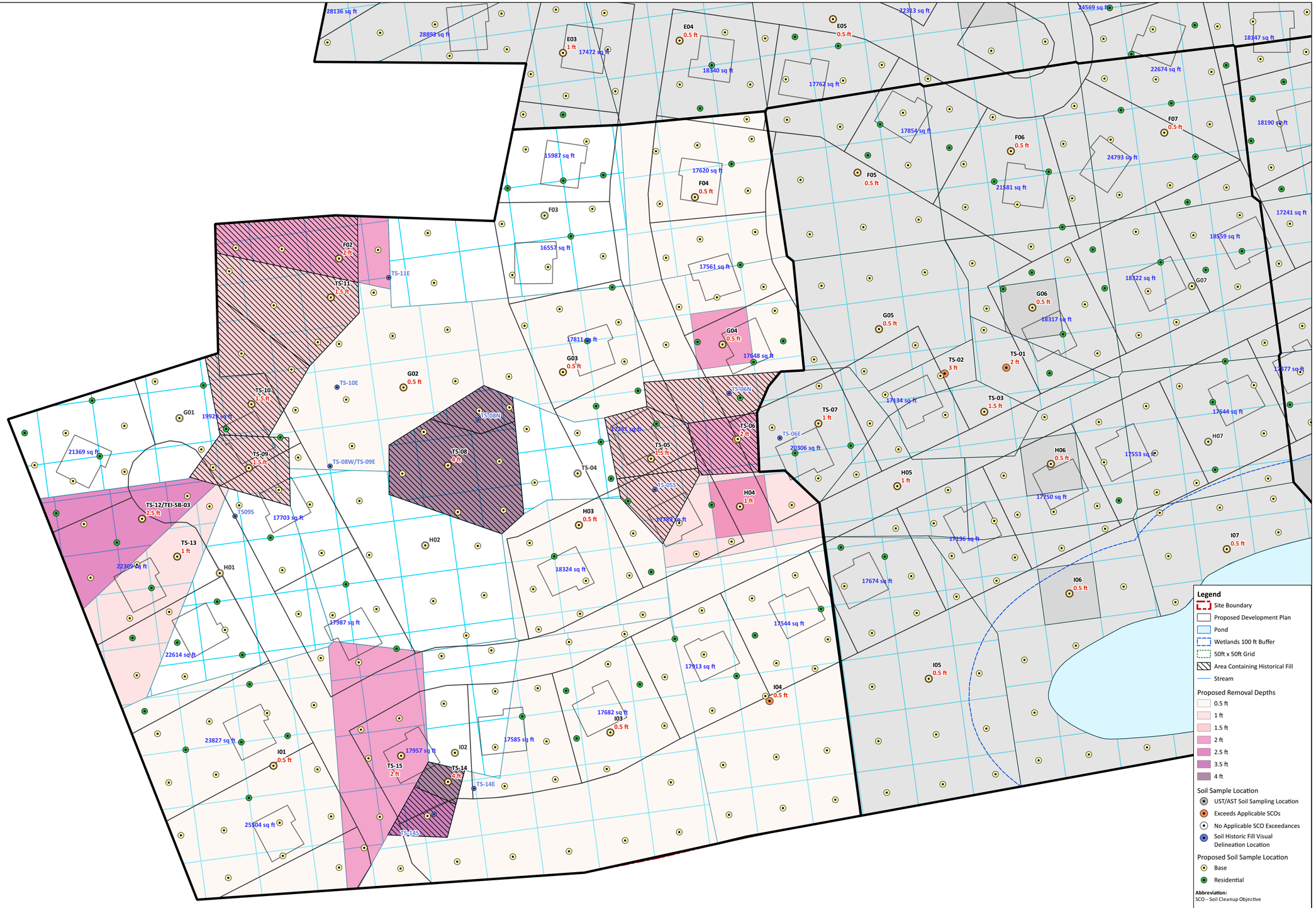
Western Parcel End Point Sample Locations

FIGURE 15B

N:\Projects\CV04.001_Elmwood Country Club\GIS\20150429 Terrashore Elmwood GIS Exh\Port\Sampling Western Parcel.MXD 2015-05-13 12:21:56.000 Created By: M. Inglisa Checked by: WC

Key Map





Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- 50ft x 50ft Grid
- Area Containing Historical Fill
- Stream

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3.5 ft
- 4 ft

Soil Sample Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

Proposed Soil Sample Location

- Base
- Residential

Abbreviation:
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs
*Two sidewall samples will be collected in areas of fill (top and bottom).

0 60 120 180 240 ft

1 Inch = 60 Feet

N

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an affiliate of Terraphase Engineering DPC

CLIENT: Ridgewood Elmwood Owner, LLC

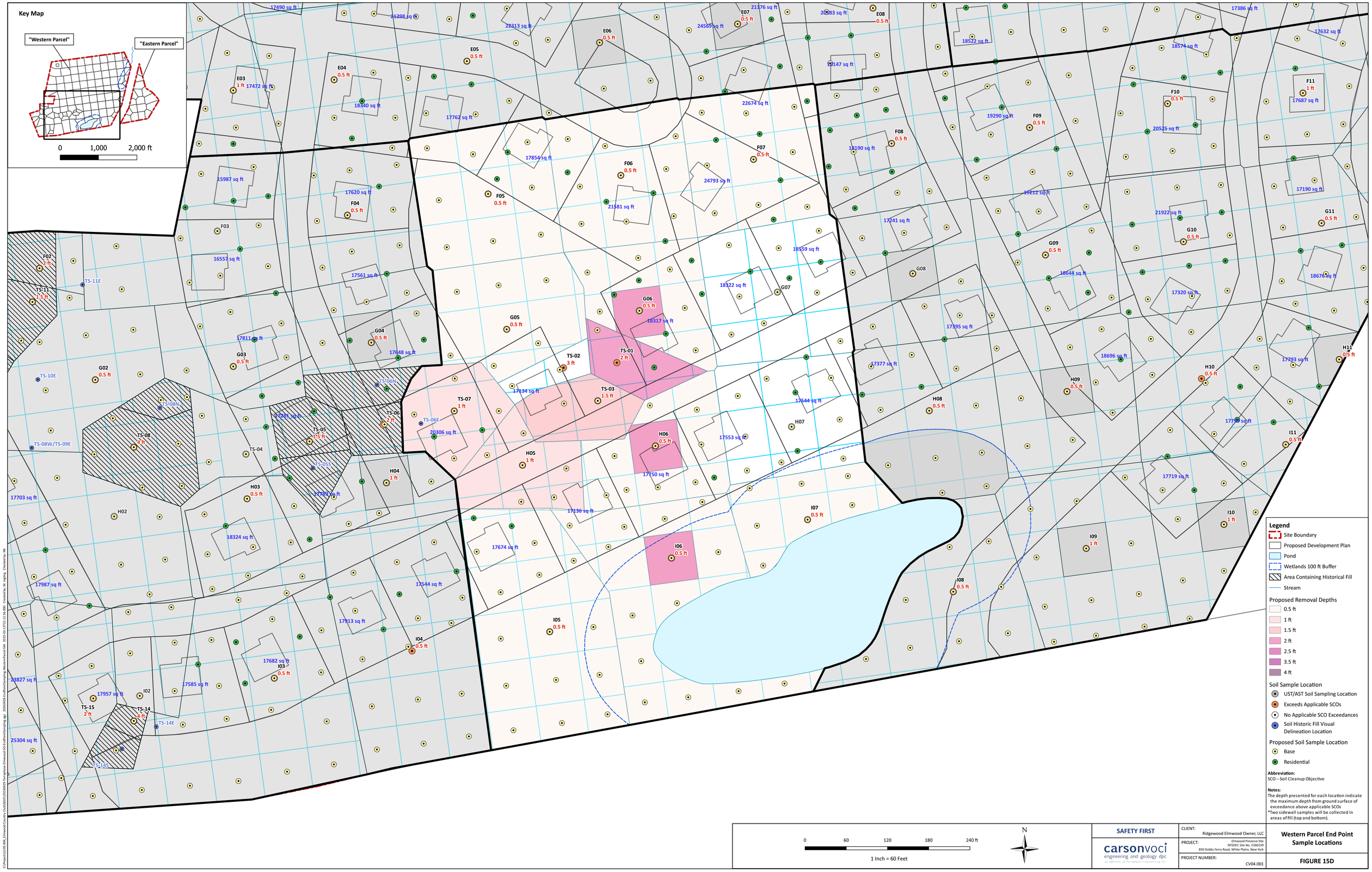
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Western Parcel End Point Sample Locations

FIGURE 15C

Z:\Projects\105.006_Elmwood Country Club\GIS\GIS\20160429 Terraphase Elmwood GIS Eval\Post Sampling\Western\Parcel SW_2025-03-13T22-12-56.000_Created by: M.Higley_Checked by: NK_20160428 Eval\Post Sampling.mxd


Key Map
"Western Parcel"
"Eastern Parcel"
0
1,000
2,000 ft
17490 sq ft
23298 sq ft
23313 sq ft
E06
0.5 ft
E05
0.5 ft
E04
0.5 ft
E03
1 ft
17472 sq ft
18340 sq ft
17762 sq ft
24569 sq ft
E07
0.5 ft
21176 sq ft
20583 sq ft
E08
0.5 ft
18322 sq ft
17386 sq ft
17632 sq ft
18574 sq ft
F11
1 ft
17687 sq ft
F10
0.5 ft
20525 sq ft
19290 sq ft
F09
0.5 ft
F08
0.5 ft
18190 sq ft
22674 sq ft
F07
0.5 ft
17854 sq ft
F06
0.5 ft
24793 sq ft
21581 sq ft
F05
0.5 ft
F04
0.5 ft
17620 sq ft
15987 sq ft
F03
16557 sq ft
17561 sq ft
F02
2 ft
TS-11E
TS-11
1.5 ft
17241 sq ft
19212 sq ft
17190 sq ft
G11
0.5 ft
G10
0.5 ft
21922 sq ft
G09
0.5 ft
18644 sq ft
18559 sq ft
18322 sq ft
G07
G08
18676 sq ft
17320 sq ft
G06
0.5 ft
18317 sq ft
G05
0.5 ft
G04
0.5 ft
17811 sq ft
17648 sq ft
G03
0.5 ft
G02
0.5 ft
TS-10E
TS-02
3 ft
TS-01
2 ft
TS-03
1.5 ft
17134 sq ft
17395 sq ft
17377 sq ft
18696 sq ft
H11
0.5 ft
17793 sq ft
H10
0.5 ft
H09
0.5 ft
H08
0.5 ft
12644 sq ft
H07
17553 sq ft
17717 sq ft
I11
0.5 ft
TS-09N
TS-08N
TS-07
1 ft
TS-06E
20306 sq ft
TS-06
2 ft
TS-05
1.5 ft
TS-04
TS-05S
17288 sq ft
TS-08
4 ft
TS-08W/TS-09E
H06
0.5 ft
H05
1 ft
17750 sq ft
H04
1 ft
H03
0.5 ft
17703 sq ft
H02
18324 sq ft
17987 sq ft
17544 sq ft
17813 sq ft
17682 sq ft
I03
0.5 ft
I04
0.5 ft
17585 sq ft
23827 sq ft
17957 sq ft
I02
TS-15
2 ft
TS-14
4 ft
TS-14E
25304 sq ft
TS-14S
17136 sq ft
17674 sq ft
I05
0.5 ft
I06
0.5 ft
I07
0.5 ft
I08
0.5 ft
I09
1 ft
I10
1 ft
17719 sq ft
Legend
Site Boundary
Proposed Development Plan
Pond
Wetlands 100 ft Buffer
Area Containing Historical Fill
Stream
Proposed Removal Depths
0.5 ft
1 ft
1.5 ft
2 ft
2.5 ft
3.5 ft
4 ft
Soil Sample Location
UST/AST Soil Sampling Location
Exceeds Applicable SCOs
No Applicable SCO Exceedances
Soil Historic Fill Visual Delineation Location
Proposed Soil Sample Location
Base
Residential
Abbreviation:
SCO – Soil Cleanup Objective
Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs
*Two sidewall samples will be collected in areas of fill (top and bottom).
0
60
120
180
240 ft
1 Inch = 60 Feet
N
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an affiliate of Terraphase Engineering Inc.
CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001
Western Parcel End Point Sample Locations
FIGURE 15D
Z:\Projects\105.004_Elmwood Country Club\GIS\2015\0425 Terraphase-Elmwood-SAS Fin\ReportSampling Western Parcel.MXD 2015-05-13T22:12:26.000 Created by: M. Ingling Checked by: MK
Z:\Projects\105.004_Elmwood Country Club\GIS\2020\0428 Fin\ReportSampling Western Parcel.dgn 20200428

Key Map

"Western Parcel"

"Eastern Parcel"

0 1,000 2,000 ft

17762 sq ft
17620 sq ft
17561 sq ft
17648 sq ft
20306 sq ft
17544 sq ft
17674 sq ft
17436 sq ft
17134 sq ft
17854 sq ft
21581 sq ft
24793 sq ft
22674 sq ft
24569 sq ft
21176 sq ft
20283 sq ft
17959 sq ft
18559 sq ft
18322 sq ft
18317 sq ft
17553 sq ft
17750 sq ft
17544 sq ft
17377 sq ft
17395 sq ft
18190 sq ft
17241 sq ft
19290 sq ft
19212 sq ft
18644 sq ft
18696 sq ft
17320 sq ft
17719 sq ft
20525 sq ft
21922 sq ft
17190 sq ft
17687 sq ft
17632 sq ft
17386 sq ft
17825 sq ft
18574 sq ft
18522 sq ft
18698 sq ft
18826 sq ft
19147 sq ft
18676 sq ft
17293 sq ft
17775 sq ft

TS-01 2 ft
TS-02 3 ft
TS-03 1.5 ft
TS-06E
TS-07 1 ft

E06 0.5 ft
E07 0.5 ft
E08 0.5 ft
E09 0.5 ft
E10 0.5 ft
E11 0.5 ft
E12 1 ft

F05 0.5 ft
F06 0.5 ft
F07 0.5 ft
F08 0.5 ft
F09 0.5 ft
F10 0.5 ft
F11 1 ft
F12 0.5 ft
F13 2 ft
F14 0.5 ft

G05 0.5 ft
G06 0.5 ft
G07
G08
G09 0.5 ft
G10 0.5 ft
G11 0.5 ft
G12 0.5 ft
G13 0.5 ft
G14 0.5 ft

H05 1 ft
H06 0.5 ft
H07
H08 0.5 ft
H09 0.5 ft
H10 0.5 ft
H11 0.5 ft
H12 0.5 ft
H13 1.5 ft
H14 2 ft

I05 0.5 ft
I06 0.5 ft
I07 0.5 ft
I08 0.5 ft
I09 1 ft
I10 1 ft
I11 0.5 ft
I12 2 ft
I13 2 ft

Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- Area Containing Historical Fill
- Stream

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3.5 ft
- 4 ft

Soil Sample Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

Proposed Soil Sample Location

- Base
- Residential

Abbreviation:
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs
*Two sidewall samples will be collected in areas of fill (top and bottom).

0 60 120 180 240 ft

1 Inch = 60 Feet

N

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an affiliate of Terraphase Engineering Inc

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

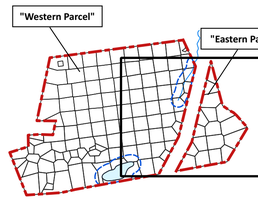
PROJECT NUMBER: CV04.001

Western Parcel End Point Sample Locations

FIGURE 15E

Z:\Projects\CV.001_Elmwood Country Club\GIS\ArcGIS\ArcMap\Terraphase Elmwood GIS Ex\Post Sampling\Western Parcel.mxd 2025-03-13T21:23:56.000 Created By: M. Ingling Checked by: MK

Key Map



B10 0.5 ft
B11 0.5 ft
B12 0.5 ft
B13 1 ft
C08 0.5 ft
C09
C10 1 ft
C11 1 ft
C11D 4 ft
C12 0.5 ft
C13 0.5 ft
C14 0.5 ft
D08 0.5 ft
D09 0.5 ft
D10 0.5 ft
D11 0.5 ft
D12 0.5 ft
D13 0.5 ft
D14 0.5 ft
E08 0.5 ft
E09 0.5 ft
E10 0.5 ft
E11 0.5 ft
E12 1 ft
E13 0.5 ft
E14 0.5 ft
F08 0.5 ft
F09 0.5 ft
F10 0.5 ft
F11 1 ft
F12 0.5 ft
F13 2 ft
F14 0.5 ft
F15 1 ft
G08 G08D 2 ft
G09 0.5 ft
G10 0.5 ft
G11 0.5 ft
G12 0.5 ft
G13 0.5 ft
G14 0.5 ft
G15 1 ft
H08 0.5 ft
H09 H09D 2 ft 0.5 ft
H10 0.5 ft
H11 H11D 2 ft 0.5 ft
H12 0.5 ft
H13 1.5 ft
H14 2 ft
H15 0.5 ft
I08 0.5 ft
I09 I09D 4 ft 1 ft
I10 I10D 2 ft 1 ft
I11 0.5 ft
I12 2 ft
I13 2 ft
I14 2 ft
I15 0.5 ft

Legend

- Site Boundary
- Proposed Development Plan
- Pond
- Wetlands 100 ft Buffer
- 50ft x 50ft Grid
- Area Containing Historical Fill
- Stream

Proposed Removal Depths

- 0.5 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3.5 ft
- 4 ft

Soil Sample Location

- UST/AST Soil Sampling Location
- Exceeds Applicable SCOs
- No Applicable SCO Exceedances
- Soil Historic Fill Visual Delineation Location

Proposed Soil Sample Location

- Base
- Residential

Abbreviation:
SCO – Soil Cleanup Objective

Notes:
The depth presented for each location indicate the maximum depth from ground surface of exceedance above applicable SCOs
*Two sidewall samples will be collected in areas of fill (top and bottom).

0 80 160 240 320 ft
1 Inch = 80 Feet
N

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an affiliate of Terraphase Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC
PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York
PROJECT NUMBER: CV04.001

Eastern Parcel End Point Sample Locations

FIGURE 15F

Z:\Projects\CV\004_Elmwood County Club\GIS\2020\0429-Terraphase-Elmwood-GIS-EndPointSampling.mxd 20200429 EndPointSampling EasternParcel 2020-05-13T12:17:16.000 Created by: M Hagberg Checked by: MK

APPENDIX B

RESUMES

Nicholas Krasnecky, PE

Senior Associate Engineer

Nicholas Krasnecky, PE, has over 13 years of progressive experience in environmental consulting working on a variety of environmental characterization and remediation projects for municipal, commercial, industrial, and private clients. Mr. Krasnecky specializes in site characterization and the evaluation, design, and implementation of remedial alternatives, particularly in New York and New Jersey via application of state specific environmental guidance. He utilizes his extensive environmental consulting and remediation background to support regulatory site closure, property development, risk management, evaluation for New York State Brownfield Cleanup Program (BCP) applicability, and additional client specific project goals.

Mr. Krasnecky has served as an engineer for various large-scale, complex remedial actions involving large work forces with multiple phases of work occurring simultaneously. His responsibilities include preparing proposals and cost estimates, producing engineering plans and specifications, preparing stormwater pollution prevention plans (SWPPPs) and soil erosion and sediment control (SESC) plans, collecting and analyzing field data, construction management and engineering oversight, health and safety, budget tracking, environmental and stormwater permitting, and technical report writing. Mr. Krasnecky's work has involved direct interaction with regulators, clients, and various stakeholders throughout the duration of projects including progress updates, scope alterations, and pathway to achieve project goals and regulatory closure.

Mr. Krasnecky has extensive experience with remedial treatment system design, implementation, optimization, operations, and maintenance, including groundwater pump and treat, air sparge, soil-vapor extraction (SVE), sub-slab depressurization, and dual-phase extraction systems. He has also designed and implemented in-situ remediation technologies at numerous sites, including in-situ chemical oxidation, aerobic bioremediation, in-situ chemical reduction, permeable reactive barriers, and enhanced anaerobic bioremediation.

Mr. Krasnecky has expertise in the assessment of vapor intrusion and the design, construction, and commissioning of active and passive vapor intrusion mitigation systems in both new construction and existing buildings. His experience includes direct coordination with multiples trades during planning and active construction to ensure vapor intrusion mitigation systems are installed in synergy with already prepared building and architectural plans.

Education

BS in Environmental Engineering, Rensselaer Polytechnic Institute, 2011

Years of Experience

13

Joined Terraphase

2023

Professional History

Terraphase Engineering Inc., Senior Associate Engineer, 2025 – present; Associate Engineer, 2023 – 2024

ECC Horizon, Senior Environmental Engineer, 2018 – 2023

Kennedy/Jenks Consultants, Senior Staff Environmental Engineer, 2015 – 2017

ARCADIS, Environmental Engineer II, 2012 – 2015

Licenses/Registrations

Professional Engineer,

New York #100006

New Jersey #24GE05369900

Indiana #11900093

Connecticut #PEN.0038081

Massachusetts #59517

Delaware #31286

Pennsylvania #PE097611

Certification/Training

40-Hour OSHA HAZWOPER

OSHA 10-hour Construction Safety and Health

Silica Awareness

Project Experience

Elmwood Preserve - NYSDEC Brownfield Cleanup Program Site, White Plains, New York (2024 – Present)

Senior Remedial Engineer/Licensed Professional. Serves as the remedial engineer/licensed professional for the Elmwood Preserve Site (Site), a 106-acre former golf course property proposed for redevelopment, enrolled in the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP). Reviewed and evaluated the preliminary Remedial Investigation (RI) data collected from a prior consultant to develop and implement supplemental RI scopes to complete delineation and define the nature and extent of impacts at the Site in soil, groundwater, surface water, sediment, and soil gas in accordance with the BCP requirements. Continuously evaluates incoming supplemental RI data to prepare a RI Report and develop a remedial design and strategy to address the presence of historical pesticide and metals

impacts associated with the historical use of the Site as a golf course. Provides ongoing project management, regulatory coordination, cost to closure estimates, and strategy support for the project.

401 Hunts Point - NYSDEC Brownfield Cleanup Program Site, Bronx, New York (2022 – Present)

Senior Remedial Engineer/Licensed Professional. Serves as the licensed professional engineer for the 401 Hunts Point Site enrolled in the NYSDEC BCP. Prepared the BCP application and provided regulatory coordination and consulting support through the NYSDEC review process. Prepared a Remedial Investigation (RI) Work Plan and oversaw the implementation of the RI to fully delineate and characterize potential impacts at the site in accordance with the BCP requirements. Evaluated remedial alternatives, designed the remedial action, and prepared an Interim Remedial Measures (IRM) Work Plan to address the impacts identified at the Site during the RI. The NYSDEC-approved IRM consisted of underground storage tank and soil removal via excavation, in-situ injections to treat petroleum hydrocarbon groundwater impacts, and the installation of an active sub-slab depressurization system to mitigate vapor intrusion concerns associated with chlorinated volatile organic compounds (cVOC). Oversees the ongoing implementation of the IRM and provides ongoing project management, regulatory coordination, budget tracking, and strategy support for the project.

Former Gasoline Service Station Remediation/Redevelopment, Oakland, CA (2023 – present)

Associate Engineer. Provided technical and engineering support for the remediation and redevelopment of a former gasoline service station to multi-family residential housing. Prepared engineering cost estimates and subsequent bid package for the removal of 10,000 tons of lead- and petroleum-impacted soils, prior to redevelopment. Coordinated and oversaw the implementation of a Community Air Monitoring Plan for protection of neighboring properties and communities during the ongoing excavation activities. Prepared a passive vapor intrusion mitigation system design that is being installed as part of redevelopment to mitigate potential remaining vapor intrusion impacts.

Marion County Community Justice Campus – Vapor Mitigation System, Indianapolis, Indiana, City of Indianapolis (2019 – 2021)

Design Engineer/Engineer of Record. Engineer of Record for the design, installation oversight, and commissioning of active sub-slab vapor mitigation systems at four buildings at the City of Indianapolis's new Community Justice Campus, to mitigate potential vapor impacts from subsurface impacts associated with a Former Manufactured Gas Plant. The vapor mitigation systems were designed and installed in accordance with local, state, and federal guidance including: the IDEM Draft Interim Guidance Document (February 2014): Vapor Remedy Selection and Implementation, U.S. EPA Brownfield Technology Primer Vapor Intrusion Considerations for Redevelopment, EPA 542-R-08-001, March 2008, and applicable guidance within ANSI/AARST CC-1000-2018 – Soil Gas Control Systems in New Construction of Buildings. Buildings ranged in size from 22,000 to 120,000 square feet and required active sub-slab systems consisting of a vapor barrier, sub-slab infrastructure, and electrically powered inline fans equipped with continuous monitoring via integrated alarms and controls into the overall building management systems.

Former Johnson and Hoffman Manufacturing Redevelopment, Carle Place, New York, Simone Development Companies (2020 – Present)

Senior Remedial Engineer/Licensed Professional. Serves as the licensed professional engineer for ongoing monitoring and reporting associated with the Site Management Plan (SMP) and for the proposed redevelopment of the Former Johnson and Hoffman Manufacturing Site, which is enrolled in the NYSDEC Voluntary Remediation Program (VRP). The redevelopment of the site involved the installation of below grade stormwater retention chambers and re-grading and paving of the property. Prepared and implemented an NYSDEC approved Redevelopment Excavation Work Plan for the management of soil potentially impacted with chlorinated solvents and polyaromatic hydrocarbons (PAHs) and the Stormwater Pollution Prevention Plan (SWPPP) for the site redevelopment. Provides ongoing regulatory coordination with the NYSDEC and NYSDOH for the implementation of the SMP.

Phase I and Phase II Environmental Site Assessments, New York Metro Area, Simone Development Companies

Senior Environmental Engineer. Served as the technical lead for multiple Phase I and Phase II Environmental Site Assessments (ESAs) for properties within the New York Metro Area. The Phase I and II ESAs were conducted for potential property transactions, particularly with respect to eligibility for entrance into the NYSDEC BCP.

Bridge Cleaners Site Remediation and Redevelopment, Long Island City, New York, 39-26th Street LLC (2020 – Present)

Senior Remedial Engineer/Licensed Professional. Serves as the licensed professional engineer for ongoing remediation and subsequent redevelopment of the Bridge Cleaners Site, which is a former commercial dry-cleaner property enrolled as a NYSDEC State Superfund Site. Designed, constructed, and implemented an expansion to the existing Air Sparge/Soil Vapor Extraction (AS/SVE) system to expand the treatment radius of onsite groundwater. Worked in conjunction with the NYSDEC to develop and implement a Proposed Remedial Action Plan (PRAP) and Record of Decision (ROD) for the Site. Prepared NYSDEC approved work plans for the AS/SVE disconnection and relocation and redevelopment excavation and associated Community Air Monitoring Plan (CAMP) for the redevelopment of the property to an 11-story residential unit building. Provided regulatory coordination with the NYSDEC, New York State Department of Health (NYSDOH), and New York City Office of Environmental Regulation (NYC OER). Prepared and implemented an in-situ chemical reduction (ISCR) and enhanced reductive dichlorination (ERD) injection remedial design to address residual cVOC impacts in groundwater upon completion of the building construction. The ISCR/ERD injection consisted of the application of approximately 3,400 gallons of injection solution containing micro-zero valent iron, ERD amendments, and a microbial consortium specific to cVOC degradation. The groundwater data at 6-months post injection indicate effective and continued reduction of cVOCs and closure report requesting transition to period monitoring has been submitted. Continues to provide environmental consulting and licensed profession engineering services in accordance with the redevelopment work plans and SMP.

Former Sav-O-Mat Station Petroleum Remediation, Sterling, Colorado, QBE Insurance Group Ltd. (2020 – 2023)

Senior Environmental Engineer. Served as the lead remedial engineer for the remediation of a benzene, toluene, ethylbenzene, and xylenes (BTEX) groundwater plume stemming from gas station leaking underground storage tanks (USTs) and a historical gasoline tanker spill. Evaluated the effectiveness of the ongoing AS/SVE remedial system via groundwater concentrations trends, conducted additional investigation activities, including a Membrane Interface Hydraulic Profiling (MIHPT) investigation, to develop an updated conceptual site model to evaluate remedial treatment alternatives. Designed a remedial treatment approach utilizing a Vertebrae Well System® (designed and manufactured by ENRx) to deliver an in-situ chemical oxidation solution to the subsurface to treat the BTEX groundwater plume extending under a State Highway and parking lot.

Former S&S Hancock Cleaners – Site Remediation, Bedford, Indiana, Confidential Insurance Carrier (2020 – 2023)

Senior Environmental Engineer. Served as the lead remedial engineer for the remediation of a chlorinated volatile organic compound (cVOC) groundwater plume located in Karst bedrock, stemming from a former dry-cleaner. Evaluated historical groundwater data trends, groundwater flow, and geochemistry to prepare an updated conceptual site model. Prepared a remedial design and work plan for the Indiana Department of Environmental Management (IDEM) for the treatment of the cVOC groundwater plume via co-metabolic aerobic bioremediation via direct push technology injections. Implemented the proposed remedial work plan in conjunction with regular groundwater monitoring to continuously evaluate the remedial progress and adjust the remedial design accordingly.

Fuel Oil Underground Storage Tank – Site Remediations, New Jersey, Insurance Carriers (2018 – 2023)

Senior Environmental Engineer. Served as the lead remedial engineer for over 15 fuel oil–impacted soil and groundwater remediation projects stemming from USTs, involving in-situ and ex-situ treatment strategies. Remedial technologies designed and implemented include in-situ chemical oxidation injections, bioremediation and bio-stimulation, oil recovery

groundwater treatment systems, surfactant assisted free product recovery, and excavation and off-site disposal. Responsibilities included; cost evaluation and feasibility analysis of remedial technologies for final remedial design determination, engineering design and planning of remedial injections and ground water treatment systems, provide project management and technical and operations support for implementation of remedial actions, review and evaluation of collected data for remedial progress monitoring and design modifications.

Spivey Properties LLC – Site Remediation, Indianapolis, Indiana, Confidential Insurance Carrier (2021 – 2023)

Senior Environmental Engineer. Served as the lead remedial engineer for the remedial design for a cVOC-impacted site, stemming from a former dry-cleaner. The cVOC impacts were located in the soil, shallow groundwater, and soil vapor below a strip mall currently occupied by a daycare and commercial shops. Designed and installed a sub-slab depressurization system within the daycare tenant space, upon receipt of data indicating sub-slab soil vapor and indoor air levels above applicable standards. Evaluated on-site groundwater, soil, and soil vapor data in conjunction with the site use and current building to evaluate remedial alternatives. Prepared a remedial design and work plan for the Indiana Department of Environmental Management (IDEM) for the treatment of the cVOC impacts via limited excavation and off-site disposal of vadose zone soils and application of micro scale zero valent iron and enhanced anaerobic bioremediation solutions via direct push technology injections within the saturated zone.

Former Launderers Facility – Site Remediation, Carmel, Indiana, Confidential Insurance Carrier (2019 – 2022)

Senior Environmental Engineer. Served as the remedial engineer for the remediation of a cVOC-impacted site, stemming from a former dry-cleaner. Evaluated historical data and prepared a remedial design and work plan for the Indiana Department of Environmental Management (IDEM) for the treatment of the cVOC-impacted sub-surface soils and shallow groundwater plume. The remedial design consisted of excavation and off-site disposal of vadose zone soils and soil mixing of an enhanced anaerobic bioremediation amendment within the saturated soils. Implemented the proposed remedial work plan in conjunction post-remediation groundwater monitoring to continuously evaluate the remedial progress and design and implement a future micro scale zero valent iron and enhanced anaerobic bioremediation injection to further remediate the shallow groundwater.

Former Gasoline Station – Site Remediations, New Jersey, Insurance Carriers (2018 – 2023)

Senior Environmental Engineer. Served as the lead remedial engineer for five gasoline-impacted soil and groundwater remediation projects stemming from historical former gasoline station operations involving in-situ and ex-situ treatment strategies. Worked in conjunction with a New Jersey Licensed Site Remediation Professional (LSRP) to develop conceptual site models and remedial strategies to meet the developed response action objectives (RAOs). Evaluated remedial alternatives, developed remedial designs, and prepared Remedial Action Work Plans (RAWPs) and Discharge to Groundwater Permit by Rule (DGW-PBR) applications for the implementation of the remedial actions. Remedial technologies designed and implemented include limited excavation and off-site disposal with soil mixing/backfill amendments, in-situ chemical oxidation injections, bioremediation and bio-stimulation, permeable reactive barriers, and in-situ liquid carbon injections. Responsibilities included; cost evaluation and feasibility analysis of remedial technologies for final remedial design determination, engineering design and planning of remedial injections, provide project management and technical and operations support for implementation of remedial actions, review and evaluation of collected data for remedial progress monitoring and design modifications.

Former Safer Textiles - Site Remediation, New Jersey, Confidential Client (2014 – 2017)

Senior Staff Environmental Engineer. Provided engineering design and remedial oversight for a chlorinated solvent soil and groundwater remediation project involving in-situ and ex-situ treatment and containment strategies in New Jersey. Remedial technologies implemented include dual-phase vacuum extraction of dissolved and free phase tetrachloroethylene and daughter products, vapor mitigation system installation oversight in an existing building and continued air monitoring, enhanced anaerobic bioremediation, in-situ pH buffering, sediment dredging and capping, and sheet pile containment followed by site restoration including wetlands mitigation. Responsibilities included engineering oversight of remediation contractor; design, operations, maintenance, and optimization of dual-phase vacuum extraction system; design and

implementation of enhanced anaerobic bioremediation injections and associated groundwater monitoring; and preparation and continued compliance of required New Jersey Department of Environmental Protection (NJDEP), County, and Town permits.

Feasibility Studies, Montana, Confidential Client (2016 – 2017)

Senior Staff Environmental Engineer. Preparation of two Feasibility Study (FS) reports and Rough Order of Magnitude (ROM) costs to identify and evaluate remedial alternatives for two sites impacted by historical railway operations. The FS addresses alternatives for multiple contaminants impacting soil and groundwater at the sites and included an excavation cut/fill and capping evaluation with respect to environmental exposure pathways risk evaluation and management.

Ramapo Paint Sludge Site, Ramapo, New York, Confidential Client (2013 – 2015)

Engineer II. Project Engineer for a remediation project in New York involving excavation and off-site disposal of paint–sludge impacted soil at 15.5-acre site. Approximately 35,000 tons of impacted soil was excavated, waste streams segregated, shipped off site for disposal, and the site subsequently backfilled, graded, and restored. Remedial action was conducted in accordance with permitting constraints involving endangered and protected wildlife habitat and location within the flood plain of a national waterway. Responsibilities included, development of the Remedial Design, based on the issued Record of Decision, in accordance with the NYSDEC Technical Regulations (DER-10); preparation of County, State, and Federal permits including the SWPPP, Soil Management Plan, and required U.S. Army Corps of Engineers (USACE) Nationwide Permits; development of technical specifications and contract drawings as part of the Request for Proposal for subcontractor selection; and performed construction engineering oversight of the implementation of the Remedial Action.

Former Manufactured Gas Plant – Site Remediation, New Jersey, Confidential MGP Client (2012 – 2014)

Engineer II. Staff Engineer for a remediation project involving excavation and off-site disposal of contaminated material underlying a bridge at a former manufactured gas plant site in New Jersey. Approximately 6,000 tons of impacted soil was excavated and sent off site for disposal. The bridge and associated storm water drainage was demolished and rebuilt according to New Jersey Department of Transportation Specifications and Regulations. Impacted material was within a tidal creek therefore creek diversion and a two-part excavation was implemented. Responsibilities included design and development of a Remedial Action Work Plan (RAWP), technical specifications, contract drawings, and bid package; review and recommendation of remedial contractor proposals; reviewed and approval of remedial contractor submittals, change orders, and progress reports throughout the duration of construction.

Manufacturing Facility HSCA Site Remediation, Delaware, Confidential Client (2012 – 2014)

Engineer II. Staff Engineer for remedial design and implementation of a HSCA Site Remediation in Delaware for PCB- and pesticide-impacted soils and sediments; and a dissolved benzene and BCEE plume. PCB and pesticide impacts were located in a 50,000 square foot drainage channel and were remediated via capping and excavation and off-site disposal to mitigate human and ecological risks. A pump and treat system was designed and implemented to treat the 10 to 15 acre dissolved benzene and BCEE plume to protect an active water supply well. Soil and sediment remediation responsibilities included design of grading plans for soil and sediment remediation, pre-excavation delineation and confirmatory sampling plan, and the PCB Clean-Up plan based on the EPA voluntary clean-up regulation; analysis of risk assessment via ProUCL to design the excavation and grading limits to meet the required ecological and human health based risk concentrations. Dissolved plume remediation responsibilities included design, sizing, and equipment selection of the groundwater conveyance and treatment system including submersible pumps, pipe sizes and material, trenching details, bag filters, GAC units; and the P&ID; design and development of associated figures and site plans for contract documents; and development of cost estimates.

Christopher Voci, PG

Senior Principal Geologist | Vice President, Director of Operations, East

Christopher Voci, PG, is Vice President of East Coast Operations for Terraphase Engineering Inc. and a Senior Principal Geologist in the Philadelphia, Pennsylvania, office. Mr. Voci's career encompasses three decades in the design, management, and implementation of environmental restoration programs under federal, state, and voluntary regulatory compliance initiatives across the nation with a focus on site closure strategies. Mr. Voci develops creative solutions to hydrogeologic characterization and remediation challenges, specializing in the application of innovative remediation technologies. Mr. Voci is a pioneer in the field of bioremediation for chlorinated solvents and has decades of remediation experience with conventional and novel technologies for a wide range of compounds in soil and groundwater. Mr. Voci has managed soil and groundwater sites with emerging contaminants including per- and polyfluoroalkyl substances (PFAS), 1,4-dioxane, and chlorinated propane compounds.

Mr. Voci leads hydrogeological investigations, performs contaminant forensics using compound-specific isotope analysis (CSIA) and resolves complexities associated with multi-source and commingled groundwater plumes in porous media and fractured bedrock aquifer systems. Mr. Voci has been engaged as a third-party expert to review cost allocation models, conceptual site models and remediation system performance.

In his role as a strategic adviser and advocate to potentially responsible parties (PRPs), Mr. Voci brings decades of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) experience from Superfund sites across the country and has been involved with each stage of the CERCLA process from National Priority List (NPL) inception to delisting. Mr. Voci manages polychlorinated biphenyl (PCB) clean-up sites under Toxic Substances Control Act (TSCA) and has a depth of experience with inorganic compounds in soil and sediment and groundwater.

Mr. Voci is a leader in Terraphase's Due Diligence practice in an advisory role to large-scale private equity acquisition and transaction programs for a wide range of commercial, industrial, and agricultural properties.

Mr. Voci is involved with environmental litigation cases and mediation projects, upon which he has developed successful strategies to support cost allocation and liability defense matters. His client advocacy for legal, industrial manufacturing, and investment clients is nationally recognized. Mr. Voci has also served as the technical lead for environmental cost allocation mediation involving private and public parties. He is a strong client advocate and effective regulatory negotiator.

As an active member of the Interstate Technology and Regulatory Council, Mr. Voci is engaged in the developing science of PFAS characterization and remediation and collaborates with regulators and stakeholders in the management of PFAS sites. Mr. Voci has contributed to advances in remediation technologies through his decades of applied research on contaminated properties.

Education

MA in Physical Science/Geology, West Chester University, 1996

BA in Geo/Environmental Studies, Shippensburg University of Pennsylvania, 1991

Years of Experience

30+

Joined Terraphase

2015

Professional History

Terraphase Engineering Inc., Senior Principal Geologist, 2022 – present; Principal Geologist, 2015 – 2022

Geosyntec Consultants, Associate Hydrogeologist, 2009 – 2015

O'Brien & Gere, Technical Associate, 2002 – 2008

Levine Fricke Recon, Hydrogeologist, 1997 – 2002

Advanced Geoservices, Geologist, 1992 – 1997

Licenses/Registrations

Professional Geologist, Pennsylvania – #PG-0003892

Registered Professional Geologist, South Carolina – #2368

Professional Geologist, Illinois – # 196.001434

Professional Geologist, Kansas – #PG920

Professional Geologist, Kentucky – #KY-2475

Professional Geologist, Virginia – #2801001818

Professional Geologist, New York – #001239-01

Professional Geologist, Missouri – #2025019473

Project Experience

North Penn Area 5 Superfund Site, Colmar, Pennsylvania, PRP Group (2012 – present)

Project Director 2012 – 2017, Project Coordinator 2018 to present. Project Coordinator for a volatile organic compound (VOC) Superfund Site in U.S. Environmental Protection Agency (USEPA) Region 3. The project includes work under three Unilateral Administrative Orders: an interim remediation of the overburden groundwater aquifer; investigation of vapor intrusion for the facility above the groundwater contamination; and the Remedial Investigation (RI) on the groundwater contamination in the bedrock aquifer beneath the site. Mr. Voci has led work under all three orders including design and implementation of the overburden bioremediation, completion of the vapor intrusion order requirements, completion of the bedrock groundwater remedial investigation (2024), and is working with PRPs to negotiate a new bedrock order with USEPA in 2025.

Metro-Container Superfund Site, Stauffer Management Company (2015 – present)

Technical Committee Representative. Technical Committee Representative for Stauffer Management Company, a PRP to a CERCLA site in Delaware County, Pennsylvania. The project involves the investigation and remediation of PCBs, light non-aqueous phase liquids (LNAPL), and VOCs, including 1,4-dioxane from a former drum recycling facility with a history of chemical manufacturing and petroleum refining dating back over 100 years. The focused remedial investigation (FRI) includes a PFAS investigation.

Spectron Superfund Site, Elkton, Maryland, Confidential Client (2009 – 2013, 2023 – present)

Technical Advisor 2009 – 2013. Technical advisor for in-situ reductive dechlorination (IRD) remedy for Operable Unit 1 of the Spectron Superfund Site in Elkton, Maryland. Authored and implemented the USEPA Region 3 approved Treatability Study Workplan. The IRD was applied to a mixed suite of over 20 dense non-aqueous phase liquid (DNAPLs) and high-concentration VOCs in soil and bedrock groundwater.

Project Hydrogeologist, Project Director 2023 – present. Technical and regulatory lead for ongoing long-term monitoring program currently in the third 5-year review period. Current work included a bedrock groundwater characterization for PFAS.

Philadelphia Energy Solutions Refinery, Hilco Redevelopment Partners (HRP; 2021 – present)

Project Director. Project Director for the redevelopment of the largest refinery on the East Coast, which was purchased out of bankruptcy in 2021. The 150-year-old former petroleum refinery is also enrolled in the Pennsylvania Regulated Tank Corrective Actions Program. Terraphase is engaged to provide consulting support under Pennsylvania's Land Recycling Program (Act 2) for the site, which is being redeveloped as a state-of-the-art e-commerce, logistics and life science hub. Mr. Voci is Pennsylvania Professional Geologist of record for Pennsylvania Department of Environmental Protection (PADEP) regulatory submittals.

Wellington, Kansas, RICOH, Aircraft Manufacturing Facility (2017 – present)

Project Director/Manager. Project Manager and Director for a former manufacturing facility groundwater site investigation project under Kansas Department of Health & Environment (KDHE) oversight. RICOH engaged Terraphase to review the results of over two decades of environmental investigation and remediation activities and to develop a closure strategy for the legacy site. As the hydrogeologist for the site, Mr. Voci designed and implemented a novel combination of chemical reduction with ZVI and in situ bioremediation and obtained a "No Further Action" determination by the KDHE in 2024.

Campus Bay, Richmond, California, Zeneca (2019 – present)

Remediation Design Lead. Remediation Design Lead for a large-scale enhanced in-situ bioremediation program at an 86-acre site to address VOCs in groundwater from a former chemical, pesticide, and fertilizer plant operations. Responsibilities include contributions to the Feasibility Study/Remedial Action Plan (FS/RAP), implementation of a bench-scale treatability study, 100% Design development and regulatory response, and implementation of the full-scale chemical reduction with zero-valent iron (ZVI) and in-situ bioremediation (ISB) remedy in 2023 and 2024.

Site Investigation and Remediation, City of Torrance, Torrance, California (2021 – present)

Remediation Design Lead. Designed and supported the installation of a zero-valent iron barrier using a novel construction method for a regional volatile organic compound plume to address potential vapor intrusion concerns in a residential area.

Confidential Client, Port of Los Angeles (2018 – 2022)

Remediation Design Lead. Remediation design lead for a large-scale enhanced in-situ biodegradation application for a VOC source area in a saline groundwater system beneath an active shipping terminal. The project involves client advocacy for a multi-party dispute and regulatory negation with the Los Angeles Regional Water Quality Control Board (RWQCB).

Lower Passaic Superfund Site, Confidential Client (2018 – present)

Principal Consultant. Evaluation of potential contaminant contributions on a $2 billion Superfund Sediment site in New Jersey to quantify a paint manufacturing client's allocation percentage. The cost allocation exercise was reviewed by third-party allocator for approximately 100 participating parties and presented to USEPA. Work also included a CERCLA cost recovery claim filed by a large contributing PRP against our client.

Irvine, CA, Confidential Client

Principal/Project Manager. Remediation support for a former agricultural pesticide packaging facility with groundwater impacted with 1,2-dichloropropane (1,2-DCP), 1,3-dichloropropene (1,3-DCP), ethylene dibromide (EDB or 1,2-DBA), methyl bromide, and methylene chloride. Responsible for developing an alternative in-situ remediation strategy, and for an on- and off-site groundwater monitoring program.

Store Space, Philadelphia, Pennsylvania (2022 – 2023)

Technical Director. Design lead for implementation of a mercury and PCB building material remediation project at storage facility that was constructed in a former 19th century pyrometer and thermometer manufacturing facility. The work involved implementation of the mercury and PCB abatement of over 30,000 square feet and wall surfaces concurrent with site construction activities under an accelerated schedule.

Former H.B Ives Plant, New Haven, Connecticut, Schlage Lock (2015 – 2020)

Project Director & Geologist. Project Director and Lead Geologist for a multi-media full site characterization and final remediation of the former H.B. Ives hardware manufacturing facility in New Haven, Connecticut, under the Transfer Act. The investigation work involved > 200 soil borings, 50 soil-vapor points, and 30 monitoring wells to consolidate 42 Areas of Concern (AOCs) into 12 release areas that were remediated using soil-vapor extraction and cap/cover design. With the investigation and remediation complete, Schlage sold the property in 2020 with support from Terraphase in completing the Transfer Act closure.

Lawrence Berkeley National Laboratory, Berkeley, California (2020)

PCB Task Manager. Developed a clean-up plan for PCBs in extant tunnels beneath the University of California, Lawrence Berkeley National Laboratory. The work involved investigation design, PCB sampling and data interpretation, and regulatory support for a PCB Performance Based Disposal under the 40 CFR section 761.61(b) TSCA.

1065 Park Avenue, New York, New York

Project Director. Managed the response and clean-up of a heating oil release from a 10,000-gallon underground storage tank (UST) beneath a 30-story-high rise cooperative apartment building on the Upper East Side of Manhattan. The work involved regulatory interactions with the New York State Department of Environmental Conservation (NYSDEC) and the New York City Department of Environmental Protection (NYCDEP).

Due Diligence Support, Pennsylvania and New Jersey Properties, Hilco Real Estate (HRE; 2021 – present)

Project Director. Project director for due diligence and site investigation of numerous properties in Pennsylvania and New Jersey to perform American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessments (ESAs), New

Jersey Preliminary Assessments, and direct site characterization and cleanup under Act 2 in Pennsylvania and the Site Remediation Program in New Jersey.

Private Developer, Redwood City, California

Remediation Task Manager. Design and implementation support for an in-situ thermal conductive heating program that resulted in a 99% destruction of the chlorinated solvent source associated with a former dry-cleaner that operated at the property.

Pennsylvania Act 2 Investigation, Scranton, Pennsylvania (2018 – present)

Project Director. Investigation and closure of a spill of No. 4 Fuel Oil, which occurred from a former 15,000-gallon UST in 1996, that was never officially closed by PADEP. Prepared Remedial Action Completion and Final Reports to support the closure without the need for additional active remedial actions. The case was officially closed by PADEP pursuant to Pennsylvania Act 2 regulations.

Gowanus Canal Superfund Site, Confidential Client (2017)

Project Director. Project Director for a cost allocation model review to support Gowanus Canal Superfund Site PRP contribution negotiations. The work involved mapping, deconstruction, and testing of a model that was developed to assign cost allocation percentages to parties involved in the Gowanus Canal Superfund Site. The second phase of work focused on developing a sensitivity analysis by running multiple scenarios to reveal biases and limitations of the cost allocation model.

Newtown Superfund Site, Confidential Client (2017 – present)

Project Director. Project Director for consulting support to a public utility involved in the Newtown Creek Superfund Site.

Agricultural Due Diligence Portfolio Manager, Private Equity Client (2016 – present)

Partnership Support. Project strategist and Director for numerous of due diligence projects performed to support large-scale agricultural investments throughout the West Coast from a private equity investor in California.

National Due Diligence Portfolio Manager, Confidential Clients (2012 – present)

Attorney-Investor Partnership Support. Project strategist and manager for scores of due diligence projects ranging from ASTM E1527-13 and E2247–08 Phase I ESAs to complicated environmental liability valuation support on capital asset projects. Most projects are performed to support large-scale prospective deals by private equity and institutional investors that rely on the project outcomes to inform their decision process and purchase negotiations.

Multiple Sites and Locations, Allegion (2013 – present)

Project Manager. Project Director and National Client Manager for a $2 billion international lock manufacturer. The projects include (soil, soil-vapor, and groundwater) investigation and remediation sites associated with former manufacturing facilities in throughout the country. Due diligence services include domestic and international Phase I and Phase II ESAs in the U.S., China, Mexico, and Australia. Project successes include finalizing site closure under Michigan Department of Environmental Quality (MDEQ) regulations of a former facility in Saranac, Michigan, and a PCB clean-up and Region I USEPA TSCA closure of a large former hardware manufacturing in USEPA Region I. Current projects under Mr. Voci's direction and management include soil and groundwater remediation and closure strategy development under the Connecticut property transfer law ("Transfer Act") and project strategy support for a former industrial property in Orange County, California.

Swope Oil Superfund Site, Camden County, New Jersey, Swope Superfund Group (2009 – 2014)

Project Manager/Lead Hydrogeologist. Project Manager/Lead Hydrogeologist for a chlorinated solvent site within a regional VOC plume located in Camden County, New Jersey. Site compounds included chlorinated ethenes and chlorinated ethanes and 1,4 dioxane. Mr. Voci authored the site RI, and completed a vapor intrusion study and the feasibility study. Region II USEPA accepted and issued a Record of Decision for a Monitored Natural Attenuation remedy for groundwater.

Malvern TCE Superfund Site, Chester County, Pennsylvania, Malvern-TCE PRP Group (2002 – 2009)

Hydrogeologist – Remediation Design. Optimized an enhanced in-situ biodegradation (EISB) groundwater study resulting in the negotiated change of the Superfund Site Record of Decision (ROD) from groundwater extraction and treatment to EISB.

Carolawn Superfund Site, Fort Lawn, South Carolina, Carolawn Superfund Group (2002 – 2008)

Remediation Manager. Technical Design and Implementation – Remediation manager for EISB remedy to replace the current pump-and-treat remedy of a former solvent storage facility in the Piedmont region of north central South Carolina.

Dresser Rand Active Heavy Equipment Manufacturing Facilities in Olean, Painted Post and Wellsville, New York, Ingersoll Rand (2012 – 2017)

Project Manager. Project Manager for an active spill case in Olean, New York, under NYSDEC management. Mr. Voci was brought in by the responsible party of the site to negotiate with NYSDEC on the status and path forward for an active facility with 27 AOCs. Through the analysis, evaluation and presentation of the previous site consultant's investigation data, Mr. Voci successfully reduced the number of AOCs from 27 to 3, and obtained a No Further Action designation for the site, which was closed in 2014. Ingersoll Rand has retained Terraphase to pursue regulatory closure of two other NYDEC Spills Program sites in Painted Post and Wellsville, New York, in 2015. Both sites have undergone remediation and are currently pursuing regulatory closure.

NPL Delisting, Marathon Battery Superfund Site, Eastlake Ohio, New York, Confidential Client (1993 – 1996)

Field Manager. Provided field coordination for remedial closure of a former nickel-cadmium battery plant sediment site adjacent to mature marshland, a tidal estuary, and the shoals of the Hudson River. The project was conducted with USEPA and U.S. Army Corps of Engineers (USACE) oversight in conjunction with the National Audubon Society. The site remedy for lead and cadmium involved on-site ex-situ phosphate-chemistry-based soil stabilization and off-site disposal via rail. Surface water was treated through an on-site wastewater treatment plant and discharged to the Hudson River.

Former Chemical Manufacturing Facility, Cleveland, Ohio, BASF Chemical Company (2013 – 2015)

Project Director. Project director for a multi-million-dollar Resource Conservation and Recovery Act (RCRA) Corrective Action Program at the former Harshaw Chemical Company facility. The facility dates back to the late 1800s with chemical manufacturing, plating operations, uranium fluoride production, uranium oxide production, hydrofluoric acid production, catalysts production, and metal finishing products that lead to present-day RCRA Corrective Action. Additional site activities include operation and optimization of an existing operating groundwater treatment system and overseeing the decontamination and demolition of several site structures. Constituents of concern include chlorinated solvents, fuel-related hydrocarbons, 1,4-dioxane, heavy metals, PCBs, and radiological constituents (uranium, thorium, radium). Demolition and corrective action have been initiated and will continue through 2015.

Multiple Railyard Properties, Pennsylvania and New Jersey, Confidential Client (2009 – present)

Technical Advisor/Third-Party Reviewer. Mr. Voci served as a technical advisor and continues in a litigation support role for a national rail company on several properties in Pennsylvania and New Jersey. The projects range from environmental management; site investigation; and remediation of LNAPL, PCBs, metals, semivolatile compounds, and petroleum-related contamination. Mr. Voci is currently an expert in a litigation support capacity for ongoing matter involving historical railroad property transfers. His current railroad projects also include a complex coast allocation project to support a rail client in the pursuit of PRPs resulting from the discovery of buried wastes during a pipeline utility construction in northern New Jersey.

Active Manufacturing Facility, Henderson, Kentucky, Confidential Client (2010 – 2012)

Kentucky Professional Geologist. Technical Consultant, Site Kentucky Professional Geologist for remediation of chromium in groundwater using a novel application of in-situ redox management using emulsified soybean oil to effect a change in groundwater oxidation reduction potential to favor chemical precipitation of chromium. Initial injections were completed in September 2009, site closure reports were submitted in 2011, and the site was closed in 2012.

Marjol Battery Superfund Site, Throop, Pennsylvania, Confidential Client (1993 – 1996)

Field Manager. Provided field coordination for several investigation sequences of a former lead-acid battery recycling facility adjacent to the Lackawanna River in the Borough of Throop, Lackawanna County in the coal region of Pennsylvania. Project highlights included the development of a novel soil pore water sampling approach and invention of silica flour injection equipment to emplace lysimeter filter packs in deep battery casing material landfill areas.

Somerville Landfill Redevelopment Project, Somerset County, New Jersey, Somerville Borough (2009 – 2015)

Hydrogeologist. Hydrogeologist and remediation team leader for the groundwater investigations associated with the redevelopment of a former municipal landfill owned by the Borough of Somerville. Investigations developed and managed include surface geophysical surveys, borehole geophysical logging and packer testing, and a trial application of a proprietary magnetic groundwater tracer technology to map leachate and overburden groundwater flow. Lead author for the remedial action portion of a combined Remedial Investigation Report/Remedial Action Workplan (RIR/RAW) that was approved by New Jersey Department of Environmental Protection (NJDEP) in September 2011. Managed the final design for a stream replacement and engineered wetland remedy at the site.

Act 2 Spill Response, Johnsonburg, Pennsylvania, Confidential Client (2011 – 2012)

Project Manager and Geologist. Mr. Voci was engaged to respond to a diesel spill in rural northwestern Pennsylvania in February 2011. The spill occurred approximately one-half mile upstream from a local community's water supply intake. The project goal to complete the soil and surface water investigation, remediate the site, conduct the site restoration, and obtain a release of liability under Act 2 through demonstration of attainment of the Statewide Health Standard within a compressed 90-day period was met under Mr. Voci's management and regulatory negotiation.

Act 2 Former Fuel Dispenser Site, Jones Township, Pennsylvania (2011 – 2012)

Geologist. Mr. Voci performed an investigation and remediation of a historical fuel dispenser operation and completed a Statewide Health Standard attainment demonstration for the site under Act 2. The work involved access to a remote forested area and the investigation of a historical logging fuel system that was discovered during road construction. Mr. Voci self-performed all aspects of the project and obtained regulatory closure for the site owner.

In Situ Bioremediation, Former Brewery Canning Facility, Volney, New York, Miller Brewing (2005 – 2008)

Lead Scientist. Lead scientist for implementation of an EISB program for large mixed chlorinated solvent plume (tetrachloroethene [PCE] and 1,1,1-trichloroethane [1,1,1-TCA]) in groundwater. The EISB program included groundwater geochemistry evaluation, laboratory treatability study design and data interpretation, injection of electron donor/substrate, and performance monitoring.

Remediation Design and Implementation, Chemical Manufacturing Facility, Birmingham, New Jersey, Laxness Chemical Company (2002 – 2009)

Remediation Lead. Designed and implemented in-situ chemical oxidation (ISCO) for a mixed chlorinated solvent/hydrocarbon plume using ozone injection technology for an Industrial Site Recovery Act (ISRA) site. Prepared and submitted a groundwater remedial action workplan (RAW) detailing a large-scale EISB remedy for the treatment of chlorinated propane compounds in groundwater.

Insurance Cost Recovery, Confidential Client, Automobile Industry (2002 – 2009)

Technical Support Hydrogeologist. Technical support hydrogeologist for environmental cost estimation and technical review; report preparation included analysis of potential private party environmental (property value diminution/bodily injury) claim and natural resource damage claim liabilities; report was used to support settlement negotiations related to historical insurance policies. Supported successful technical negotiations with multiple insurance carriers resulting in more than $20 million in recoveries.

Insurance Cost Recovery, Confidential Client, Transformer Manufacturing Industry (2009)

Lead Hydrogeologist. Lead Hydrogeologist for environmental cost estimation and technical review and settlement report preparation involving quantification of past and potential future environmental cost liabilities for numerous former and active domestic and international transformer manufacturing facilities associated with PCB and VOC contamination.

Active Manufacturing Facility, Stonewall, Virginia, Confidential Client (2009 – 2011)

Technical Consultant. Technical Consultant, Site Professional Geologist for the monitoring natural attenuation remediation of chlorinated solvents in groundwater downgradient of three different Solid Waste Management Units.

MTBE Plume Investigation and Remediation, Valley Stream, New York, Confidential Client (2000 – 2001)

Project Manager. Managed groundwater investigation and remediation activities associated with a half-mile-long methyl tert-butyl ether (MTBE) plume on Long Island. The site was the first in New York to employ continuous multi-chamber tubing wells for vertical groundwater characterization and ozone injection for MTBE remediation.

Newport News Shipyard, Newport News, Virginia, Northrop Grumman (2002 – 2007)

Lead Hydrogeologist. Technical Design and Implementation - Lead hydrogeologist for Remedy Identification, Evaluation and Selection (RIDES) process. Mr. Voci refined the site conceptual model using membrane interface probe (MIP) characterization techniques and designed the ozone injection remediation system for the site and directed the overall design program for the solid waste management unit (SWMU).

RCRA Facility EISB Application, Lancaster County, Pennsylvania, Confidential Client

Project Manager/Hydrogeologist. Project manager/Hydrogeologist for a RCRA site involving EISB, and a groundwater extraction and treatment remedy. Successfully implemented one of the first biostimulations/bioaugmentations in fractured rock.

Cosmetic Implements Manufacturing Facility ISRA Program, EISB Application, Essex County, New Jersey, Revlon (2002 – 2008)

Remediation Designer. Remediation designer for an ISRA site with NJDEP approval and oversight. Site involved batch delivery of sodium lactate and KB-1 bioaugmentation.

Support Investigation and Remediation, Central California, Confidential Client, Project Manager (1997 – 2000)

Project Manager. Managed groundwater and vadose zone investigations and remediation associated with a PCE release beneath a shopping center in Central California. All work was conducted with third-party review under a California RWQCB order.

Selected Abstracts and Presentations

- Voci, C.J., Successful Chlorinated Solvent Source Zone Treatment Using Zero-Valent Iron and In-Situ Bioremediation, 40th Annual Conference on Soils, Sediments, Water, and Energy. Amherst, Massachusetts. October 2024.
- Voci, C.J., Campeau, D., Jones C., Elmendorf, C.N. Large-scale Design and Implementation of Zero-Valent Iron Coupled with In-Situ Bioremediation for VOC Treatment. Thirteenth International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Denver, Colorado. June 2024.
- Voci, C.J., Chlorinated Solvent Remediation via Hydraulic Emplacement of Zero-Valent Iron and In-Situ Bioremediation, 38th Annual Conference on Soils, Sediments, Water, and Energy. Amherst, Massachusetts. October 17-20, 2022.
- Voci, C.J. and Roberts, J.D. The Salt Life - Reductive Dechlorination of Chlorinated Ethenes and Ethanes in Saline Groundwater. Twelfth International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palms Springs, California. May 2022.

- Voci, C.J. and Gulli. A.K., Post-Bioremediation Bulk Vinyl Chloride Attenuation Rate Estimation in an Overburden Groundwater Aquifer in Kansas. Eleventh International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palms Springs, California. May 2018.
- Voci, C.J. and Croteau, D. Challenges of Managing a Low Concentration 1,2,3-Trichloropropane Site in California. Eleventh International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palms Springs, California. May 2018.
- Voci, C.J., Croteau, D and Geckler, G., Targeted Small Source Zone In Situ Thermal Treatment: Lessons Learned at Two Chlorinated VOC Applications. Eleventh International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palms Springs, California. May 2018.
- Voci, C., N. Durant, and J. Roberts. 2010. Bioaugmentation for Treatment of a High-Concentration Chlorinated Solvent Complex Mixture. Platform Presentation. Seventh International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Monterey, California. May 2010.
- Voci, C., J. Roberts, S. Dworatzek, and P. Dennis. 2009. Biodegradation of High 1,2-Dichloropropane Concentrations in Microcosms Containing Dehalococcoides and Dehalobacter Organisms. Platform Presentation. 10th International In Situ and On-Site Bioremediation Symposium. Baltimore, Maryland. May 2009.
- Voci, C., S. Fogel, M. Findlay. 2008. Bioaugmentation Overcomes Inhibitory Conditions Resulting In Complete TCA and TCE Dechlorination in Fractured Rock. Platform Presentation. Sixth International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Monterey, California. May 2008.
- Voci, C., S. Fogel, M. Findlay. 2007. Bioaugmentation Culture Acclimation Troubleshooting in Initially Inhibitory Groundwater Conditions. Poster Presentation. Battelle.
- Voci, C. 2004. Ethanol Biostimulation and Bioaugmentation of a VOC-Impacted Carbonate Aquifer. Battelle Press, Paper/Platform Presentation Proceedings from the Battelle Conference for the Remediation of Recalcitrant Compounds, May 2004.
- Voci, C. 2004. Ethanol Biostimulation and Bioaugmentation of a VOC-Impacted Carbonate Aquifer Update. Platform Presentation. National Groundwater Association Fractured Bedrock Conference, September 2004.
- Nichols, E.M., and Voci, C.J., 2001. Evaluation of an Ozone-Air Sparging Pilot Test to Remediate MTBE in Groundwater on Long Island, NY. Presented at the 17th Annual International Conference on Contaminated Soils, Sediments and Water, October 22-25, 2001.
- Voci, C. 1996. Comparison of X-Ray Refinements and Electron Microprobe Analyses for Pyromorphite and Chlorapatite. West Chester University of Pennsylvania, MS Thesis.

Alexander Strohl, PG

Project Geologist

Mr. Strohl is a Licensed Professional Geologist with 10 years of experience in the environmental consulting industry. As a Project Geologist, he is responsible for directing multi-media site characterization programs involving groundwater, soil, surface water, soil vapor, and sediment sample collection for a variety of target contaminants including, chlorinated hydrocarbons, petroleum hydrocarbons, per- and polyfluoroalkyl substances (PFAS), metals, Polychlorinated Biphenyls (PCBs) and others. He has supervised environmental investigation and remediation including soil excavation, in-situ groundwater remediation, petroleum and chemical storage tank decommissioning, and monitoring well installation and abandonment. Mr. Strohl is also responsible for preparing Work Plans, Phase I Environmental Site Assessments (ESAs), and investigation-related technical reports for clients and regulatory agencies. Mr. Strohl is experienced in utilizing groundwater contaminant plume models in addition to his experience in developing environmental conceptual site models.

Mr. Strohl's project experience includes complex remedial investigation projects, the Pennsylvania Voluntary Cleanup (Act 2) Program, PFAS sampling and reporting, Phase I and II ESAs, tank investigations/removal, desktop auditing of oil and gas waste disposal facilities, Spill Prevention, Control, and Countermeasure (SPCC) inspections of oil and gas facilities, regulatory reporting for landfills, and National Pollutant Discharge Elimination System (NPDES) sampling and reporting.

Project Experience

Former Philadelphia Refinery, Philadelphia, Pennsylvania, Philadelphia Energy Solutions Refining and Marketing (2021 – present)

Professional Geologist of Record. Developed investigation work plans and site characterization reports to assist with closure of a 1,400-acre, 150-year-old former petroleum refinery. The site is currently enrolled in the Pennsylvania Regulated Tank Corrective Actions Program and the Pennsylvania Voluntary Cleanup Program for multiple sources of contamination. Certified the closure reports as the Professional Geologist of record.

Jennersville Hospital, West Grove, Pennsylvania, Tower Health (2022 – present)

Project Manager. Planned and managed a complex site investigation for PFAS at a hospital property impacted by the discharge of laundry greywater. The investigation included a rigorous quality assurance program, which was executed to the satisfaction of the client and third-party consultant reviewers. The implemented protocols for prevention of cross contamination have proven to be effective; quality assurance blanks have not detected PFAS substances above laboratory detection limits. The site will be enrolled in Act 2.

Multiple Act 2 Project Sites, Pennsylvania (2021 – present)

Professional Geologist of Record. Developed and certified Final Reports as the Professional Geologist of record to receive release of liability through the Act 2 program. Sites have included a recently developed car dealership where improper reporting for former underground storage tanks (USTs) had previously failed to

Education

BS in Geosciences, with a minor in Spanish, The Pennsylvania State University, 2015

Years of Experience

10

Joined Terraphase

2021

Professional History

Terraphase Engineering Inc.,

Project Geologist, 2024 – present

Senior Staff Geologist, 2021 – 2023

Environmental Standards, Inc., Staff Geoscientist, 2015 – 2021

Licenses/Registrations

Pennsylvania Licensed Professional Geologist (PG) No. 5519, 2021

Delaware Licensed Professional Geologist (PG) No. S4-0011440, 2024

New Hampshire Licensed Professional Geologist (PG) No. 927, 2024

Maine Licensed Professional Geologist (PG) No. GE683, 2025

Certification/Training

Synergis Technologies' 32-Hour AutoCAD Essentials, 2015

OSHA HAZWOPER 29 CFR 1910.120 and 8-Hour Refresher, Valid through 2023

First Aid/CPR/AED Trained, Valid through 4/2025

SafeLand USA Trained

demonstrate attainment of the selected standard, and a former rail yard where multiple potential sources of contamination were investigated as part of the redevelopment of a property to a large residential apartment complex.

Lead in Water Testing Program Management, Philadelphia, PA, School District of Philadelphia (August 2022 – Present)

Project Manager. Managed subcontracted plumbers and electricians to complete water fountain installations in nearly 300 District buildings to meet a compliance deadline. Communicated progress and schedule to District project managers. Managed sampling team schedules to complete lead in water testing in accordance with EPA "3 T's" guidance. Consulted the technical database team as an internal user of database and dashboards which house and display sampling and work order data.

Superfund Sites, Maryland and Pennsylvania (2015 – present)

Task Manager and Field Team Leader. Planned and executed numerous successful investigations and routine field sampling events at Superfund Sites located in Maryland and Pennsylvania impacted by chlorinated hydrocarbons and PFAS. The sites included former disposal facilities with long term pump-and-treat remediation systems. Complex bedrock geology and difficult field conditions frequently necessitated problem solving and flexibility.

Pollock Park and Pottstown Plating Works, Pottstown, Pennsylvania, Montgomery County Redevelopment Authority (2017 – 2021)

Task Manager and Field Team Leader. Managed soil and groundwater sampling activities at chlorinated hydrocarbon-impacted sites. Neighboring properties were also heavily impacted with chlorinated hydrocarbons, making cooperation between multiple consulting firms, regulatory agencies, and clients a necessity. Developed work plans, proposals, conceptual site models, and groundwater contaminant plume models for environmental investigation and closure reports. The investigations and cleanups assisted in the efforts to rejuvenate a former industrial area to re-develop a community park in Pottstown.

Store Space, Philadelphia, Pennsylvania (2022 – 2023)

Project Manager. Developed work plans and managed the implementation of a remediation of concrete floors impacted with mercury and PCBs at a facility that was the former location of a thermometer manufacturer. A request for proposal was distributed to multiple remediation contractors. Contractors were evaluated and the bid was awarded based on their qualifications, price, and remediation methodology. The success of the remediation allowed for the sale of the property.

Lanchester Landfill, Narvon, Pennsylvania, Chester County Solid Waste Authority (2019 – 2021)

Project Manager and Field Team Leader. Performed regulatory reporting for a landfill facility in Pennsylvania. Developed sampling and analysis plans, executed a PFAS leachate sampling investigation, and assisted in streamlining the routine sampling process for the facility.

Triumph Accessory Services, Wellington, Kansas, RICOH (2021 – 2022)

Senior Staff Geologist. Assisted with the development and planning, and oversaw the field implementation of an in-situ remediation methodology designed to significantly reduce concentrations of chlorinated solvents in groundwater. The success of the remediation will allow the client to receive regulatory closure for the property within the framework of the Kansas Voluntary Cleanup Program.

The Poplar, Philadelphia, Pennsylvania, Post Brothers Apartments (2018 – 2021)

Task Manager and Field Team Leader. Managed complex site assessment and investigation reporting activities at a large-scale residential redevelopment site. The site is currently enrolled in a voluntary cleanup program for six separate historical sources of contamination, including a former dry-cleaner, on-site and off-site petroleum USTs, and historical fill.

Madison Ingling

Senior Staff I Scientist

Madison Ingling comes to Terraphase with an academic background in Earth and Environmental Engineering, which included research on snowmelt trends in the Western United States that involved historical data compilation and use of GIS-based tools for data visualization and analysis.

As a Senior Staff I Scientist, Ms. Ingling provides support in the application of risk management strategies for public and private sector projects under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA), and various state cleanup programs. This includes assistance in developing multi-receptor human health and ecological risk assessments for contaminated environmental media such as soil, air, surface water, and sediment and modeling fate and transport of chemicals (e.g., vapor intrusion). Ms. Ingling performs comprehensive data queries for the evaluation of site-specific exposure scenarios not routinely addressed by standard guidance and uses geographic information system (GIS)-based tools for data analysis and the presentation of risk assessment results.

Education

BS in Earth and Environmental Engineering, Columbia University, 2022

BS in Physical Science, Analytics Minor, Muhlenberg College, 2020

Years of Experience

2

Joined Terraphase

2022

Professional History

Terraphase Engineering Inc., Senior Staff I Scientist, 2022 - present

Columbia University, Laboratory Research Assistant, 2021

Muhlenberg College Academic Resource Center, Workshop and Peer Tutor, 2017 – 2020 and Information Desk Specialist, Trexler Library, 2017 - 2020

Project Experience

Former Philadelphia Energy Solutions Refinery, Pennsylvania, Philadelphia Energy Solutions Refining and Marketing LLC (July 2022 – Present)

Risk Assessment Support. Provides risk assessment consulting support to a client and its team in redeveloping a large refinery for mixed commercial/industrial use. Responsibilities have included producing supplementary materials to aid decisions regarding the need for and scope of investigation and risk assessment to allow for site grading and soil management and the regulatory closure of aboveground storage tanks (ASTs) necessary to facilitate redevelopment.

IR Site 4, Former Naval Fuel Depot Point Molate, California, City of Richmond (July 2022 – Present)

Risk Assessment Support. Provides risk assessment consulting support to a client in redeveloping a former naval fuel depot for potential residential use. Responsibilities have included assisting with report writing and producing supplementary materials to evaluate relevant and applicable exposure scenarios and identify areas of the site that would warrant risk management action to facilitate site redevelopment.

Block 43, Lot 1, 15, 16, and 27; Block 166, Lot 1 and 4, New Jersey, EP Henry Corporation (February 2023-April 2023)

Remedial Investigation Support. Provided support of a remedial investigation of a site with mixed residential/commercial use. Responsibilities have included performing compliance averaging for remedial action verification to determine whether compliance with the applicable soil remediation standard had been achieved at the site and support decisions regarding the need for and scope of potential remedial action.

Civil Action, California, Judicial Arbitration and Mediation Services (JAMS) (September 2022-January 2023)

Litigation Support. Provided risk assessment consulting support in a civil litigation matter regarding the significance of potential human exposures to chemicals in soil due to releases form a facility in California which manufactured aluminum panels for aircrafts. Responsibilities have included evaluating existing data to assess risks associated with potential human exposure under current and future land use and support the opinion on whether risk management action is necessary.

Former Manufacturing Facility, Eighty-Four, Pennsylvania (August 2022-April 2023)

Risk Assessment Support. Provided risk assessment consulting support to a client in redeveloping a former phenothiazine manufacturing facility for potential recreational use. Responsibilities have included compiling a complete historical database to assess risks associated with aquatic life and potential human exposure under current and future land uses and support decisions regarding the need for risk management action.

Block 170, Lots 1, 42, & 44, New Jersey, Berkeley Development Co. (August 2022-October 2022)

Remedial Investigation Support. Provided support of a remedial investigation of a site with mixed residential/commercial use. Responsibilities have included assisting with compliance averaging for remedial action verification to determine whether compliance with the applicable soil remediation standard had been achieved at the site and producing supplementary materials to visualize the adjustments made to the Thiessen polygons to better represent the bounded nature of the contamination at the site.

Block 2607, Lot 46, New Jersey, Matrix Hamilton Land, LLC (July 2022 – February 2023)

Remedial Investigation Support. Provided support with a remedial investigation of a predominantly wooded vacant site in an area with surrounding mixed commercial and residential properties. Responsibilities have included assisting with the production of supplementary materials for a soil remediation investigation and ecological evaluation to evaluate relevant and applicable exposure scenarios and identify areas of the site that would warrant risk management action to facilitate site redevelopment.

Preliminary Endangerment Assessment (PEA) Support, California, Multiple Facilities (2022 – present)

Risk Assessment Support. Provides human health screening risk assessment support for PEAs at multiple facilities in California. Responsibilities have included evaluating the potential significance of human exposures and supporting decisions regarding the need for and scope of further site investigation.

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760/827-1100 Fax: 760/827-1099

RESUME
PEI GENG

EDUCATION

M.S. Organic Chemistry, 1989
Sam Houston State University

B.S. Environmental Chemistry, 1983
Nankai University

PROFESSIONAL HISTORY

Laboratory Data Consultants, Inc.
Senior Chemist
1997 to present

Ceimic Corporation
GC/MS and GC Chemist
1996 to 1997

PACE Analytical Service Inc.
GC/MS and GC Chemist
1990 to 1996

REPRESENTATIVE EXPERIENCE

Ms. Geng has over 34 years combined environmental laboratory and data validation experience. Her experience includes performance of data validation in the GC and GC/MS areas for major Federal projects. She has performed large validation projects under Boeing, Navy Southwest, Northwest and Pacific Division, EPA Region IX ESAT, USACE and AFCEE/AFCEC programs. Her laboratory experience includes hands-on CLP and EPA analysis of GC and GC/MS volatile organic compounds.

Specifically, Ms. Geng has over 27 years organic data validation experience using USEPA CLP (including Region III) functional guidelines and other applicable documents.

- As chemist with LDC, Ms. Geng specializes in the data validation and contract compliance screening of gas chromatography-mass spectrometry analyses as well as gas chromatography analyses. She has a thorough knowledge and understanding of gas chromatography and gas chromatography-mass spectrometry (GCMS) and high resolution GCMS methods referenced in EPA CLP, SW-846, EPA 500, 600 and 1600 series documents. She has performed large data validation under Boeing, Navy Southwest and Pacific Divisions and EPA Region IX ESAT, USACE and AFCEE/AFCEC projects.

Ms. Geng has over 7 years of experience in an environmental laboratory performing the analysis of organic parameters.

- As both a GC and GC/MS chemist at Ceimic Corporation, a full service environmental analytical chemistry facility, Ms. Geng performed GC and GC/MS volatile and semivolatile analyses.

- As both a GC and GC/MS chemist at PACE Analytical Service Inc., a full service environmental analytical chemistry facility, Ms. Geng performed GC and GC/MS volatile and semivolatile analyses as well as overseeing the final reporting of analytical data, and compliance with method requirements.

APPENDIX C

NYSDEC SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS), APRIL 2023

NEW YORK STATE OF OPPORTUNITY.

Department of Environmental Conservation

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

Under NYSDEC's Part 375 Remedial Programs

April 2023



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ERRATA SHEET for

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) Under NYSDEC's Part 375 Remedial Programs Issued January 17, 2020

Citation and Page Number	Current Text	Corrected Text	Date
Title of Appendix I, page 32	Appendix H	Appendix I	2/25/2020
Document Cover, page 1	Guidelines for Sampling and Analysis of PFAS	Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs	9/15/2020
Data Assessment and Application to Site Cleanup Page 3	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published	Until such time as Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published	3/28/2023
Water Sample Results Page 3	PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water if PFOA or PFOS is detected in any water sample at or above 10 ng/L (ppt) and is determined to be attributable to the site, either by a comparison of upgradient and downgradient levels, or the presence of soil source areas, as defined below.	NYSDEC has adopted ambient water quality guidance values for PFOA and PFOS. Groundwater samples should be compared to the human health criteria of 6.7 ng/l (ppt) for PFOA and 2.7 ng/l (ppt) for PFOS. These guidance values also include criteria for surface water for PFOS applicable for aquatic life, which may be applicable at some sites. Drinking water sample results should be compared to the NYS maximum contaminant level (MCL) of 10 ng/l (ppt).Analysis to determine if PFOA and PFOS concentrations are attributable to the site should include a comparison between upgradient and downgradient levels, and the presence of soil source areas, as defined below.	3/28/2023
Soil Sample Results Page 3	Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values:	NYSDEC will delay adding soil cleanup objectives for PFOA and PFOS to 6 NYCRR Part 375-6 until the PFAS rural soil background study has been completed. Until SCOs are in effect, the following are to be used as guidance values:	3/28/2023
Protection of Groundwater Page 3	PFOA (ppb) 1.1 PFOS (ppb) 3.7	PFOA (ppb) 0.8 PFOS (ppb) 1.0	3/28/2023

Citation and Page Number	Current Text	Corrected Text	Date
Footnote 2 Page 3	The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	The Protection of Groundwater values are based on the above referenced ambient groundwater guidance values. Details on that calculation are available in the following document, prepared for the February 2022 proposed changes to Part 375 (https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375techsupport.pdf). The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	3/28/2023
Testing for Imported Soil Page 4	If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable.	If the concentrations of PFOA and PFOS in leachate are at or above the ambient water quality guidance values for groundwater, then the soil is not acceptable.	3/28/2023
Routine Analysis, page 9	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1 or ISO 25101."	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1, ISO 25101, or Method 533."	9/15/2020
Additional Analysis, page 9, new paragraph regarding soil parameters	None	"In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (EPA Method 9060), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils."	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Data Assessment and Application to Site Cleanup Page 10	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFAS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Target levels for cleanup of PFAS in other media, including biota and sediment, have not yet been established by the DEC.	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.	9/15/2020
Water Sample Results Page 10	PFAS should be further assessed and considered as a potential contaminant of concern in groundwater or surface water (…) If PFAS are identified as a contaminant of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water (…) If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Soil Sample Results, page 10	"The extent of soil contamination for purposes of delineation and remedy selection should be determined by having certain soil samples tested by Synthetic Precipitation Leaching Procedure (SPLP) and the leachate analyzed for PFAS. Soil exhibiting SPLP results above 70 ppt for either PFOA or PFOS (individually or combined) are to be evaluated during the cleanup phase."	"Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values. " [Interim SCO Table] "PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP. As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf. "	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Testing for Imported Soil Page 11	Soil imported to a site for use in a soil cap, soil cover, or as backfill is to be tested for PFAS in general conformance with DER-10, Section 5.4(e) for the PFAS Analyte List (Appendix F) using the analytical procedures discussed below and the criteria in DER-10 associated with SVOCs. If PFOA or PFOS is detected in any sample at or above 1 µg/kg, then soil should be tested by SPLP and the leachate analyzed for PFAS. If the SPLP results exceed 10 ppt for either PFOA or PFOS (individually) then the source of backfill should be rejected, unless a site-specific exemption is provided by DER. SPLP leachate criteria is based on the Maximum Contaminant Levels proposed for drinking water by New York State's Department of Health, this value may be updated based on future Federal or State promulgated regulatory standards. Remedial parties have the option of analyzing samples concurrently for both PFAS in soil and in the SPLP leachate to minimize project delays. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable. PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Footnotes	None	[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances. [2] The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the soil cleanup objective for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	9/15/2020
Additional Analysis, page 9	In cases… soil parameters, such as Total Organic Carbon (EPA Method 9060), soil…	In cases… soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil…	1/8/2021
Appendix A, General Guidelines, fourth bullet	List the ELAP-approved lab(s) to be used for analysis of samples	List the ELAP- certified lab(s) to be used for analysis of samples	1/8/2021
Appendix E, Laboratory Analysis and Containers	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by ISO Method 25101.	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101	1/8/2021
Water Sample Results Page 9	"In addition, further assessment of water may be warranted if either of the following screening levels are met: a. any other individual PFAS (not PFOA or PFOS) is detected in water at or above 100 ng/L; or b. total concentration of PFAS (including PFOA and PFOS) is detected in water at or above 500 ng/L"	Deleted	6/15/2021

Citation and Page Number	Current Text	Corrected Text	Date
Routine Analysis, Page XX	Currently, New York State Department of Health's Environmental Laboratory Approval Program (ELAP)… criteria set forth in the DER's laboratory guidelines for PFAS in non-potable water and solids (Appendix H - Laboratory Guidelines for Analysis of PFAS in Non-Potable Water and Solids).	Deleted	5/31/2022
Analysis and Reporting, Page XX	As of October 2020, the United States Environmental Protection Agency (EPA) does not have a validated method for analysis of PFAS for media commonly analyzed under DER remedial programs (non-potable waters, solids). DER has developed the following guidelines to ensure consistency in analysis and reporting of PFAS.	Deleted	5/31/2022
Routine Analysis, Page XX	LC-MS/MS analysis for PFAS using methodologies based on EPA Method 537.1 is the procedure to use for environmental samples. Isotope dilution techniques should be utilized for the analysis of PFAS in all media.	EPA Method 1633 is the procedure to use for environmental samples.	
Soil Sample Results, Page XX	Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6	Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6	
Appendix A	"Include in the text… LC-MS/MS for PFAS using methodologies based on EPA Method 537.1"	"Include in the text ….EPA Method 1633"	
Appendix A	"Laboratory should have ELAP certification for PFOA and PFOS in drinking water by EPA Method 537, 537.1, EPA Method 533, or ISO 25101"	Deleted	
Appendix B	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	

Citation and Page Number	Current Text	Corrected Text	Date
Appendix C	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix D	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix G		Updated to include all forty PFAS analytes in EPA Method 533	
Appendix H		Deleted	
Appendix I	Appendix I	Appendix H	
Appendix H	"These guidelines are intended to be used for the validation of PFAS analytical results for projects within the Division of Environmental Remediation (DER) as well as aid in the preparation of a data usability summary report."	"These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER)."	
Appendix H	"The holding time is 14 days…"	"The holding time is 28 days…"	
Appendix H, Initial Calibration	"The initial calibration should contain a minimum of five standards for linear fit…"	"The initial calibration should contain a minimum of six standards for linear fit…"	
Appendix H, Initial Calibration	Linear fit calibration curves should have an R^2 value greater than 0.990.	Deleted	
Appendix H, Initial Calibration Verification	Initial Calibration Verification Section	Deleted	
Appendix H	secondary Ion Monitoring Section	Deleted	
Appendix H	Branched and Linear Isomers Section	Deleted	

Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs

Objective

New York State Department of Environmental Conservation's Division of Environmental Remediation (DER) performs or oversees sampling of environmental media and subsequent analysis of PFAS as part of remedial programs implemented under 6 NYCRR Part 375. To ensure consistency in sampling, analysis, reporting, and assessment of PFAS, DER has developed this document which summarizes currently accepted procedures and updates previous DER technical guidance pertaining to PFAS.

Applicability

All work plans submitted to DEC pursuant to one of the remedial programs under Part 375 shall include PFAS sampling and analysis procedures that conform to the guidelines provided herein.

As part of a site investigation or remedial action compliance program, whenever samples of potentially affected media are collected and analyzed for the standard Target Analyte List/Target Compound List (TAL/TCL), PFAS analysis should also be performed. Potentially affected media can include soil, groundwater, surface water, and sediment. Based upon the potential for biota to be affected, biota sampling and analysis for PFAS may also be warranted as determined pursuant to a Fish and Wildlife Impact Analysis. Soil vapor sampling for PFAS is not required.

Field Sampling Procedures

DER-10 specifies technical guidance applicable to DER's remedial programs. Given the prevalence and use of PFAS, DER has developed "best management practices" specific to sampling for PFAS. As specified in DER-10 Chapter 2, quality assurance procedures are to be submitted with investigation work plans. Typically, these procedures are incorporated into a work plan, or submitted as a stand-alone document (e.g., a Quality Assurance Project Plan). Quality assurance guidelines for PFAS are listed in Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS.

Field sampling for PFAS performed under DER remedial programs should follow the appropriate procedures outlined for soils, sediments, or other solids (Appendix B), non-potable groundwater (Appendix C), surface water (Appendix D), public or private water supply wells (Appendix E), and fish tissue (Appendix F).

QA/QC samples (e.g. duplicates, MS/MSD) should be collected as specified in DER-10, Section 2.3(c). For sampling equipment coming in contact with aqueous samples only, rinsate or equipment blanks should be collected. Equipment blanks should be collected at a minimum frequency of one per day per site or one per twenty samples, whichever is more frequent.

Analysis and Reporting

The investigation work plan should describe analysis and reporting procedures, including laboratory analytical procedures for the methods discussed below. As specified in DER-10 Section 2.2, laboratories should provide a full Category B deliverable. In addition, a Data Usability Summary Report (DUSR) should be prepared by an independent, third-party data validator. Electronic data submissions should meet the requirements provided at: https://www.dec.ny.gov/chemical/62440.html.

DER has developed a *PFAS Analyte List* (Appendix G) for remedial programs to understand the nature of contamination at sites. It is expected that reported results for PFAS will include, at a minimum, all the compounds listed. If lab and/or matrix specific issues are encountered for any analytes, the DER project manager, in consultation with the DER chemist, will make case-by-case decisions as to whether certain analytes may be temporarily or permanently discontinued from analysis at each site. As with other contaminants that are analyzed for at a site, the *PFAS Analyte List* may be refined for future sampling events based on investigative findings.

Routine Analysis

EPA Method 1633 is the procedure to use for environmental samples. Reporting limits for PFOA and PFOS in aqueous samples should not exceed 2 ng/L. Reporting limits for PFOA and PFOS in solid samples should not exceed 0.5 µg/kg. Reporting limits for all other PFAS in aqueous and solid media should be as close to these limits as possible. If laboratories indicate that they are not able to achieve these reporting limits for the entire *PFAS Analyte List*, site-specific decisions regarding acceptance of elevated reporting limits for specific PFAS can be made by the DER project manager in consultation with the DER chemist. Data review guidelines were developed by DER to ensure data comparability and usability (Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids).

Additional Analysis

Additional laboratory methods for analysis of PFAS may be warranted at a site, such as the Synthetic Precipitation Leaching Procedure (SPLP) and Total Oxidizable Precursor Assay (TOP Assay).

In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils.

SPLP is a technique used to determine the mobility of chemicals in liquids, soils and wastes, and may be useful in determining the need for addressing PFAS-containing material as part of the remedy. SPLP by EPA Method 1312 should be used unless otherwise specified by the DER project manager in consultation with the DER chemist.

Impacted materials can be made up of PFAS that are not analyzable by routine analytical methodology. A TOP Assay can be utilized to conceptualize the amount and type of oxidizable PFAS which could be liberated in the environment, which approximates the maximum concentration of perfluoroalkyl substances that could be generated if all polyfluoroalkyl substances were oxidized. For example, some polyfluoroalkyl substances may degrade or transform to form perfluoroalkyl substances (such as PFOA or PFOS), resulting in an increase in perfluoroalkyl substance concentrations as contaminated groundwater moves away from a source. The TOP Assay converts, through oxidation, polyfluoroalkyl substances (precursors) into perfluoroalkyl substances that can be detected by routine analytical methodology.[1]

[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances.

Commercial laboratories have adopted methods which allow for the quantification of targeted PFAS in air and biota. The EPA's Office of Research and Development (ORD) is currently developing methods which allow for air emissions characterization of PFAS, including both targeted and non-targeted analysis of PFAS. Consult with the DER project manager and the DER chemist for assistance on analyzing biota/tissue and air samples.

Data Assessment and Application to Site Cleanup

Until such time as Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.

Water Sample Results

NYSDEC has adopted ambient water quality guidance values for PFOA and PFOS. Groundwater samples should be compared to the human health criteria of 6.7 ng/l (ppt) for PFOA and 2.7 ng/l (ppt) for PFOS. These human health criteria should also be applied to surface water that is used as a water supply. This guidance also includes criteria for surface water for PFOS applicable for aquatic life, which may be applicable at some sites. Drinking water sample results should be compared to the NYS maximum contaminant level (MCL) of 10 ng/l (ppt). Analysis to determine if PFOA and PFOS concentrations are attributable to the site should include a comparison between upgradient and downgradient levels, and the presence of soil source areas, as defined below.

If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.

Soil Sample Results

NYSDEC will delay adding soil cleanup objectives for PFOA and PFOS to 6 NYCRR Part 375-6 until the PFAS rural soil background study has been completed. Until SCOs are in effect, the following are to be used as guidance values:

Guidance Values for Anticipated Site Use	PFOA (ppb)	PFOS (ppb)
Unrestricted	0.66	0.88
Residential	6.6	8.8
Restricted Residential	33	44
Commercial	500	440
Industrial	600	440
Protection of Groundwater[2]	0.8	1.0

PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These

[2] The Protection of Groundwater values are based on the above referenced ambient groundwater guidance values. Details on that calculation are available in the following document, prepared for the February 2022 proposed changes to Part 375 (https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375techsupport.pdf). The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).

additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP.

As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf.

Testing for Imported Soil

Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above the ambient water quality guidance values for groundwater, then the soil is not acceptable.

PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.

Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS

The following guidelines (general and PFAS-specific) can be used to assist with the development of a QAPP for projects within DER involving sampling and analysis of PFAS.

General Guidelines in Accordance with DER-10

- Document/work plan section title – Quality Assurance Project Plan
- Summarize project scope, goals, and objectives
- Provide project organization including names and resumes of the project manager, Quality Assurance Officer (QAO), field staff, and Data Validator
    - The QAO should not have another position on the project, such as project or task manager, that involves project productivity or profitability as a job performance criterion
- List the ELAP certified lab(s) to be used for analysis of samples
- Include a site map showing sample locations
- Provide detailed sampling procedures for each matrix
- Include Data Quality Usability Objectives
- List equipment decontamination procedures
- Include an "Analytical Methods/Quality Assurance Summary Table" specifying:
    - Matrix type
    - Number or frequency of samples to be collected per matrix
    - Number of field and trip blanks per matrix
    - Analytical parameters to be measured per matrix
    - Analytical methods to be used per matrix with minimum reporting limits
    - Number and type of matrix spike and matrix spike duplicate samples to be collected
    - Number and type of duplicate samples to be collected
    - Sample preservation to be used per analytical method and sample matrix
    - Sample container volume and type to be used per analytical method and sample matrix
    - Sample holding time to be used per analytical method and sample matrix
- Specify Category B laboratory data deliverables and preparation of a DUSR

Specific Guidelines for PFAS

- Include in the text that sampling for PFAS will take place
- Include in the text that PFAS will be analyzed by EPA Method 1633
- Include the list of PFAS compounds to be analyzed (*PFAS Analyte List*)
- Include the laboratory SOP for PFAS analysis
- List the minimum method-achievable Reporting Limits for PFAS
    - Reporting Limits should be less than or equal to:
        - Aqueous – 2 ng/L (ppt)
        - Solids – 0.5 µg/kg (ppb)
- Include the laboratory Method Detection Limits for the PFAS compounds to be analyzed
-
- Include detailed sampling procedures
    - Precautions to be taken
    - Pump and equipment types
    - Decontamination procedures
    - Approved materials only to be used
- Specify that regular ice only will be used for sample shipment
- Specify that equipment blanks should be collected at a minimum frequency of 1 per day per site for each matrix

Appendix B - Sampling Protocols for PFAS in Soils, Sediments and Solids

General

The objective of this protocol is to give general guidelines for the collection of soil, sediment and other solid samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Containers

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in to contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel spoon
- stainless steel bowl
- steel hand auger or shovel without any coatings

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Sampling is often conducted in areas where a vegetative turf has been established. In these cases, a pre-cleaned trowel or shovel should be used to carefully remove the turf so that it may be replaced at the conclusion of sampling. Surface soil samples (e.g. 0 to 6 inches below surface) should then be collected using a pre-cleaned, stainless steel spoon. Shallow subsurface soil samples (e.g. 6 to ~36 inches below surface) may be collected by digging a hole using a pre-cleaned hand auger or shovel. When the desired subsurface depth is reached, a pre-cleaned hand auger or spoon shall be used to obtain the sample.

When the sample is obtained, it should be deposited into a stainless steel bowl for mixing prior to filling the sample containers. The soil should be placed directly into the bowl and mixed thoroughly by rolling the material into the middle until the material is homogenized. At this point the material within the bowl can be placed into the laboratory provided container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A soil log or sample log shall document the location of the sample/borehole, depth of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix C - Sampling Protocols for PFAS in Monitoring Wells

General

The objective of this protocol is to give general guidelines for the collection of groundwater samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including plumbers tape and sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel inertia pump with HDPE tubing
- peristaltic pump equipped with HDPE tubing and silicone tubing
- stainless steel bailer with stainless steel ball
- bladder pump (identified as PFAS-free) with HDPE tubing

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Monitoring wells should be purged in accordance with the sampling procedure (standard/volume purge or low flow purge) identified in the site work plan, which will determine the appropriate time to collect the sample. If sampling using standard purge techniques, additional purging may be needed to reduce turbidity levels, so samples contain a limited amount of sediment within the sample containers. Sample containers that contain sediment may cause issues at the laboratory, which may result in elevated reporting limits and other issues during the sample preparation that can compromise data usability. Sampling personnel should don new nitrile gloves prior to sample collection due to the potential to contact PFAS containing items (not related to the sampling equipment) during the purging activities.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Additional equipment blank samples may be collected to assess other equipment that is utilized at the monitoring well
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A purge log shall document the location of the sample, sampling equipment, groundwater parameters, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix D - Sampling Protocols for PFAS in Surface Water

General

The objective of this protocol is to give general guidelines for the collection of surface water samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel cup

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Where conditions permit, (e.g. creek or pond) sampling devices (e.g. stainless steel cup) should be rinsed with site medium to be sampled prior to collection of the sample. At this point the sample can be collected and poured into the sample container.

If site conditions permit, samples can be collected directly into the laboratory container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A sample log shall document the location of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix E - Sampling Protocols for PFAS in Private Water Supply Wells

General

The objective of this protocol is to give general guidelines for the collection of water samples from private water supply wells (with a functioning pump) for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101. The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials (e.g. plumbers tape), including sample bottle cap liners with a PTFE layer.

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Locate and assess the pressure tank and determine if any filter units are present within the building. Establish the sample location as close to the well pump as possible, which is typically the spigot at the pressure tank. Ensure sampling equipment is kept clean during sampling as access to the pressure tank spigot, which is likely located close to the ground, may be obstructed and may hinder sample collection.

Prior to sampling, a faucet downstream of the pressure tank (e.g., washroom sink) should be run until the well pump comes on and a decrease in water temperature is noted which indicates that the water is coming from the well. If the homeowner is amenable, staff should run the water longer to purge the well (15+ minutes) to provide a sample representative of the water in the formation rather than standing water in the well and piping system including the pressure tank. At this point a new pair of nitrile gloves should be donned and the sample can be collected from the sample point at the pressure tank.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- If equipment was used, collect one equipment blank per day per site and a minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers.
- A field reagent blank (FRB) should be collected at a rate of one per 20 samples. The lab will provide a FRB bottle containing PFAS free water and one empty FRB bottle. In the field, pour the water from the one bottle into the empty FRB bottle and label appropriately.
- Request appropriate data deliverable (Category B) and an electronic data deliverable
- For sampling events where multiple private wells (homes or sites) are to be sampled per day, it is acceptable to collect QC samples at a rate of one per 20 across multiple sites or days.

Documentation

A sample log shall document the location of the private well, sample point location, owner contact information, sampling equipment, purge duration, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate and available (e.g. well construction, pump type and location, yield, installation date). Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appendix F - Sampling Protocols for PFAS in Fish

This appendix contains a copy of the current SOP developed by the Division of Fish and Wildlife (DFW) entitled "General Fish Handling Procedures for Contaminant Analysis" (Ver. 8). This SOP should be followed when collecting fish for contaminant analysis. Note, however, that the Bureau of Ecosystem Health will not be supplying bags or tags. All supplies are the responsibility of the collector

Procedure Name: General Fish Handling Procedures for Contaminant Analysis

Number: FW-005

Purpose: This procedure describes data collection, fish processing and delivery of fish collected for contaminant monitoring. It contains the chain of custody and collection record forms that should be used for the collections.

Organization: Environmental Monitoring Section
Bureau of Ecosystem Health
Division of Fish and Wildlife (DFW)
New York State Department of Environmental Conservation (NYSDEC)
625 Broadway
Albany, New York 12233-4756

Version: 8

Previous Version Date: 21 March 2018

Summary of Changes to this Version: Updated bureau name to Bureau of Ecosystem Health. Added direction to list the names of all field crew on the collection record. Minor formatting changes on chain of custody and collection records.

Originator or Revised by: Wayne Richter, Jesse Becker

Date: 26 April 2019

Quality Assurance Officer and Approval Date: Jesse Becker, 26 April 2019

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

GENERAL FISH HANDLING PROCEDURES FOR CONTAMINANT ANALYSES

A. Original copies of all continuity of evidence (i.e., Chain of Custody) and collection record forms must accompany delivery of fish to the lab. A copy shall be directed to the Project Leader or as appropriate, Wayne Richter. All necessary forms will be supplied by the Bureau of Ecosystem Health. Because some samples may be used in legal cases, it is critical that each section is filled out completely. Each Chain of Custody form has three main sections:

   1. The top box is to be filled out **and signed** by the person responsible for the fish collection (e.g., crew leader, field biologist, researcher). This person is responsible for delivery of the samples to DEC facilities or personnel (e.g., regional office or biologist).

   2. The second section is to be filled out **and signed** by the person responsible for the collections while being stored at DEC, before delivery to the analytical lab. This may be the same person as in (1), but it is still required that they complete the section. Also important is the **range of identification numbers** (i.e., tag numbers) included in the sample batch.

   3. Finally, the bottom box is to record any transfers between DEC personnel and facilities. Each subsequent transfer should be **identified, signed, and dated**, until laboratory personnel take possession of the fish.

B. The following data are required on each **Fish Collection Record** form:

   1. Project and Site Name.

   2. DEC Region.

   3. All personnel (and affiliation) involved in the collection.

   4. Method of collection (gill net, hook and line, etc.)

   5. Preservation Method.

C. The following data are to be taken on each fish collected and recorded on the **Fish Collection Record** form:

   1. Tag number - Each specimen is to be individually jaw tagged at time of collection with a unique number. Make sure the tag is turned out so that the number can be read without opening the bag. Use tags in sequential order. For small fish or composite samples place the tag inside the bag with the samples. The Bureau of Ecosystem Health can supply the tags.

   2. Species identification (please be explicit enough to enable assigning genus and species). Group fish by species when processing.

   3. Date collected.

   4. Sample location (waterway and nearest prominent identifiable landmark).

   5. Total length (nearest mm or smallest sub-unit on measuring instrument) and weight (nearest g or

smallest sub-unit of weight on weighing instrument). Take all measures as soon as possible with calibrated, protected instruments (e.g. from wind and upsets) and prior to freezing.

6. Sex - fish may be cut enough to allow sexing or other internal investigation, but do not eviscerate. Make any incision on the right side of the belly flap or exactly down the midline so that a left-side fillet can be removed.

D. General data collection recommendations:

1. It is helpful to use an ID or tag number that will be unique. It is best to use metal striped bass or other uniquely numbered metal tags. If uniquely numbered tags are unavailable, values based on the region, water body and year are likely to be unique: for example, R7CAY11001 for Region 7, Cayuga Lake, 2011, fish 1. If the fish are just numbered 1 through 20, we have to give them new numbers for our database, making it more difficult to trace your fish to their analytical results and creating an additional possibility for errors.

2. Process and record fish of the same species sequentially. Recording mistakes are less likely when all fish from a species are processed together. Starting with the bigger fish species helps avoid missing an individual.

3. If using Bureau of Ecosystem Health supplied tags or other numbered tags, use tags in sequence so that fish are recorded with sequential Tag Numbers. This makes data entry and login at the lab and use of the data in the future easier and reduces keypunch errors.

4. Record length and weight as soon as possible after collection and before freezing. Other data are recorded in the field upon collection. An age determination of each fish is optional, but if done, it is recorded in the appropriate "Age" column.

5. For composite samples of small fish, record the number of fish in the composite in the Remarks column. Record the length and weight of each individual in a composite. All fish in a composite sample should be of the same species and members of a composite should be visually matched for size.

6. Please submit photocopies of topographic maps or good quality navigation charts indicating sampling locations. GPS coordinates can be entered in the Location column of the collection record form in addition to or instead for providing a map. These records are of immense help to us (and hopefully you) in providing documented location records which are not dependent on memory and/or the same collection crew. In addition, they may be helpful for contaminant source trackdown and remediation/control efforts of the Department.

7. When recording data on fish measurements, it will help to ensure correct data recording for the data recorder to call back the numbers to the person making the measurements.

E. Each fish is to be placed in its own individual plastic bag. For small fish to be analyzed as a composite, put all of the fish for one composite in the same bag but use a separate bag for each composite. It is important to individually bag the fish to avoid difficulties or cross contamination when processing the fish for chemical analysis. Be sure to include the fish's tag number inside the bag, preferably attached to the fish with the tag number turned out so it can be read. Tie or otherwise secure the bag closed. **The Bureau of Ecosystem Health will supply the bags.** If necessary, food grade bags may be procured from a suitable vendor (e.g., grocery store). It is preferable to redundantly label each bag with a manila tag tied between the knot and the body of the bag. This tag should be labeled with the project name, collection location, tag number, collection date, and fish species. If scales are collected, the scale envelope should be labeled with

the same information.

F. Groups of fish, by species, are to be placed in one large plastic bag per sampling location. **The Bureau of Ecosystem Health will supply the larger bags.** Tie or otherwise secure the bag closed. Label the site bag with a manila tag tied between the knot and the body of the bag. The tag should contain: project, collection location, collection date, species and **tag number ranges**. Having this information on the manila tag enables lab staff to know what is in the bag without opening it.

G. Do not eviscerate, fillet or otherwise dissect the fish unless specifically asked to. If evisceration or dissection is specified, the fish must be cut along the exact midline or on the right side so that the left side fillet can be removed intact at the laboratory. If filleting is specified, the procedure for taking a standard fillet (SOP PREPLAB 4) must be followed, including removing scales.

H. Special procedures for PFAS: Unlike legacy contaminants such as PCBs, which are rarely found in day to day life, PFAS are widely used and frequently encountered. Practices that avoid sample contamination are therefore necessary. While no standard practices have been established for fish, procedures for water quality sampling can provide guidance. The following practices should be used for collections when fish are to be analyzed for PFAS:

No materials containing Teflon.
No Post-it notes.
No ice packs; only water ice or dry ice.
Any gloves worn must be powder free nitrile.
No Gore-Tex or similar materials (Gore-Tex is a PFC with PFOA used in its manufacture).
No stain repellent or waterproof treated clothing; these are likely to contain PFCs.
Avoid plastic materials, other than HDPE, including clipboards and waterproof notebooks.
Wash hands after handling any food containers or packages as these may contain PFCs.
Keep pre-wrapped food containers and wrappers isolated from fish handling.
Wear clothing washed at least six times since purchase.
Wear clothing washed without fabric softener.
Staff should avoid cosmetics, moisturizers, hand creams and similar products on the day of sampling as many of these products contain PFCs (Fujii et al. 2013). Sunscreen or insect repellent should not contain ingredients with “fluor” in their name. Apply any sunscreen or insect repellent well downwind from all materials. Hands must be washed after touching any of these products.

I. All fish must be kept at a temperature <45° F (<8° C) immediately following data processing. As soon as possible, freeze at -20° C ± 5° C. Due to occasional freezer failures, daily freezer temperature logs are required. The freezer should be locked or otherwise secured to maintain chain of custody.

J. In most cases, samples should be delivered to the Analytical Services Unit at the Hale Creek field station. Coordinate delivery with field station staff and send copies of the collection records, continuity of evidence forms and freezer temperature logs to the field station. For samples to be analyzed elsewhere, non-routine collections or other questions, contact Wayne Richter, Bureau of Ecosystem Health, NYSDEC, 625 Broadway, Albany, New York 12233-4756, 518-402-8974, or the project leader about sample transfer. Samples will then be directed to the analytical facility and personnel noted on specific project descriptions.

K. A recommended equipment list is at the end of this document.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF FISH AND WILDLIFE
FISH COLLECTION RECORD

Project and Site Name _____ DEC Region _____

Collections made by (include all crew) _____

Sampling Method: Electrofishing Gill netting Trap netting Trawling Seining Angling Other _____

Preservation Method: Freezing Other _____ Notes (SWFDB survey number): _____

FOR LAB USE ONLY- LAB ENTRY NO.	COLLECTION OR TAG NO.	SPECIES	DATE TAKEN	LOCATION	AGE	SEX &/OR REPROD. CONDIT	LENGTH ( )	WEIGHT ( )	REMARKS

richter: revised 2011, 5/7/15, 10/4/16, 3/20/17; becker: 3/23/17, 4/26/19

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CHAIN OF CUSTODY

I, _____, of _____ collected the
(Print Name) (Print Business Address)

following on _____, 20____ from _____
(Date) (Water Body)

in the vicinity of _____
(Landmark, Village, Road, etc.)

Town of _____, in _____ County.

Item(s) _____

_____

Said sample(s) were in my possession and handled according to standard procedures provided to me prior to collection. The sample(s) were placed in the custody of a representative of the New York State Department of Environmental Conservation on _____, 20_____.

_____ _____
Signature Date

I, _____, received the above mentioned sample(s) on the date specified and assigned identification number(s) _____ to the sample(s). I have recorded pertinent data for the sample(s) on the attached collection records. The sample(s) remained in my custody until subsequently transferred, prepared or shipped at times and on dates as attested to below.

_____ _____
Signature Date

SECOND RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
THIRD RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
FOURTH RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
RECEIVED IN LABORATORY BY (Print Name)	TIME & DATE	REMARKS
SIGNATURE	UNIT	
LOGGED IN BY (Print Name)	TIME & DATE	ACCESSION NUMBERS
SIGNATURE	UNIT	

richter: revised 21 April 2014; becker: 23 March 2017, 26 April, 2019

NOTICE OF WARRANTY

By signature to the chain of custody (reverse), the signatory warrants that the information provided is truthful and accurate to the best of his/her ability. The signatory affirms that he/she is willing to testify to those facts provided and the circumstances surrounding the same. Nothing in this warranty or chain of custody negates responsibility nor liability of the signatories for the truthfulness and accuracy of the statements provided.

HANDLING INSTRUCTIONS

On day of collection, collector(s) name(s), address(es), date, geographic location of capture (attach a copy of topographic map or navigation chart), species, number kept of each species, and description of capture vicinity (proper noun, if possible) along with name of Town and County must be indicated on reverse.

Retain organisms in manila tagged plastic bags to avoid mixing capture locations. Note appropriate information on each bag tag.

Keep samples as cool as possible. Put on ice if fish cannot be frozen within 12 hours. If fish are held more than 24 hours without freezing, they will not be retained or analyzed.

Initial recipient (either DEC or designated agent) of samples from collector(s) is responsible for obtaining and recording information on the collection record forms which will accompany the chain of custody. This person will seal the container using packing tape and writing his signature, the time and the date across the tape onto the container with indelible marker. Any time a seal is broken, for whatever purpose, the incident must be recorded on the Chain of Custody (reason, time, and date) in the purpose of transfer block. Container then is resealed using new tape and rewriting signature, with time and date.

EQUIPMENT LIST

Scale or balance of appropriate capacity for the fish to be collected.

Fish measuring board.

Plastic bags of an appropriate size for the fish to be collected and for site bags.

Individually numbered metal tags for fish.

Manila tags to label bags.

Small envelops, approximately 2” x 3.5”, if fish scales are to be collected.

Knife for removing scales.

Chain of custody and fish collection forms.

Clipboard.

Pens or markers.

Paper towels.

Dish soap and brush.

Bucket.

Cooler.

Ice.

Duct tape.

Appendix G – PFAS Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonic acids	Perfluorobutanesulfonic acid	PFBS	375-73-5
	Perfluoropentanesulfonic acid	PFPeS	2706-91-4
	Perfluorohexanesulfonic acid	PFHxS	355-46-4
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanesulfonic acid	PFOS	1763-23-1
	Perfluorononanesulfonic acid	PFNS	68259-12-1
	Perfluorodecanesulfonic acid	PFDS	335-77-3
	Perfluorododecanesulfonic acid	PFDoS	79780-39-5
Perfluoroalkyl carboxylic acids	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	PFHpA	375-85-9
	Perfluorooctanoic acid	PFOA	335-67-1
	Perfluorononanoic acid	PFNA	375-95-1
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUnA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTeDA	376-06-7
Per- and Polyfluoroether carboxylic acids	Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
	4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
	Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
	Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
	Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
Fluorotelomer sulfonic acids	4:2 Fluorotelomer sulfonic acid	4:2-FTS	757124-72-4
	6:2 Fluorotelomer sulfonic acid	6:2-FTS	27619-97-2
	8:2 Fluorotelomer sulfonic acid	8:2-FTS	39108-34-4
Fluorotelomer carboxylic acids	3:3 Fluorotelomer carboxylic acid	3:3 FTCA	356-02-5
	5:3 Fluorotelomer carboxylic acid	5:3 FTCA	914637-49-3
	7:3 Fluorotelomer carboxylic acid	7:3 FTCA	812-70-4
Perfluorooctane sulfonamides	Perfluorooctane sulfonamide	PFOSA	754-91-6
	N-methylperfluorooctane sulfonamide	NMeFOSA	31506-32-8
	N-ethylperfluorooctane sulfonamide	NEtFOSA	4151-50-2
Perfluorooctane sulfonamidoacetic acids	N-methylperfluorooctane sulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethylperfluorooctane sulfonamidoacetic acid	N-EtFOSAA	2991-50-6
Perfluorooctane sulfonamide ethanols	N-methylperfluorooctane sulfonamidoethanol	MeFOSE	24448-09-7
	N-ethylperfluorooctane sulfonamidoethanol	EtFOSE	1691-99-2

Group	Chemical Name	Abbreviation	CAS Number
Ether sulfonic acids	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (F-53B Major)	9Cl-PF3ONS	756426-58-1
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B Minor)	11Cl-PF3OUdS	763051-92-9
	Perfluoro(2-ethoxyethane) sulfonic acid	PFEESA	113507-82-7

Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids

General

These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER). Data reviewers should understand the methodology and techniques utilized in the analysis. Consultation with the end user of the data may be necessary to assist in determining data usability based on the data quality objectives in the Quality Assurance Project Plan. A familiarity with the laboratory's Standard Operating Procedure may also be needed to fully evaluate the data. If you have any questions, please contact DER's Quality Assurance Officer, Dana Barbarossa, at dana.barbarossa@dec.ny.gov.

Preservation and Holding Time

Samples should be preserved with ice to a temperature of less than 6°C upon arrival at the lab. The holding time is 28 days to extraction for aqueous and solid samples. The time from extraction to analysis for aqueous samples is 28 days and 40 days for solids.

Temperature greatly exceeds 6ºC upon arrival at the lab*	Use professional judgement to qualify detects and non-detects as estimated or rejected
Holding time exceeding 28 days to extraction	Use professional judgement to qualify detects and non-detects as estimated or rejected if holding time is grossly exceeded

*Samples that are delivered to the lab immediately after sampling may not meet the thermal preservation guidelines. Samples are considered acceptable if they arrive on ice or an attempt to chill the samples is observed.

Initial Calibration

The initial calibration should contain a minimum of six standards for linear fit and six standards for a quadratic fit. The relative standard deviation (RSD) for a quadratic fit calibration should be less than 20%.

The low-level calibration standard should be within 50% - 150% of the true value, and the mid-level calibration standard within 70% - 130% of the true value.

%RSD >20%	J flag detects and UJ non detects

Continuing Calibration Verification

Continuing calibration verification (CCV) checks should be analyzed at a frequency of one per ten field samples. If CCV recovery is very low, where detection of the analyte could be in question, ensure a low level CCV was analyzed and use to determine data quality.

CCV recovery <70 or >130%	J flag results

Blanks

There should be no detections in the method blanks above the reporting limits. Equipment blanks, field blanks, rinse blanks etc. should be evaluated in the same manner as method blanks. Use the most contaminated blank to evaluate the sample results.

Blank Result	Sample Result	Qualification
Any detection	<Reporting limit	Qualify as ND at reporting limit
Any detection	>Reporting Limit and >10x the blank result	No qualification
>Reporting limit	>Reporting limit and <10x blank result	J+ biased high

Field Duplicates

A blind field duplicate should be collected at rate of one per twenty samples. The relative percent difference (RPD) should be less than 30% for analyte concentrations greater than two times the reporting limit. Use the higher result for final reporting.

RPD >30%	Apply J qualifier to parent sample

Lab Control Spike

Lab control spikes should be analyzed with each extraction batch or one for every twenty samples. In the absence of lab derived criteria, use 70% - 130% recovery criteria to evaluate the data.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects

Matrix Spike/Matrix Spike Duplicate

One matrix spike and matrix spike duplicate should be collected at a rate of one per twenty samples. Use professional judgement to reject results based on out of control MS/MSD recoveries.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only
RPD >30%	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only

Extracted Internal Standards (Isotope Dilution Analytes)

Problematic analytes (e.g. PFBA, PFPeA, fluorotelomer sulfonates) can have wider recoveries without qualification. Qualify corresponding native compounds with a J flag if outside of the range.

Recovery <50% or >150%	Apply J qualifier
Recovery <25% or >150% for poor responding analytes	Apply J qualifier
Isotope Dilution Analyte (IDA) Recovery <10%	Reject results

Signal to Noise Ratio

The signal to noise ratio for the quantifier ion should be at least 3:1. If the ratio is less than 3:1, the peak is discernable from the baseline noise and symmetrical, the result can be reported. If the peak appears to be baseline noise and/or the shape is irregular, qualify the result as tentatively identified.

Reporting Limits

If project-specific reporting limits were not met, please indicate that in the report along with the reason (e.g. over dilution, dilution for non-target analytes, high sediment in aqueous samples).

Peak Integrations

Target analyte peaks should be integrated properly and consistently when compared to standards. Ensure branched isomer peaks are included for PFAS where standards are available. Inconsistencies should be brought to the attention of the laboratory or identified in the data review summary report.

APPENDIX D

ANALYTICAL LABORATORY PFAS STANDARD OPERATION PROCEDURES AND REPORTING LIMITS

Pace ANALYTICAL SERVICES	**ENV-SOP-MANS-0111 v01 Preparation and Analysis of PFAS in Aqueous, Solid, and Tissue by EPA Method 1633**
	Effective Date: 08/07/2024

Management Approval:
John Trimble Approved on 8/7/2024 11:55:41 AM
Laura Vanasse Approved on 8/7/2024 11:32:33 AM
Pete Henriksen Approved on 8/7/2024 10:20:05 AM
Jason Hebert Approved on 8/7/2024 12:02:07 PM

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1.0 SCOPE & APPLICATION

This standard operating procedure (SOP) describes the laboratory procedure used by Alpha, a Pace Analytical Laboratory for the determination of the per- and polyfluoroalkyl substances (PFAS) by liquid chromatography/mass spectrometry (LC-MS/MS) following EPA 1633, published January 2024. This SOP is applicable to aqueous (all non-potable water and leachate), solid (soil, biosolids, sediment), and tissue matrices.

The instrumental portion of this method is for use only by analysts experienced with LC-MS/MS or under the close supervision of such qualified persons. The laboratory must demonstrate the ability to generate acceptable results using the procedures in Sections 11.3.1 and 11.3.2.

By their very nature, many components of PFAS present analytical challenges unique to this class of analytes. For example, PFAS analytes readily adhere to the walls of the sample containers and may also stratify in the container.

1.1 Target Analyte List, Limits of Detection & Quantitation (LOD & LOQ)

The target analytes that can be determined by this SOP and the associated LODs and LOQs are provided in Appendix A, Tables 1, 2, and 3.

LOQs are established in accordance with PAS policies and procedures for method validation, determination of detection limits (LOD), and quantitation limits (LOQ). Refer to laboratory SOP ID 1732 (Detection Limit (DL), Limit of Detection (LOD) & Limit of Quantitation (LOQ)) for additional information. DL and LOQ are routinely verified and updated when needed. DL and LOQ are always adjusted to account for actual sample amounts used and for dilution.

The reporting limit (RL) is the value to which analytes are reported as detected or non-detect in the final report. When the RL is less than the lower limit of quantitation (LLOQ), all detections and non-detects at the RL are qualitative. The LLOQ is the lowest point of the calibration curve used for each target analyte.

1.2 Reference Methods & Documents

This SOP is based on reference method EPA 1633 (2024). If the laboratory procedure is modified from the reference method, a list of modifications and rationale for the modifications is provided in Section 14.0. Modifications are permitted when allowed by the regulatory program for which test results will be used and when the modification has been validated comparable and equivalent to the reference method.

1.3 Quantitation Range

The quantitation range for each target analyte in this procedure is defined in Appendix A, Table 5: Calibration Standard Concentrations.

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1.4 Program Specific Requirements

Not Applicable.

2.0 SUMMARY OF METHOD

Environmental samples are prepared and extracted using method-specific procedures. Sample extracts are subjected to cleanup procedures designed to remove interferences. Analyses of the sample extracts are conducted by LC-MS/MS in the multiple reaction monitoring (MRM) mode. Sample concentrations are determined by isotope dilution or extracted internal standard quantification (see Section 9.2.1) using isotopically labeled compounds added to the samples before extraction.

Individual PFAS analytes are identified through peak analysis of the quantification and confirmation ions, where applicable. Where linear and branched isomers are present in the sample and either qualitative or quantitative standards containing branched and linear isomers are commercially available, the PFAS analyte is reported as a single analyte consisting of the sum of the linear and branched isomer concentrations.

Quantitative determination of target analyte concentrations is made with respect to an isotopically labeled PFAS standard; the concentrations are then used to convert raw peak areas in sample chromatograms to final concentrations.

Results for target analytes are recovery corrected by the method of quantification (i.e., either isotope dilution or extracted internal standard quantification, see Section 9.2.1). Recoveries of isotopically labeled extracted internal standards (EIS) are determined by comparison to the responses of one of seven non-extracted internal standards (NIS) and are used as general indicators of overall analytical quality.

The quality of the analysis is assured through reproducible calibration and testing of the extraction, cleanup, and LC-MS/MS systems.

- Aqueous samples are spiked with isotopically labeled standards (EIS), extracted using solid-phase extraction (SPE) cartridges and undergo cleanup using carbon before analysis.

- Solid samples are spiked with EIS, extracted into basic methanol, and cleaned up by carbon and SPE cartridges before analysis.

- Tissue samples are spiked with EIS, extracted in methanol with potassium hydroxide followed by acetonitrile, and cleaned up by carbon and SPE cartridges before analysis.

3.0 INTERFERENCES

Solvents, reagents, glassware, and other sample processing hardware may yield artifacts and elevated baselines causing misinterpretation of chromatograms. Specific selection of reagents and solvents is required.

Clean all equipment prior to, and after, each use to avoid PFAS cross-contamination. Typical cleaning solvents include water, methanol, and methanolic ammonium hydroxide. The residual PFAS content of disposable plasticware and filters must be verified by batch/lot number and may be used without cleaning if PFAS levels are less than the Method Detection Limit (MDL).

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Prior to use, glassware must be solvent rinsed and then air dried. A solvent rinse procedure using methanolic ammonium hydroxide (1%) and methanol is recommended.

Sample manifold ports and transfer tubing should be inspected regularly for signs of wear and/or discoloration. When such observations are made, the associated components should be replaced.

All parts of the SPE manifold must be cleaned between samples by rinsing with methanolic ammonium hydroxide (1%) and air drying prior to use. Smaller parts, like the needles, adapters, reservoirs, transfer lines, and stopcocks associated with the manifold should be rinsed with tap water prior to rinsing with methanolic ammonium hydroxide (1%) and air drying. After loading the samples but prior to elution procedures, the chamber should be rinsed with methanolic ammonium hydroxide (1%).

All materials used in the analysis must be demonstrated to be free from interferences by running method blanks (Section 11.1.1) at the beginning and with each extraction batch (samples started through the extraction process on a given batch to a maximum of 20 field samples).

Reagent water (Section 8.1) can be used to simulate water samples and Ottawa sand and/or reagent-grade sand (Section 7.3) can be used to simulate soils. Fish fillets (tilapia/ cod), chicken breast or other similar animal tissue (see Section 7.3) may be used as the reference matrix for tissue. The laboratory must verify that the source product used does not contain PFAS in detectable amounts.

Interferences co-extracted from samples will vary considerably from source to source, depending on the diversity of the site being sampled. Interfering compounds may be present at concentrations several orders of magnitude higher than the native PFAS. Because low levels of PFAS are measured by this method, elimination of interferences is essential. The cleanup steps given in Section 9.3 can be used to reduce or eliminate these interferences and thereby permit reliable determination of the PFAS at the levels shown in Tables 1, 2 and 3. The most frequently encountered interferences are fluoropolymers; however, bile salts (e.g., Taurodeoxycholic Acid [TDCA]) may be present in various matrices, including fish and wastewaters, and can interfere in the chromatography. For this reason, analysis of a standard containing TDCA is required as part of establishing the initial chromatographic conditions (see Sections 8.3.2 and 8.3.3) and each analytical sequence (see Section 9.4).

4.0 DEFINITIONS

Refer to the Laboratory Quality Manual for a glossary of common lab terms and definitions.

- **Extracted Internal Standard (EIS) quantification:** The response of the target compound is compared to the response of the isotopically labeled analog of another compound with chemical and retention time similarities.
- **Isotope dilution (ID) quantitation:** A means of determining a naturally occurring (native) compound by reference to the same compound in which one or more atoms has been isotopically enriched. The labeled PFAS are spiked into each sample and allow identification and correction of the concentration of the native compounds in the analytical process.
- **Isotopically labeled compound:** An analog of a target analyte in the method which has been synthesized with one or more atoms in the structure replaced by a stable (non-radioactive) isotope of that atom. Common stable isotopes used are 13C (Carbon-13) or Deuterium (D or 2H). These labeled compounds do not occur in nature, so they can be used for isotope dilution quantitation or other method-specific purposes.

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- **Minimum Level of quantitation (ML):** The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. The ML represents the lowest concentration at which an analyte can be measured with a known level of confidence. It may be equivalent to the concentration of the lowest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.
- **PAS:** Acronym for Pace® Analytical Services, LLC

5.0 HEALTH & SAFETY

The following sections provide general health and safety information about chemicals and materials that may be present in the laboratory.

- The toxicity or carcinogenicity of each chemical material used in the laboratory has not been fully established. Each chemical should be regarded as a potential health hazard and exposure to these compounds should be as low as reasonably achievable.
- The laboratory maintains documentation of hazard assessments and OSHA regulations regarding the safe handling of the chemicals specified in each method. Safety data sheets for all hazardous chemicals are available to all personnel. Employees must abide by the health, safety and environmental (EHS) policies and procedures specified in this SOP and in the Pace® Chemical Hygiene / Safety Manual (COR-MAN-0001).
- Personal protective equipment (PPE) such as safety glasses, gloves, and a laboratory coat must be worn in designated areas and while handling samples and chemical materials to protect against physical contact with samples that contain potentially hazardous chemicals and exposure to chemical materials used in the procedure.
- Concentrated corrosives present additional hazards and are damaging to skin and mucus membranes. For procedures that require use of acids, use acids in a fume hood whenever possible with PPE designed for handing these materials. If eye or skin contact occurs, flush with large volumes of water. When working with acids, always add acid to water to prevent violent reactions. For procedures that that emit large volumes of solvents (evaporation/concentration processes), these activities must be performed in a fume hood or apparatus that reduces exposure.

6.0 SAMPLE COLLECTION, PRESERVATION, HOLDING TIME & STORAGE

PAS does not offer sample collection services for this test method. PAS advises customers to collect samples in accordance with a sampling plan and collection procedures appropriate to meet regulatory requirements and data quality objectives for the project. The minimum sample amounts required for the test are provided in this section.

PAS provides containers for the collection of samples upon client request. The routine container type and size is provided in the following table along with requirements for sample size, preservation and holding time. Refer to Bottle Order Preparation (ENV-SOP-WEST-0005), or however named, for procedures related to preparation of bottle kits.

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Container Type, Minimum Sample Amount, Preservation, and Holding Time

Matrix	Container Size & Type[1]	Minimum Sample Amount[2]	Preservation	Holding Time
Aqueous (non-potable water)	2 x 500 mL linerless HDPE 1 x 125 mL linerless HDPE[3]	500 mL	Thermal: 0-6°C (or ≤ -20°C)	Collection to Preparation: 28 Days (or 90 Days) Preparation to Analysis: 28 Days
Aqueous (leachate)	2 x 125 mL linerless HDPE	100 mL	Thermal: 0-6°C (or ≤ -20°C)	Collection to Preparation: 28 Days (or 90 Days) Preparation to Analysis: 28 Days
Solid (sediment and soil)	3 oz/ 90 mL linerless polypropylene wide mouth	5 g	Thermal: 0-6°C or ≤ -20°C	Collection to Preparation: 90 Days Preparation to Analysis: 28 Days
Solid (biosolid)	3 oz/ 90 mL linerless polypropylene wide mouth	0.5 g	Thermal: 0-6°C or ≤ -20°C	Collection to Preparation: 90 Days Preparation to Analysis: 28 Days
Tissue[4]	3 oz/ 90 mL linerless polypropylene wide mouth	2 g	Thermal: ≤ -20°C	Collection to Preparation: 90 Days Preparation to Analysis: 28 Days

[1] *Default container type provided in sample kit. To allow room for expansion during freezing (if necessary), aqueous sample containers should not be overfilled. Aqueous sample containers should be filled only to the appropriate gradation marked on the container, or to the shoulder of the container if no gradations are provided.*

[2] *Nominal amount of sample required for each discrete test. Solid and biosolid sample amounts reflect dry weight.*

[3] *Used for pre-screening analyses.*

[4] *Container listed here will be used for tissue homogenate; samples may be received at the laboratory as whole fish or filets wrapped in aluminum foil or food grade polyethylene wrap. Ideally fish should be frozen upon collection and shipped to the laboratory as soon as possible.*

Note: Project-specific requirements dictate which storage condition applies. The storage condition to be used for each project must be formally documented in written form (QAPP or otherwise) before samples are received. Without any prior indication from the client, the lab will store all aqueous and solid/biosolid samples at 0-6°C until extraction, with a 28-day holding time (collection to prep) for aqueous matrices and a 90-day holding time (collection to prep) for solid/biosolid matrices.

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Thermal preservation is checked and recorded on receipt in accordance with laboratory SOP (ENV-SOP-WEST-0003, Sample Receipt and Login), or however named.

After receipt, samples are stored as listed above until sample preparation. Prepared sample extracts of all matrices are stored at 0-6°C until sample analysis.

After analysis, samples are retained as stated in the Pace® standard terms and conditions, unless otherwise specified in the analytical services contract. Samples are then disposed of in accordance with Federal, State, and Local regulations.

7.0 EQUIPMENT & SUPPLIES

Use of equivalent instrumentation, support equipment, and supplies from alternative vendors is acceptable so long as they meet the specifications as stated in the reference method.

Due to the possibility of adsorption of analytes onto glass, plastic containers are used for all standard, sample, and extraction preparations. Any time a new lot of SPE cartridges, solvents, cryovials, or autosampler vials are used, it must be demonstrated that a MB is reasonably free of contamination and that the criteria in Section 11.1.1 are met.

7.1 Instrumentation

- High-performance liquid chromatograph (HPLC) equipped with tandem quadrupole mass spectrometer – Sciex 5500+ or equivalent
- Agilent Zorbax RRHD Eclipse Plus C18, 2.1 x 50 mm (1.8 µm) analytical column (Agilent Part # 959757-902), or equivalent
- Guard cartridge/column – Agilent Zorbax Eclipse Plus C18, 2.1 x 5 mm, 1.8 um (Agilent Part# 821725-901), or equivalent
- Trap/delay column – InfinityLab PFC Delay Column, 4.6 x 30 mm (Agilent Part# 5062-8100), or equivalent

7.2 Support Equipment

- Oven – Capable of maintaining a temperature of 105 ± 5 ºC
- Analytical balance – Capable of weighing 0.0001 g
- Top loading balance – Capable of weighing 0.01 g
- Calibrated mechanical variable volume pipettes with disposable HDPE or polypropylene tips (10 µL to 5 mL) – used for preparation of calibration standards and spiked samples
- Point of Use water preparation system – Thermo Scientific Barnstead E-Pure; model 7119 – Used for QC samples to verify the systems are PFAS free
- Ultrasonic mixer – Fisherbrand; Model CPX3800 – 5.7L, 40 kHZ, 120V, 2.9 Amp with timer
- Analog or digital vortex mixer, single or multi-tube (Fisher Scientific 02-215-452, or equivalent)
- Variable speed mixing table (VWR Model 3500 Orbital Shaker, or equivalent)

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- Centrifuge (Beckman Allegra 6, Hettich Rotanta 460, or equivalent), capable of reaching at least 3000 rpm (~2000 RCF)
- Vacuum Pump – Sufficient capacity to maintain a vacuum of approximately 10 to 15 inches of mercury for extraction cartridges. GAST model # DOA-P704-AA, Waters Cat# 725000417, 115V, 60Hz, 4.2A
- Vacuum manifold for SPE Cartridges – Waters Cat# WAT200609: SPE Vacuum manifold, or equivalentCat
- Vacuum tubing – 1/4" ID, 5/8" OD, 3/16" wall; Fisher Scientific part# 14-176-6B or equivalent
- PE Transfer tubing – 1/8" X .062 x 500ft, Freelin Wade part# 1C-109-10 or equivalent.

7.3 Supplies

- Solid Phase Extraction (SPE) cartridges – Phenomenex part# CS0-9216, 250 mg WAX/20mL, or equivalent
- Carbon Cleanup cartridges – Phenomenex part# 8B-S528-CAJ, 50 mg GCB, or equivalent
- SPE reservoirs – 60 mL, Phenomenex part# AH0-7189, or equivalent
- SPE adapter caps – Supelco part# 57267 (Adapter cap for 12, 20 & 60 mL SPE tubes)
- Disposable liners for Vacuum Manifold – Waters part# 20685 or equivalent
- Silanized glass wool (Pyrex 3950 or equivalent)
- Reference matrix: Aqueous – reagent water
- Reference matrix: Solid – Ottawa sand
- Reference matrix: Tissue – fish fillets, chicken breast or similar animal tissue. First preference will be frozen cod fillets.
- Bottles – HDPE or PP, with linerless HDPE or polypropylene caps. Various sizes. QEC item # 6212-Q016/BC-150-PACE (500 mL), 6212-Q008BC-P (250 mL), 6213-U004BC-P (125 mL), 6214-003PPGBC-P (90 mL)
- Screw top vials, Polypropylene 0.7-mL with polypropylene caps – used in sample analysis and pre-screening (Waters Cat # 186005219 and 186004169 or equivalent)
- 15- and 50-mL conical polypropylene tubes with polypropylene screw caps for preparing and storing extract solutions and for collection of eluents (Fisher Scientific 05-527-90 and 14-432-22, or equivalent)
- 500-mL conical polypropylene centrifuge bottles for sample centrifugation (Fisher Scientific 07-200-621 or equivalent)
- Extract/Standard storage containers – 15-mL, 8-mL, or 4-mL narrow-mouth HDPE container - Thermo Scientific item# 2002-9050, 2002-9025, 2002-9125; 2.0-mL screw-top polypropylene cryogenic vials – Grainger item# 6EMV1/ Wheaton item# W985872;1.5-mL snap-cap polypropylene microcentrifuge tubes - Fisher item# 05-408-129; or equivalent
- pH Paper, range 0-14 - (VWR Cat# BD3539.606 or equivalent), 0.5-unit readability

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- Disposable glass and plastic pipets

8.0 REAGENTS & STANDARDS

Refer to laboratory SOP (ENV-SOP-MANS-0112, Reagent, Solvent, and Standard Control), or however named, for information regarding standard and reagent tracking and traceability. All reagents and stock standards are commercially prepared, when available. Expiration and storage requirements are defined per manufacturer.

8.1 Reagents

Use of equivalent reagents from alternative vendors is acceptable so long as the substitution meets the performance specifications required by the reference method.

- Acetic acid – ACS grade or equivalent, store at room temperature; VWR cat# BDH3098-3.8LP or equivalent
- Acetonitrile – UV grade or equivalent, verified before use, store at room temperature; Honeywell Cat# 018-4 or equivalent (for extraction)
- Ammonium acetate – ACS or equivalent, store at 2-8° C, replace 2 years after opening date; VWR BDH9204-500G or equivalent.
- 1M aqueous ammonium acetate (Waters Cat# 186006693-1) used for mobile phase additive; store as indicated by manufacturer.
- Ammonium hydroxide – certified ACS+ grade or equivalent, 30% in water, store at room temperature; Fisher A470-500 or equivalent
- Formic acid – greater than 96% purity or equivalent, store at room temperature; Acros 147930010 or equivalent
- Methanol – HPLC grade or better, 99.9% purity, store at room temperature; Honeywell CAT# 230-4 or equivalent
- Mobile Phase A – 2 mM ammonium acetate in 95:5 water/acetonitrile. Aliquot 0.4 mL of aqueous 5M ammonium acetate in 949.6 mL of water and 50 mL of acetonitrile. Alternatively, dissolve 0.154 g of neat ammonium acetate into 950 mL of water and 50 mL of acetonitrile. Store at room temperature; shelf life is 2 months.
- Mobile Phase B – Acetonitrile, Ultra HPLC grade or equivalent; OmniSolv AX0142-1 or equivalent
- Potassium hydroxide – certified ACS or equivalent, store at room temperature, replace after 2 years; Fisher P250-500 or equivalent.
- Reagent water – Laboratory reagent water, test by lot/batch number for residual PFAS content.

8.2 Standards

Use of equivalent standards from alternative vendors is acceptable so long as they are traceable to a national standard, when commercially available. Follow manufacturer's recommended storage conditions and expiration dates.

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8.2.1 Primary PFAS Standard

- EPA Method 1633 Native PFAS Standard mix from Wellington Laboratories (item# EPA-1633STK) – used to prepare the calibration standards and to spike the reference QC samples prepared/analyzed with every batch of samples. Also used to prepare an intermediate standard for calibration standard preparation and low-level QC sample spiking, as described below.

8.2.2 Secondary PFAS Standard

- Method 1633-PFCs-Calibration Standard mix from Absolute Standards (item# 65735) – used to prepare the ICV standard as described below.

8.2.3 Extracted Internal Standard (EIS)

- Mass-labelled PFAS Extraction Standard mix from Wellington Laboratories (item# MPFAC-HIF-ES) – used to prepare analytical standards and spike each sample prior to extraction.

8.2.4 Non-extracted Internal Standard (NIS)

- Mass-labelled PFAS Injection Standard mix from Wellington Laboratories (item# MPFAC-HIF-IS) – used to prepare analytical standards and spike sample extracts prior to instrumental analysis.

8.2.5 Bile Salt (TDCA) Standard

- Neat Taurodeoxycholic acid from Cayman Chemical (item# 15935), or equivalent – used to prepare analytical standards for bile salt interference check.

8.3 Formulations

Prepare standard solutions from materials of known purity and composition or purchase as solutions or mixtures with certification to their purity, concentration, and authenticity. Observe the safety precautions in Section 5.

Purchase of commercial standard solutions or mixtures is highly recommended for this method; however, when these are not available, preparation of stock solutions from neat materials may be necessary. If the chemical purity is 98% or greater, the weight may be used without correction to calculate the concentration of the standard.

When not being used, store standard solutions in the dark at 4 °C, unless the vendor recommends otherwise, in tightly sealed screw-capped vials. Place a mark on the vial at the level of the solution so that solvent loss by evaporation can be detected. Replace the solution if solvent loss has occurred.

Note: 18O-mass labeled perfluoroalkyl sulfonates may undergo isotopic exchange with water under certain conditions, which lowers the isotopic purity of the standards over time.

The laboratory must maintain records of the certificates for all standards for traceability purposes. Copies of the certificates should be provided as part of the data packages in order to check that proper calculations were performed.

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8.3.1 Analytical and Preparation Reagents

Analytical and Preparation reagents are stored in plastic or glass containers under ambient conditions. Expiries are listed with each reagent.

- Instrument Blank Mix (IBLK Mix) – Methanol with 4% water, 1% ammonium hydroxide and 0.625% acetic acid – add ammonium hydroxide (3.3 mL, 30%), reagent water (1.67 mL) and acetic acid (0.625 mL) to methanol (94.4 mL); store at room temperature, replace after 1 month. This solution is used to prepare the instrument blank (Sections 8.3.3.3 and 9.2.5) and sample extract dilutions.
- Mobile Phase A – 2 mM ammonium acetate in 95:5 water: acetonitrile. Aliquot 2.0 mL of aqueous 1M ammonium acetate in 948 mL of water and 50 mL of acetonitrile. Store at room temperature; replace after 2 months or less.
- Mobile Phase B – Acetonitrile, HPLC grade or equivalent; Omnisolv AX0142-1 or equivalent
- Acetic acid (0.1%) - dissolve acetic acid (1 mL) in reagent water (1 L); store at room temperature, replace after 3 months.
- Aqueous ammonium hydroxide (3%) – add ammonium hydroxide (10 mL, 30%) to reagent water (90 mL), store at room temperature, replace after 3 months.
- Methanolic ammonium hydroxide (0.3%) – add ammonium hydroxide (1 mL, 30%) to methanol (99 mL), store at room temperature, replace after 1 month.
- Methanolic ammonium hydroxide (1%) – add ammonium hydroxide (3.3 mL, 30%) to methanol (97 mL), store at room temperature, replace after 1 month.
- Methanolic ammonium hydroxide (2%) – add ammonium hydroxide (6.6 mL, 30%) to methanol (93.4 mL), store at room temperature, replace after 1 month.
- Formic acid (aqueous, 0.1 M) – dissolve formic acid (4.6 g / 3.77 mL) in reagent water (1 L), store at room temperature, replace after 2 years.
- Formic acid (aqueous, 0.3 M) – dissolve formic acid (13.8 g / 11.31 mL) in reagent water (1 L), store at room temperature, replace after 2 years.
- Formic acid (aqueous, 5% v/v) – mix 5 mL formic acid with 95 mL reagent water, store at room temperature, replace after 2 years.
- Formic acid (aqueous, 50% v/v) – mix 50 mL formic acid with 50 mL reagent water, store at room temperature, replace after 2 years.
- Formic acid (methanolic 1:1, 0.1 M formic acid/methanol) – mix equal volumes of methanol and 0.1 M formic acid, store at room temperature, replace after 2 years.
- Methanolic potassium hydroxide (0.05 M KOH) – add 3.3 g of potassium hydroxide to 1 L of methanol, store at room temperature, replace after 3 months.

8.3.2 Intermediate Standards

Intermediate standards are stored in plastic containers as listed below. Expiries are listed with each formulation.

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- TDCA Stock Solution: Dissolve 10 mg of neat TDCA into 5 mL of MeOH; final concentration equals 2000 µg/mL. Store frozen (<0°C) when not in use; replace after 1 year, or sooner if degradation is observed.
- STK-10X Solution: Dilute 200 µL of EPA-1633STK with 1.8 mL of MeOH for a final volume of 2 mL; final concentrations vary by analyte – 25, 50, 100, 125, 250, or 625 ng/mL. Store at 0-6°C when not in use; replace every time a new lot of 1633STK is used, or after 1 month.

8.3.3 Working Solutions

Working solutions are stored in plastic containers under refrigerated conditions at 0-6°C and expire 1 month from the date of preparation.

8.3.3.1 Calibration Standards

A series of calibration solutions containing the target analytes and the EIS and NIS is used to establish the initial calibration of the analytical instrument. The concentration of the method analytes in the solutions varies to encompass the working range of the instrument, while the concentrations of the EIS and NIS (and TDCA) remain constant. The calibration solutions are prepared using the standards and intermediate standards described above. The final solvent composition will match the solvent mix of sample extracts, which contain methanol with 4% water, 1% ammonium hydroxide and 0.625% acetic acid. Calibration standard solutions do not undergo solid phase extraction/cleanup. Prepare the calibration standard solutions according to the table below. Following all formulations listed in this SOP will require 3 ampoules of the 1633STK mix to prepare a full calibration set; other final volumes may be prepared. If the lab follows all formulations in this SOP as written, the remaining volumes of 1633STK and STK-10X solutions after preparing the calibration should be enough to spike approximately 40 sets of aqueous batch QC. The remainder of MPFAC-HIF-ES and MPFAC-HIF-IS mixes should provide enough volume to spike approximately 40-45 samples.

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Component[1]	L1	L2 (LOQ)	L3	L4	L5 (CCV)	L6	L7	L8	L9
STK-10X	20	16	40						
EPA-1633STK				20	100	100	200	400	500
MPFAC-HIF-ES	25	10	10	10	25	10	10	10	10
MPFAC-HIF-IS	25	10	10	10	25	10	10	10	10
TDCA Stock	25				25				10
IBLK Mix	4905	1964	1940	1960	4825	1880	1780	1580	1470
Final Volume	5000	2000	2000	2000	5000	2000	2000	2000	2000

[1]*All values listed are µL*

8.3.3.2 Initial Calibration Verification Standard (ICV)

Prepare the ICV standard using the Absolute Standards 1633 PFC Mix, following the table below; expected concentration for all compounds in the ICV will be 10 ng/mL. The ICV is prepared from a separate, second source (or separate manufacturer lot) than that used for the calibration solutions. If a second source or lot is unavailable, a separate preparation using the same stocks is acceptable.

Component	Volume used (µL)
1633 PFC Mix	20
MPFAC-HIF-ES	20
MPFAC-HIF-IS	20
IBLK Mix	3940
ICV Final Volume	4000

8.3.3.3 Instrument Blank

A solvent blank is analyzed at the beginning of each analytical sequence, to demonstrate clean instrumental background, and after samples containing high levels of target compounds (e.g., calibration, CCV) to monitor carryover from the previous injection. The instrument blank consists of clean reagent fortified with the EIS and NIS for quantitation purposes. Prepare the IBLK using the IBLK mix (Section 8.3.1) and an appropriate volume of EIS and NIS; alternatively, prep the IBLK from 1887 µL of 1% Methanolic ammonium hydroxide, 80 µL of reagent water, 12.5 µL of acetic acid, and 10 µL each of EIS and NIS.

9.0 PROCEDURE

9.1 Equipment Preparation

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9.1.1 Instrument Setup

9.1.1.1 Routine Instrument Operating Conditions

Example LC Gradient

Step	Total Time (min)	Flow Rate (µL/min)	A: 5% Acetonitrile w/ 10mM Ammonium Acetate (%)	B: Acetonitrile (%)
1	0.00	400	80	20
2	6.00	400	0	100
3	6.50	400	0	100
4	6.51	400	80	20
5	8.50	400	80	20

Example MS Parameters

MS Parameter	Setting or Value
Sample Loop	100 µL
Injection Volume	2 µL
Column Oven Temperature	40° C
MRM Scan Window	60 sec
Curtain Gas (CUR)	30.0
Collision Gas (CAD)	9
Ion Spray Voltage (IS)	-4500 V
Source Temperature (TEM)	450° C
Ion Source Gas 1 (GS1)	30.0
Ion Source Gas 2 (GS2)	50.0

9.1.1.2 Mass Calibration

The mass spectrometer must undergo mass calibration to ensure accurate assignments by the instrument. This mass calibration must be performed at least annually to maintain instrument sensitivity and stability. Mass calibration must be repeated on an as-needed basis (e.g., QC failures, ion masses fall outside of the instrument required mass window, major instrument maintenance, or if the instrument is moved). Mass calibration must be performed using the calibration compounds and procedures prescribed by the manufacturer. The procedures used for mass calibration and mass calibration verification must evaluate an ion range that encompasses the ion range (Q1 and Q2 m/z) of the analytes of interest of this method.

9.1.1.3 Mass Calibration Verification

A mass calibration verification must be performed following mass calibration, prior to standard and sample analyses. Mass verification checks must also be performed after any subsequent mass calibrations. The laboratory must follow the instructions for the individual instrument software to confirm the mass calibration, mass resolution and peak relative response. If the manufacturer's

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instructions include options for evaluation of mass resolution, the tightest resolution requirements (typically called unit resolution) must be met.

9.1.1.4 Retention Time (RT) calibration

Once RT windows have been confirmed for each target analyte, EIS, and NIS compound, then once per ICAL and at the beginning of the analytical sequence, the position of all target analyte, EIS, and NIS peaks shall be set using the midpoint standard of the ICAL curve when ICAL is performed. When an ICAL is not performed, the initial CCV retention times or the midpoint standard of the ICAL curve can be used to establish the RT window position.

The RTs for the target analytes, EIS, and NIS compounds must fall within 0.4 minutes of the predicted retention times from the midpoint standard of the ICAL or initial daily CCV, whichever was used to establish the RT window position for the analytical batch. All branched isomer peaks identified in either the calibration standard or the qualitative (technical grade) standard also must fall within 0.4 minutes of the predicted retention times from the midpoint standard of the ICAL or initial daily CCV. For all target analytes with exact corresponding isotopically labeled analogs, target analytes must elute within 0.1 minutes of the associated EIS compound.

When establishing the chromatographic conditions, it is important to consider the potential interference of bile salts (i.e. TDCA) during analyses of samples. Analytical conditions must be set to allow a separation of at least 1 minute between TDCA and the retention time window of PFOS. The method requires this evaluation when establishing the chromatographic conditions, regardless of the sample matrices to be analyzed.

9.1.2 Support Equipment

Refer to laboratory SOP (ENV-SOP-WEST-0036 Balance Calibration Verification, ENV-SOP-WEST-0123 Pipette and Bottle Top Verification), or however named, for additional information on calibration requirements for support equipment that may be used in this procedure.

9.2 Calibration

Refer to corporate POL ENV-POL-CORQ-0005, *Acceptable Calibration Practices for Instrument Testing*, for general laboratory calibration policies and procedures.

9.2.1 Calibration Frequency

Prior to the analysis of samples, and after a successful mass calibration check, each LC-MS/MS system must be calibrated at a minimum of 6 standard concentrations (Section 8.3.3.1 and Appendix A, Table 5). This method procedure calibrates and quantifies 40 PFAS target analytes, using the isotopically labeled compounds added to the sample prior to extraction, by one of two approaches (see Appendix A, Table 4 for quantitation associations):

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- Isotope Dilution quantification (ID), whereby the response of the target compound is compared to the response of its isotopically labeled analog; twenty-four target compounds are quantified in this way.
- Extracted Internal Standard quantification (EIS), whereby the response of the target compound is compared to the response of the isotopically labeled analog of another compound with chemical and retention time similarities; sixteen target compounds are quantified in this way.

Each LC-MS/MS system must be calibrated whenever the laboratory takes corrective action that might change or affect the initial calibration criteria, or if either the CCV or ISC acceptance criteria have not been met.

Each time a modification is made to this method, the laboratory is required to repeat the procedure in Sections 11.3.1 and 11.3.2. If calibration will be affected by the change, the instrument must be recalibrated.

9.2.2 Calibration Levels

Calibration standards are stored in plastic containers under refrigerated conditions (0-6°C).

Concentrations for calibration solutions are presented in Appendix A, Table 5. A minimum of six contiguous calibration standards are required for a valid analysis when using a linear calibration model, with at least five of the six calibration standards being within the quantitation range (e.g., from the LOQ to the highest calibration standard). If a second-order calibration model is used, then a minimum of seven calibration standards are required, with at least six of the seven calibration standards within the quantitation range. The lowest level calibration standard must be at a concentration less than or equal to the Limit of Quantitation (LOQ) and must meet a signal-to-noise ratio of 3:1 for the quantitation and confirmation ions that exist and must meet ion ratio requirements described in Section 10.1.1.3. If the analyte has no confirmation ion, then a 10:1 signal to noise ratio is required. All initial calibration requirements listed in Section 9.2.4 and 9.2.5 must be met.

Note: Additional calibration standards, at levels lower than the lowest calibration standard listed in the method, may be added to accommodate a lower limit of quantitation if the instrument sensitivity allows. Calibration standards at the high end of the calibration may be eliminated if the linearity of the instrument is exceeded or at the low end if those calibration standards do not meet the S/N ratio criterion of 3:1 (for quantitation and confirmation ions that exist; 10:1 for analytes with no confirmation ion), so long as the required number of calibration points is met. All analytes with commercially available stable isotope analogues must be quantified using isotope dilution.

9.2.3 Calibration Sequence

Calibration standards must be analyzed in sequence from lowest to highest concentration to minimize the chance that carryover from a higher concentration standard will boost the area of a lower concentration standard. A typical sequence for days when calibration is required is shown below.

Description	Comment
ICAL L1	

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Description	Comment
ICAL L2	Also used as ISC (Section 9.2.4.4)
ICAL L3	
ICAL L4	
ICAL L5	Also used as bracketing/closing CCV (Section 9.2.4.5)
ICAL L6	
ICAL L7	
ICAL L8	
ICAL L9	
IBLK	Any detections must be <MDL
ICV	%R must be 70 – 130%
CCV (ISC)	%R must be 70-130%; begins and ends Analytical Sequence

9.2.4 Calibration Evaluation

If the criteria for initial calibration are not met, inspect the system for problems and take corrective actions to achieve the criteria. This may require the preparation and analysis of fresh calibration standards. All initial calibration criteria must be met before any samples or required blanks are analyzed.

9.2.4.1 Curve Fit

One of the following two approaches must be used to evaluate the linearity of the instrument calibration. Weighting (typically 1/x or 1/x2) is allowed for linear and non-linear regressions.

- Option 1: Calculate the relative standard deviation (RSD) of the Relative Response (RR) or Response Factor (RF) values of the initial calibration standards for each native compound and isotopically labeled compound. See Section 10.2.1 for calculation of RR and RF. The RSD must be ≤ 20% to establish instrument linearity.

- Option 2: Calculate the relative standard error (RSE) for each native compound and EIS compound for all the initial calibration standards that were analyzed. The RSE for all method analytes must be ≤ 20% to establish instrument linearity.

If these criteria cannot be met, corrective action should be taken to restrict the range of calibration, reanalyze and/or reprepare the ICAL standards, or perform instrument maintenance and/or re-optimization.

If more than the minimum number of standards are analyzed and levels are excluded from the calibration, only the lowest or highest standards may be excluded, except as noted here. The removal of calibration levels from the interior of the curve is allowed only when there is sound technical reason for doing so and when the level is removed for all analytes; for example, when it can be proven that the wrong standard was analyzed for the calibration level or there is obvious evidence that the instrument malfunctioned during injection of the standard. The removal of any calibration level from the interior of the curve must be approved by the department supervisor/manager. Management approval and

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the rationale for the level removal must be documented and kept with the technical record.

9.2.4.2 Relative Error (% RE)

Although not required by the method, it may be useful to compare the actual responses for each standard to the calibration model; percent error of >30% between the calculated and expected concentrations of an analyte in any standard may be cause for concern.

9.2.4.3 Initial Calibration Verification (ICV)

As part of the IDOC and once after each ICAL, analyze an ICV sample prepared from a second source (different from the source of the ICAL standards). If a second vendor is not available, then a different lot of the standard from the same vendor should be used. The ICV should be prepared and analyzed just like a CCV. Acceptance criteria for the ICV are identical to the CCVs: the calculated concentration for each analyte must be within ± 30% of the expected value. If measured analyte concentrations are not of acceptable accuracy, correct the problem and rerun the ICV. If the problem persists, repeat the ICAL. Samples are not to be analyzed until the ICAL has been verified by acceptable ICV accuracy.

9.2.4.4 Instrument Sensitivity Check (ISC)

The lowest calibration standard within the quantitation range must be analyzed at the beginning of the analytical sequence. The signal-to-noise ratio of the ISC must be ≥ 3:1 for the quantification ions and the confirmation ions, or ≥ 10:1 if the analyte only has a quantification ion. Recovery of the native and EIS compounds for the ISC must be within 70-130%. If the requirements cannot be met, the problem should be corrected before analyses can proceed.

The lowest calibration standard within the quantitation range must be analyzed at the beginning of the analytical sequence. The signal-to-noise ratio of the ISC must be ≥ 3:1 for the quantification ions and the confirmation ions, or ≥ 10:1 if the analyte only has a quantification ion. Recovery of the native and EIS compounds for the ISC must be within 70-130%. If the requirements cannot be met, the problem should be corrected before analyses can proceed.

9.2.4.5 Continuing Calibration Verification (CCV)

After a passing MS resolution and a successful initial calibration is achieved and prior to the analysis of any samples, the calibration is verified by injecting an aliquot of the appropriate concentration ICAL standard, analyzed with the same conditions used during the ICAL. CCV is performed at the beginning of each analytical sequence, after every ten samples, and at the end of the analytical sequence. In this context, a “sample” is defined as a field sample: MBs, CCVs, LCSs, MSs, FDs, TBs and MSDs are not counted as samples. All CCV analyses are performed using a mid-level ICAL standard, except for the daily Instrument Sensitivity Check, as noted above.

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Calculate concentration for each native and EIS compound in the CCV; the recovery of native and EIS compounds for the CCVs must be within 70 – 130%. If the CCV criteria are not met, take corrective action (possibly including recalibration) and reanalyze any extracts that were analyzed between the last passing CCV and the one that failed. Alternately, the analyst may immediately analyze two CCVs for confirmation. If both confirmation CCV analyses meet the recovery criteria, analysis may proceed; however, the analyst must rerun any samples that were analyzed after the failing CCV and before the 2 passing CCVs. If either of the 2 confirmation CCV analyses fails to meet the acceptance criteria take corrective action and recalibrate the LC-MS/MS.

If an individual target compound recovery in a CCV is above the upper control limit and all associated samples are ND for that compound, the data for those samples may be reported. In such cases, a narrative statement must be included in the report indicating the specific compound result that was biased high in the CCV, and that samples were ND for that compound and thus reportable.

9.2.5 Initial Calibration Blank (ICB) / Continuing Calibration Blank (CCB)

One instrument blank (IBLK) is analyzed immediately following the highest ICAL standard analyzed (ICB), each analysis day prior to sample analysis, and following each bracketing CCV in a sequence (CCB), to check for carryover and instrument contamination. The concentration of each analyte must be ≤ the MDL-equivalent concentration in each IBLK/ICB/CCB. If the IBLK does not pass this requirement after the highest ICAL standard, the acquisition method should be adjusted to reduce the amount of carryover observed. Alternately, the calibration should be performed using a lower concentration for the highest standard until the acceptance criteria is met.

If unacceptable contamination is persistent in blanks, analyze additional instrument blanks until the response of the analyte is no longer detectable, or perform additional troubleshooting steps to identify and minimize other potential sources of PFAS contamination.

9.3 Sample Preparation

This section describes the sample preparation procedures for aqueous samples (Section 9.3.3), solid samples (soil, sediment or biosolid; Section 9.3.6), and tissue samples (Section 9.3.9). For solid samples, percent solids are determined using the procedures in Section 9.3.2. This section also describes the solid phase extraction (SPE) and extract cleanup protocols for all matrices.

Note: The laboratory may choose to pre-screen some samples prior to performing the analysis, following the protocol described in Appendix D. For aqueous samples, use the smaller secondary container to perform the pre-screening. If high levels of PFAS are present in the sample, a lower volume is required for analysis.

Do not use any fluoropolymer articles or task wipes in these extraction procedures. Use only HDPE or polypropylene wash bottles and centrifuge tubes. Reagents and solvents for cleaning may be kept in glass containers.

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9.3.1 Homogenization & Subsampling

Refer to laboratory SWI ENV-SWI-WEST-0128, Subsampling of Soil / Solid Samples, or however named, for information regarding the handling, homogenization, and splitting of samples to ensure that a representative aliquot is used for preparation.

The laboratory may subsample the aqueous samples as described in Appendix E; however, subsampling must meet project-specific requirements. The laboratory must notify the client that subsampling has occurred. Subsampling is acceptable for samples which require greater than a 10X dilution for over-range detections (or are known/expected to be highly contaminated), and for samples which fail the acceptance criteria for EIS compounds (see Appendix B, Tables 10-12). Other sample matrix characteristics which may require subsampling are described in Appendix G. When subsampling is required to manage high concentrations, no less than 250 µL of aqueous or leachate samples may be subsampled - if greater dilution is required, serial dilution must be employed. When subsampling is required to manage challenging matrices, no less than 1 mL of samples may be subsampled. For solid and tissue samples, no less than 10% of the target sample mass should be used for reduced-mass extractions, to help ensure the extracted mass is representative of the bulk sample. This means no less than 0.5 g for solids and no less than 0.2 g for tissues may be used for sample preparation.

Tissue sample homogenization will be performed in the Pace Green Bay facility, following SOP ENV-SOP-GBAY-0129 v05 *Sample Homogenization Compositing and Sub-Sampling*.

9.3.2 Determination of Percent Solids

Aqueous samples received with visually observable solids will be handled following the decision tree presented in Appendix G. No TSS pre-test will be performed on aqueous samples prior to preparation.

Percent solids analysis must be performed on all solid samples (excluding tissues) prior to preparation and analysis. All solid samples will be logged in for both 1633 and percent solids analysis. The percent solids analysis will follow the Method SM2540G protocol.

9.3.3 Aqueous Sample Processing

Per the parent method, this protocol is applicable to aqueous samples containing up to 100 mg/L solids per sample, and the procedure requires the preparation of the entire sample where possible. Smaller sample volumes may be analyzed for samples containing solids greater than specified for this method, or when unavoidable due to high levels of PFAS. The typical sample size is 500 mL; however, sample size may vary, depending on project requirements, applicable regulations, and sample characteristics. The sample is to be analyzed in its entirety and should not be filtered.

Leachate samples are analyzed using a 100 mL sample volume. Therefore, they must not be included in the same sample preparation batch as aqueous samples analyzed using 500 mL sample volumes. Otherwise, leachate samples are handled identically to all other aqueous samples.

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1) Visually inspect each sample and note any matrix characteristics which may pose challenges during SPE and require additional processing; see Appendix G for more information.

2) Weigh each sample bottle (with the lid) to the nearest 0.1 g. The volume of the aqueous sample analyzed is determined by weighing the full sample bottle and then the empty sample bottle after extraction is complete.

3) Prepare a method blank and two LCSs using PFAS-free water in HDPE bottles. Select a volume of water that is typical of the samples in the batch (i.e., 500 mL; 100 mL for leachate samples). Spike one LCS sample with native standard solution at 2x the LOQ (64 µL of STK-10X mix). This aliquot (LLLCS) will serve to verify the LOQ. Spike the other LCS sample at a concentration near the mid-level calibration point (40 µL of EPA-1633STK). This aliquot will serve as the traditional LCS.

Note: If matrix spikes are required for a specific project, spike the field sample bottles designated for use as MS/MSD samples in the same manner as the LCS.

4) Spike 20 µL of EIS solution (Section 8.2.3) directly into the sample in the original bottle (or subsampled bottle) as well as to the bottles prepared for the QC samples. Mix by capping and inverting the sample containers.

5) Check that the pH is 6.5 ± 0.5. If necessary, adjust pH with 50% formic acid or ammonium hydroxide (or with 5% formic acid and 3% aqueous ammonium hydroxide). The sample is now ready for solid phase extraction (SPE) and cleanup.

9.3.4 Solid Phase Extraction of Aqueous Samples

Note: Carbon cleanup is required. Carbon cleanup may remove analytes if the sample has a very low organic carbon content (this is unusual for non-drinking water environmental samples). This will be apparent if the isotope dilution standard recoveries are significantly higher on the reanalysis.

1) Pack clean silanized glass wool to half the height of a WAX SPE cartridge barrel; repeat for the total number of samples in the batch.

2) For each sample and QC aliquot, set up the vacuum manifold with one WAX SPE cartridge plus a reservoir adaptor and reservoir for each cartridge; label each reservoir with the associated sample ID. If using plastic transfer lines instead of reservoirs, ensure the connecting caps are snug in each cartridge and the transfer lines are placed within the appropriate sample; label each cartridge tube with the associated sample ID.

3) Pre-condition the cartridges by washing them with 15 mL of 1% methanolic ammonium hydroxide followed by 5 mL of 0.3M formic acid. Perform each rinse separately. Do not allow the WAX SPE to go dry. Discard the wash solvents.

4) Pour the sample into the reservoir (do not use a pipette), taking care to avoid splashing while loading; or, if using transfer lines, begin opening the stopcocks on the vacuum manifold. Adjust the vacuum/stopcocks to pass each sample through

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the cartridge at approximately 5-10 mL/min; discard the eluate. Retain the empty sample bottle for later rinsing (Section 9.3.5).

Note: In the event the SPE cartridge begins to clog during aqueous sample loading, abandon the loading step and attempt to rinse and dry the clogged cartridge, following the protocol below. The cartridge is then ready for elution. If the clogging prevents the rinse from passing through the cartridge, it will not be possible to collect an extract for the associated sample. See Appendix G for more information.

5) Rinse the walls of the reservoir with 5 mL reagent water twice, followed by 5 mL of 1:1 0.1M formic acid/methanol and pass those rinses through the cartridge using vacuum. If using sample transfer lines for loading, add the 3 rinses to the bottle and load through the transfer lines to the cartridge, one reagent at a time. Dry the cartridge by pulling air through for approximately 5 minutes. Discard the rinse solution.

6) After the WAX cartridges are sufficiently dry, rinse the GCB cartridges with 5 mL of 1% methanolic ammonium hydroxide; discard the rinsate. Do not allow the GCB to go completely dry.

7) Connect the outlet of the WAX cartridges to the inlet of the GCB cartridges to stack them on the manifold and allow for cleanup of the extract as part of elution. Ensure that the WAX cartridges are returned to their original locations on the manifold to avoid cross contamination. Continue to the elution steps in the next section.

9.3.5 Elution of Aqueous Sample Extracts

1) Place clean collection tubes inside the manifold, ensuring that the extract delivery tips do not touch the walls of the tubes. Resume vacuum and ensure a proper seal is achieved. DO NOT add NIS to these collection tubes.

2) Add 5 mL of 1% methanolic ammonium hydroxide to each empty sample bottle. Cap the bottle and rotate to ensure all internal surfaces of each bottle are rinsed; avoid vigorous shaking when rinsing the 500 mL aqueous sample bottles with only 5 mL of methanol – any evaporation/vaporization will contribute to loss of extract here. After rinsing the inside of the sample bottle, pour the rinse from the bottle or use a plastic transfer pipette to transfer the rinse to the SPE reservoir, using it to wash the walls of the reservoir. If using sample transfer lines, simply transfer this rinse from each sample container to its associated cartridge using vacuum. Allow the elution solvent to soak the SPE sorbent for 2 minutes before using vacuum to pull the elution solvent through the cartridge and into the collection tubes in a slow, dropwise manner.

3) Air dry the empty sample bottle after the rinse is transferred. Weigh the empty bottle with the cap on and subtract that from the weight of the bottle with sample, determined in Section 9.3.3, step 2.

4) Add 25 µL of concentrated acetic acid and 20 µL of NIS mix to each sample extract in its collection tube and vortex to mix. Transfer a portion of each extract into an autosampler vial for LC-MS/MS analysis. Cap the collection tubes containing the remaining extracts and store at 0 - 6 °C.

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9.3.6 Solid Sample (excluding tissues) Processing

Any solid sample received containing <50% solids (>50% moisture; >10 g target mass for 5 g dry weight) should be re-logged and prepared as a biosolid, using a target dry weight of 0.5 g. Any solid or biosolid sample received containing <5% solids (>95% moisture; >10 g target mass for 0.5 g dry weight) should be re-logged and prepared as a leachate sample, using no more than 100 mL of sample for extraction.

1) Mix the sample in its original jar. If it is impractical to mix the sample within its container, transfer the sample to a larger container. Mix the sample thoroughly, stirring from the bottom to the top and in a circular motion along the sides of the jar, breaking particles up by pressing against the side of the container. The homogenized sample should be even in color and have no separate layers. Store the homogenized material in its original container or in multiple smaller containers.

2) Determine the percent solids as per Section 9.3.2.

Note: The target sample weight for sediment or soil is 5 g dry weight. The target sample weight for biosolids is 0.5 g dry weight. Small amounts of reagent-free water used for method blanks (10% of sample weight or less) can be added to unusually dry samples. This is an option, not a requirement.

3) Check the LIMS system for the percent solids data associated with the samples to be prepared. Using the percent solids data and the calculation below, weigh out an aliquot of each solid sample, not dried, into a 50 mL polypropylene centrifuge tube. Sample mass should be within ±0.2 g of target mass for soil and sediment samples, and within ±0.02 g of target mass for biosolids samples. Sample aliquot should provide 5 g dry weight (Wi_{Dry} below) for soil and sediment or 0.5 g dry weight for biosolids. Because biosolid samples are analyzed with a 0.5 g sample mass, they must not be included in the same sample preparation batch as solid samples analyzed with 5 g sample masses. Any solid sample received containing <50% solids (>50% moisture; >10 g target mass for 5 g dry weight) should be re-logged and prepared as a biosolid, using a target dry weight of 0.5 g. Any solid or biosolid sample received containing <5% solids (>95% moisture; >10 g target mass for 0.5 g dry weight) should be re-logged and prepared as a leachate sample, using no more than 100 mL of sample for extraction.

$$Solid\ Sample\ Target\ Mass\ (g) = \frac{Wi_{Dry}\ (g)}{\%\ solids\ (decimal)}$$

4) Prepare batch QC samples using 5 g of reference solid wetted with 2.5 g of reagent water for the method blank and two LCSs (use 0.5 g of reference solid with 0.25 g of reagent water for biosolid extraction batches). The addition of reagent water to the sand provides a matrix closer in composition to real-world samples. Spike one LCS sample with native standard solution at 2x the LOQ (80 µL of STK-10X mix). This aliquot (LLLCS) will serve to verify the LOQ. Spike the other LCS sample at a concentration near the mid-level calibration point (40 µL of EPA-1633STK). This aliquot will serve as the traditional LCS.

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Note: If matrix spikes are required for a specific project, spike the field sample bottles designated for use as MS/MSD samples in the same manner as the LCS.

5) Spike 20 µL of EIS solution (Section 8.2.3) directly into each centrifuge tube containing the aliquoted field and QC samples. Vortex or shake the sample to disperse the standard and allow to equilibrate for approximately 30 minutes.

6) Add 15 mL of 0.3% methanolic ammonium hydroxide to each centrifuge tube. Vortex to disperse, then shake for 30 minutes on a variable speed mixing table. Centrifuge at 3000 rpm (~2000 RCF) for 10 minutes and transfer the supernatant to a clean, labeled 50 mL polypropylene centrifuge tube.

7) Add 15 mL of 0.3% methanolic ammonium hydroxide to the remaining solid sample in each centrifuge tube. Vortex to disperse, then shake for 30 minutes on a variable speed mixing table. Centrifuge at 3000 rpm (~2000 RCF) for 10 minutes and decant the supernatant from the second extraction into the centrifuge tube with the supernatant from the first extraction.

8) Dilute to approximately 40 mL with reagent water. A separate centrifuge tube marked at the 40 mL level may be kept for a visual reference to get the approximate volume. Samples containing excess water may yield extracts that are greater than 40 mL in volume; therefore, do not add water to these.

9) Check that the pH is 6.5 ± 0.5. If necessary, adjust pH with 50% formic acid or ammonium hydroxide (or with 5% formic acid and 3% aqueous ammonium hydroxide). The extract is now ready for solid phase extraction (SPE) and cleanup.

9.3.7 Solid Phase Extraction of Solid Samples

1) Pack clean silanized glass wool to half the height of a WAX SPE cartridge barrel; repeat for the total number of samples in the batch.

2) For each sample and QC aliquot, set up the vacuum manifold with one WAX SPE cartridge plus a reservoir adaptor and reservoir for each cartridge; label each reservoir with the associated sample ID. If using plastic transfer lines instead of reservoirs, ensure the connecting caps are snug in each cartridge and the transfer lines are placed within the appropriate sample; label each cartridge tube with the associated sample ID.

3) Pre-condition the cartridges by washing them with 15 mL of 1% methanolic ammonium hydroxide followed by 5 mL of 0.3M formic acid. Perform each rinse separately. Do not allow the WAX SPE to go dry. Discard the wash solvents.

4) Pour the sample into the reservoir (do not use a pipette), taking care to avoid splashing while loading; or, if using transfer lines, begin opening the stopcocks on the vacuum manifold. Adjust the vacuum/stopcocks to pass each sample through the cartridge at approximately 5-10 mL/min; discard the eluate. Retain the empty sample bottle for later rinsing (Section 9.3.8).

5) Rinse the walls of the reservoir with 5 mL reagent water twice, followed by 5 mL of 1:1 0.1M formic acid/methanol and pass those rinses through the cartridge using

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vacuum. If using sample transfer lines for loading, add the 3 rinses to the bottle and load through the transfer lines to the cartridge, one reagent at a time. Dry the cartridge by pulling air through for approximately 5 minutes. Discard the rinse solution.

6) After the WAX cartridges are sufficiently dry, rinse the GCB cartridges with 5 mL of 1% methanolic ammonium hydroxide; discard the rinsate. Do not allow the GCB to go completely dry.

7) Connect the outlet of the WAX cartridges to the inlet of the GCB cartridges to stack them on the manifold and allow for cleanup of the extract as part of elution. Ensure that the WAX cartridges are returned to their original locations on the manifold to avoid cross contamination. Continue to the elution steps in the next section.

9.3.8 Elution of Solid Sample Extracts

1) Place a clean collection tube in the manifold rack for each sample and QC aliquot, ensuring the extract delivery needles are not touching the walls of the tubes. Resume vacuum and ensure a proper seal is achieved. DO NOT add NIS to these collection tubes.

2) Rinse the inside of each sample's centrifuge tube using 5 mL of 1% methanolic ammonium hydroxide. Then pour the rinse from each bottle (or use a plastic transfer pipette) to transfer the rinse to the associated SPE reservoir, washing the walls of the reservoir. If using sample transfer lines, simply transfer this rinse from each sample container to its associated cartridge using vacuum. Allow the elution solvent to soak the SPE sorbent for 2 minutes, then use vacuum to pull the elution solvent through the cartridge and into the collection tubes in a slow, dropwise manner.

3) Add 25 µL of concentrated acetic acid and 20 µL of NIS mix to each sample extract in its collection tube and vortex to mix. Transfer a portion of each extract into an autosampler vial for LC-MS/MS analysis. Cap the collection tubes containing the remaining extracts and store at 0 - 6 °C.

9.3.9 Tissue Sample Processing

Prior to processing tissue samples, the laboratory must determine the exact tissue to be analyzed. Common requests for analysis of fish tissue include whole fish with the skin on, whole fish with the skin removed, edible fish fillets (filleted in the field or by the laboratory), specific organs, and other portions. Once the appropriate tissue has been determined, the samples must be prepared and homogenized.

Pace utilizes the Green Bay location for tissue homogenization, following ENV-SOP-GBAY-0129 (Sample Homogenization, Compositing, and Subsampling; specifically, Section 9.4).

1) For each sample, weigh a 2 g aliquot of homogenized tissue into a 50 mL polypropylene centrifuge tube. Reseal the container with the remaining homogenized portion of the sample and return it to frozen storage in case it needs to be used for reanalysis. The default sample weight for tissue is 2 g wet weight; however, a 1 g sample may be used. Higher sample weights are not recommended for this method.

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2) Prepare the batch QC samples using 2 g of reference tissue matrix for the method blank and two LCSs. Spike one LCS sample with native standard solutions at 2x the LOQ (80 µL of STK-10X mix). This aliquot (LLLCS) will serve to verify the LOQ. Spike the other LCS sample at a concentration near the mid-level calibration point (40 µL of EPA1633-STK). This aliquot will serve as the traditional LCS.

Note: If matrix spikes are required for a specific project, spike the field sample bottles designated for use as MS/MSD samples in the same manner as the LCS.

3) Spike 20 µL of EIS solution (Section 8.2.3) directly into each field and QC sample. Vortex and allow to equilibrate for approximately 30 minutes.

4) Add 15 mL of 0.05M KOH in methanol to each sample. Vortex to disperse the tissue then place tubes on a variable speed mixing table to shake for 1 hour. Centrifuge at 3000 rpm (~2000 RCF) for 10 minutes and collect the supernatant in a 125mL sample bottle.

5) Add 10 mL of acetonitrile to remaining tissue in the centrifuge tube, vortex to mix and disperse the tissue. Sonicate for 30 minutes. Centrifuge at 3000 rpm (~2000 RCF) for 10 minutes and collect the supernatant, adding it to the 125mL bottle containing the initial extract.

6) Dilute to approximately 75 mL with reagent water. A separate bottle marked at the 75 mL level may be used to get the approximate volume.

7) Check that the pH is 6.5 ± 0.5. If necessary, adjust pH with 50% formic acid or ammonium hydroxide (or with 5% formic acid and 3% aqueous ammonium hydroxide). The extract is now ready for solid phase extraction (SPE) and cleanup.

9.3.10 Solid Phase Extraction of Tissue Samples

1) Pack clean silanized glass wool to half the height of a WAX SPE cartridge barrel; repeat for the total number of samples in the batch.

2) For each sample and QC aliquot, set up the vacuum manifold with one WAX SPE cartridge plus a reservoir adaptor and reservoir for each cartridge; label each reservoir with the associated sample ID. If using plastic transfer lines instead of reservoirs, ensure the connecting caps are snug in each cartridge and the transfer lines are placed within the appropriate sample; label each cartridge tube with the associated sample ID.

3) Pre-condition the cartridges by washing them with 15 mL of 1% methanolic ammonium hydroxide followed by 5 mL of 0.3M formic acid. Perform each rinse separately. Do not allow the WAX SPE to go dry. Discard the wash solvents.

4) Pour the sample into the reservoir (do not use a pipette), taking care to avoid splashing while loading; or, if using transfer lines, begin opening the stopcocks on the vacuum manifold. Adjust the vacuum/stopcocks to pass each sample through the cartridge at approximately 5-10 mL/min; discard the eluate. Retain the empty sample bottle for later rinsing (Section 9.3.8).

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5) Rinse the walls of the reservoir with 5 mL reagent water twice, followed by 5 mL of 1:1 0.1M formic acid/methanol and pass those rinses through the cartridge using vacuum. If using sample transfer lines for loading, add the 3 rinses to the bottle and load through the transfer lines to the cartridge, one reagent at a time. Dry the cartridge by pulling air through for approximately 5 minutes. Discard the rinse solution.

6) After the WAX cartridges are sufficiently dry, rinse the GCB cartridges with 5 mL of 1% methanolic ammonium hydroxide; discard the rinsate. Do not allow the GCB to go completely dry.

7) Connect the outlet of the WAX cartridges to the inlet of the GCB cartridges to stack them on the manifold and allow for cleanup of the extract as part of elution. Ensure that the WAX cartridges are returned to their original locations on the manifold to avoid cross contamination. Continue to the elution steps in the next section.

9.3.11 Elution of Tissue Sample Extracts

1) Place a clean collection tube in the manifold rack for each sample and QC aliquot, ensuring the extract delivery needles are not touching the walls of the tubes. Resume vacuum and ensure a proper seal is achieved. DO NOT add NIS to these collection tubes.

2) Rinse the inside of each sample's centrifuge tube using 5 mL of 1% methanolic ammonium hydroxide. Then pour the rinse from each bottle (or use a plastic transfer pipette) to transfer the rinse to the associated SPE reservoir, washing the walls of the reservoir. If using sample transfer lines, simply transfer this rinse from each sample container to its associated cartridge using vacuum. Allow the elution solvent to soak the SPE sorbent for 2 minutes, then use vacuum to pull the elution solvent through the cartridge and into the collection tubes in a slow, dropwise manner.

3) Add 25 µL of concentrated acetic acid and 20 µL of NIS mix to each sample extract in its collection tube and vortex to mix. Transfer a portion of each extract into an autosampler vial for LC-MS/MS analysis. Cap the collection tubes containing the remaining extracts and store at 0 - 6 °C.

9.4 Analysis

9.4.1 Sequence Preparation

Analysis of sample extracts for PFAS by LC-MS/MS is performed running manufacturer's data acquisition software. The mass spectrometer is run with unit mass resolution in the multiple reaction monitoring (MRM) mode.

1) Perform mass calibration and mass calibration verification, establish the operating conditions, and perform an initial calibration prior to analyzing samples. Only after all performance criteria are met may blanks, MDLs, IDOC/LCS, and samples be analyzed.

2) Each day of analysis, the column must be thoroughly flushed with 100% Acetonitrile for at least 30 minutes to clear any accumulated impurities and interferences from the sample pathway and equilibrate the system. It is also good practice to open the purge valve(s) on the pumps for the first ~1 minute of flush time and/or use the "purge"

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function available as part of the pump functionality. Additionally, it is good practice to purge the autosampler injector flow path daily prior to analysis by using the "purge" function, if available. The column should then be equilibrated to the analysis starting conditions by flushing for approximately 15 mins with 50:50 Mobile Phase A: Mobile Phase B and finally approximately 15 mins with 80:20 Mobile Phase A: Mobile Phase B (acquisition starting conditions). Ensure that system pressure is stable.

3) Following any initial priming injections on days when a calibration is not needed, an ISC and an instrument blank will be analyzed to demonstrate system suitability and the absence of system contamination prior to sample analysis.

4) After acceptable ISC and IBLK results are confirmed, load and submit extracted samples for analysis, typically starting with batch QC with field samples following. A CCV and CCB must be analyzed after every 10 (or fewer) field samples.

9.4.2 Routine Analytical Sequence

After a successful initial calibration has been completed, samples may be analyzed; an example analytical sequence is provided below. The volume injected for samples and QCs must be identical to the volume used for calibration. Standards and sample extracts must be brought to room temperature and vortexed prior to aliquoting into an instrument vial to ensure homogeneity of the extract.

- ISC
- CCV
- Instrument Blank
- Method Blank
- LLLCS
- LCS
- Samples (10 or fewer)
- CCV
- CCB
- Samples (10 or fewer)
- CCV

If the results are acceptable, the closing CCV analysis may be used as the opening solution for the next analytical sequence.

If the response exceeds the calibration range for any sample, extracts are diluted as per Section 9.4.3 to bring all target responses within the calibration range.

Note: If the analytes that exceed the calibration range in the original analysis are known to not be of concern for the specific project (e.g., are not listed in a discharge permit), then the laboratory may consult with the client regarding the possibility of reporting that sample from the undiluted analysis.

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9.4.3 Sample Dilutions

If the measured concentration for any compound exceeds the calibration range of the system, dilute an aliquot of the sample extract with the IBLK mix solution by a factor no greater than 10x, refortify the NIS compounds to initial concentration, and analyze the diluted extract. If the responses for each applicable EIS in the diluted extract meet the S/N and retention time requirements in Section 10.1.1, and the EIS recoveries from the analysis of the diluted extract, corrected for the dilution, are within the limits presented in Table 10, 11 or 12 (according to sample matrix), then the compounds associated with those EISs may be quantified. The EIS recoveries, compound concentrations, detection limits, and LOQs are adjusted to account for the dilution.

If the EIS responses in the diluted extract do not meet the S/N and retention time requirements listed in Section 10.1.1, then the compound cannot be measured reliably in the diluted extract. In such cases, subsample a smaller aliquot of any affected aqueous sample and dilute it to 500 mL with reagent water and re-extract the sample. For solid sample matrices, prepare a smaller aliquot of soil, biosolid, sediment, or tissue and re-extract the sample. The reduced sample volume (or mass) chosen for the re-extraction should reflect the dilution applied to the original extract (i.e., if the original aqueous sample extract was analyzed at a 10X dilution, 50 mL should be subsampled for the re-extraction). See Section 9.3.1 for more guidance. The reported compound concentrations, detection limits, and LOQs are adjusted to account for the reduced sample volume (or mass) that is extracted.

If the recovery of any isotopically labeled compound is outside of the acceptance limits (Appendix B) in the original, undiluted analysis, a diluted aqueous sample or smaller aliquot (for solids and tissue) should be prepared and analyzed.

10.0 DATA ANALYSIS & CALCULATIONS

10.1 Data Analysis

10.1.1 Qualitative Identification

A native, EIS, or NIS compound is positively identified in a standard, blank, sample, or QC sample when all criteria in Sections 10.1.1.1 through 10.1.1.3 are met.

10.1.1.1 Signal-to-Noise Ratio (S/N)

Peak responses of the quantitation and confirmation ions must be at least three times the background noise level (S/N 3:1). The quantitation ion must have a S/N ≥ 10:1 if there is no confirmation ion. If the S/N ratio is not met in a standard or QC sample due to high background noise, the laboratory must correct the issue (e.g., perform instrument troubleshooting). If the S/N ratio is not met in a blank or sample, then the analyte is to be considered a non-detect.

10.1.1.2 RT Criteria

Target analyte, EIS analyte, and NIS analyte RTs must fall within 0.4 minutes of the predicted retention times from the midpoint standard of the ICAL or initial daily CCV, whichever was used to establish the RT window position for the

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analytical batch. The retention time window used must be of sufficient width to detect earlier-eluting branched isomers. For all method analytes with exact corresponding isotopically labeled analogs, method analytes must elute within 0.1 minutes of the associated EIS.

10.1.1.3 Ion Ratio Criteria

For any reported compound detection, the ratio of the total (branched and linear isomer) quantification ion response to the total (branched and linear isomer) confirmation ion response – referred to as the Ion Ratio – must fall within ± 50% of the ratio observed in the mid-point ICAL standard. The ion ratio requirement does not apply for PFBA, PFPeA, NMeFOSE, NEtFOSE, PFMPA, and PFMBA because suitable secondary transitions are unavailable (not detectable or inadequate S/N).

10.1.2 Manual Integration

Manual integration is sometimes necessary to correct inaccurate automated integrations but must never be used to meet QC criteria or to substitute for proper instrument maintenance and/or method set-up. To assure that all manual integrations are justified and proper all manual integrations must be performed, documented, reviewed, and approved in accordance with corporate SOP ENV-SOP-CORQ-0006, *Manual Integration*. Refer to this SOP for guidance on manual integration techniques and required procedures.

10.1.2.1 Branched Isomer Integration

The response of all isomers in the quantitative standards should be used to define integration parameters and ion ratios. In samples, the total integrated response should include the branched isomer peaks that have been identified in the quantitative standard, if present. For compounds with identified branched and linear isomer peaks, the reported concentration is the sum of all isomers. If standards (either quantitative or qualitative) containing a mix of isomers are not available for purchase for a particular compound, only the linear isomer can be identified and quantitated in samples.

10.1.2.2 Qualification

If the field sample result does not meet all criteria stated in Section 10.1.1, and all sample preparation avenues (e.g., extract cleanup, sample dilution, etc.) have been exhausted, the result may only be reported with a data qualifier alerting the data user that the result could not be confirmed because it did not meet the method-required criteria and therefore should be considered an estimated value. If the criteria listed above are not met for the standards, the laboratory must stop analysis of samples and correct the issue.

10.2 Calculations

Refer to laboratory SOP (ENV-SOP-WEST-0124, Common Laboratory Calculations), or however named, for equations used to perform common calculations.

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10.2.1 ICAL Relative Response (RR) and Response Factor (RF)

The response ratio (RR) for each native compound calibrated by isotope dilution is calculated according to the equation below, separately for each of the calibration standards, using the areas of the quantification ions shown in Table 4. RR is used for the 24 compounds measured by true isotope dilution quantification.

$$RR = \frac{Area_t M_{EIS}}{Area_{EIS} M_t}$$

Where:

$Area_t$ = Measured area of the quantitation ion for the target analyte.

$Area_{EIS}$ = Measured area of the quantitation ion for the corresponding labeled PFAS used as the EIS in the calibration standards.

M_{EIS} = Concentration of the isotopically labeled PFAS uses as the EIS in the calibration standards (ng/L)

M_t = Concentration of the target analyte in the calibration standard (ng/L)

Similarly, the response factor (RF) for each native compound calibrated by extracted internal standard is calculated according to the equation below. RF is used for the 16 compounds measured by extracted internal standard quantification.

$$RF = \frac{Area_t M_{EIS}}{Area_{EIS} M_t}$$

Where:

$Area_t$ = Measured area of the quantitation ion for the target analyte.

$Area_{EIS}$ = Measured area of the quantitation ion for the corresponding labeled PFAS used as the EIS in the calibration standards.

M_{EIS} = Concentration of the isotopically labeled PFAS uses as the EIS in the calibration standards (ng/L)

M_t = Concentration of the target analyte in the calibration standard (ng/L)

A response factor (RF_S) is calculated for each EIS compound in the calibration standard using the equation below. RF_S is used for the 24 isotopically labeled compounds measured by non-extracted internal standard quantification.

$$RF_S = \frac{Area_{EIS} M_{NIS}}{Area_{NIS} M_{EIS}}$$

Where:

$Area_{EIS}$ = Measured area of the quantitation ion for the EIS compound added to the sample before extraction.

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$Area_{NIS}$ = Measured area of the quantitation ion for the NIS compound in the calibration standard.

M_{NIS} = Concentration of the NIS compound in the calibration standard (ng/L).

M_{EIS} = Concentration of the EIS compound in the calibration standard (ng/L).

10.2.2 Target Analyte Concentration

Concentrations of the target analytes are determined with respect to the extracted internal standard (EIS) which is added to the sample prior to extraction (see Table 4). Other equations may be used if the laboratory demonstrates that those equations produce the same numerical result as produced by the equation below.

$$\boldsymbol{Concentration\ (ng/Lor ng/g) = \frac{Area_N M_{EIS}}{Area_{EIS}(\overline{RR}\ or\ \overline{RF})}\ x\ DF\ x \frac{Vf}{Vi}}$$

Where:

$Area_N$ = The measured area of the quantitation ion for the native (unlabeled) PFAS.

$Area_{EIS}$ = The measured area of the quantitation ion for the EIS.

M_{EIS} = The expected concentration of the EIS in the extract (ng/L)

$\boldsymbol{\overline{RR}}$ = Average response ratio used to quantify target compounds by the isotope dilution method.

$\boldsymbol{\overline{RF}}$ = Average response ratio used to quantify target compounds by the extracted internal standard method.

DF = Dilution Factor. If no extract dilution was performed, then DF=1.

Vf = Final extract volume (L)

Vi = Initial sample volume (L) or weight (g)

10.2.3 EIS Concentration

The EIS compounds are quantitated with respect to an NIS, as shown in Table 4, using the response ratios or response factors from the most recent initial calibration. Other equations may be used if the laboratory demonstrates that those equations produce the same numerical result as produced by the equation below.

$$Concentration\ (ng/L\ or\ ng/g) = \frac{Area_{EIS} M_{NIS}}{Area_{NIS}\overline{RF_S}}\ x\ DF\ x \frac{Vf}{Vi}$$

Where:

$Area_{EIS}$ = The measured area of the quantitation ion for the EIS.

$Area_{NIS}$ = The measured area of the quantitation ion for the associated NIS.

M_{NIS} = The expected concentration of the NIS in the extract (ng/L)

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$\overline{RF_S}$ = Average response factor used to quantify the EIS compound by the non-extracted internal standard method**.**

DF = Dilution Factor. If no extract dilution was performed, then DF=1.

Vf = Final extract volume (L)

Vi = Initial sample volume (L) or weight (g)

10.2.4 Relative Error (%RE)

$$\%\ Relative\ Error = \left(\frac{x'i - xi}{xi}\right) x\ 100$$

Where:

xi = True value of the calibration standard

x'i = Measured concentration of the calibration standard

10.2.5 Percent Relative Standard Deviation

$$\%\ Relative\ Standard\ Deviation = \left(\frac{S}{\bar{\bar{x}}}\right) x\ 100$$

Where:

S = Standard Deviation

X = Mean

10.2.6 Standard Deviation

$$S = \left(\frac{\sum (x_i - \bar{x})^2}{(n-1)}\right)$$

Where:

S = standard deviation

n = size of the population

x_i = each value of the population

$\bar{x}$ = population mean

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10.2.7 Mean

$$\bar{x} = \frac{\left(\sum_{i=1}^{n} x_i\right)}{n}$$

Where:

$\bar{x}$ = population mean

x_i = each value of the population

n = number of values in the population

10.3 Reporting

All results for aqueous samples will be reported in ng/L. All results for solid samples will be reported in ng/g, on a dry-weight basis, and the percent solids for each sample will be reported separately. All results for tissue samples will be reported in ng/g, on a wet-weight basis. All QC data will be reported with the sample results. See Appendix A for specific reporting limits in all matrices.

Unless specified otherwise by a regulatory authority or in a discharge permit, results for analytes that meet the identification criteria are reported down to the concentration of the LOQ established by the laboratory.

Results for any analyte found in a sample or extract that has been diluted will be reported at the least dilute level for which the measured concentration is within the calibration range (e.g., above the LOQ for the analyte and below the highest calibration standard) and in which isotopically labeled compound recoveries are within their respective QC acceptance criteria. This may require reporting results for some analytes from different analyses.

Recoveries of all associated EIS compounds will be reported for all field samples and QC Quality Control & Method Performance

10.4 Quality Control

Prepare and analyze the following QC samples with each batch of samples. Refer to Appendix B for acceptance criteria and required corrective action(s).

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QC Check	Acronym	Frequency
Method Blank	MB	1 per batch of 20 or fewer samples.
Laboratory Control Sample	LCS	1 per batch of 20 or fewer samples.
Low Level Laboratory Control Sample	LLLCS	1 per batch of 20 or fewer samples.
Matrix Spike	MS	1 pair per batch of 20 or fewer samples (if required/requested)
MS Duplicate	MSD	
Sample Duplicate	DUP	1 per AFFF or F3 sample.
Extracted Internal Standard	EIS	All CAL standards, batch QC and field samples.
Non-extracted Internal Standard	NIS	All CAL standards, batch QC and field samples.

The minimum quality control requirements of this method consist of an initial demonstration of laboratory capability, analysis of samples spiked with isotopically labeled compounds to evaluate and document data quality, and analysis of standards and blanks as tests of continued performance. Laboratory performance is compared to established performance criteria to determine if the results of analyses meet the performance characteristics of the method.

If the method is to be applied to a sample matrix other than water (e.g., soils, biosolids, tissue), the appropriate alternative reference matrix is substituted for the reagent water matrix in all performance tests.

The laboratory must make an initial demonstration of the ability to generate acceptable precision and recovery with this method. This demonstration is described in Section 11.3.2.

Analyses of method blanks (MBs) are required on an on-going basis to demonstrate the extent of background contamination in any reagents or equipment used to prepare and analyze field samples. The procedures and criteria for analyses of MBs are described in Section 11.1.1.

The laboratory must spike all samples with isotopically labeled compounds to monitor method performance. These evaluations are described in Sections 11.1.4 and 11.1.5. When results of these spikes indicate atypical method performance for samples, the samples are diluted to evaluate whether the performance issue is caused by the sample matrix. Procedures for dilution are given in Section 9.4.3.

The laboratory must, on an ongoing basis, demonstrate that the analytical system is in control through calibration verification (CCV) and the analysis of blanks and ongoing precision and recovery standards spiked at low (LLLCS) and mid-level concentrations (LCS). These procedures are given in Sections 9.2.4.5, 11.1.1 and 11.1.2.

10.4.1 Method Blank (MB)

A method blank is analyzed with each extraction batch to demonstrate freedom from contamination. The matrix for the method blank must be similar to the sample matrix for the batch (e.g., reagent water blank, solids matrix blank, or tissue blank [Section 7.3]).

Analyze the extract of the method blank aliquot before the analysis of the LCSs.

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If any PFAS is found in the MB 1) at a concentration greater than the LOQ for the analyte, 2) at a concentration greater than one-third the regulatory compliance limit, or 3) at a concentration greater than one-tenth the concentration in a sample in the extraction batch, whichever is greatest, analysis of samples must be halted, and the problem corrected. Other project-specific requirements may apply; therefore, the laboratory may adopt more stringent acceptance limits for the method blank at their discretion. If the contamination is traceable to the extraction batch, samples affected by the blank must be re-extracted and analyzed along with a new MB and LCS/LLLCS, provided enough sample volume is available and the samples are still within holding time. Reanalysis or re-extraction is not required if the samples are not impacted. Samples are not impacted when the MB detection is not present in the sample, or the sample concentration is ≥10x the concentration of the detection in the MB.

If the new blank also exhibits contamination and additional volume of the associated sample(s) is not available for re-extraction and analysis, the laboratory must document and report the failures (e.g., as qualifiers on results), unless the failures are not required to be reported as determined by the regulatory/control authority.

10.4.2 Laboratory Control Sample (LCS) / Low-Level LCS (LLLCS)

Analyze the extract of the LCS and LLLCS to ensure the analytical process is under control.

Compute the percent recovery of the native compounds by the appropriate quantification method depending on the compound. Compute the percent recovery of each isotopically labeled compound by the non-extracted internal standard quantitation method.

For the target analytes and EIS compounds, compare the recovery to the LCS and LLLCS limits given in Tables 7 through 10 (or 12). LCS, LLLCS, and EIS results must meet the acceptance criteria in these tables. If all compounds meet the acceptance criteria, system performance is acceptable, and analysis of blanks and aqueous samples may proceed. If, however, any individual concentration falls outside of the given range, the extraction/concentration processes are not being performed properly for that compound. In this event correct the problem, re-extract all affected samples, including any QC samples, and repeat the analysis. Samples are unaffected if the LCS or LLLCS recovery is above the acceptance criteria and the sample is ND for the failing compound.

10.4.3 Matrix Spike (MS)

Matrix spikes generally are not required for methods that employ isotope dilution quantification because deleterious effects of the matrix should be evident in the recoveries of the EIS compounds spiked into every sample. The analysis of matrix spike samples may help diagnose the potential impact of matrix interferences for specific target analytes or sample matrices. See Appendix E for MS/MSD, MS/DUP sample selection guidance.

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10.4.4 Extracted Internal Standard (EIS)

To assess method performance on the sample matrix, the laboratory must spike all samples with the EIS solution. Analyze each sample according to the procedures in this SOP. Compute the percent recovery of the EIS compound concentration using the NIS quantitation method and the equation in Section 10.2.3.

The recovery of each EIS compound in an aqueous sample must be within the limits in Table 10, which are the required QC acceptance limits for aqueous samples, including landfill leachates. The recovery of each EIS compound in soil, sediment, or biosolid samples must be within the limits in Table 11. The recovery of each EIS compound in tissue samples must be within the limits in Table 12. The limits presented in Tables 10, 11, and 12 are the required QC acceptance limits for these matrices derived from the multi-laboratory validation study. If the recovery of any EIS falls outside of these limits, method performance is unacceptable for that EIS in that sample. Additional cleanup procedures or limited dilution of the sample extract may be employed to attempt to bring the EIS recovery within the acceptance normal range.

If the recovery cannot be brought within the acceptance limits after extract dilution or additional cleanup procedures have been employed, then the laboratory must take a smaller aliquot of any affected aqueous sample, dilute it to 500 mL with reagent water and prepare and analyze the diluted sample, or must prepare and analyze a smaller aliquot of soil, sediment, biosolid, or tissue sample, per Section 9.4.3.

10.4.5 Non-extracted Internal Standard (NIS)

To assess method performance, the laboratory must spike all sample extracts with the NIS solution. Analyze each sample extract according to the procedures in this SOP. Percent recovery of the NIS compound is calculated by comparing the measured response in each analysis to the average response of the same compound measured in the ICAL.

Calculate the ratio of the NIS peak areas from the QC and field samples relative to the mean area of the corresponding NIS in the most recent initial calibration to check for possible bad injections of NIS solution or loss of instrument sensitivity.

The NIS areas in the field samples and QC samples must be within 50 to 200% of the mean area of the corresponding NIS in the most recent initial calibration (i.e., within a factor of 2). If the areas are low for all the field samples and QC samples in the batch, it suggests a loss of instrument sensitivity, while low areas in only some field or QC samples suggests a possible bad injection.

10.5 Instrument QC

Perform the following checks to verify instrument performance. Refer to Appendix B for acceptance criteria and required corrective action.

Instrument Check	Acronym	Frequency
Mass Calibration		Annually and on as-needed basis
Mass Calibration Verification		After mass calibration

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Instrument Check	Acronym	Frequency
Initial Calibration	ICAL	Prior to analysis, and on as-needed basis
Initial Calibration Verification	ICV	Following each ICAL
Instrument Blank	IBLK/ICB	Daily prior to analysis and after high standards
Instrument Sensitivity Check	ISC	Daily prior to analysis
Continuing Calibration Verification	CCV	At the beginning (ISC) and every 10 samples
Continuing Calibration Blank	CCB	After each bracketing CCV
RT Window	RTW	During ICAL and at the beginning of each analytical sequence

10.6 Method Performance

10.6.1 Method Validation

Refer to corporate SOP ENV-SOP-CORQ-0011, *Method Validation and Instrument Verification*, for general requirements and procedures for method validation.

Establish Detection Limit (DL) and limits of quantitation (LOQ) at initial method set up and verify the DL and LOQ on an on-going basis thereafter. Refer to corporate policy and/or SOP for DL and LOQ requirements and procedures.

10.6.2 Demonstration of Capability (DOC)

Refer to laboratory SOP ENV-SOP-WEST-0122 Demonstration of Capability, or however named, for information regarding the laboratory's procedures for initial and ongoing Demonstration of Capability.

Prior to unsupervised (independent) work on any client sample, analysts that prepare or analyze samples must have successful initial demonstration of capability (IDOC) and must successfully demonstrate on-going proficiency on an annual basis (see below for details). Successful means the initial or on-going DOC met criteria, documentation of the DOC is complete, and the DOC record is in the employee’s training file.

Each DOC requires the extraction and analysis of four aliquots of the reference matrix type to be tested, prepared in the same way as the mid-level LCS. At least one method blank, matching the matrix being analyzed, must be prepared with the DOC batch. If more than one MB was prepared and analyzed with the DOC batch, all blank results must be reported. All sample processing steps that are to be used for processing samples, including preparation and extraction, must be included in this test.

Using the results of the four analyses, compute the average percent recovery (%REC) and the relative standard deviation (RSD) of the concentration of each target compound. There are no mean or RSD criteria for EIS compounds in the DOC; %REC of each DOC sample should meet the criteria in Appendix B, Tables 10, 11, or 12, depending on the matrix.

For each target compound, compare RSD and %REC to the corresponding limits for initial precision and recovery in Appendix B, Tables 7, 8, or 9, depending on the matrix.

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If RSD and %REC for all compounds meet the acceptance criteria, system performance is acceptable, and analysis of blanks and samples may begin. If, however, any individual RSD exceeds the precision limit or any individual %REC falls outside the range for recovery, system performance is unacceptable for that compound. Correct the problem and repeat the test.

11.0 Data Review & Corrective Action

11.1 Data Review

The data review process of Pace® Analytical Services includes a series of checks performed at different stages of the process by different people to ensure that SOPs were followed, the analytical record is complete and properly documented, QC criteria were met, proper corrective actions were taken for QC failure and other nonconformance(s), and test results are reported with proper qualification, when necessary.

The review and checks that are performed by the employee performing the task is called primary review.

All data and test results are also peer reviewed. This process, known as secondary review, is performed to verify SOPs were followed, that calibration, instrument performance, and QC criteria were met and/or proper corrective actions were taken, qualitative ID and quantitative measurement is accurate, all manual integrations are justified, documented, and approved in accordance with the Pace® Analytical Services SOP for manual integration, calculations are correct, the analytical record is complete and traceable, and that results are properly qualified.

Lastly, a third-level review, called a completeness check, is performed by reporting or project management staff to verify the test report is complete.

Refer to laboratory SWI ENV-SWI-WEST-0087 SVOA Data Review Work Instructions for specific instructions and requirements for each step of the data review process.

11.2 Corrective Action

Corrective action is required when QC or sample results are not within acceptance criteria.

Refer to Appendix B for a complete summary of QC, acceptance criteria, and recommended corrective actions for QC associated with this test method.

If corrective action is not taken or was not successful, the decision/outcome must be documented in the analytical record. The primary analyst has primary responsibility for taking corrective action when QA/QC criteria are not met. Secondary data reviewers must verify that appropriate action was taken and/or that results reported with QC failure are properly qualified.

Corrective action is also required when carryover is suspected and when results are over range. Samples analyzed after a high concentration sample must be checked for carryover and reanalyzed if carryover is suspected. Carryover is usually indicated by low concentration detects of the analyte in successive samples analyzed after the high concentration sample.

Sample results at concentrations above the upper limit of quantitation must be diluted and reanalyzed. The result in the diluted samples should be within the working concentration range

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of the instrument calibration. If dilution is not performed, any result reported above the upper range is considered a qualitative measurement and must be qualified as an estimated value.

12.0 POLLUTION PREVENTION & WASTE MANAGEMENT

Refer to laboratory guide ENV-GUI-WEST-0020 Hazardous Waste Management and Disposal, or however named, for waste handling and management practices pertaining to the waste streams created at this facility.

Pace® proactively seeks ways to minimize waste generated during work processes. Some examples of pollution prevention include but are not limited to reduced solvent extraction, solvent capture, use of reusable cycletainers for solvent management, and real-time purchasing.

The EPA requires that laboratory waste management practices comply with all applicable federal and state laws and regulations. Excess reagents, samples, and method process wastes are characterized and disposed of in an acceptable manner in accordance with the Pace® Chemical Hygiene Plan / Safety Manual. Refer to this manual for these procedures.

13.0 MODIFICATIONS

The procedures in this SOP have been modified from the reference test method as follows:

Modification	Section of Reference Method Modified	Justification for Modification	Validation of Modification
Updated EIS quantitation matching for select compounds (PFMPA, 7:3FTCA, ADONA, 9Cl-PF3ONS, 11Cl-PF3OUdS)	Section 20, Table 10	Improved performance, more appropriate correlation	MDL, IDOC, PT
Updated product ion used for measurement of 13C4-PFOA from m/z 172 to m/z 372	Section 20, Table 10	Match ion transition used for EIS 13C8-PFOA and native PFOA	MDL, IDOC, PT
Increased SPE sorbent bed to 250mg, tube size to 20mL	Section 6.7.1	Wider cartridge improves sample loading, reduces chances of clogs	MDL, IDOC, PT
Increased allowable sample loading rate to 5-10 mL/min	Section 12.1.4	Reduced Sample processing time	MDL, IDOC, PT
Omit TSS for aqueous samples	Section 11.1 (11.1.1.5), 11.2.4	Reduced sample processing time	MDL, IDOC, PT
Solid matrix extraction: reduced liquid-solid shake/decant steps to 2; omitted concentration step	Section 11.3 (11.3.4, 11.3.6, 11.3.9)	Improved performance & reduced sample processing time	MDL, IDOC, PT
GCB cartridges: eliminated dGCB + syringe filtration	Section 11.3.7, 11.4.7, 12.1, 12.2.3, 12.2.4, 12.3.3, 12.4.3	Improved performance, reduced sample processing time, & ease of use	MDL, IDOC, PT

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Modification	Section of Reference Method Modified	Justification for Modification	Validation of Modification
Tissue matrix extraction: reduced liquid-solid shake/decant steps to 2; reduced shake time; omitted concentration step	Section 11.4.4, 11.4.6, 11.4.8	Improved performance & reduced sample processing time	MDL, IDOC, PT
Clearly defined the characteristics used to distinguish Aqueous vs. Biosolid vs. Solid matrices	n/a	Increased clarity in process decision making, improved first-run performance	MDL, IDOC, PT

When applicable, comparability and/or equivalency studies necessary to validate the modification as required per corporate SOP ENV-SOP-CORQ-0011, *Method Validation and Instrument Verification*, are retained by local quality personnel for historical reference.

14.0 RESPONSIBILITIES

- PAS employees that perform any part this procedure in their work activities must have a signed Read and Acknowledgement Statement (R&A) in their training file for the version(s) of the SOP that were in effect during the time the employee performed the activity.
- PAS supervisors and managers, however named, are responsible for training employees on the procedures in this SOP, implementing the SOP in the work area, and monitoring on-going adherence to the SOP in the work area(s) they oversee.
- PAS employees are responsible for following the procedures in this SOP. Unauthorized deviations or departures from this SOP are not allowed except with documented approval from the local QM and only when those deviations do not violate the Pace® Code of Ethics or Professional Conduct (COR-POL-0004) or associated policy and procedure(s). Hand-edits or manual changes to the SOP are not permitted. If a change is desired or necessary, Pace® employees must follow the procedures for document revision specified in corporate SOPs ENV-SOP-CORQ-0015, *Document Management* and ENV-SOP-CORQ-0016, *SOP for Creation of SOP and SWI.*

15.0 ATTACHMENTS

- Appendix A: Routine Analyte Limits (DL, LOQ), Analytical Parameters, and Calibration
- Appendix B: QC Summary & Corrective Action; Table: Method Acceptance Criteria
- Appendix C: State/Program Specific Requirements
- Appendix D: Sample Pre-screening Instructions
- Appendix E: Aqueous Sample Subsampling Instructions
- Appendix F: MS/MSD, MS/DUP Selection Protocols
- Appendix G: Aqueous Sample Management Decision Guide
- Appendix H: Aqueous Sample Centrifugation Protocol

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- Appendix I: Separation and Analysis of Liquid-Solid Biphasic Matrices
- Appendix J: TCLP/SPLP by 1633
- Appendix K: Wipe Analysis by 1633
- Appendix L: Articles of Commerce Analysis via Cryomill Processing
- Appendix M: Procedure for Total Oxidizable Precursors (TOP)

16.0 REFERENCES

- ENV-POL-CORQ-0005, *Acceptable Calibration Practices*, current version.
- ENV-SOP-CORQ-0006, *Manual Integration*, current version.
- ENV-SOP-CORQ-0011, *Method Validation and Instrument Verification*, current version.
- ENV-SOP-CORQ-0015, *Document Management*, current version.
- ENV-SOP-CORQ-0016, *Standard Operating Procedures and Standard Work Instructions,* current version.
- COR-POL-0004, *Code of Ethics and Professional Conduct*, current version.
- COR-MAN-001, *Pace® Safety Manua*l, current version.
- ENV-MAN-WEST-0001, *Quality Manual*, current version.
- TNI Standard, "Volume 1 Management and Technical Requirements for Laboratories Performing Environmental Analysis", current version.
- "Working with Carcinogens," Department of Health, Education, & Welfare, Public Health Service, Centers for Disease Control, NIOSH, Publication 77-206, August 1977, NTIS PB-277256.
- "OSHA Safety and Health Standards, General Industry," OSHA 2206, 29 CFR 1910.
- "Safety in Academic Chemistry Laboratories," ACS Committee on Chemical Safety, 1979.
- "Standard Methods for the Examination of Water and Wastewater," 18th edition and later revisions, American Public Health Association, 1015 15th St, NW, Washington, DC 20005, 1-35: Section 1090 (Safety), 1992.
- "Standard Practice for Sampling Water," ASTM Annual Book of Standards, ASTM, 1916 Race Street, Philadelphia, PA 19103-1187, 1980.
- "Handbook of Analytical Quality Control in Water and Wastewater Laboratories," USEPA EMSL, Cincinnati, OH 45268, EPA 600/4-79-019, April 1979.
- "Less is Better: Laboratory Chemical Management for Waste Reduction," American Chemical Society, 1993. Available from the American Chemical Society's Department of Government Relations and Science Policy, 1155 16th Street NW, Washington, DC 20036.
- "Environmental Management Guide for Small Laboratories," USEPA, Small Business Division, Washington DC, EPA 233-B-00-001, May 2000.

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- "The Waste Management Manual for Laboratory Personnel," American Chemical Society, 1990. Available from the American Chemical Society's Department of Government Relations and Science Policy, 1155 16th Street NW, Washington, DC 20036.
- SERDP. Single-Laboratory Validation Study of PFAS by Isotope Dilution LC-MS/MS. ER19-1409. January 26, 2022.
- Woudneh, Million B., Bharat Chandramouli, Coreen Hamilton, Richard Grace, 2019, "Effects of Sample Storage on the Quantitative Determination of 29 PFAS: Observation of Analyte Interconversions during Storage", Environmental Science and Technology 53(21): 12576-12585.
- EPA. Method 1633, Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS. January 2024.
- Standard Method for the Examination of Water and Wastewater, 23rd Edition, 2017 – Total, Fixed, and Volatile Solids in Solid and Semisolid Samples, Method 2540.

17.0 REVISION HISTORY

Revisions Made from Prior Version

Section	Description of Change
	N/A: new document

Document Succession: This version replaces the following document(s):

Document Number	Version	Document Title	Effective Date:
N/A	N/A	N/A	N/A

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Appendix A: Routine Analyte Limits (DL, LOQ), Analytical Parameters, and Calibration

DL and LOQ are always adjusted to account for actual amounts used and for dilution. Values listed are as of effective date of this SOP. DL and LOQ are subject to change. Contact quality personnel for current information. See Table 4 below for more information regarding analyte detection and quantitation.

Table 1: Standard Analyte List – Aqueous and Landfill Leachate Matrices

Analyte Abbreviation	CAS #	Aqueous (ng/L)		Leachate (ng/L)	
		DL	LOQ	DL	LOQ
PFBA	375-73-5	0.527	6.4	2.64	32
PFPeA	2706-91-4	0.359	3.2	1.79	16
PFHxA	355-46-4	0.245	1.6	1.22	8
PFHpA	375-92-8	0.238	1.6	1.19	8
PFOA	1763-23-1	0.263	1.6	1.31	8
PFNA	68259-12-1	0.266	1.6	1.33	8
PFDA	335-77-3	0.210	1.6	1.05	8
PFUnA	79780-39-5	0.178	1.6	0.892	8
PFDoA	375-73-5	0.214	1.6	1.07	8
PFTrDA	2706-91-4	0.187	1.6	0.934	8
PFTeDA	355-46-4	0.160	1.6	0.801	8
PFBS	375-73-5	0.402	1.6	2.01	8
PFPeS	2706-91-4	0.206	1.6	1.03	8
PFHxS	355-46-4	0.133	1.6	0.665	8
PFHpS	375-92-8	0.201	1.6	1.00	8
PFOS	1763-23-1	0.264	1.6	1.32	8
PFNS	68259-12-1	0.203	1.6	1.02	8
PFDS	335-77-3	0.140	1.6	0.699	8
PFDoS	79780-39-5	0.242	1.6	1.21	8
4:2 FTS	757124-72-4	0.910	6.4	4.55	32
6:2 FTS	27619-97-2	4.82	6.4	24.1	32
8:2 FTS	39108-34-4	1.22	6.4	6.11	32
PFOSA	754-91-6	0.097	1.6	.484	8
NMeFOSA	31506-32-8	0.226	1.6	1.13	8
NEtFOSA	4151-50-2	0.351	1.6	1.76	8

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Analyte Abbreviation	CAS #	Aqueous (ng/L)		Leachate (ng/L)	
		DL	LOQ	DL	LOQ
NMeFOSAA	2355-31-9	0.483	1.6	2.41	8
NEtFOSAA	2991-50-6	0.478	1.6	2.39	8
NMeFOSE	24448-09-7	1.30	16	6.52	80
NEtFOSE	1691-99-2	1.10	16	5.50	80
HFPO-DA	13252-13-6	1.60	6.4	8.02	32
ADONA	919005-14-4	0.376	6.4	1.88	32
PFMPA	377-73-1	0.244	3.2	1.22	16
PFMBA	863090-89-5	0.360	3.2	1.80	16
NFDHA	151772-58-6	0.541	3.2	2.71	16
9Cl-PF3ONS	756426-58-1	0.442	6.4	2.21	32
11Cl-PF3OUdS	763051-92-9	0.447	6.4	2.23	32
PFEESA	113507-82-7	0.330	3.2	1.65	16
3:3 FTCA	356-02-5	0.535	8	2.68	40
5:3 FTCA	914637-49-3	4.26	40	21.3	200
7:3 FTCA	812-70-4	3.18	40	15.9	200

Table 2: Standard Analyte List – Solid and Biosolid Matrices

Analyte Abbreviation	CAS #	Solid (ng/g)		Biosolid (ng/g)	
		DL	LOQ	DL	LOQ
PFBA	375-73-5	0.028	0.8	0.28	8
PFPeA	2706-91-4	0.038	0.4	0.38	4
PFHxA	355-46-4	0.016	0.2	0.16	2
PFHpA	375-92-8	0.012	0.2	0.12	2
PFOA	1763-23-1	0.026	0.2	0.26	2
PFNA	68259-12-1	0.012	0.2	0.12	2
PFDA	335-77-3	0.035	0.2	0.35	2
PFUnA	79780-39-5	0.013	0.2	0.13	2
PFDoA	375-73-5	0.021	0.2	0.21	2
PFTrDA	2706-91-4	0.016	0.2	0.16	2
PFTeDA	355-46-4	0.024	0.2	0.24	2
PFBS	375-73-5	0.020	0.2	0.20	2

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Analyte Abbreviation	CAS #	Solid (ng/g)		Biosolid (ng/g)	
		DL	LOQ	DL	LOQ
PFPeS	2706-91-4	0.027	0.2	0.27	2
PFHxS	355-46-4	0.020	0.2	0.20	2
PFHpS	375-92-8	0.045	0.2	0.45	2
PFOS	1763-23-1	0.031	0.2	0.31	2
PFNS	68259-12-1	0.029	0.2	0.29	2
PFDS	335-77-3	0.015	0.2	0.15	2
PFDoS	79780-39-5	0.022	0.2	0.22	2
4:2 FTS	757124-72-4	0.078	0.8	0.78	8
6:2 FTS	27619-97-2	0.148	0.8	1.48	8
8:2 FTS	39108-34-4	0.259	0.8	2.59	8
PFOSA	754-91-6	0.011	0.2	0.11	2
NMeFOSA	31506-32-8	0.026	0.2	0.26	2
NEtFOSA	4151-50-2	0.022	0.2	0.22	2
NMeFOSAA	2355-31-9	0.086	0.2	0.86	2
NEtFOSAA	2991-50-6	0.044	0.2	0.44	2
NMeFOSE	24448-09-7	0.121	2.0	1.21	20
NEtFOSE	1691-99-2	0.081	2.0	0.81	20
HFPO-DA	13252-13-6	0.039	0.8	0.39	8
ADONA	919005-14-4	0.030	0.8	0.30	8
PFMPA	377-73-1	0.017	0.4	0.17	4
PFMBA	863090-89-5	0.024	0.4	0.24	4
NFDHA	151772-58-6	0.083	0.4	0.83	4
9Cl-PF3ONS	756426-58-1	0.029	0.8	0.29	8
11Cl-PF3OUdS	763051-92-9	0.040	0.8	0.40	8
PFEESA	113507-82-7	0.046	0.4	0.46	4
3:3 FTCA	356-02-5	0.092	1.0	0.92	10
5:3 FTCA	914637-49-3	0.236	5.0	2.36	50
7:3 FTCA	812-70-4	0.365	5.0	3.65	50

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Table 3: Standard Analyte List – Tissue Matrices

Analyte Abbreviation	CAS #	DL (ng/g)	LOQ (ng/g)
PFBA	375-73-5	0.215	2.0
PFPeA	2706-91-4	0.088	1.0
PFHxA	355-46-4	0.044	0.5
PFHpA	375-92-8	0.062	0.5
PFOA	1763-23-1	0.070	0.5
PFNA	68259-12-1	0.099	0.5
PFDA	335-77-3	0.102	0.5
PFUnA	79780-39-5	0.093	0.5
PFDoA	375-73-5	0.052	0.5
PFTrDA	2706-91-4	0.067	0.5
PFTeDA	355-46-4	0.039	0.5
PFBS	375-73-5	0.044	0.5
PFPeS	2706-91-4	0.029	0.5
PFHxS	355-46-4	0.075	0.5
PFHpS	375-92-8	0.093	0.5
PFOS	1763-23-1	0.084	0.5
PFNS	68259-12-1	0.065	0.5
PFDS	335-77-3	0.056	0.5
PFDoS	79780-39-5	0.062	0.5
4:2 FTS	757124-72-4	0.222	2.0
6:2 FTS	27619-97-2	0.934	2.0
8:2 FTS	39108-34-4	0.249	2.0
PFOSA	754-91-6	0.051	0.5
NMeFOSA	31506-32-8	0.139	0.5
NEtFOSA	4151-50-2	0.115	0.5
NMeFOSAA	2355-31-9	0.089	0.5
NEtFOSAA	2991-50-6	0.106	0.5
NMeFOSE	24448-09-7	0.598	5.0
NEtFOSE	1691-99-2	0.410	5.0
HFPO-DA	13252-13-6	0.072	2.0

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Analyte Abbreviation	CAS #	DL (ng/g)	LOQ (ng/g)
ADONA	919005-14-4	0.139	2.0
PFMPA	377-73-1	0.078	1.0
PFMBA	863090-89-5	0.086	1.0
NFDHA	151772-58-6	0.113	1.0
9Cl-PF3ONS	756426-58-1	0.179	2.0
11Cl-PF3OUdS	763051-92-9	0.228	2.0
PFEESA	113507-82-7	0.069	1.0
3:3 FTCA	356-02-5	0.145	2.5
5:3 FTCA	914637-49-3	1.54	12.5
7:3 FTCA	812-70-4	1.26	12.5

Table 4: Identification and Quantification Information for Target Analytes, Extracted Internal Standards and Non-extracted Internal Standards.

Analyte Name	CAS #	Analyte Abbreviation	Parent Ion Mass	Quantification Ion Mass	Confirmation Ion Mass	Quantification Reference Compound
Perfluorobutanoic acid	375-73-5	PFBA	213	169	NA	13C4-PFBA
Perfluoropentanoic acid	2706-91-4	PFPeA	263	219	69	13C5-PFPeA
Perfluorohexanoic acid	355-46-4	PFHxA	313	269	119	13C5-PFHxA
Perfluoroheptanoic acid	375-92-8	PFHpA	363	319	169	13C4-PFHpA
Perfluorooctanoic acid	1763-23-1	PFOA	413	369	169	13C8-PFOA
Perfluorononanoic acid	68259-12-1	PFNA	463	419	219	13C9-PFNA
Perfluorodecanoic acid	335-77-3	PFDA	513	469	219	13C6-PFDA
Perfluoroundecanoic acid	79780-39-5	PFUnA	563	519	269	13C7-PFUnA
Perfluorododecanoic acid	375-73-5	PFDoA	613	569	319	13C2-PFDoA
Perfluorotridecanoic acid	2706-91-4	PFTrDA	663	619	169	13C2-PFDoA
Perfluorotetradecanoic acid	355-46-4	PFTeDA	713	669	169	13C2-PFTeDA
Perfluorobutanesulfonic acid	375-73-5	PFBS	299	80	99	13C3-PFBS
Perfluoropentansulfonic acid	2706-91-4	PFPeS	349	80	99	13C3-PFHxS
Perfluorohexanesulfonic acid	355-46-4	PFHxS	399	80	99	13C3-PFHxS

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Analyte Name	CAS #	Analyte Abbreviation	Parent Ion Mass	Quantification Ion Mass	Confirmation Ion Mass	Quantification Reference Compound
Perfluoroheptanesulfonic acid	375-92-8	PFHpS	449	80	99	13C8-PFOS
Perfluorooctanesulfonic acid	1763-23-1	PFOS	499	80	99	13C8-PFOS
Perfluorononanesulfonic acid	68259-12-1	PFNS	549	80	99	13C8-PFOS
Perfluorodecanesulfonic acid	335-77-3	PFDS	599	80	99	13C8-PFOS
Perfluorododecanesulfonic acid	79780-39-5	PFDoS	699	80	99	13C8-PFOS
1H,1H, 2H, 2H-Perfluorohexane sulfonic acid	757124-72-4	4:2 FTS	327	307	81	13C2-4:2FTS
1H,1H, 2H, 2H-Perfluorooctane sulfonic acid	27619-97-2	6:2 FTS	427	407	81	13C2-6:2FTS
1H,1H, 2H, 2H-Perfluorodecane sulfonic acid	39108-34-4	8:2 FTS	527	507	81	13C2-8:2FTS
Perfluorooctanesulfonamide	754-91-6	PFOSA	498	78	478	13C8-PFOSA
N-methyl perfluorooctanesulfonamide	31506-32-8	NMeFOSA	512	219	169	D3-NMeFOSA
N-ethyl perfluorooctanesulfonamide	4151-50-2	NEtFOSA	526	219	169	D5-NEtFOSA
N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9	NMeFOSAA	570	419	483	D3-NMeFOSAA
N-ethyl perfluorooctanesulfonamidoacetic acid	2991-50-6	NEtFOSAA	584	419	526	D5-NEtFOSAA
N-methyl perfluorooctanesulfonamidoethanol	24448-09-7	NMeFOSE	616	59	NA	D7-NMeFOSE
N-ethyl perfluorooctanesulfonamidoethanol	1691-99-2	NEtFOSE	630	59	NA	D9-NEtFOSE
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	HFPO-DA	285	169	185	13C3-HFPODA
4,8-Dioxa-3H-perfluorononanoic acid	919005-14-4	ADONA	377	251	85	13C4-PFHpA
Perfluoro-3-methoxypropanoic acid	377-73-1	PFMPA	229	85	NA	13C4-PFBA
Perfluoro-4-methoxybutanoic acid	863090-89-5	PFMBA	279	85	NA	13C5-PFPeA
Nonafluoro-3,6-dioxaheptanoic acid	151772-58-6	NFDHA	295	201	85	13C5-PFHxA

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Analyte Name	CAS #	Analyte Abbreviation	Parent Ion Mass	Quantification Ion Mass	Confirmation Ion Mass	Quantification Reference Compound
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	756426-58-1	9Cl-PF3ONS	531	351	533→353	13C8-PFOS
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9	11Cl-PF3OUdS	631	451	633→453	13C8-PFOS
Perfluoro(2-ethoxyethane)sulfonic acid	113507-82-7	PFEESA	315	135	83	13C5-PFHxA
3-Perfluoropropyl propanoic acid (FPrPA)	356-02-5	3:3FTCA	241	177	117	13C5-PFPeA
2H,2H,3H,3H-Perfluorooctanoic acid (FPePA)	914637-49-3	5:3FTCA	341	237	217	13C5-PFHxA
3-Perfluoroheptyl propanoic acid (FHpPA)	812-70-4	7:3FTCA	441	337	317	13C9-PFNA
Extracted Internal Standard Compounds (EIS)						
Perfluoro-n-[13C4] butanoic acid	NA	13C4-PFBA	217	172	NA	13C3-PFBA
Perfluoro-n-[13C5] pentanoic acid	NA	13C5-PFPeA	268	223	NA	13C2-PFHxA
Perfluoro-n-[1,2,3,4,6-13C5] hexanoic acid	NA	13C5-PFHxA	318	273	NA	13C2-PFHxA
Perfluoro-n-[1,2,3,4-13C4] heptanoic acid	NA	13C4-PFHpA	367	322	NA	13C2-PFHxA
Perfluoro-n-[13C8] octanoic acid	NA	13C8-PFOA	421	376	NA	13C4-PFOA
Perfluoro-n-[13C9] nonanoic acid	NA	13C9-PFNA	472	427	NA	13C5-PFNA
Perfluoro-n-[1,2,3,4,5,6-13C6] decanoic acid	NA	13C6-PFDA	519	474	NA	13C2-PFDA
Perfluoro-n-[1,2,3,4,5,6,7-13C7] undecanoic acid	NA	13C7-PFUnA	570	525	NA	13C2-PFDA
Perfluoro-n-[1,2-13C2] dodecanoic acid	NA	13C2-PFDoA	615	570	NA	13C2-PFDA
Perfluoro-n-[1,2-13C2] tetradecanoic acid	NA	13C2-PFTeDA	715	670	NA	13C2-PFDA
Perfluoro-1-[2,3,4-13C3] butanesulfonic acid	NA	13C3-PFBS	302	80	NA	18O2-PFHxS
Perfluoro-1-[1,2,3-13C3] hexanesulfonic acid	NA	13C3-PFHxS	402	80	NA	18O2-PFHxS

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Analyte Name	CAS #	Analyte Abbreviation	Parent Ion Mass	Quantification Ion Mass	Confirmation Ion Mass	Quantification Reference Compound
Perfluoro-1-[13C8] octanesulfonic acid	NA	13C8-PFOS	507	80	NA	13C4-PFOS
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2] hexanesulfonic acid	NA	13C2-4:2FTS	329	81	NA	18O2-PFHxS
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2] octanesulfonic acid	NA	13C2-6:2FTS	429	81	NA	18O2-PFHxS
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2] decanesulfonic acid	NA	13C2-8:2FTS	529	81	NA	18O2-PFHxS
Perfluoro-1-[13C8] octanesulfonamide	NA	13C8-PFOSA	506	78	NA	13C4-PFOS
N-methyl-D3-perfluoro-1-octanesulfonamide	NA	D3-NMeFOSA	515	219	NA	13C4-PFOS
N-ethyl-D5-perfluoro-1-octanesulfonamide	NA	D5-NEtFOSA	531	219	NA	13C4-PFOS
N-methyl-D3-perfluoro-1-octanesulfonamidoacetic acid	NA	D3-NMeFOSAA	573	419	NA	13C4-PFOS
N-ethyl-D5-perfluoro-1-octanesulfonamidoacetic acid	NA	D5-NEtFOSAA	589	419	NA	13C4-PFOS
N-methyl-D7-perfluorooctanesulfonamidoethanol	NA	D7-NMeFOSE	623	59	NA	13C4-PFOS
N-ethyl-D9-perfluorooctanesulfonamidoethanol	NA	D9-NEtFOSE	639	59	NA	13C4-PFOS
Tetrafluoro-2-heptafluoropropoxy-13C3-propanoic acid	NA	13C3-HFPO-DA	287	169	NA	13C2-PFHxA
Non-extracted Internal Standard Compounds (NIS)						
Perfluoro-n-[2,3,4-13C3] butanoic acid	NA	13C3-PFBA	216	172	NA	NA
Perfluoro-n-[1,2-13C2]hexanoic acid	NA	13C2-PFHxA	315	270	NA	NA
Perfluoro-n-[1,2,3,4-13C4]octanoic acid	NA	13C4-PFOA	417	172	NA	NA
Perfluoro-n-[1,2,3,4,5-13C5] nonanoic acid	NA	13C5-PFNA	468	423	NA	NA

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Analyte Name	CAS #	Analyte Abbreviation	Parent Ion Mass	Quantification Ion Mass	Confirmation Ion Mass	Quantification Reference Compound
Perfluoro-n-[1,2-13C2]decanoic acid	NA	13C2-PFDA	515	470	NA	NA
Perfluoro-1-hexane[18O2]sulfonic acid	NA	18O2-PFHxS	403	84	NA	NA
Perfluoro-n-[1,2,3,4-13C4] octanesulfonic acid	NA	13C4-PFOS	503	80	NA	NA

Table 5: Calibration Standard Concentrations (ng/mL)

Compound	L1	L2 (ISC)	L3	L4	L5 (CCV)	L6	L7	L8	L9
Perfluoroalkyl carboxylic acids									
PFBA	0.4	0.8	2	10	20	50	100	200	250
PFPeA	0.2	0.4	1	5	10	25	50	100	125
PFHxA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFHpA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFOA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFNA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFDA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFUnA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFDoA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFTrDA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFTeDA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
Perfluoroalkyl sulfonic acids									
PFBS	0.089	0.178	0.444	2.22	4.44	11.1	22.2	44.4	55.5
PFPeS	0.094	0.188	0.470	2.35	4.70	11.8	23.5	47.0	58.8
PFHxS	0.091	0.182	0.456	2.28	4.56	11.4	22.8	45.6	57.0
PFHpS	0.095	0.190	0.476	2.38	4.76	11.9	23.8	47.6	59.5
PFOS	0.093	0.186	0.464	2.32	4.64	11.6	23.2	46.4	58.0
PFNS	0.096	0.192	0.480	2.40	4.80	12.0	24.0	48.0	60.0
PFDS	0.096	0.193	0.482	2.41	4.82	12.1	24.1	48.2	60.3
PFDoS	0.097	0.194	0.484	2.42	4.84	12.1	24.2	48.4	60.5
Fluorotelomer sulfonic acids									
4:2FTS	0.375	0.750	1.87	9.37	18.7	46.9	93.7	187	234
6:2FTS	0.380	0.761	1.90	9.51	19.0	47.6	95.1	190	238
8:2FTS	0.384	0.768	1.92	9.6	19.2	48	96	192	240
Perfluorooctane sulfonamides									

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Compound	L1	L2 (ISC)	L3	L4	L5 (CCV)	L6	L7	L8	L9
PFOSA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
NMeFOSA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
NEtFOSA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
Perfluorooctane sulfonamidoacetic acids									
NMeFOSAA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
NEtFOSAA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
Perfluorooctane sulfonamide ethanols									
NMeFOSE	1	2	5	25	50	125	250	500	625
NEtFOSE	1	2	5	25	50	125	250	500	625
Per- and polyfluoroether carboxylic acids									
HFPO-DA	0.4	0.8	2	10	20	50	100	200	250
ADONA	0.378	0.756	1.89	9.45	18.9	47.25	94.5	189	236.25
PFMPA	0.2	0.4	1	5	10	25	50	100	125
PFMBA	0.2	0.4	1	5	10	25	50	100	125
NFDHA	0.2	0.4	1	5	10	25	50	100	125
Ether sulfonic acids									
9Cl-PF3ONS	0.373	0.746	1.87	9.33	18.7	46.7	93.3	187	233
11Cl-PF3OUdS	0.377	0.754	1.89	9.43	18.9	47.2	94.3	189	236
PFEESA	0.178	0.357	0.892	4.46	8.92	22.3	44.6	89.2	112
Fluorotelomer Carboxylic Acids									
3:3FTCA	0.5	1	2.5	12.5	25	62.5	125	250	312.5
5:3FTCA	2.5	5	12.5	62.5	125	312.5	625	1250	1560
7:3FTCA	2.5	5	12.5	62.5	125	312.5	625	1250	1560
Extracted Internal Standards (EIS)									
13C4-PFBA	10	10	10	10	10	10	10	10	10
13C5-PFPeA	5	5	5	5	5	5	5	5	5
13C5-PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
13C4-PFHpA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
13C8-PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
13C9-PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
13C6-PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
13C7-PFUnA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
13C2-PFDoA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
13C2-PFTeDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
13C3-PFBS	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
13C3-PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
13C8-PFOS	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40
13C2-4:2FTS	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69

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Compound	L1	L2 (ISC)	L3	L4	L5 (CCV)	L6	L7	L8	L9
13C2-6:2FTS	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76
13C2-8:2FTS	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
13C8-PFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
D3-NMeFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
D5-NEtFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
D3-NMeFOSAA	5	5	5	5	5	5	5	5	5
D5-NEtFOSAA	5	5	5	5	5	5	5	5	5
D7-NMeFOSE	25	25	25	25	25	25	25	25	25
D9-NEtFOSE	25	25	25	25	25	25	25	25	25
13C3-HFPODA	10	10	10	10	10	10	10	10	10
Non-Extracted Internal Standards (NIS)									
13C3-PFBA	5	5	5	5	5	5	5	5	5
13C2-PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
13C4-PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
13C5-PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
13C2-PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
18O2-PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
13C4-PFOS	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40

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Appendix B: QC Summary & Corrective Action Table; Method Acceptance Criteria

Table 6: QC Summary & Corrective Action

QC Item	Frequency	Acceptance Criteria	Corrective Action	Qualification
Demonstration of Capability (DOC)	Initially, prior to analyzing field samples and annually thereafter.	See Method Acceptance Criteria for each matrix in the Tables below.	Identify and correct source of problem, repeat.	None. Do not proceed with analysis.
Mass Calibration	Annually and on as-needed basis.	Must meet manufacturer's acceptance criteria.	Identify and correct source of problem, repeat.	None. Do not proceed with analysis.
Mass Calibration Verification	After each Mass Calibration performed.	Must meet manufacturer's acceptance criteria.	Identify and correct source of problem, repeat Mass Calibration.	None. Do not proceed with analysis.
Initial Calibration (ICAL)	At instrument set up, after CCV failure and/or major maintenance.	Must meet one of the curve fit options presented in Section 9.2.4.	Identify and correct source of problem, repeat.	None. Do not proceed with analysis.
Initial Calibration Verification (ICV)	After Each ICAL.	All analytes must be within ± 30% of their true values. (%R)	Identify and correct source of problem, re-analyze. If repeat failure, repeat ICAL. Analysis may proceed if it can be demonstrated that the ICV exceedance has no impact on analytical measurements. For example, the ICV %R is high, CCV is within criteria, and the analyte is not detected in sample(s).	Qualify analytes with ICV out of criteria when results are unaffected; otherwise, correct the problem and repeat ICV.
Initial Calibration Blank (ICB)	After highest concentration ICAL standard.	Must meet criteria specified in Section 9.2.5: all detections ≤MDL concentration.	Identify and correct source of contamination or performance issue. Alternately, calibrate using a lower concentration standard for the highest point.	No samples shall be analyzed until ICB has met acceptance criteria.
RT Window Position	Once per ICAL and at the beginning of the analytical window.	Position is set using the mid-point of the ICAL on the day ICAL is performed; otherwise, opening CCV is used. RT Window is ± 60 secs from RT position.	NA	NA
Instrument Sensitivity Check (ISC)	Daily before sample analysis.	All native and isotopically labelled compounds within ± 30% recovery.	Identify and correct source of problem and reanalyze ISC. If problem persists, repeat ICAL.	No samples shall be analyzed until ISC has met acceptance

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QC Item	Frequency	Acceptance Criteria	Corrective Action	Qualification
				criteria. See Section 9.2.4.5 for exceptions.
Bile Salts Check	With each ICAL and daily with each CCV	Bile Salt peak detected >1 min outside RT window for PFOS.	Identify and correct source of problem, then reevaluate Bile Salts separation from PFOS.	No samples shall be analyzed until Bile Salts Check has met acceptance criteria.
Continuing Calibration Verification (CCV)	Daily before sample analysis, after every 10 samples, and at end of analytical sequence.	All native and isotopically labelled compounds within ±30% recovery.	See Section 9.2.4.5 for required corrective actions based on circumstance.	Qualify analytes with CCV out of criteria.
Instrument Blank (IBLK) / Continuing Calibration Blank (CCB)	Daily prior to analysis and after high standards, including CCV.	Must meet criteria specified in Section 9.2.5: all detections ≤MDL concentration.	Identify and correct source of contamination or performance issue. Reanalyze IBLK.	No samples shall be analyzed until IBLK has met acceptance criteria.
Extracted Internal Standards (EIS)	Every field sample, standard and QC sample.	See Method Acceptance Criteria for each matrix in the Tables below.	If batch QC is acceptable, reanalyze to confirm. If confirmed, re-extract and reanalyze samples. If reprep is within acceptance, report reprep data. If failure is confirmed by reprep, qualify as matrix impacted.	Qualify outages and explain in case narrative.
Non-extracted Internal Standards (NIS)	Every field sample, standard and QC sample.	NIS areas in all samples must be within 50 – 200% of the average area of the corresponding NIS in the ICAL.	Troubleshoot instrument performance. Reanalyze samples.	Qualify outages and explain in case narrative.
Method Blank (MB)	1 per batch of 20 or fewer samples.	Must meet criteria specified in Section 10.4.1: all detections ≤MDL concentration.	If IBLK is acceptable, reanalyze MB to confirm. If confirmed, re-extract and reanalyze associated impacted samples (if sufficient sample remains). If insufficient sample remains for reprep, narrate and report data associated with unacceptable MB. See Section 10.4.1 for more details.	Qualify outages and explain in case narrative.

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QC Item	Frequency	Acceptance Criteria	Corrective Action	Qualification
LCS/LLLCS	1 pair per batch of 20 or fewer samples.	See Method Acceptance Criteria for each matrix in the Tables below; must meet criteria specified in Section 10.4.2.	If most recent ISC/CCV is acceptable, reanalyze LCS to confirm. If low-failure results are confirmed, re-extract and reanalyze associated samples (if sufficient sample remains). If insufficient sample remains for reprep, narrate and report data associated with low-failure LCS. If high-failure results are confirmed and sample(s) is ND for failing compound, narrate and report sample data.	Qualify outages and explain in case narrative.
MS/MSD	1 pair per batch of 20 or fewer samples. (If requested)	RSD ≤30% between MS/MSD	If possible, reprep to confirm.	Qualify outages and explain in case narrative.
Laboratory Duplicate	1 per AFFF sample; 1 per prep batch for all other matrices (if requested).	RSD ≤30% between parent/DUP	If possible, reprep to confirm.	Qualify outages and explain in case narrative.

Table 7: DOC/LCS/LLLCS Acceptance Limits for Aqueous & Landfill Leachate Matrices

Target Analyte	DOC Mean Recovery (%)	DOC RSD (%)	LCS/LLLCS Recovery (%)
PFBA	70-135	21	70-140
PFPeA	70-135	23	65-135
PFHxA	70-135	24	70-145
PFHpA	70-135	28	70-150
PFOA	65-155	27	70-150
PFNA	70-140	28	70-150
PFDA	65-140	26	70-140
PFUnA	70-135	29	70-145
PFDoA	70-130	21	70-140
PFTrDA	60-145	29	65-140
PFTeDA	70-145	27	60-140
PFBS	70-140	23	60-145
PFPeS	70-135	25	65-140
PFHxS	70-135	27	65-145
PFHpS	70-140	30	70-150
PFOS	70-140	29	55-150
PFNS	70-135	29	65-145
PFDS	70-135	30	60-145

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Target Analyte	DOC Mean Recovery (%)	DOC RSD (%)	LCS/LLLCS Recovery (%)
PFDoS	45-135	35	50-145
4:2FTS	70-135	27	70-145
6:2FTS	70-135	32	65-155
8:2FTS	70-140	33	60-150
PFOSA	70-135	22	70-145
NMeFOSA	70-135	30	60-150
NEtFOSA	70-130	26	65-145
NMeFOSAA	65-140	32	50-140
NEtFOSAA	70-135	28	70-145
NMeFOSE	70-135	29	70-145
NEtFOSE	70-130	21	70-135
HFPO-DA	70-135	23	70-140
ADONA	70-135	23	65-145
PFMPA	60-140	23	55-140
PFMBA	65-145	27	60-150
NFDHA	65-140	37	50-150
9Cl-PF3ONS	70-145	30	70-155
11Cl-PF3OUdS	50-150	35	55-160
PFEESA	70-135	25	70-140
3:3FTCA	70-130	23	65-130
5:3FTCA	70-130	24	70-135
7:3FTCA	55-130	34	50-145

Table 8: DOC/LCS/LLLCS Acceptance Limits for Solid & Biosolid Matrices

Target Analyte	DOC Mean Recovery (%)	DOC RSD (%)	LCS/LLLCS Recovery (%)
PFBA	70-140	17	70-140
PFPeA	70-140	26	60-150
PFHxA	70-135	23	65-140
PFHpA	70-140	21	65-145
PFOA	70-140	23	70-150
PFNA	65-145	24	70-155
PFDA	70-145	26	70-155
PFUnA	70-145	26	70-155
PFDoA	70-145	25	70-150
PFTrDA	55-160	26	65-150
PFTeDA	70-145	24	65-150
PFBS	60-145	25	65-145
PFPeS	65-140	29	55-160
PFHxS	65-145	28	60-150
PFHpS	70-140	27	65-155
PFOS	70-135	27	65-160
PFNS	70-140	27	55-140

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Target Analyte	DOC Mean Recovery (%)	DOC RSD (%)	LCS/LLLCS Recovery (%)
PFDS	50-150	31	40-155
PFDoS	40-140	40	25-160
4:2FTS	70-135	27	60-150
6:2FTS	60-160	50	55-200
8:2FTS	70-140	27	70-150
PFOSA	70-140	19	70-140
NMeFOSA	65-145	26	70-155
NEtFOSA	70-135	19	70-140
NMeFOSAA	65-145	31	65-155
NEtFOSAA	60-150	31	65-165
NMeFOSE	70-140	19	70-140
NEtFOSE	70-135	17	70-135
HFPO-DA	70-140	25	70-145
ADONA	70-155	26	70-160
PFMPA	70-140	25	30-140
PFMBA	55-145	33	60-150
NFDHA	45-145	27	60-155
9Cl-PF3ONS	65-135	23	70-150
11Cl-PF3OUdS	50-135	31	45-160
PFEESA	70-140	20	70-140
3:3FTCA	45-155	32	45-130
5:3FTCA	70-135	28	60-130
7:3FTCA	70-145	39	60-150

Table 9: DOC/LCS/LLLCS Acceptance Limits for Tissue Matrix

Target Analyte	DOC Mean Recovery (%)	DOC RSD (%)	LCS/LLLCS Recovery (%)
PFBA	70-135	20	60-140
PFPeA	70-130	20	60-145
PFHxA	70-140	20	60-160
PFHpA	70-140	20	60-145
PFOA	70-130	25	60-150
PFNA	70-140	20	60-145
PFDA	70-135	20	60-150
PFUnA	70-135	20	60-155
PFDoA	70-135	20	60-140
PFTrDA	55-160	20	60-150
PFTeDA	70-140	25	60-140
PFBS	70-145	20	60-150
PFPeS	70-150	20	60-145
PFHxS	70-140	25	60-155
PFHpS	70-145	20	60-140
PFOS	70-135	30	60-160

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Target Analyte	DOC Mean Recovery (%)	DOC RSD (%)	LCS/LLLCS Recovery (%)
PFNS	60-130	20	45-140
PFDS	55-135	20	50-140
PFDoS	25-145	45	25-140
4:2FTS	65-140	30	55-150
6:2FTS	70-140	25	60-150
8:2FTS	70-150	25	60-170
PFOSA	70-140	20	60-150
NMeFOSA	70-140	30	60-160
NEtFOSA	70-140	40	60-150
NMeFOSAA	70-140	20	60-145
NEtFOSAA	70-140	25	60-145
NMeFOSE	60-150	20	40-180
NEtFOSE	70-145	40	60-205
HFPO-DA	70-140	25	60-145
ADONA	70-145	20	55-165
PFMPA	70-145	40	25-145
PFMBA	70-140	20	60-150
NFDHA	70-155	30	60-180
9Cl-PF3ONS	70-140	20	60-170
11Cl-PF3OUdS	65-140	20	50-170
PFEESA	70-145	25	50-150
3:3FTCA	55-130	25	30-140
5:3FTCA	70-145	20	60-160
7:3FTCA	70-155	20	60-200

Table 10: Acceptance Limits for EIS and NIS Compounds in Aqueous & Landfill Leachate Matrices

Labeled Compound	Aqueous Recovery (%)	Landfill Leachate Recovery (%)
13C4-PFBA	5-130	5-130
13C5-PFPeA	40-130	40-130
13C5-PFHxA	40-130	40-130
13C4-PFHpA	40-130	40-130
13C8-PFOA	40-130	40-130
13C9-PFNA	40-130	40-130
13C6-PFDA	40-130	40-130
13C7-PFUnA	30-130	40-130
13C2-PFDoA	10-130	35-130
13C2-PFTeDA	10-130	25-130
13C3-PFBS	40-135	40-130
13C3-PFHxS	40-130	40-130
13C8-PFOS	40-130	40-130

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Labeled Compound	Aqueous Recovery (%)	Landfill Leachate Recovery (%)
13C2-4:2FTS	40-200	40-220
13C2-6:2FTS	40-200	40-170
13C2-8:2FTS	40-300	40-145
13C8-PFOSA	40-130	40-130
D3-NMeFOSA	10-130	40-130
D5-NEtFOSA	10-130	35-130
D3-NMeFOSAA	40-170	35-130
D5-NEtFOSAA	25-135	30-130
D7-NMeFOSE	10-130	20-130
D9-NEtFOSE	10-130	20-130
13C3-HFPODA	40-130	40-130
13C3-PFBA	50-200	50-200
13C2-PFHxA	50-200	50-200
13C4-PFOA	50-200	50-200
13C5-PFNA	50-200	50-200
13C2-PFDA	50-200	50-200
18O2-PFHxS	50-200	50-200
13C4-PFOS	50-200	50-200

Table 11: Acceptance Limits for EIS and NIS Compounds in Solid & Biosolid Matrices

Labeled Compound	Solids Recovery (%)	Biosolids Recovery (%)
13C4-PFBA	8-130	5-130
13C5-PFPeA	35-130	35-130
13C5-PFHxA	40-130	40-130
13C4-PFHpA	40-130	40-130
13C8-PFOA	40-130	40-130
13C9-PFNA	40-130	40-145
13C6-PFDA	40-130	40-130
13C7-PFUnA	40-130	40-130
13C2-PFDoA	40-130	40-130
13C2-PFTeDA	20-130	10-160
13C3-PFBS	40-135	40-150
13C3-PFHxS	40-130	40-140
13C8-PFOS	40-130	40-130
13C2-4:2FTS	40-165	40-300
13C2-6:2FTS	40-215	40-300
13C2-8:2FTS	40-275	40-300

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Labeled Compound	Solids Recovery (%)	Biosolids Recovery (%)
13C8-PFOSA	40-130	20-140
D3-NMeFOSA	10-130	20-130
D5-NEtFOSA	10-130	20-130
D3-NMeFOSAA	40-135	30-150
D5-NEtFOSAA	40-150	20-140
D7-NMeFOSE	20-130	25-130
D9-NEtFOSE	15-130	20-130
13C3-HFPODA	40-130	40-130
13C3-PFBA	50-200	50-200
13C2-PFHxA	50-200	50-200
13C4-PFOA	50-200	50-200
13C5-PFNA	50-200	50-200
13C2-PFDA	50-200	50-200
18O2-PFHxS	50-200	50-200
13C4-PFOS	50-200	50-200

Table 12: Acceptance Limits for EIS and NIS Compounds in Tissue Matrices

Labeled Compound	Tissue Recovery (%)
13C4-PFBA	5-130
13C5-PFPeA	10-185
13C5-PFHxA	25-170
13C4-PFHpA	25-150
13C8-PFOA	25-150
13C9-PFNA	35-185
13C6-PFDA	30-150
13C7-PFUnA	30-180
13C2-PFDoA	35-180
13C2-PFTeDA	20-160
13C3-PFBS	25-190
13C3-PFHxS	35-175
13C8-PFOS	40-160
13C2-4:2FTS	30-300
13C2-6:2FTS	35-300
13C2-8:2FTS	40-365
13C8-PFOSA	25-180
D3-NMeFOSA	5-130
D5-NEtFOSA	5-130

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Labeled Compound	Tissue Recovery (%)
D3-NMeFOSAA	30-250
D5-NEtFOSAA	30-235
D7-NMeFOSE	5-160
D9-NEtFOSE	5-130
13C3-HFPODA	20-185
13C3-PFBA	50-200
13C2-PFHxA	50-200
13C4-PFOA	50-200
13C5-PFNA	50-200
13C2-PFDA	50-200
18O2-PFHxS	50-200
13C4-PFOS	50-200

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Appendix C: State/Program Specific Requirements

This appendix provides program specific requirements that supersede or supplement the main body of the SOP. When analyzing samples under DoD compliance, these requirements are applicable.

QC Item	SOP Section	Requirement
Instrument Blank	9.2.5	No analytes detected > ½ LOQ.
Method Blank	11.1.1	No analytes detected > ½ LOQ.
AFFF Sample Duplicate	Appendix E	All AFFF samples shall be prepared and analyzed in duplicate in the same manner as aqueous samples (e.g., solid phase extraction, extracted internal standards, carbon cleanup, etc.).
Laboratory Duplicate	Appendices B & F	One per preparatory batch. RPD of all analytes should be ≤ 30% between sample and DUP. RPD criterion does not apply if both results are below the LOQ.

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Appendix D: Sample Pre-screening Instructions

Samples that are known or suspected to contain high levels of analytes may be pre-screened using the following procedure. These are example procedures using smaller sample aliquots spiked with EIS and NIS and no clean up procedures. Other pre-screening procedures may be used.

Aqueous Samples

1) Weight out 10 (±0.1) g of sample into a 50-mL centrifuge tube.
2) Add 50 µL of EIS to the sample and vortex to mix.
3) Filter 1 mL of the sample through 0.2-µm membrane filter into a microvial. Sample is ready for instrumental analysis.

Solid and Tissue Samples

1) Weigh 1.0 (±0.1) g sample into 50-mL polypropylene centrifuge tubes.
2) Add 20 mL of 0.3% methanolic ammonium hydroxide to the sample. Vortex and mix on a shaker table (or equivalent) for 10 min. Allow to settle and/or centrifuge to produce a clear extract.
3) Filter using a filter vial:
    a. Add 20 µL of EIS to a clean filter vial (chamber).
    b. Add 400 µL of clear extract from step 2 (e.g., by adding extract until it reaches the fill line), carefully vortex to mix.
    c. Use filter/plunger part and filter.
4) Transfer 30 µL of filtrate to a ~300 µL polypropylene microvial and dilute to 300 µL with 0.3% methanolic ammonium hydroxide. Add NIS (1.5 µL) to the resulting solution.
5) The extract is now a 10x dilution.
6) Sample is ready for instrumental screening analysis.
7) Calculate results using the equivalent sample weight computed as follows:

$$Equivalent\ Weight = Sample\ weight\ (g) x \frac{0.4\ mL}{20\ mL}$$

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Appendix E: Aqueous Sample Subsampling Instructions

Note: Because some target analytes may be stratified within the sample (e.g., AFFF-contaminated media, surfactants), or adhere to the walls of the sample container, subsampling may only be done on a project-specific basis. Subsampling has been shown to increase uncertainty in PFAS analysis, especially on foaming samples.

If a reduced sample size is required, transfer a weighed subsample using the following subsampling procedure to a 60-mL HDPE bottle and dilute to approximately 60 mL using reagent water. This container is now considered the "sample bottle."

1) Gently invert sample 3-4 times being careful to avoid foam formation and subsample immediately (do not let stand).
2) If foam forms and more than 5 mL is required – pour sample, avoiding any foam.
3) If foaming forms and a volume less than 5 mL is required – pipette from ½ cm below the foam.
4) If no foam forms – pour or pipette based on volume required.

Required Protocol for AFFF and FFF (F3) Concentrates

Samples composed of AFFF or F3 will be subsampled consistently, with approximately **0.02 g of AFFF/F3 material** aliquoted for each discrete sample preparation/analysis; each AFFF or F3 concentrate sample analyzed under DoD direction **must be prepared in duplicate**. After creating and documenting the subsample aliquot, add approximately 60 mL of reagent water, cap the vessel, and shake vigorously by hand for 20-30 seconds. After adding the reagent water and agitating, allow **at least 3 hours** for the subsample aliquot to fully dissolve in the water. If dissolution is incomplete after 3 hours, agitate again and wait another 3 hours; consider applying continuous agitation (orbital shaker) if full dissolution of the aliquot into water requires extended time. Following the extended dissolution time, prepared AFFF/F3 samples should be prepared and analyzed following the routine protocols for aqueous sample processing. Aqueous reporting limits (MDL/LOD/LOQ) will be used, with values adjusted to account for the actual sample aliquot, assuming 1 g/mL; this constitutes a 25,000X nominal adjustment factor for AFFF/F3 reporting limits, relative to nominal aqueous reporting limits.

Pace **STRONGLY DISCOURAGES** clients from sending AFFF concentrate material for analysis; this protocol is designed for "as-prepared" AFFF materials (i.e. pre-diluted to application concentration) and newer generation 'Fluorine Free Foam' (F3) concentrates. If F3 material (concentrate or as-prepared) or as-prepared AFFF material is received, follow the normal routines described in the first paragraph above. If an AFFF concentrate material (usually of a thick gel-like consistency) is received for analysis, the lab shall prepare a 3% (w/w) aqueous solution from the received sample (in the smallest volume feasible) prior to subsampling and diluting 0.02 g for extraction. Handling of AFFF concentrate should ideally be done in an isolated area outside of the PFAS processing area to prevent gross lab contamination. Following the two dilution steps, the nominal adjustment factor for AFFF concentrate material is 833,333X (8.33×10^5) relative to nominal aqueous reporting limits.

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Appendix F: MS/MSD, MS/DUP SAMPLE SELECTION PROTOCOL

Project-specific requirements may include that matrix spikes (MS), matrix spike duplicates (MSD), and/or laboratory duplicates (DUP) be prepared and analyzed with project samples. The client/field team should identify those samples which are designated for these additional QC procedures and provide additional sample material for them. In the event that samples are received for such a project without additional containers for MS/MSD/DUP, prep analysts will select samples to be used for this purpose following a hierarchy of preference, as defined below.

Note: Any kind of blank (Field Blank, Trip Blank, Equipment Blank, Rinsate Blank, etc.) will not be used for MS/MSD/DUP analysis.

1) First preference is to use client-designated samples as MS/MSD samples. This designation should show up on the prep worklist, in the comments. It is possible that SR will miss adding this comment to the sample, but this designation will be present in the COC from the client, on the right side of the COC under “Comments/Remarks/Cooler ID.” When a client designates a sample to be used for MS/MSD analysis, they will typically provide us with more than 2 bottles (often 4, sometimes as many as 6).

2) Lacking a client-designated MS/MSD sample, the next preference is to use any sample received with more than 2 bottles provided. If an analyst selects a set of samples for prep in which none of the samples are client-designated for MS/MSD, the analyst should check for any samples in the set that were received with 3 or more bottles. If there is a sample with 3 or more bottles, pull 3 of them and use one for the parent sample and spike the other two for analysis as MS/MSD samples.

3) Lacking any samples received with 3 or more bottles, the prep analyst must use two different parent samples to create an MS/DUP pair. Find two samples out of the set of samples selected for prep which were received with 2 bottles and pull both bottles for each sample. Pick one sample (pair of bottles) to be used for parent/MS prep and the other sample (pair of bottles) to be used for parent/DUP. The sample selected for parent/MS will have one bottle spiked with targets and one prepped as normal, with no added spiking. The bottle which is spiked should be identified in the LIMS as MS. The sample selected for parent/DUP will have both bottles prepared following normal procedures but one of the two should be identified in the LIMS as DUP.

4) If all samples in a particular prep batch were all received in just one bottle, analysis of an MS/MSD or MS/DUP pair will not be possible. This should be an uncommon occurrence, as prep analysts will attempt to adjust batching to ensure that every prep batch contains an MS/MSD or MS/DUP for projects which require the additional QC.

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Appendix G: Aqueous Sample Management Decision Guide

NOTE: No TSS pre-test will be performed on aqueous samples received for 1633 analysis.

Per Method 1633, Section 11.1.1.5, “laboratories may utilize other documented strategies for minimizing the disruptions due to SPE clogging and slow extractions.” Follow the guide below to evaluate aqueous sample matrices for solid material and determine the appropriate preparation approach; a matching decision tree is included at the end of this appendix.

If potential interferences other than settled solids are observed, take action to mitigate the impacts on data quality. Examples of other sample characteristics that could lead the lab to take precautionary measures with a field sample (i.e., prepare from reduced volume) include: presence of standing foam in the sample after shaking, thick/viscous matrix, collected from a known highly contaminated site/project, client notes indicating potential high concentrations, and knowledge of potential hazards to safety, equipment performance, or process integrity due to sample composition. Consider any visible indications of particulate matter including settled solids collected on the bottom of the container, cloudiness and/or dark color of the sample, suspended solids within the sample, increased viscosity, etc. If uncertain, seek a second opinion from another analyst, supervisor, or operations director; these matrix characteristics may require reduced-volume extraction. The lab will attempt to use the largest volume possible (i.e., the smallest reduction possible) when performing a reduced-volume extraction to manage challenging matrix characteristics, and no less than 1 mL of sample will be used in this case.

1) Allow samples to sit for at least 15 minutes to allow solids in the matrix to settle to the bottom of the container.

2) Visually inspect each sample for settled solids collected in the bottom of the container and follow the appropriate protocol based on observation:

    a. If no solids are observed in the bottom of the container, proceed to step 3.

    b. If solids are observed in the bottom of the container with an approximate depth <1/2 cm (<5 mm), proceed to step 5.

    c. If solids are observed in the bottom of the container with an approximate depth >1/2 cm (>5 mm), proceed to step 7.

    d. If solids observed in the container make up approximately 5% or more of the total sample volume, proceed to step 9.

<u>No Settled Solids Observed:</u>

3) Do not take any additional action to prepare for extraction and follow routine protocols.

4) If the SPE cartridge begins to clog during sample loading (see Identifying Cartridge Clogging section below), abandon loading of the remaining sample volume and proceed to the cartridge rinsing and drying described in step 10 of Section 9.3.4.

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a. Document the inability to load the entire sample volume due to cartridge clogging. If the resulting EIS recoveries are below the method acceptance ranges, this documentation provides the rationale for re-extraction from reduced volume.

b. The sample bottle rinse described in step 12 of Section 9.3.5 must be omitted; simply add the 5 mL of 1% methanolic ammonium hydroxide directly to the reservoir/cartridge.

c. If the cartridge clog prevents the cartridge rinses or elution solvent from passing through the cartridge, document that an extract could not be collected for that sample. Submit the sample for re-extraction from reduced volume. Notify the group leader and prep team of this necessity and, based on the total volume loaded in the first extraction attempt, provide a suggested reduction factor (i.e., reduce volume 5X, 10X, 20X, etc.).

Settled Solids Depth <1/2 cm Observed:

5) Do not take any additional action to prepare for extraction and follow routine protocols; however, be aware that there is a higher probability that the SPE cartridge will clog, and care must be taken in sample loading to attempt to pass the entire sample through the sorbent.

6) If the SPE cartridge begins to clog during sample loading (see Identifying Cartridge Clogging section below), abandon loading of the remaining sample volume and proceed to the cartridge rinsing and drying described in step 10 of Section 9.3.4.

a. The sample bottle rinse described in step 12 of Section 9.3.5 must be omitted; simply add the 5 mL of 1% methanolic ammonium hydroxide directly to the reservoir/cartridge.

b. Document the inability to load the entire sample volume due to cartridge clogging. If the resulting EIS recoveries are below the method acceptance ranges, this documentation provides the rationale for re-extraction following centrifugation; however,

c. If the cartridge clog prevents the cartridge rinses or elution solvent from passing through the cartridge, document that an extract could not be collected for that sample. Submit the sample for re-extraction with sample centrifugation (See Aqueous Sample Centrifugation Protocol in Appendix H). Notify the group leader and prep team of this necessity.

i. If, in the judgment of an experienced analyst, the nature of the solids present in the sample is of a nature that would preclude successful centrifugation and decantation, the decision should be confirmed with the group supervisor and/or another experienced analyst; once confirmed, the sample is submitted for re-extraction from reduced volume. Notify the group of this necessity and, based on the total volume loaded in the first extraction attempt, provide a suggested reduction factor (i.e., reduce volume 5X, 10X, 20X, etc.).

ii. If the centrifuged sample clogs the cartridge in the second extraction, see step 6 above; if there is sufficient sample remaining for another re-extraction, submit the sample for re-extraction from reduced volume as described in (i) above. If there is not sufficient sample remaining for another re-extraction, narrate any quality exceedances and report data for all runs.

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Settled Solids Depth >1/2 cm Observed:

7) The sample will need to be centrifuged before performing SPE. Instead of following the routine sample extraction procedures, refer to Appendix H for the Aqueous Sample Centrifugation Protocol.

8) Document the decision to centrifuge the sample prior to SPE.

    a. If resulting EIS recoveries are below the method acceptance ranges, this documentation provides evidence that the results are impacted by matrix interference.

        i. Report the data with a narrative statement explaining that the results are matrix-impacted.

        ii. Alternately, submit the sample for re-extraction from reduced volume to attempt to provide data with compliant EIS recoveries.

    b. If the decanted sample clogs the SPE and prevents successful collection of the extract, document that detail and submit the sample for re-extraction from reduced volume. Notify the group of this necessity and, based on the total volume loaded in the first extraction attempt, provide a suggested reduction factor (i.e., reduce volume 5X, 10X, 20X, etc.) for the re-extraction.

Settled Solids Observed to be ≥ 5% of Total Volume:

9) Shake the sample to thoroughly homogenize it, then immediately subsample 1 mL into a pre-labeled 50mL centrifuge tube and add reagent water to approximately 40 mL. At 5% solids, a sample contains 50,000 mg/L, so 1 mL contains 50 mg of solid material.

10) Spike the diluted subsample with EIS as normal and proceed with extraction.

11) If the SPE cartridge begins to clog during sample loading (see Identifying Cartridge Clogging section below), abandon loading of the remaining sample volume and proceed to the cartridge rinsing and drying described in step 10 of Section 9.3.4.

    a. Document the inability to load the entire sample volume due to cartridge clogging.

    b. The sample bottle rinse described in step 12 of Section 9.3.5 must be omitted; simply add the 5 mL of 1% methanolic ammonium hydroxide directly to the reservoir/cartridge.

    c. If the cartridge clog prevents the cartridge rinses or elution solvent from passing through the cartridge, document that an extract could not be collected for that sample.

12) If the cartridge clogs during extraction and causes failing results, the lab will contact the client and notify them that sample extraction failed due to the nature of the matrix, and that they must decide between two options for reprocessing the sample:

    a. Apply biosolid matrix protocols, following Sections 9.3.6 through 9.3.8 of this SOP. Use 0.5 g of sample for extraction; do not submit for % solids analysis and report results as ng/g, on a wet weight basis.

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b. Attempt to separate and analyze the aqueous and solid phases separately. If the client selects this option, follow the protocol detailed in Appendix I.

Identifying Cartridge Clogging

During the loading phase of the SPE process, some samples may cause their cartridges to clog, preventing the entire sample from being loaded through, and sometimes preventing an extract from being collected. If you have a sample that slows down considerably during the loading process, you may need to abandon loading the remainder of the sample. The goal is to stop the process before the cartridge seizes up completely, so that a sample extract can still be collected from the cartridge.

When Clogs Start

Some of the first visual indications of a cartridge becoming clogged include: discoloration of the cartridge frit and/or sorbent bed, reduced drip rate of the sample through the cartridge, and coloration or sedimentation on the bottom of the reservoir.

When a cartridge starts to clog, it is important to stop the process before the cartridge seizes up completely. Take the actions listed below; an evaluation must be made to decide whether each cartridge can reasonably be used further without seizing up completely.

- Do not continue to add any more sample volume to the reservoir of the clogging cartridge.
- If there is substantial volume remaining in the reservoir (i.e., > 10 mL) and the cartridge is in apparent imminent danger of seizing completely, close the manifold port to stop sample loading. Carefully remove the cartridge-adaptor-reservoir assembly for the sample in question and pour whatever sample volume remains in the reservoir back into the original sample bottle. This volume will be included in the evaluation of extracted sample volume (initial volume).
- If the reservoir on the clogging cartridge empties before the other samples have finished loading, close the manifold port to prevent the cartridge from drying.
- If sample volume remains in any of the slowed cartridges after the loading of the other samples is finished, close all the manifold ports and focus pressure on the slowed cartridge in an attempt to load the volume remaining in the reservoir. (Do this one at a time for multiple clogs.) If the cartridge appears to be in imminent danger of seizing up completely, do not attempt to load the volume remaining in the reservoir; follow the steps in the second bullet of this section.

Abandoning Sample Loading

If the decision is made to abandon sample loading, take the following actions. Some of these are partial duplicates of the actions listed in the section above.

- If any sample remains in the reservoir, carefully remove the cartridge-adaptor-reservoir assembly for the sample in question and pour whatever sample volume remains in the reservoir back into the

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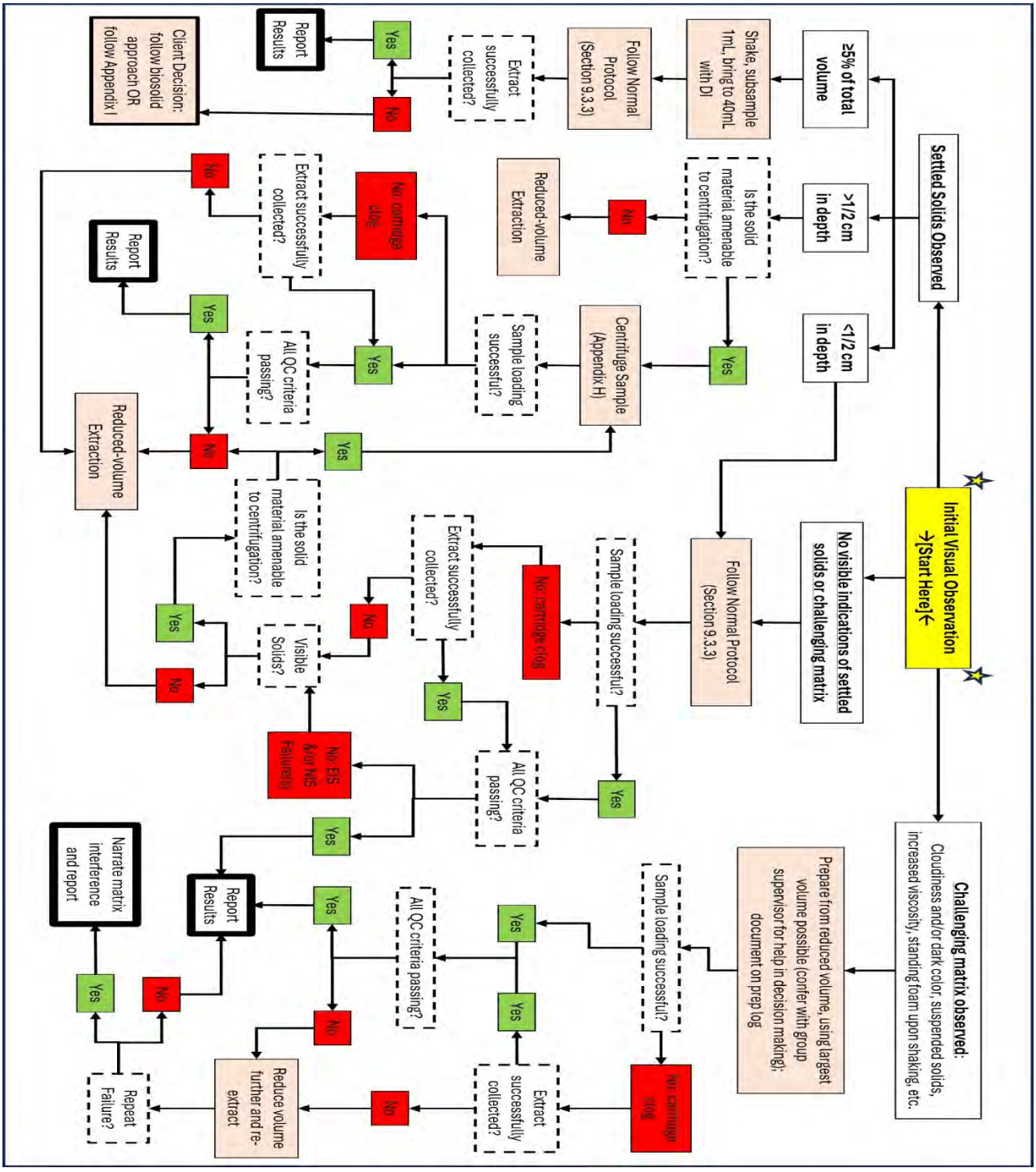
original sample bottle. This volume will be included in the evaluation of extracted sample volume (initial volume).

- Use the cartridge from the abandoned sample and finish the SPE process to collect what extract is available.
- The sample bottle rinse described in step 12 of Section 9.3.5 must be omitted; simply add the 5 mL of 1% methanolic ammonium hydroxide directly to the reservoir/cartridge.
- Weigh the sample in its original bottle to establish the “empty bottle” weight (aka post-extraction weight).

Fully Clogged Cartridges

Samples will have to be re-extracted when cartridges clog so fully that the extraction process cannot be taken to completion to collect a sample extract. Based on the total volume loaded in the failed extraction attempt, provide a suggested reduction factor for the re-extraction (i.e., reduce volume 5X, 10X, 20X, etc.) The sample should be shaken up before subsampling for the reduced volume re-extraction. However, for samples containing solids that are very fine and easily suspended, the analyst may consider allowing the sample to settle before subsampling an aliquot for reduced volume re-extraction; this may help prevent cartridge clogging in the re-extraction process.

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Appendix H: Aqueous Sample Centrifugation Protocol

Method 1633 states “laboratories may utilize other documented strategies for minimizing the disruptions due to SPE clogging and slow extractions,” and “a trained analyst should be able to distinguish samples with very low TSS and focus…on only those samples that might present a risk of clogging.” Therefore, whether an individual sample will require centrifugation for proper preparation will be determined and documented by the preparation analyst, following the guidance in Appendix G. Additionally, the method states “If centrifugation is used to prevent samples with high TSS from clogging the SPE, the EIS compounds must be spiked into the original sample container prior to centrifugation.” This protocol complies with that dictate.

1) Follow Appendix G to evaluate the sample for the presence of solids. Inspect the sample and consider the necessity of centrifuging.

2) If the sample is determined to require centrifugation/decantation, contemporaneously make a note on the prep batch log indicating this fact.

3) Spike samples requiring centrifugation in the same manner and with the same standard volume as samples which will not be centrifuged.

4) Label a 500mL conical centrifuge bottle with the sample ID for each sample that will be centrifuged. Set them in an appropriate rack with the caps removed.

5) Vigorously shake the spiked sample and then quickly pour it into the appropriately labeled centrifuge bottle. Try to ensure that the original sample bottle is devoid of any solid material after the transfer. Be careful to avoid spilling sample during the transfer process. Tightly cap each centrifuge bottle after transfers are complete.

6) Transfer capped centrifuge bottles to the centrifuge rotor, ensuring that the carousel is symmetrically balanced. Close the top and centrifuge at 3000 RPM (~2000 RCF) for 6 minutes.

7) Remove centrifuge bottles and decant the centrifuged liquid from the condensed solids by transferring it back into the original sample bottle. Try to avoid transferring any of the condensed solids from the centrifuge bottle back to the original sample bottle, while maximizing the amount of liquid collected in the sample bottle.

8) Weigh the full, decanted original sample bottle and document in the prep batch log.

9) Extract the decanted sample as normal alongside un-centrifuged samples, through the cartridge rinsing and drying (step 10 of Section 9.3.4).

10) When the SPE cartridges have been dried, rinse the original sample bottle following the protocol in step 12 of Section 9.3.5. Additionally, add 5mL of 1% methanolic ammonium hydroxide (1%-MeOH) to each centrifuge bottle to rinse the inside of them as well as the solids they contain. If the condensed solids become re-suspended while rinsing the bottles, centrifugation may be required. Using a transfer pipet or mechanical pipet, transfer the 1%-MeOH rinse from the centrifuge bottle into the reservoir/SPE cartridge and elute with the original sample bottle rinse into a 15mL conical centrifuge tube.

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11) Add 5 mL of additional 1%-MeOH directly to the SPE reservoir of all batch QC samples (MB/LCS/LLLCS) and elute with the normal bottle rinse. This is to match the volume used for elution of centrifuged field samples in the prep batch.

12) After elution, all sample extracts (client and QC) with additional elution volume shall be concentrated to ~3.5 mL and brought to a final volume of ~4 mL with 1%-MeOH. Concentrate each extract at approximately 55 ºC with N2 flow of approximately 1.2 L/min. Use a reference elution tube to reconstitute to the appropriate volume, like the protocol in step 8 of Section 9.3.6 of this SOP. This extract concentration and reconstitution must be done BEFORE adding acetic acid and NIS to the extracts, as directed in step 14 of Section 9.3.5.

13) Weigh the empty bottle with the cap on and subtract that from the weight of the bottle with sample, determined in step 8 of this appendix, to determine initial sample volume.

14) Add 25 µL of concentrated acetic acid and 20 µL of NIS mix to each sample extract in its collection tube and vortex to mix. Transfer a portion of each extract into an autosampler vial for LC-MS/MS analysis. Cap the collection tubes containing the remaining extracts and store at 0 - 6 °C.

15) Generate a narrative statement noting which samples in the prep batch included centrifugation in the extraction process. Include any additional observations and/or deficiencies that were noted during the centrifugation or extraction process, particularly if any issues were encountered during the sample loading step of the SPE process.

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Appendix I: Separation & Analysis of Liquid-Solid Biphasic Matrices

Method 1633 states “laboratories may utilize other documented strategies for minimizing the disruptions due to SPE clogging and slow extractions, including centrifuging the sample before adding the EIS and treating the supernatant aqueous phase and the solid phase as separate samples.” This will be done only according to client direction or project requirement; see Appendix G for more information regarding management of solids in aqueous samples.

1) If the client has requested to have the sample separated into aqueous and solid phases for analysis, the sample must be logged into the LIMS system separately for both matrices. The resulting solid phase will be reported on a wet weight basis and will not be analyzed for percent solids (aka percent moisture).

NOTE: The LOQ for the resulting solid analysis will depend on the amount of solid material available after decanting – the lab will use ~5 g of material if available, but any reduction in available solids will result in an increase in the reported LOQ.

2) Label a 500mL conical centrifuge bottle with the sample ID for each sample that will be centrifuged. Set them in an appropriate rack with the caps removed.

3) Vigorously shake the sample and then quickly pour it into the appropriately labeled centrifuge bottle. Try to ensure that the original sample bottle is devoid of any solid material after the transfer. Be careful to avoid spilling sample during the transfer process. Tightly cap each centrifuge bottle after transfers are complete.

4) Transfer capped centrifuge bottles to the centrifuge rotor, ensuring that the carousel is symmetrically balanced. Close the top and centrifuge at 3000 RPM (~2000 RCF) for 6 minutes.

5) Remove centrifuge bottles and decant the centrifuged liquid from the condensed solids by transferring it back into the original sample bottle. Try to avoid transferring any of the condensed solids from the centrifuge bottle back to the original sample bottle, while maximizing the amount of liquid collected in the sample bottle.

6) Weigh the full, decanted original sample bottle and document in the prep batch log.

7) Extract the decanted aqueous sample as normal alongside un-centrifuged samples, starting with EIS addition.

8) Label a 50 mL centrifuge tube with the sample ID for each solid phase sample generated from phase separation. Using a wooden tongue depressor or a pre-cleaned metal scoopula, transfer the solid material from the decanted 500 mL centrifuge bottle to the labeled 50 mL tube, targeting 5 g of total sample mass. Record the sample mass transferred to the 50 mL tube – this will be the extracted sample mass used for calculations and reporting. In many cases, re-extraction will not be possible due to limited solid material.

9) Spike the collected solid material with EIS and extract as normal alongside solid samples which were not generated from phase separation.

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Appendix J: TCLP/SPLP by 1633

Clients may submit samples (solid or aqueous) for PFAS following TCLP or SPLP procedures. For solid samples, the TCLP and SPLP procedures are used to simulate the leaching of environmental contaminants over extended periods of time from a solid material into the environment. A subsample of the client's sample is weighed out and combined with a leaching solution and mechanically tumbled for a set period. Each leachate prep method (TCLP: Method 1311 or SPLP: Method 1312) employs a unique leaching solution dictated by the parent methods. After the sample has been tumbled/leached by the Organic prep department, the leachate is filtered by the Organic Prep department and delivered to the PFAS sample holding area. The PFAS department is notified by email when the leachate solutions are ready for PFAS prep. The filtered leachate solutions are prepared by the PFAS prep analysts using the 1633 aqueous prep method, at a 1:5 dilution (100 mL of leachate solution).

1) Samples requested for PFAS by SPLP/TCLP analysis will be batched and leached by the normal SPLP/TCLP procedures used by the Westborough Alpha Organic Prep department. Organic Prep will be the initial responsible party for samples analyzed for PFAS by SPLP/TCLP.

2) When the leaching process is complete, Organic Prep will collect approximately 500mL (at minimum 100mL) of the leachate solutions in clean HDPE containers provided by the Emerging Contaminants department.

3) After collecting the leachate solution, an Organic Prep analyst will filter approximately 500 mL (at minimum 100mL) of each leachate solution using a Flipmate apparatus, using normal protocols for Flipmate filtration.

4) After filtering the leachates, the Organic Prep analyst will deliver the filtrates to the Sample management department for transport to the Emerging Contaminants Department (EC) at the Alpha Mansfield Facility. Leachates will be transferred to the EC department's designated sample storage refrigerator.

5) Samples to be analyzed for PFAS following TCLP/SPLP will appear on a separate PFAS prep worklist, the title of which will contain "SPLP" or "TCLP." From these worklists, PFAS analysts will select the samples to be extracted.

6) Pour ~100 mL of filtrate solution into a pre-labeled HDPE PFAS sample bottle, using the gradations marked on the bottle as a guide. Record the actual amount of filtrate by weighing the sample bottle. LOQs for samples prepared in this way will be ~5X higher than normal Aqueous matrix LOQs.

7) Following the instructions in step 7, use the leachate blank solution (typically has sample ID L0000000-01) to prepare three bottles for use as batch QC. Volume for the leachate blank, LLLCS, and LCS will be recorded as 100 mL.

8) Label and fill a clean 125 mL HDPE bottle with ~125 mL of pre-tested reagent water for use as a typical 1633 MB sample. Volume for the 1633 MB sample will be recorded as 100 mL.

9) After preparing the diluted filtrate, filtrate batch QC, and 1633 MB bottles, follow the normal extraction steps for aqueous matrices. Each sample will be spiked with EIS as normal. The filtrate

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LLLCS and LCS will be spiked with target analytes according to the routine aqueous protocol for LLLCS and LCS target spiking.

10) Leachate batch QC (MB/LLLCS/MS/MSD) are documented in LIMS as leachate blank (MB), and LLLCS (LCS).

11) Following the SPE process, the instrumental analyst will analyze the extracts by the 1633 method, as normal.

12) After processing, reviewing, generating reports for the data, and importing the data into LIMS, the TCLP/SPLP tumble date must be input into the analytical results from the leachate logs.

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Appendix K: Surface Wipe PFAS Analysis by 1633

Clients may submit wipe samples for PFAS analysis by 1633; wipes can be used as a proxy measurement of surface contamination in production facilities, labs, etc. The lab provides sampling kits for users which consist of a 50 mL centrifuge tube paired with a packaged ghost wipe for each surface to be sampled (ghost wipes: Environmental Express Part# SC5000). The wipe is used to swab a defined area of the surface or item of interest and is placed in the accompanying centrifuge tube, which is then capped, labeled, and shipped back to the lab for preparation and analysis.

Used wipe samples are prepared directly in the container in which they are received, following the protocols for solid matrices described in Sections 9.3.6 through 9.3.8; analysis follows normal 1633 routines. No correction will be made for percent solids, and results are reported as ng/wipe.

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Appendix L: Articles of Commerce Analysis via Cryomill Processing

Clients may submit samples of various consumer product materials and 'articles of commerce' for analysis of PFAS contained in the products. To effectively mobilize any PFAS that may be present within the structure of the material, samples must be milled to a fine powder using a cryogenic mill (or Cryomill).

This appendix provides strategies for processing samples obtained from an article of commerce. Common techniques are covered for mechanical size reduction of articles and their sub-units or portions thereof prior to the determination of PFAS in the article or article components via extraction and quantitative analysis. Polymer powders, nanomaterials, fibers, pastes, fluorinated ionomers etc. may not require size reduction if they are known to be sufficiently homogenous and more than 95% of the material passes a 250 µm sieve. Examples of common articles requiring milling prior to extraction and analysis are compacted cakes, melt extruded pellets and molded articles, elastomers and agglomerates, coated wire, textiles, paper, leather, food, and LDPE and polypropylene.

The user shall elect to apply one or more of the approaches, or compendium of approaches, to create homogenous samples suitable for extraction and analysis. Selection of the appropriate technique(s) depends on the article. Alternative methods of mechanical sample preparation can be used, provided that the required particle size (avg. particle size approx. 100 µm) of the sample is achieved without contaminating or compromising the sample.

Sample Processing Equipment and Materials

The following sample processing equipment and materials are required, subject to the type of material being prepared. Conditions for cryogenic fine milling are provided for the Retsch CryoMill, however, alternative cryomilling equipment like the SPEX ® Freezer/Mill may be used for most products.

1) Scissors, heavy plate shears or RetschTM ZM 200 Grinding Mill (Centrifugal Mill) with 6 or 12 tooth stainless steel (SS) rotor and 1 mm stainless steel bottom sieve.
2) Retsch CryoMill (Ball Mill), with SS grinding cartridge and 25 mm grinding ball (50 mL grinding cartridge, 5 g fill), or equivalent cryogenic mill capable of grinding to approximately 100 µm particles.
3) Cleaning brushes (different sizes) and polishing cloths, or cotton balls/swabs
4) Liquid nitrogen (LN2)
5) High purity methanol and ASTM Type I water for cleaning mill parts
6) Ventilated hood, to minimize exposure to fine particles/dusts/aerosols and chemical vapors
7) Ventilated drying oven capable of > 200°C
8) Precision sieves and accessories, nickel mesh, 50 µm and 150 µm sizes

Manual Cutting

If possible, manual cutting with pre-cleaned shears or scissors is suitable for rough cutting and preparation of samples for further reduction by grinding, etc. Recommended maximum sample size is 10

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x 10 mm but will depend on the specification of the equipment used in the subsequent preparation processes.

Fine Grinding by Cryomill

Fine grinding via cryomill is suitable for further mechanical breakdown of samples, grinding material to pieces ~100 µm in diameter. Be careful not to allow the LN2 to come into direct contact with the sample to prevent spattering and sample loss. Thorough cleaning of the mill components between samples is crucial to avoid cross-contamination; see steps 7-11 below for details.

Cryomilling will be performed using a Retsch CryoMill (ball mill) with automatic LN2 feed, as described below:

Sample Type[1]	Cycles	Preset	Frequency (Hz)	PCT (minutes)	MT (minutes)	ICT (minutes)
Elastomers (FKM, FFKM, FEPM, and agglomerates)	1	1	30	Auto	2	NA
Compacted Cake	5	NA	30	Auto	2	2
Melt Extruded Pellets and Molded Articles	7	2	30	Auto	4	2
Coated Wire	3	3	30	Auto	2	2
Textiles, Paper, Leather	3	4	25	10	2.5	0
Food (meat, cheese)	1	5	25	8	2	NA
LDPE and PP	2	6	25	10	2	2

[1] *In most applications, a feed mass of 5 g is used.*
PCT: Precooling time (automatic set)
MT: Milling time
ICT: In-between cooling time

1) In the case of FFKM compounds and articles, care must be taken to avoid excessive energy input as it may lead to cryo-mechanical degradation of the polymer and the creation of mechanoradicals, which can inflate the amount of target substance detected. Filling levels will impact the energy applied in the grinding process and can inflate test results as well.

2) In the case of cured FFKM elastomeric articles, pulverizing the product in a 2-roll mill as commonly used for compounding of elastomers can be an alternate sample preparation method to avoid or reduce the risk of mechanical degradation. Alternative methods for FFKM compounds and articles that do not require cryo-grinding are being investigated.

3) Cryogenically mill the sample powder and sweep out the milled material to collect all the powder. The collected plastic-based sample material should be precision sieved to obtain a sufficiently homogeneous portion of known particle size range of 50 µm to 150 µm, by first sieving material

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through the 150 µm sieve, then the 50 µm sieve (keep contents captured on 50 µm sieve). Size range is 100 + 50 µm (i.e. ~ 100 µm).

4) The collected FKM-, FFKM- and FEPM-based samples are visually inspected for homogenous size, verification via light-scattering is beneficial. Sieving of the samples is not recommended due to materials' elastomeric nature and the potential for particles to re-agglomerate into larger segments over time.

NOTE: Freshly cryomilled samples should either be extracted ASAP (same day) OR placed under frozen conditions (-10° C) ASAP and held under frozen conditions until ready to extract.

5) Make sure to follow the User Manual for installing and removing the grinding jar. This includes the two lock rings on the left side of the mechanism.

    a. Make sure outer LOCK RINGS are loosened.

    b. Screw in the grinding jar (from the right side of the mechanism). Tighten with black plastic tightening aid.

    c. TIGHTEN TWO LOCK RINGS: Outside ring tightened first (hand-tighten only); inner ring tightened second (snug), using the tool.

    d. Perform grinding cycle.

    e. LOOSEN THOSE TWO LOCK RINGS: Inside ring loosened first, outer ring loosened second. To loosen either ring, the tool will be needed because of icing.

    f. Unscrew grinding jar.

    g. When cryomill is not in use, make sure to replace the cooling jacket seal.

6) For extraction of cryomilled materials, follow the solid matrix extraction protocol listed in Sections 9.3.6-9.3.8, using 2 g as the target sample mass instead of 5 g. Sample results will be reported as ng/g, with no moisture correction.

Cleaning Procedure for Mill Components

Thorough cleaning of the mill components between samples is crucial to avoid cross-contamination. The following cleaning procedure is recommended.

7) Remove residual polymer thoroughly with DI water and brush.

8) If necessary, wipe away last polymer residue with clean polish cloth or cotton ball/swab.

9) Rinse all parts with methanol, use an ultrasonic bath as needed.

10) Rinse all parts with DI Water, use an ultrasonic bath as needed.

11) Repeat steps 7-10 as needed.

Analysis and Holding Time

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Matrix	Routine Container	Minimum Sample Amount	Preservation	Holding Time
Fluoropolymers, molded articles, coated wire, pellets, or other Articles of Commerce[1]	Any container or packaging that does not contain PFAS. Target container is a 125 mL PFAS container; however, clients will often send in Ziploc bags or other packaging.	5 g (target weight for clients to send is 20 g).	Can be shipped at any temperature (being an Article of Commerce). Once received in the lab: <6°C (prior to cryomill) Once cryomilled: Frozen Extract storage: <6°C	Sample receipt (or dated collected)[2] to cryomill: 1 year From cryomilling to extraction: 14 days Once extracted: 30 days

[1] Almost any "solid" material is applicable to this approach, as long as it can be manually coarse cut to approximately 5-10 mm in size (half a pea). If the matrix is soft (e.g., gummy bear), a larger feed size can be used.

[2] Often clients do not include "date collected." If none provided, "date collected" becomes "date received."

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Appendix M: Procedure for Total Oxidizable Precursors (TOP)

The following modifications to the referenced SOP are as follows:

Section 7: Water Bath – Capable of monitoring recording to .1 C maintaining 85 C.

Section 8.1: Sodium Hydroxide (NaOH, CAS#: 1310-73-2) – High purity, demonstrated to be free of analytes and interferences.

Potassium Persulfate ($K_2S_2O_8$, CAS#: 7727-21-1) - High purity, demonstrated to be free of analytes and interferences.

Hydrochloric Acid (HCl, CAS#: 7647-01-0) - High purity, demonstrated to be free of analytes and interferences.

Additional table to be added to Section 8

Table 1

Isotope Labeled Standard	Conc. Top Surr Stock (ng/mL)	Vol. of Top Surr Stock (µl)	Final Vol. of Top Surr PDS (mL)	Final Conc. of Top Surr PDS (ng/mL)
$^{13}C_2$-PFOA	50,000	40	4.0	500
$^{13}C_2D_4$-4:2FTS	50,000	80	4.0	1000

For Aqueous samples, prior to Section 10 of SOP 45852, add to each 125 ml sample with Potassium Persulfate until 60 mM (about 2 grams). Add Sodium Hydroxide until the sample is 125 mM (about .625 grams).

Sample should have a pH >12.

Fortify each sample with 20 µl of TOP pre-assay surrogate containing 1 negative control surrogates and 1 positive control surrogates from table 1.

Place sample in a water bath at 85 C for 6 hours.

Remove sample from water bath and adjust pH 6-8 with Hydrochloric Acid.

Following pre-treatment, follow the aqueous extraction protocol from section 10 of SOP 45852 unaltered.

Section 11, An additional calculation is added for the final reporting of the TOP assay results.

TOP Assay = Result of Post TOP assay extraction – Result of analysis from Pre-Top Assay extraction.

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Page: 1

PFAAs via EPA 1633 (SOIL)

Holding Time: 90 days
Container/Sample Preservation: 1 - Plastic 8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluorobutanoic Acid (PFBA)	375-22-4	0.8	0.2664	ng/g	70-140	30	70-140	30	30			
Perfluoropentanoic Acid (PFPeA)	2706-90-3	0.4	0.1336	ng/g	60-150	30	60-150	30	30			
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	0.2	0.06664	ng/g	65-145	30	65-145	30	30			
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	0.8	0.2664	ng/g	60-150	30	60-150	30	30			
Perfluorohexanoic Acid (PFHxA)	307-24-4	0.2	0.06664	ng/g	65-140	30	65-140	30	30			
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	0.2	0.06664	ng/g	55-160	30	55-160	30	30			
Perfluoroheptanoic Acid (PFHpA)	375-85-9	0.2	0.06664	ng/g	65-145	30	65-145	30	30			
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	0.2	0.06664	ng/g	60-150	30	60-150	30	30			
Perfluorooctanoic Acid (PFOA)	335-67-1	0.2	0.06664	ng/g	70-150	30	70-150	30	30			
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	27619-97-2	0.8	0.2664	ng/g	55-200	30	55-200	30	30			
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	0.2	0.06664	ng/g	65-155	30	65-155	30	30			
Perfluorononanoic Acid (PFNA)	375-95-1	0.2	0.06664	ng/g	70-155	30	70-155	30	30			
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.2	0.06664	ng/g	65-160	30	65-160	30	30			
Perfluorodecanoic Acid (PFDA)	335-76-2	0.2	0.06664	ng/g	70-155	30	70-155	30	30			
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	0.8	0.2664	ng/g	70-150	30	70-150	30	30			
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	0.2	0.06664	ng/g	55-140	30	55-140	30	30			
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSA	2355-31-9	0.2	0.0856	ng/g	65-155	30	65-155	30	30			
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	0.2	0.06664	ng/g	70-155	30	70-155	30	30			
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	0.2	0.06664	ng/g	40-155	30	40-155	30	30			
Perfluorooctanesulfonamide (FOSA)	754-91-6	0.2	0.06664	ng/g	70-140	30	70-140	30	30			
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	0.2	0.06664	ng/g	65-165	30	65-165	30	30			
Perfluorododecanoic Acid (PFDoA)	307-55-1	0.2	0.06664	ng/g	70-150	30	70-150	30	30			
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	0.2	0.06664	ng/g	65-150	30	65-150	30	30			
Perfluorotetradecanoic Acid (PFTA)	376-06-7	0.2	0.06664	ng/g	65-150	30	65-150	30	30			
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Pr	13252-13-6	0.8	0.2664	ng/g	70-145	30	70-145	30	30			
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	0.8	0.2664	ng/g	70-160	30	70-160	30	30			
Perfluorododecane Sulfonic Acid (PFDoDS)	79780-39-5	0.2	0.06664	ng/g	25-160	30	25-160	30	30			
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF	756426-58-1	0.8	0.2664	ng/g	70-150	30	70-150	30	30			
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11C	763051-92-9	0.8	0.2664	ng/g	45-160	30	45-160	30	30			
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	31506-32-8	0.2	0.06664	ng/g	70-155	30	70-155	30	30			
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	4151-50-2	0.2	0.06664	ng/g	70-140	30	70-140	30	30			
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	24448-09-7	2	0.6664	ng/g	70-140	30	70-140	30	30			
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	1691-99-2	2	0.6664	ng/g	70-135	30	70-135	30	30			
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	377-73-1	0.4	0.1336	ng/g	30-140	30	30-140	30	30			
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	863090-89-5	0.4	0.1336	ng/g	60-150	30	60-150	30	30			
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	113507-82-7	0.4	0.1336	ng/g	70-140	30	70-140	30	30			
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	151772-58-6	0.4	0.1336	ng/g	60-155	30	60-155	30	30			
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	356-02-5	1	0.3336	ng/g	45-130	30	45-130	30	30			
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	914637-49-3	5	1.664	ng/g	60-130	30	60-130	30	30			
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	812-70-4	5	1.664	ng/g	60-150	30	60-150	30	30			
Perfluoro[13C4]Butanoic Acid (MPFBA)	*NONE*									*8-130*		
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	*NONE*									*35-130*		

Please Note that the RL information provided in this table is calculated using a 100% Solids factor (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Alpha Analytical, Inc

PFAAs via EPA 1633 (SOIL)

Holding Time: 90 days
Container/Sample Preservation: 1 - Plastic 8oz unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	*NONE*									*40-135*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-	*NONE*									*40-165*		
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	*NONE*									*40-130*		
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	*NONE*									*40-130*		
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	*NONE*									*40-130*		
Perfluoro[13C8]Octanoic Acid (M8PFOA)	*NONE*									*40-130*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-	*NONE*									*40-215*		
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	*NONE*									*40-130*		
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	*NONE*									*40-130*		
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	*NONE*									*40-130*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-	*NONE*									*40-275*		
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid	*NONE*									*40-135*		
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	*NONE*									*40-130*		
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	*NONE*									*40-130*		
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (	*NONE*									*40-150*		
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	*NONE*									*40-130*		
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	*NONE*									*20-130*		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-1	*NONE*									*40-130*		
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA)	*NONE*									*10-130*		
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA)	*NONE*									*10-130*		
2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-o	*1265205-95-5*									*20-130*		
2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (	*NONE*									*15-130*		

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PFAAs via EPA 1633 (WATER)

Holding Time: 28 days
Container/Sample Preservation: 2 - Plastic 500ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluorobutanoic Acid (PFBA)	375-22-4	6.4	2.136	ng/l	70-140	30	70-140	30	30			
Perfluoropentanoic Acid (PFPeA)	2706-90-3	3.2	1.064	ng/l	65-135	30	65-135	30	30			
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	1.6	0.536	ng/l	60-145	30	60-145	30	30			
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	6.4	2.136	ng/l	70-145	30	70-145	30	30			
Perfluorohexanoic Acid (PFHxA)	307-24-4	1.6	0.536	ng/l	70-145	30	70-145	30	30			
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	1.6	0.536	ng/l	65-140	30	65-140	30	30			
Perfluoroheptanoic Acid (PFHpA)	375-85-9	1.6	0.536	ng/l	70-150	30	70-150	30	30			
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	1.6	0.536	ng/l	65-145	30	65-145	30	30			
Perfluorooctanoic Acid (PFOA)	335-67-1	1.6	0.536	ng/l	70-150	30	70-150	30	30			
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	27619-97-2	6.4	4.816	ng/l	65-155	30	65-155	30	30			
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	1.6	0.536	ng/l	70-150	30	70-150	30	30			
Perfluorononanoic Acid (PFNA)	375-95-1	1.6	0.536	ng/l	70-150	30	70-150	30	30			
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	1.6	0.536	ng/l	55-150	30	55-150	30	30			
Perfluorodecanoic Acid (PFDA)	335-76-2	1.6	0.536	ng/l	70-140	30	70-140	30	30			
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	6.4	2.136	ng/l	60-150	30	60-150	30	30			
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	1.6	0.536	ng/l	65-145	30	65-145	30	30			
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSA	2355-31-9	1.6	0.536	ng/l	50-140	30	50-140	30	30			
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1.6	0.536	ng/l	70-145	30	70-145	30	30			
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	1.6	0.536	ng/l	60-145	30	60-145	30	30			
Perfluorooctanesulfonamide (FOSA)	754-91-6	1.6	0.536	ng/l	70-145	30	70-145	30	30			
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	1.6	0.536	ng/l	70-145	30	70-145	30	30			
Perfluorododecanoic Acid (PFDoA)	307-55-1	1.6	0.536	ng/l	70-140	30	70-140	30	30			
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	1.6	0.536	ng/l	65-140	30	65-140	30	30			
Perfluorotetradecanoic Acid (PFTA)	376-06-7	1.6	0.536	ng/l	60-140	30	60-140	30	30			
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Pr	13252-13-6	6.4	2.136	ng/l	70-140	30	70-140	30	30			
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	6.4	2.136	ng/l	65-145	30	65-145	30	30			
Perfluorododecane Sulfonic Acid (PFDoDS)	79780-39-5	1.6	0.536	ng/l	50-145	30	50-145	30	30			
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF	756426-58-1	6.4	2.136	ng/l	70-155	30	70-155	30	30			
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11C	763051-92-9	6.4	2.136	ng/l	55-160	30	55-160	30	30			
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	31506-32-8	1.6	0.536	ng/l	60-150	30	60-150	30	30			
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	4151-50-2	1.6	0.536	ng/l	65-145	30	65-145	30	30			
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	24448-09-7	16	5.36	ng/l	70-145	30	70-145	30	30			
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	1691-99-2	16	5.36	ng/l	70-135	30	70-135	30	30			
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	377-73-1	3.2	1.064	ng/l	55-140	30	55-140	30	30			
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	863090-89-5	3.2	1.064	ng/l	60-150	30	60-150	30	30			
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	113507-82-7	3.2	1.064	ng/l	70-140	30	70-140	30	30			
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	151772-58-6	3.2	1.064	ng/l	50-150	30	50-150	30	30			
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	356-02-5	8	2.664	ng/l	65-130	30	65-130	30	30			
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	914637-49-3	40	13.36	ng/l	70-135	30	70-135	30	30			
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	812-70-4	40	13.36	ng/l	50-145	30	50-145	30	30			
Perfluoro[13C4]Butanoic Acid (MPFBA)	*NONE*									*5-130*		
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	*NONE*									*40-130*		

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PFAAs via EPA 1633 (WATER)

Holding Time: 28 days
Container/Sample Preservation: 2 - Plastic 500ml unpreserved

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria		
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	*NONE*									*40-135*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-	*NONE*									*40-200*		
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	*NONE*									*40-130*		
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	*NONE*									*40-130*		
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	*NONE*									*40-130*		
Perfluoro[13C8]Octanoic Acid (M8PFOA)	*NONE*									*40-130*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-	*NONE*									*40-200*		
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	*NONE*									*40-130*		
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	*NONE*									*40-130*		
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	*NONE*									*40-130*		
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-	*NONE*									*40-300*		
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid	*NONE*									*40-170*		
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	*NONE*									*30-130*		
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	*NONE*									*40-130*		
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (	*NONE*									*25-135*		
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	*NONE*									*10-130*		
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	*NONE*									*10-130*		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-1	*NONE*									*40-130*		
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA)	*NONE*									*10-130*		
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA)	*NONE*									*10-130*		
2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-o	*1265205-95-5*									*10-130*		
2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (	*NONE*									*10-130*		

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Appendix I

Stormwater Pollution Prevention Plan

(Provided under Separate Cover)

Appendix J

Resumes of Key Personnel

Nicholas Krasnecky, PE

Principal Engineer

Nicholas Krasnecky, PE, has over 13 years of progressive experience in environmental consulting working on a variety of environmental characterization and remediation projects for municipal, commercial, industrial, and private clients. Mr. Krasnecky specializes in site characterization and the evaluation, design, and implementation of remedial alternatives, particularly in New York and New Jersey via application of state specific environmental guidance. He utilizes his extensive environmental consulting and remediation background to support regulatory site closure, property development, risk management, evaluation for New York State Brownfield Cleanup Program (BCP) applicability, and additional client specific project goals.

Mr. Krasnecky has served as an engineer for various large-scale, complex remedial actions involving large work forces with multiple phases of work occurring simultaneously. His responsibilities include preparing proposals and cost estimates, producing engineering plans and specifications, preparing stormwater pollution prevention plans (SWPPPs) and soil erosion and sediment control (SESC) plans, collecting and analyzing field data, construction management and engineering oversight, health and safety, budget tracking, environmental and stormwater permitting, and technical report writing. Mr. Krasnecky's work has involved direct interaction with regulators, clients, and various stakeholders throughout the duration of projects including progress updates, scope alterations, and pathway to achieve project goals and regulatory closure.

Mr. Krasnecky has extensive experience with remedial treatment system design, implementation, optimization, operations, and maintenance, including groundwater pump and treat, air sparge, soil-vapor extraction (SVE), sub-slab depressurization, and dual-phase extraction systems. He has also designed and implemented in-situ remediation technologies at numerous sites, including in-situ chemical oxidation, aerobic bioremediation, in-situ chemical reduction, permeable reactive barriers, and enhanced anaerobic bioremediation.

Mr. Krasnecky has expertise in the assessment of vapor intrusion and the design, construction, and commissioning of active and passive vapor intrusion mitigation systems in both new construction and existing buildings. His experience includes direct coordination with multiples trades during planning and active construction to ensure vapor intrusion mitigation systems are installed in synergy with already prepared building and architectural plans.

Education

BS in Environmental Engineering, Rensselaer Polytechnic Institute, 2011

Years of Experience

13

Joined Terraphase

2023

Professional History

Terraphase Engineering Inc., Senior Associate Engineer, 2025 – present; Associate Engineer, 2023 – 2024

ECC Horizon, Senior Environmental Engineer, 2018 – 2023

Kennedy/Jenks Consultants, Senior Staff Environmental Engineer, 2015 – 2017

ARCADIS, Environmental Engineer II, 2012 – 2015

Licenses/Registrations

Professional Engineer,

New York #100006

New Jersey #24GE05369900

Indiana #11900093

Connecticut #PEN.0038081

Massachusetts #59517

Delaware #31286

Pennsylvania #PE097611

Certification/Training

40-Hour OSHA HAZWOPER

OSHA 10-hour Construction Safety and Health

Silica Awareness

Project Experience

Elmwood Preserve - NYSDEC Brownfield Cleanup Program Site, White Plains, New York (2024 – Present)

Senior Remedial Engineer/Licensed Professional. Serves as the remedial engineer/licensed professional for the Elmwood Preserve Site (Site), a 106-acre former golf course property proposed for redevelopment, enrolled in the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP). Reviewed and evaluated the preliminary Remedial Investigation (RI) data collected from a prior consultant to develop and implement supplemental RI scopes to complete delineation and define the nature and extent of impacts at the Site in soil, groundwater, surface water, sediment, and soil gas in accordance with the BCP requirements. Continuously evaluates incoming supplemental RI data to prepare a RI Report and develop a remedial design and strategy to address the presence of historical pesticide and metals

impacts associated with the historical use of the Site as a golf course. Provides ongoing project management, regulatory coordination, cost to closure estimates, and strategy support for the project.

401 Hunts Point - NYSDEC Brownfield Cleanup Program Site, Bronx, New York (2022 – Present)

Senior Remedial Engineer/Licensed Professional. Serves as the licensed professional engineer for the 401 Hunts Point Site enrolled in the NYSDEC BCP. Prepared the BCP application and provided regulatory coordination and consulting support through the NYSDEC review process. Prepared a Remedial Investigation (RI) Work Plan and oversaw the implementation of the RI to fully delineate and characterize potential impacts at the site in accordance with the BCP requirements. Evaluated remedial alternatives, designed the remedial action, and prepared an Interim Remedial Measures (IRM) Work Plan to address the impacts identified at the Site during the RI. The NYSDEC-approved IRM consisted of underground storage tank and soil removal via excavation, in-situ injections to treat petroleum hydrocarbon groundwater impacts, and the installation of an active sub-slab depressurization system to mitigate vapor intrusion concerns associated with chlorinated volatile organic compounds (cVOC). Oversees the ongoing implementation of the IRM and provides ongoing project management, regulatory coordination, budget tracking, and strategy support for the project.

Former Gasoline Service Station Remediation/Redevelopment, Oakland, CA (2023 – present)

Associate Engineer. Provided technical and engineering support for the remediation and redevelopment of a former gasoline service station to multi-family residential housing. Prepared engineering cost estimates and subsequent bid package for the removal of 10,000 tons of lead- and petroleum-impacted soils, prior to redevelopment. Coordinated and oversaw the implementation of a Community Air Monitoring Plan for protection of neighboring properties and communities during the ongoing excavation activities. Prepared a passive vapor intrusion mitigation system design that is being installed as part of redevelopment to mitigate potential remaining vapor intrusion impacts.

Marion County Community Justice Campus – Vapor Mitigation System, Indianapolis, Indiana, City of Indianapolis (2019 – 2021)

Design Engineer/Engineer of Record. Engineer of Record for the design, installation oversight, and commissioning of active sub-slab vapor mitigation systems at four buildings at the City of Indianapolis's new Community Justice Campus, to mitigate potential vapor impacts from subsurface impacts associated with a Former Manufactured Gas Plant. The vapor mitigation systems were designed and installed in accordance with local, state, and federal guidance including: the IDEM Draft Interim Guidance Document (February 2014): Vapor Remedy Selection and Implementation, U.S. EPA Brownfield Technology Primer Vapor Intrusion Considerations for Redevelopment, EPA 542-R-08-001, March 2008, and applicable guidance within ANSI/AARST CC-1000-2018 – Soil Gas Control Systems in New Construction of Buildings. Buildings ranged in size from 22,000 to 120,000 square feet and required active sub-slab systems consisting of a vapor barrier, sub-slab infrastructure, and electrically powered inline fans equipped with continuous monitoring via integrated alarms and controls into the overall building management systems.

Former Johnson and Hoffman Manufacturing Redevelopment, Carle Place, New York, Simone Development Companies (2020 – Present)

Senior Remedial Engineer/Licensed Professional. Serves as the licensed professional engineer for ongoing monitoring and reporting associated with the Site Management Plan (SMP) and for the proposed redevelopment of the Former Johnson and Hoffman Manufacturing Site, which is enrolled in the NYSDEC Voluntary Remediation Program (VRP). The redevelopment of the site involved the installation of below grade stormwater retention chambers and re-grading and paving of the property. Prepared and implemented an NYSDEC approved Redevelopment Excavation Work Plan for the management of soil potentially impacted with chlorinated solvents and polyaromatic hydrocarbons (PAHs) and the Stormwater Pollution Prevention Plan (SWPPP) for the site redevelopment. Provides ongoing regulatory coordination with the NYSDEC and NYSDOH for the implementation of the SMP.

Phase I and Phase II Environmental Site Assessments, New York Metro Area, Simone Development Companies

Senior Environmental Engineer. Served as the technical lead for multiple Phase I and Phase II Environmental Site Assessments (ESAs) for properties within the New York Metro Area. The Phase I and II ESAs were conducted for potential property transactions, particularly with respect to eligibility for entrance into the NYSDEC BCP.

Bridge Cleaners Site Remediation and Redevelopment, Long Island City, New York, 39-26th Street LLC (2020 – Present)

Senior Remedial Engineer/Licensed Professional. Serves as the licensed professional engineer for ongoing remediation and subsequent redevelopment of the Bridge Cleaners Site, which is a former commercial dry-cleaner property enrolled as a NYSDEC State Superfund Site. Designed, constructed, and implemented an expansion to the existing Air Sparge/Soil Vapor Extraction (AS/SVE) system to expand the treatment radius of onsite groundwater. Worked in conjunction with the NYSDEC to develop and implement a Proposed Remedial Action Plan (PRAP) and Record of Decision (ROD) for the Site. Prepared NYSDEC approved work plans for the AS/SVE disconnection and relocation and redevelopment excavation and associated Community Air Monitoring Plan (CAMP) for the redevelopment of the property to an 11-story residential unit building. Provided regulatory coordination with the NYSDEC, New York State Department of Health (NYSDOH), and New York City Office of Environmental Regulation (NYC OER). Prepared and implemented an in-situ chemical reduction (ISCR) and enhanced reductive dichlorination (ERD) injection remedial design to address residual cVOC impacts in groundwater upon completion of the building construction. The ISCR/ERD injection consisted of the application of approximately 3,400 gallons of injection solution containing micro-zero valent iron, ERD amendments, and a microbial consortium specific to cVOC degradation. The groundwater data at 6-months post injection indicate effective and continued reduction of cVOCs and closure report requesting transition to period monitoring has been submitted. Continues to provide environmental consulting and licensed profession engineering services in accordance with the redevelopment work plans and SMP.

Former Sav-O-Mat Station Petroleum Remediation, Sterling, Colorado, QBE Insurance Group Ltd. (2020 – 2023)

Senior Environmental Engineer. Served as the lead remedial engineer for the remediation of a benzene, toluene, ethylbenzene, and xylenes (BTEX) groundwater plume stemming from gas station leaking underground storage tanks (USTs) and a historical gasoline tanker spill. Evaluated the effectiveness of the ongoing AS/SVE remedial system via groundwater concentrations trends, conducted additional investigation activities, including a Membrane Interface Hydraulic Profiling (MIHPT) investigation, to develop an updated conceptual site model to evaluate remedial treatment alternatives. Designed a remedial treatment approach utilizing a Vertebrae Well System® (designed and manufactured by ENRx) to deliver an in-situ chemical oxidation solution to the subsurface to treat the BTEX groundwater plume extending under a State Highway and parking lot.

Former S&S Hancock Cleaners – Site Remediation, Bedford, Indiana, Confidential Insurance Carrier (2020 – 2023)

Senior Environmental Engineer. Served as the lead remedial engineer for the remediation of a chlorinated volatile organic compound (cVOC) groundwater plume located in Karst bedrock, stemming from a former dry-cleaner. Evaluated historical groundwater data trends, groundwater flow, and geochemistry to prepare an updated conceptual site model. Prepared a remedial design and work plan for the Indiana Department of Environmental Management (IDEM) for the treatment of the cVOC groundwater plume via co-metabolic aerobic bioremediation via direct push technology injections. Implemented the proposed remedial work plan in conjunction with regular groundwater monitoring to continuously evaluate the remedial progress and adjust the remedial design accordingly.

Fuel Oil Underground Storage Tank – Site Remediations, New Jersey, Insurance Carriers (2018 – 2023)

Senior Environmental Engineer. Served as the lead remedial engineer for over 15 fuel oil–impacted soil and groundwater remediation projects stemming from USTs, involving in-situ and ex-situ treatment strategies. Remedial technologies designed and implemented include in-situ chemical oxidation injections, bioremediation and bio-stimulation, oil recovery

groundwater treatment systems, surfactant assisted free product recovery, and excavation and off-site disposal. Responsibilities included; cost evaluation and feasibility analysis of remedial technologies for final remedial design determination, engineering design and planning of remedial injections and ground water treatment systems, provide project management and technical and operations support for implementation of remedial actions, review and evaluation of collected data for remedial progress monitoring and design modifications.

Spivey Properties LLC – Site Remediation, Indianapolis, Indiana, Confidential Insurance Carrier (2021 – 2023)

Senior Environmental Engineer. Served as the lead remedial engineer for the remedial design for a cVOC-impacted site, stemming from a former dry-cleaner. The cVOC impacts were located in the soil, shallow groundwater, and soil vapor below a strip mall currently occupied by a daycare and commercial shops. Designed and installed a sub-slab depressurization system within the daycare tenant space, upon receipt of data indicating sub-slab soil vapor and indoor air levels above applicable standards. Evaluated on-site groundwater, soil, and soil vapor data in conjunction with the site use and current building to evaluate remedial alternatives. Prepared a remedial design and work plan for the Indiana Department of Environmental Management (IDEM) for the treatment of the cVOC impacts via limited excavation and off-site disposal of vadose zone soils and application of micro scale zero valent iron and enhanced anaerobic bioremediation solutions via direct push technology injections within the saturated zone.

Former Launderers Facility – Site Remediation, Carmel, Indiana, Confidential Insurance Carrier (2019 – 2022)

Senior Environmental Engineer. Served as the remedial engineer for the remediation of a cVOC-impacted site, stemming from a former dry-cleaner. Evaluated historical data and prepared a remedial design and work plan for the Indiana Department of Environmental Management (IDEM) for the treatment of the cVOC-impacted sub-surface soils and shallow groundwater plume. The remedial design consisted of excavation and off-site disposal of vadose zone soils and soil mixing of an enhanced anaerobic bioremediation amendment within the saturated soils. Implemented the proposed remedial work plan in conjunction post-remediation groundwater monitoring to continuously evaluate the remedial progress and design and implement a future micro scale zero valent iron and enhanced anaerobic bioremediation injection to further remediate the shallow groundwater.

Former Gasoline Station – Site Remediations, New Jersey, Insurance Carriers (2018 – 2023)

Senior Environmental Engineer. Served as the lead remedial engineer for five gasoline-impacted soil and groundwater remediation projects stemming from historical former gasoline station operations involving in-situ and ex-situ treatment strategies. Worked in conjunction with a New Jersey Licensed Site Remediation Professional (LSRP) to develop conceptual site models and remedial strategies to meet the developed response action objectives (RAOs). Evaluated remedial alternatives, developed remedial designs, and prepared Remedial Action Work Plans (RAWPs) and Discharge to Groundwater Permit by Rule (DGW-PBR) applications for the implementation of the remedial actions. Remedial technologies designed and implemented include limited excavation and off-site disposal with soil mixing/backfill amendments, in-situ chemical oxidation injections, bioremediation and bio-stimulation, permeable reactive barriers, and in-situ liquid carbon injections. Responsibilities included; cost evaluation and feasibility analysis of remedial technologies for final remedial design determination, engineering design and planning of remedial injections, provide project management and technical and operations support for implementation of remedial actions, review and evaluation of collected data for remedial progress monitoring and design modifications.

Former Safer Textiles - Site Remediation, New Jersey, Confidential Client (2014 – 2017)

Senior Staff Environmental Engineer. Provided engineering design and remedial oversight for a chlorinated solvent soil and groundwater remediation project involving in-situ and ex-situ treatment and containment strategies in New Jersey. Remedial technologies implemented include dual-phase vacuum extraction of dissolved and free phase tetrachloroethylene and daughter products, vapor mitigation system installation oversight in an existing building and continued air monitoring, enhanced anaerobic bioremediation, in-situ pH buffering, sediment dredging and capping, and sheet pile containment followed by site restoration including wetlands mitigation. Responsibilities included engineering oversight of remediation contractor; design, operations, maintenance, and optimization of dual-phase vacuum extraction system; design and

implementation of enhanced anaerobic bioremediation injections and associated groundwater monitoring; and preparation and continued compliance of required New Jersey Department of Environmental Protection (NJDEP), County, and Town permits.

Feasibility Studies, Montana, Confidential Client (2016 – 2017)

Senior Staff Environmental Engineer. Preparation of two Feasibility Study (FS) reports and Rough Order of Magnitude (ROM) costs to identify and evaluate remedial alternatives for two sites impacted by historical railway operations. The FS addresses alternatives for multiple contaminants impacting soil and groundwater at the sites and included an excavation cut/fill and capping evaluation with respect to environmental exposure pathways risk evaluation and management.

Ramapo Paint Sludge Site, Ramapo, New York, Confidential Client (2013 – 2015)

Engineer II. Project Engineer for a remediation project in New York involving excavation and off-site disposal of paint–sludge impacted soil at 15.5-acre site. Approximately 35,000 tons of impacted soil was excavated, waste streams segregated, shipped off site for disposal, and the site subsequently backfilled, graded, and restored. Remedial action was conducted in accordance with permitting constraints involving endangered and protected wildlife habitat and location within the flood plain of a national waterway. Responsibilities included, development of the Remedial Design, based on the issued Record of Decision, in accordance with the NYSDEC Technical Regulations (DER-10); preparation of County, State, and Federal permits including the SWPPP, Soil Management Plan, and required U.S. Army Corps of Engineers (USACE) Nationwide Permits; development of technical specifications and contract drawings as part of the Request for Proposal for subcontractor selection; and performed construction engineering oversight of the implementation of the Remedial Action.

Former Manufactured Gas Plant – Site Remediation, New Jersey, Confidential MGP Client (2012 – 2014)

Engineer II. Staff Engineer for a remediation project involving excavation and off-site disposal of contaminated material underlying a bridge at a former manufactured gas plant site in New Jersey. Approximately 6,000 tons of impacted soil was excavated and sent off site for disposal. The bridge and associated storm water drainage was demolished and rebuilt according to New Jersey Department of Transportation Specifications and Regulations. Impacted material was within a tidal creek therefore creek diversion and a two-part excavation was implemented. Responsibilities included design and development of a Remedial Action Work Plan (RAWP), technical specifications, contract drawings, and bid package; review and recommendation of remedial contractor proposals; reviewed and approval of remedial contractor submittals, change orders, and progress reports throughout the duration of construction.

Manufacturing Facility HSCA Site Remediation, Delaware, Confidential Client (2012 – 2014)

Engineer II. Staff Engineer for remedial design and implementation of a HSCA Site Remediation in Delaware for PCB- and pesticide-impacted soils and sediments; and a dissolved benzene and BCEE plume. PCB and pesticide impacts were located in a 50,000 square foot drainage channel and were remediated via capping and excavation and off-site disposal to mitigate human and ecological risks. A pump and treat system was designed and implemented to treat the 10 to 15 acre dissolved benzene and BCEE plume to protect an active water supply well. Soil and sediment remediation responsibilities included design of grading plans for soil and sediment remediation, pre-excavation delineation and confirmatory sampling plan, and the PCB Clean-Up plan based on the EPA voluntary clean-up regulation; analysis of risk assessment via ProUCL to design the excavation and grading limits to meet the required ecological and human health based risk concentrations. Dissolved plume remediation responsibilities included design, sizing, and equipment selection of the groundwater conveyance and treatment system including submersible pumps, pipe sizes and material, trenching details, bag filters, GAC units; and the P&ID; design and development of associated figures and site plans for contract documents; and development of cost estimates.

Christopher Voci, PG

Senior Principal Geologist | Vice President, Director of Operations, East

Christopher Voci, PG, is Vice President of East Coast Operations for Terraphase Engineering Inc. and a Senior Principal Geologist in the Philadelphia, Pennsylvania, office. Mr. Voci's career encompasses three decades in the design, management, and implementation of environmental restoration programs under federal, state, and voluntary regulatory compliance initiatives across the nation with a focus on site closure strategies. Mr. Voci develops creative solutions to hydrogeologic characterization and remediation challenges, specializing in the application of innovative remediation technologies. Mr. Voci is a pioneer in the field of bioremediation for chlorinated solvents and has decades of remediation experience with conventional and novel technologies for a wide range of compounds in soil and groundwater. Mr. Voci has managed soil and groundwater sites with emerging contaminants including per- and polyfluoroalkyl substances (PFAS), 1,4-dioxane, and chlorinated propane compounds.

Mr. Voci leads hydrogeological investigations, performs contaminant forensics using compound-specific isotope analysis (CSIA) and resolves complexities associated with multi-source and commingled groundwater plumes in porous media and fractured bedrock aquifer systems. Mr. Voci has been engaged as a third-party expert to review cost allocation models, conceptual site models and remediation system performance.

In his role as a strategic adviser and advocate to potentially responsible parties (PRPs), Mr. Voci brings decades of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) experience from Superfund sites across the country and has been involved with each stage of the CERCLA process from National Priority List (NPL) inception to delisting. Mr. Voci manages polychlorinated biphenyl (PCB) clean-up sites under Toxic Substances Control Act (TSCA) and has a depth of experience with inorganic compounds in soil and sediment and groundwater.

Mr. Voci is a leader in Terraphase's Due Diligence practice in an advisory role to large-scale private equity acquisition and transaction programs for a wide range of commercial, industrial, and agricultural properties.

Mr. Voci is involved with environmental litigation cases and mediation projects, upon which he has developed successful strategies to support cost allocation and liability defense matters. His client advocacy for legal, industrial manufacturing, and investment clients is nationally recognized. Mr. Voci has also served as the technical lead for environmental cost allocation mediation involving private and public parties. He is a strong client advocate and effective regulatory negotiator.

As an active member of the Interstate Technology and Regulatory Council, Mr. Voci is engaged in the developing science of PFAS characterization and remediation and collaborates with regulators and stakeholders in the management of PFAS sites. Mr. Voci has contributed to advances in remediation technologies through his decades of applied research on contaminated properties.

Education

MA in Physical Science/Geology, West Chester University, 1996

BA in Geo/Environmental Studies, Shippensburg University of Pennsylvania, 1991

Years of Experience

30+

Joined Terraphase

2015

Professional History

Terraphase Engineering Inc., Senior Principal Geologist, 2022 – present; Principal Geologist, 2015 – 2022

Geosyntec Consultants, Associate Hydrogeologist, 2009 – 2015

O'Brien & Gere, Technical Associate, 2002 – 2008

Levine Fricke Recon, Hydrogeologist, 1997 – 2002

Advanced Geoservices, Geologist, 1992 – 1997

Licenses/Registrations

Professional Geologist, Pennsylvania – #PG-0003892

Registered Professional Geologist, South Carolina – #2368

Professional Geologist, Illinois – # 196.001434

Professional Geologist, Kansas – #PG920

Professional Geologist, Kentucky – #KY-2475

Professional Geologist, Virginia – #2801001818

Professional Geologist, New York – #001239-01

Professional Geologist, Missouri – #2025019473

Project Experience

North Penn Area 5 Superfund Site, Colmar, Pennsylvania, PRP Group (2012 – present)

Project Director 2012 – 2017, Project Coordinator 2018 to present. Project Coordinator for a volatile organic compound (VOC) Superfund Site in U.S. Environmental Protection Agency (USEPA) Region 3. The project includes work under three Unilateral Administrative Orders: an interim remediation of the overburden groundwater aquifer; investigation of vapor intrusion for the facility above the groundwater contamination; and the Remedial Investigation (RI) on the groundwater contamination in the bedrock aquifer beneath the site. Mr. Voci has led work under all three orders including design and implementation of the overburden bioremediation, completion of the vapor intrusion order requirements, completion of the bedrock groundwater remedial investigation (2024), and is working with PRPs to negotiate a new bedrock order with USEPA in 2025.

Metro-Container Superfund Site, Stauffer Management Company (2015 – present)

Technical Committee Representative. Technical Committee Representative for Stauffer Management Company, a PRP to a CERCLA site in Delaware County, Pennsylvania. The project involves the investigation and remediation of PCBs, light non-aqueous phase liquids (LNAPL), and VOCs, including 1,4-dioxane from a former drum recycling facility with a history of chemical manufacturing and petroleum refining dating back over 100 years. The focused remedial investigation (FRI) includes a PFAS investigation.

Spectron Superfund Site, Elkton, Maryland, Confidential Client (2009 – 2013, 2023 – present)

Technical Advisor 2009 – 2013. Technical advisor for in-situ reductive dechlorination (IRD) remedy for Operable Unit 1 of the Spectron Superfund Site in Elkton, Maryland. Authored and implemented the USEPA Region 3 approved Treatability Study Workplan. The IRD was applied to a mixed suite of over 20 dense non-aqueous phase liquid (DNAPLs) and high-concentration VOCs in soil and bedrock groundwater.

Project Hydrogeologist, Project Director 2023 – present. Technical and regulatory lead for ongoing long-term monitoring program currently in the third 5-year review period. Current work included a bedrock groundwater characterization for PFAS.

Philadelphia Energy Solutions Refinery, Hilco Redevelopment Partners (HRP; 2021 – present)

Project Director. Project Director for the redevelopment of the largest refinery on the East Coast, which was purchased out of bankruptcy in 2021. The 150-year-old former petroleum refinery is also enrolled in the Pennsylvania Regulated Tank Corrective Actions Program. Terraphase is engaged to provide consulting support under Pennsylvania's Land Recycling Program (Act 2) for the site, which is being redeveloped as a state-of-the-art e-commerce, logistics and life science hub. Mr. Voci is Pennsylvania Professional Geologist of record for Pennsylvania Department of Environmental Protection (PADEP) regulatory submittals.

Wellington, Kansas, RICOH, Aircraft Manufacturing Facility (2017 – present)

Project Director/Manager. Project Manager and Director for a former manufacturing facility groundwater site investigation project under Kansas Department of Health & Environment (KDHE) oversight. RICOH engaged Terraphase to review the results of over two decades of environmental investigation and remediation activities and to develop a closure strategy for the legacy site. As the hydrogeologist for the site, Mr. Voci designed and implemented a novel combination of chemical reduction with ZVI and in situ bioremediation and obtained a "No Further Action" determination by the KDHE in 2024.

Campus Bay, Richmond, California, Zeneca (2019 – present)

Remediation Design Lead. Remediation Design Lead for a large-scale enhanced in-situ bioremediation program at an 86-acre site to address VOCs in groundwater from a former chemical, pesticide, and fertilizer plant operations. Responsibilities include contributions to the Feasibility Study/Remedial Action Plan (FS/RAP), implementation of a bench-scale treatability study, 100% Design development and regulatory response, and implementation of the full-scale chemical reduction with zero-valent iron (ZVI) and in-situ bioremediation (ISB) remedy in 2023 and 2024.

Site Investigation and Remediation, City of Torrance, Torrance, California (2021 – present)

Remediation Design Lead. Designed and supported the installation of a zero-valent iron barrier using a novel construction method for a regional volatile organic compound plume to address potential vapor intrusion concerns in a residential area.

Confidential Client, Port of Los Angeles (2018 – 2022)

Remediation Design Lead. Remediation design lead for a large-scale enhanced in-situ biodegradation application for a VOC source area in a saline groundwater system beneath an active shipping terminal. The project involves client advocacy for a multi-party dispute and regulatory negation with the Los Angeles Regional Water Quality Control Board (RWQCB).

Lower Passaic Superfund Site, Confidential Client (2018 – present)

Principal Consultant. Evaluation of potential contaminant contributions on a $2 billion Superfund Sediment site in New Jersey to quantify a paint manufacturing client's allocation percentage. The cost allocation exercise was reviewed by third-party allocator for approximately 100 participating parties and presented to USEPA. Work also included a CERCLA cost recovery claim filed by a large contributing PRP against our client.

Irvine, CA, Confidential Client

Principal/Project Manager. Remediation support for a former agricultural pesticide packaging facility with groundwater impacted with 1,2-dichloropropane (1,2-DCP), 1,3-dichloropropene (1,3-DCP), ethylene dibromide (EDB or 1,2-DBA), methyl bromide, and methylene chloride. Responsible for developing an alternative in-situ remediation strategy, and for an on- and off-site groundwater monitoring program.

Store Space, Philadelphia, Pennsylvania (2022 – 2023)

Technical Director. Design lead for implementation of a mercury and PCB building material remediation project at storage facility that was constructed in a former 19th century pyrometer and thermometer manufacturing facility. The work involved implementation of the mercury and PCB abatement of over 30,000 square feet and wall surfaces concurrent with site construction activities under an accelerated schedule.

Former H.B Ives Plant, New Haven, Connecticut, Schlage Lock (2015 – 2020)

Project Director & Geologist. Project Director and Lead Geologist for a multi-media full site characterization and final remediation of the former H.B. Ives hardware manufacturing facility in New Haven, Connecticut, under the Transfer Act. The investigation work involved > 200 soil borings, 50 soil-vapor points, and 30 monitoring wells to consolidate 42 Areas of Concern (AOCs) into 12 release areas that were remediated using soil-vapor extraction and cap/cover design. With the investigation and remediation complete, Schlage sold the property in 2020 with support from Terraphase in completing the Transfer Act closure.

Lawrence Berkeley National Laboratory, Berkeley, California (2020)

PCB Task Manager. Developed a clean-up plan for PCBs in extant tunnels beneath the University of California, Lawrence Berkeley National Laboratory. The work involved investigation design, PCB sampling and data interpretation, and regulatory support for a PCB Performance Based Disposal under the 40 CFR section 761.61(b) TSCA.

1065 Park Avenue, New York, New York

Project Director. Managed the response and clean-up of a heating oil release from a 10,000-gallon underground storage tank (UST) beneath a 30-story-high rise cooperative apartment building on the Upper East Side of Manhattan. The work involved regulatory interactions with the New York State Department of Environmental Conservation (NYSDEC) and the New York City Department of Environmental Protection (NYCDEP).

Due Diligence Support, Pennsylvania and New Jersey Properties, Hilco Real Estate (HRE; 2021 – present)

Project Director. Project director for due diligence and site investigation of numerous properties in Pennsylvania and New Jersey to perform American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessments (ESAs), New

Jersey Preliminary Assessments, and direct site characterization and cleanup under Act 2 in Pennsylvania and the Site Remediation Program in New Jersey.

Private Developer, Redwood City, California

Remediation Task Manager. Design and implementation support for an in-situ thermal conductive heating program that resulted in a 99% destruction of the chlorinated solvent source associated with a former dry-cleaner that operated at the property.

Pennsylvania Act 2 Investigation, Scranton, Pennsylvania (2018 – present)

Project Director. Investigation and closure of a spill of No. 4 Fuel Oil, which occurred from a former 15,000-gallon UST in 1996, that was never officially closed by PADEP. Prepared Remedial Action Completion and Final Reports to support the closure without the need for additional active remedial actions. The case was officially closed by PADEP pursuant to Pennsylvania Act 2 regulations.

Gowanus Canal Superfund Site, Confidential Client (2017)

Project Director. Project Director for a cost allocation model review to support Gowanus Canal Superfund Site PRP contribution negotiations. The work involved mapping, deconstruction, and testing of a model that was developed to assign cost allocation percentages to parties involved in the Gowanus Canal Superfund Site. The second phase of work focused on developing a sensitivity analysis by running multiple scenarios to reveal biases and limitations of the cost allocation model.

Newtown Superfund Site, Confidential Client (2017 – present)

Project Director. Project Director for consulting support to a public utility involved in the Newtown Creek Superfund Site.

Agricultural Due Diligence Portfolio Manager, Private Equity Client (2016 – present)

Partnership Support. Project strategist and Director for numerous of due diligence projects performed to support large-scale agricultural investments throughout the West Coast from a private equity investor in California.

National Due Diligence Portfolio Manager, Confidential Clients (2012 – present)

Attorney-Investor Partnership Support. Project strategist and manager for scores of due diligence projects ranging from ASTM E1527-13 and E2247–08 Phase I ESAs to complicated environmental liability valuation support on capital asset projects. Most projects are performed to support large-scale prospective deals by private equity and institutional investors that rely on the project outcomes to inform their decision process and purchase negotiations.

Multiple Sites and Locations, Allegion (2013 – present)

Project Manager. Project Director and National Client Manager for a $2 billion international lock manufacturer. The projects include (soil, soil-vapor, and groundwater) investigation and remediation sites associated with former manufacturing facilities in throughout the country. Due diligence services include domestic and international Phase I and Phase II ESAs in the U.S., China, Mexico, and Australia. Project successes include finalizing site closure under Michigan Department of Environmental Quality (MDEQ) regulations of a former facility in Saranac, Michigan, and a PCB clean-up and Region I USEPA TSCA closure of a large former hardware manufacturing in USEPA Region I. Current projects under Mr. Voci's direction and management include soil and groundwater remediation and closure strategy development under the Connecticut property transfer law ("Transfer Act") and project strategy support for a former industrial property in Orange County, California.

Swope Oil Superfund Site, Camden County, New Jersey, Swope Superfund Group (2009 – 2014)

Project Manager/Lead Hydrogeologist. Project Manager/Lead Hydrogeologist for a chlorinated solvent site within a regional VOC plume located in Camden County, New Jersey. Site compounds included chlorinated ethenes and chlorinated ethanes and 1,4 dioxane. Mr. Voci authored the site RI, and completed a vapor intrusion study and the feasibility study. Region II USEPA accepted and issued a Record of Decision for a Monitored Natural Attenuation remedy for groundwater.

Malvern TCE Superfund Site, Chester County, Pennsylvania, Malvern-TCE PRP Group (2002 – 2009)

Hydrogeologist – Remediation Design. Optimized an enhanced in-situ biodegradation (EISB) groundwater study resulting in the negotiated change of the Superfund Site Record of Decision (ROD) from groundwater extraction and treatment to EISB.

Carolawn Superfund Site, Fort Lawn, South Carolina, Carolawn Superfund Group (2002 – 2008)

Remediation Manager. Technical Design and Implementation – Remediation manager for EISB remedy to replace the current pump-and-treat remedy of a former solvent storage facility in the Piedmont region of north central South Carolina.

Dresser Rand Active Heavy Equipment Manufacturing Facilities in Olean, Painted Post and Wellsville, New York, Ingersoll Rand (2012 – 2017)

Project Manager. Project Manager for an active spill case in Olean, New York, under NYSDEC management. Mr. Voci was brought in by the responsible party of the site to negotiate with NYSDEC on the status and path forward for an active facility with 27 AOCs. Through the analysis, evaluation and presentation of the previous site consultant's investigation data, Mr. Voci successfully reduced the number of AOCs from 27 to 3, and obtained a No Further Action designation for the site, which was closed in 2014. Ingersoll Rand has retained Terraphase to pursue regulatory closure of two other NYDEC Spills Program sites in Painted Post and Wellsville, New York, in 2015. Both sites have undergone remediation and are currently pursuing regulatory closure.

NPL Delisting, Marathon Battery Superfund Site, Eastlake Ohio, New York, Confidential Client (1993 – 1996)

Field Manager. Provided field coordination for remedial closure of a former nickel-cadmium battery plant sediment site adjacent to mature marshland, a tidal estuary, and the shoals of the Hudson River. The project was conducted with USEPA and U.S. Army Corps of Engineers (USACE) oversight in conjunction with the National Audubon Society. The site remedy for lead and cadmium involved on-site ex-situ phosphate-chemistry-based soil stabilization and off-site disposal via rail. Surface water was treated through an on-site wastewater treatment plant and discharged to the Hudson River.

Former Chemical Manufacturing Facility, Cleveland, Ohio, BASF Chemical Company (2013 – 2015)

Project Director. Project director for a multi-million-dollar Resource Conservation and Recovery Act (RCRA) Corrective Action Program at the former Harshaw Chemical Company facility. The facility dates back to the late 1800s with chemical manufacturing, plating operations, uranium fluoride production, uranium oxide production, hydrofluoric acid production, catalysts production, and metal finishing products that lead to present-day RCRA Corrective Action. Additional site activities include operation and optimization of an existing operating groundwater treatment system and overseeing the decontamination and demolition of several site structures. Constituents of concern include chlorinated solvents, fuel-related hydrocarbons, 1,4-dioxane, heavy metals, PCBs, and radiological constituents (uranium, thorium, radium). Demolition and corrective action have been initiated and will continue through 2015.

Multiple Railyard Properties, Pennsylvania and New Jersey, Confidential Client (2009 – present)

Technical Advisor/Third-Party Reviewer. Mr. Voci served as a technical advisor and continues in a litigation support role for a national rail company on several properties in Pennsylvania and New Jersey. The projects range from environmental management; site investigation; and remediation of LNAPL, PCBs, metals, semivolatile compounds, and petroleum-related contamination. Mr. Voci is currently an expert in a litigation support capacity for ongoing matter involving historical railroad property transfers. His current railroad projects also include a complex coast allocation project to support a rail client in the pursuit of PRPs resulting from the discovery of buried wastes during a pipeline utility construction in northern New Jersey.

Active Manufacturing Facility, Henderson, Kentucky, Confidential Client (2010 – 2012)

Kentucky Professional Geologist. Technical Consultant, Site Kentucky Professional Geologist for remediation of chromium in groundwater using a novel application of in-situ redox management using emulsified soybean oil to effect a change in groundwater oxidation reduction potential to favor chemical precipitation of chromium. Initial injections were completed in September 2009, site closure reports were submitted in 2011, and the site was closed in 2012.

Marjol Battery Superfund Site, Throop, Pennsylvania, Confidential Client (1993 – 1996)

Field Manager. Provided field coordination for several investigation sequences of a former lead-acid battery recycling facility adjacent to the Lackawanna River in the Borough of Throop, Lackawanna County in the coal region of Pennsylvania. Project highlights included the development of a novel soil pore water sampling approach and invention of silica flour injection equipment to emplace lysimeter filter packs in deep battery casing material landfill areas.

Somerville Landfill Redevelopment Project, Somerset County, New Jersey, Somerville Borough (2009 – 2015)

Hydrogeologist. Hydrogeologist and remediation team leader for the groundwater investigations associated with the redevelopment of a former municipal landfill owned by the Borough of Somerville. Investigations developed and managed include surface geophysical surveys, borehole geophysical logging and packer testing, and a trial application of a proprietary magnetic groundwater tracer technology to map leachate and overburden groundwater flow. Lead author for the remedial action portion of a combined Remedial Investigation Report/Remedial Action Workplan (RIR/RAW) that was approved by New Jersey Department of Environmental Protection (NJDEP) in September 2011. Managed the final design for a stream replacement and engineered wetland remedy at the site.

Act 2 Spill Response, Johnsonburg, Pennsylvania, Confidential Client (2011 – 2012)

Project Manager and Geologist. Mr. Voci was engaged to respond to a diesel spill in rural northwestern Pennsylvania in February 2011. The spill occurred approximately one-half mile upstream from a local community's water supply intake. The project goal to complete the soil and surface water investigation, remediate the site, conduct the site restoration, and obtain a release of liability under Act 2 through demonstration of attainment of the Statewide Health Standard within a compressed 90-day period was met under Mr. Voci's management and regulatory negotiation.

Act 2 Former Fuel Dispenser Site, Jones Township, Pennsylvania (2011 – 2012)

Geologist. Mr. Voci performed an investigation and remediation of a historical fuel dispenser operation and completed a Statewide Health Standard attainment demonstration for the site under Act 2. The work involved access to a remote forested area and the investigation of a historical logging fuel system that was discovered during road construction. Mr. Voci self-performed all aspects of the project and obtained regulatory closure for the site owner.

In Situ Bioremediation, Former Brewery Canning Facility, Volney, New York, Miller Brewing (2005 – 2008)

Lead Scientist. Lead scientist for implementation of an EISB program for large mixed chlorinated solvent plume (tetrachloroethene [PCE] and 1,1,1-trichloroethane [1,1,1-TCA]) in groundwater. The EISB program included groundwater geochemistry evaluation, laboratory treatability study design and data interpretation, injection of electron donor/substrate, and performance monitoring.

Remediation Design and Implementation, Chemical Manufacturing Facility, Birmingham, New Jersey, Laxness Chemical Company (2002 – 2009)

Remediation Lead. Designed and implemented in-situ chemical oxidation (ISCO) for a mixed chlorinated solvent/hydrocarbon plume using ozone injection technology for an Industrial Site Recovery Act (ISRA) site. Prepared and submitted a groundwater remedial action workplan (RAW) detailing a large-scale EISB remedy for the treatment of chlorinated propane compounds in groundwater.

Insurance Cost Recovery, Confidential Client, Automobile Industry (2002 – 2009)

Technical Support Hydrogeologist. Technical support hydrogeologist for environmental cost estimation and technical review; report preparation included analysis of potential private party environmental (property value diminution/bodily injury) claim and natural resource damage claim liabilities; report was used to support settlement negotiations related to historical insurance policies. Supported successful technical negotiations with multiple insurance carriers resulting in more than $20 million in recoveries.

Insurance Cost Recovery, Confidential Client, Transformer Manufacturing Industry (2009)

Lead Hydrogeologist. Lead Hydrogeologist for environmental cost estimation and technical review and settlement report preparation involving quantification of past and potential future environmental cost liabilities for numerous former and active domestic and international transformer manufacturing facilities associated with PCB and VOC contamination.

Active Manufacturing Facility, Stonewall, Virginia, Confidential Client (2009 – 2011)

Technical Consultant. Technical Consultant, Site Professional Geologist for the monitoring natural attenuation remediation of chlorinated solvents in groundwater downgradient of three different Solid Waste Management Units.

MTBE Plume Investigation and Remediation, Valley Stream, New York, Confidential Client (2000 – 2001)

Project Manager. Managed groundwater investigation and remediation activities associated with a half-mile-long methyl tert-butyl ether (MTBE) plume on Long Island. The site was the first in New York to employ continuous multi-chamber tubing wells for vertical groundwater characterization and ozone injection for MTBE remediation.

Newport News Shipyard, Newport News, Virginia, Northrop Grumman (2002 – 2007)

Lead Hydrogeologist. Technical Design and Implementation - Lead hydrogeologist for Remedy Identification, Evaluation and Selection (RIDES) process. Mr. Voci refined the site conceptual model using membrane interface probe (MIP) characterization techniques and designed the ozone injection remediation system for the site and directed the overall design program for the solid waste management unit (SWMU).

RCRA Facility EISB Application, Lancaster County, Pennsylvania, Confidential Client

Project Manager/Hydrogeologist. Project manager/Hydrogeologist for a RCRA site involving EISB, and a groundwater extraction and treatment remedy. Successfully implemented one of the first biostimulations/bioaugmentations in fractured rock.

Cosmetic Implements Manufacturing Facility ISRA Program, EISB Application, Essex County, New Jersey, Revlon (2002 – 2008)

Remediation Designer. Remediation designer for an ISRA site with NJDEP approval and oversight. Site involved batch delivery of sodium lactate and KB-1 bioaugmentation.

Support Investigation and Remediation, Central California, Confidential Client, Project Manager (1997 – 2000)

Project Manager. Managed groundwater and vadose zone investigations and remediation associated with a PCE release beneath a shopping center in Central California. All work was conducted with third-party review under a California RWQCB order.

Selected Abstracts and Presentations

- Voci, C.J., Successful Chlorinated Solvent Source Zone Treatment Using Zero-Valent Iron and In-Situ Bioremediation, 40th Annual Conference on Soils, Sediments, Water, and Energy. Amherst, Massachusetts. October 2024.
- Voci, C.J., Campeau, D., Jones C., Elmendorf, C.N. Large-scale Design and Implementation of Zero-Valent Iron Coupled with In-Situ Bioremediation for VOC Treatment. Thirteenth International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Denver, Colorado. June 2024.
- Voci, C.J., Chlorinated Solvent Remediation via Hydraulic Emplacement of Zero-Valent Iron and In-Situ Bioremediation, 38th Annual Conference on Soils, Sediments, Water, and Energy. Amherst, Massachusetts. October 17-20, 2022.
- Voci, C.J. and Roberts, J.D. The Salt Life - Reductive Dechlorination of Chlorinated Ethenes and Ethanes in Saline Groundwater. Twelfth International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palms Springs, California. May 2022.

- Voci, C.J. and Gulli. A.K., Post-Bioremediation Bulk Vinyl Chloride Attenuation Rate Estimation in an Overburden Groundwater Aquifer in Kansas. Eleventh International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palms Springs, California. May 2018.
- Voci, C.J. and Croteau, D. Challenges of Managing a Low Concentration 1,2,3-Trichloropropane Site in California. Eleventh International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palms Springs, California. May 2018.
- Voci, C.J., Croteau, D and Geckler, G., Targeted Small Source Zone In Situ Thermal Treatment: Lessons Learned at Two Chlorinated VOC Applications. Eleventh International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Palms Springs, California. May 2018.
- Voci, C., N. Durant, and J. Roberts. 2010. Bioaugmentation for Treatment of a High-Concentration Chlorinated Solvent Complex Mixture. Platform Presentation. Seventh International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Monterey, California. May 2010.
- Voci, C., J. Roberts, S. Dworatzek, and P. Dennis. 2009. Biodegradation of High 1,2-Dichloropropane Concentrations in Microcosms Containing Dehalococcoides and Dehalobacter Organisms. Platform Presentation. 10th International In Situ and On-Site Bioremediation Symposium. Baltimore, Maryland. May 2009.
- Voci, C., S. Fogel, M. Findlay. 2008. Bioaugmentation Overcomes Inhibitory Conditions Resulting In Complete TCA and TCE Dechlorination in Fractured Rock. Platform Presentation. Sixth International Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds. Monterey, California. May 2008.
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- Voci, C. 2004. Ethanol Biostimulation and Bioaugmentation of a VOC-Impacted Carbonate Aquifer. Battelle Press, Paper/Platform Presentation Proceedings from the Battelle Conference for the Remediation of Recalcitrant Compounds, May 2004.
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Alexander Strohl, PG

Senior Project Geologist

Mr. Strohl is a Licensed Professional Geologist with 10 years of experience in the environmental consulting industry. As a Project Geologist, he is responsible for directing multi-media site characterization programs involving groundwater, soil, surface water, soil vapor, and sediment sample collection for a variety of target contaminants including, chlorinated hydrocarbons, petroleum hydrocarbons, per- and polyfluoroalkyl substances (PFAS), metals, Polychlorinated Biphenyls (PCBs) and others. He has supervised environmental investigation and remediation including soil excavation, in-situ groundwater remediation, petroleum and chemical storage tank decommissioning, and monitoring well installation and abandonment. Mr. Strohl is also responsible for preparing Work Plans, Phase I Environmental Site Assessments (ESAs), and investigation-related technical reports for clients and regulatory agencies. Mr. Strohl is experienced in utilizing groundwater contaminant plume models in addition to his experience in developing environmental conceptual site models.

Mr. Strohl's project experience includes complex remedial investigation projects, the Pennsylvania Voluntary Cleanup (Act 2) Program, PFAS sampling and reporting, Phase I and II ESAs, tank investigations/removal, desktop auditing of oil and gas waste disposal facilities, Spill Prevention, Control, and Countermeasure (SPCC) inspections of oil and gas facilities, regulatory reporting for landfills, and National Pollutant Discharge Elimination System (NPDES) sampling and reporting.

Education

BS in Geosciences, with a minor in Spanish, The Pennsylvania State University, 2015

Years of Experience

10

Joined Terraphase

2021

Professional History

Terraphase Engineering Inc.,

Project Geologist, 2024 – present

Senior Staff Geologist, 2021 – 2023

Environmental Standards, Inc., Staff Geoscientist, 2015 – 2021

Licenses/Registrations

Pennsylvania Licensed Professional Geologist (PG) No. 5519, 2021

Delaware Licensed Professional Geologist (PG) No. S4-0011440, 2024

New Hampshire Licensed Professional Geologist (PG) No. 927, 2024

Maine Licensed Professional Geologist (PG) No. GE683, 2025

Certification/Training

Synergis Technologies' 32-Hour AutoCAD Essentials, 2015

OSHA HAZWOPER 29 CFR 1910.120 and 8-Hour Refresher, Valid through 2023

First Aid/CPR/AED Trained, Valid through 4/2025

SafeLand USA Trained

Project Experience

Former Philadelphia Refinery, Philadelphia, Pennsylvania, Philadelphia Energy Solutions Refining and Marketing (2021 – present)

Professional Geologist of Record. Developed investigation work plans and site characterization reports to assist with closure of a 1,400-acre, 150-year-old former petroleum refinery. The site is currently enrolled in the Pennsylvania Regulated Tank Corrective Actions Program and the Pennsylvania Voluntary Cleanup Program for multiple sources of contamination. Certified the closure reports as the Professional Geologist of record.

Jennersville Hospital, West Grove, Pennsylvania, Tower Health (2022 – present)

Project Manager. Planned and managed a complex site investigation for PFAS at a hospital property impacted by the discharge of laundry greywater. The investigation included a rigorous quality assurance program, which was executed to the satisfaction of the client and third-party consultant reviewers. The implemented protocols for prevention of cross contamination have proven to be effective; quality assurance blanks have not detected PFAS substances above laboratory detection limits. The site will be enrolled in Act 2.

Multiple Act 2 Project Sites, Pennsylvania (2021 – present)

Professional Geologist of Record. Developed and certified Final Reports as the Professional Geologist of record to receive release of liability through the Act 2 program. Sites have included a recently developed car dealership where improper reporting for former underground storage tanks (USTs) had previously failed to

demonstrate attainment of the selected standard, and a former rail yard where multiple potential sources of contamination were investigated as part of the redevelopment of a property to a large residential apartment complex.

Lead in Water Testing Program Management, Philadelphia, PA, School District of Philadelphia (August 2022 – Present)

Project Manager. Managed subcontracted plumbers and electricians to complete water fountain installations in nearly 300 District buildings to meet a compliance deadline. Communicated progress and schedule to District project managers. Managed sampling team schedules to complete lead in water testing in accordance with EPA "3 T's" guidance. Consulted the technical database team as an internal user of database and dashboards which house and display sampling and work order data.

Superfund Sites, Maryland and Pennsylvania (2015 – present)

Task Manager and Field Team Leader. Planned and executed numerous successful investigations and routine field sampling events at Superfund Sites located in Maryland and Pennsylvania impacted by chlorinated hydrocarbons and PFAS. The sites included former disposal facilities with long term pump-and-treat remediation systems. Complex bedrock geology and difficult field conditions frequently necessitated problem solving and flexibility.

Pollock Park and Pottstown Plating Works, Pottstown, Pennsylvania, Montgomery County Redevelopment Authority (2017 – 2021)

Task Manager and Field Team Leader. Managed soil and groundwater sampling activities at chlorinated hydrocarbon-impacted sites. Neighboring properties were also heavily impacted with chlorinated hydrocarbons, making cooperation between multiple consulting firms, regulatory agencies, and clients a necessity. Developed work plans, proposals, conceptual site models, and groundwater contaminant plume models for environmental investigation and closure reports. The investigations and cleanups assisted in the efforts to rejuvenate a former industrial area to re-develop a community park in Pottstown.

Store Space, Philadelphia, Pennsylvania (2022 – 2023)

Project Manager. Developed work plans and managed the implementation of a remediation of concrete floors impacted with mercury and PCBs at a facility that was the former location of a thermometer manufacturer. A request for proposal was distributed to multiple remediation contractors. Contractors were evaluated and the bid was awarded based on their qualifications, price, and remediation methodology. The success of the remediation allowed for the sale of the property.

Lanchester Landfill, Narvon, Pennsylvania, Chester County Solid Waste Authority (2019 – 2021)

Project Manager and Field Team Leader. Performed regulatory reporting for a landfill facility in Pennsylvania. Developed sampling and analysis plans, executed a PFAS leachate sampling investigation, and assisted in streamlining the routine sampling process for the facility.

Triumph Accessory Services, Wellington, Kansas, RICOH (2021 – 2022)

Senior Staff Geologist. Assisted with the development and planning, and oversaw the field implementation of an in-situ remediation methodology designed to significantly reduce concentrations of chlorinated solvents in groundwater. The success of the remediation will allow the client to receive regulatory closure for the property within the framework of the Kansas Voluntary Cleanup Program.

The Poplar, Philadelphia, Pennsylvania, Post Brothers Apartments (2018 – 2021)

Task Manager and Field Team Leader. Managed complex site assessment and investigation reporting activities at a large-scale residential redevelopment site. The site is currently enrolled in a voluntary cleanup program for six separate historical sources of contamination, including a former dry-cleaner, on-site and off-site petroleum USTs, and historical fill.

Appendix K

Health And Safety Plan

Health and Safety Plan

Elmwood Preserve, NYSDEC BCP Site No. C360239

850 Dobbs Ferry Road, White Plains, New York

Prepared for

Ridgewood Elmwood Owner, L.L.C.
25A Hanover Road, Suite 310
Florham Park, New Jersey 07932

Prepared by

Carson Voci Engineering and Geology, D.P.C.
an affiliate of Terraphase Engineering Inc.
1100 East Hector Street, Suite 400
Conshohocken, Pennsylvania 19428

December 10, 2024, Updated October 20, 2025

Project Number CV04.001

carsonvoci
engineering and geology dpc
an affiliate of Terraphase Engineering Inc.

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Figure 2 Project Personnel Structure

Appendices

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Appendix B HASP Review and Acceptance Form

Appendix C Safety Meeting Sign-In Sheets

Appendix D Driving Directions to Nearest Urgent Care or Hospital

Acronyms and Abbreviations

ANSI	American National Standards Institute
APR	air-purifying respirator
bgs	below ground surface
CDC	Centers for Disease Control and Prevention
CFR	Code of Federal Regulations
COPCs	chemicals of potential concern
COVID-19	coronavirus
dBA	Decibels
eV	electron volts
^{o}F	Degrees Fahrenheit
ft	feet
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
kV	kilovolts
OSHA	Occupational Safety and Health Administration
Participant	Ridgewood Elmwood Owner, L.L.C.
PCB	polychlorinated biphenyls
PFAS	per- and polyfluoroalkyl substances
PID	Photoionization Detector
PPE	Personal Protective Equipment
ppm	parts per million
QA/QC	quality assurance/quality control
Roux	Roux Environmental Engineering and Geology, D.P.C.
SCOs	Soil Cleanup Objectives
the Site	850 Dobbs Ferry Road, White Plains, New York
SPF	Sun Protective Factor
SSHO	Site Safety and Health Officer
SVOC	semi volatile organic compound
TAL	Target Analyte List
TCL	Target Compound List
Terraphase	Terraphase Engineering Inc.
UV	Ultraviolet
VOCs	volatile organic compounds

Signature Sheet

This section provides a detailed listing of the individuals responsible for drafting, reviewing, implementing, and approving this HASP.

Plan Prepared By:



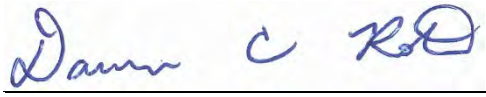
Kesli Kruzel, GIT, Staff II Geologist	10/20/2025 Date

Project Manager/Remedial Engineer:



Nicholas Krasnecky, PE, Senior Associate Engineer	10/20/2025 Date

Corporate Health and Safety Officer Approval:



Daren Roth, Associate H&S Director	10/20/2025 Date

1 Introduction

This Health and Safety Plan (HASP) was developed for the remedial action (RA) activities to be conducted at the New York State (NYS) Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program Site No. C203162 identified as Elmwood Preserve at 850 Dobbs Ferry Road, White Plains, New York ("the Site"). The HASP was prepared by Carson Voci Engineering and Geology D.P.C. an affiliate of Terraphase Engineering Inc. (herein referred to as "Carson Voci" or "Terraphase") in support of the implementation of the RA Work Plan (RAWP) at the Site, on behalf of Ridgewood Elmwood Owner, L.L.C. (the "Participant").

This document constitutes the HASP, which is central to the safety and health program for the project. This document is considered a living document and can be amended as needed. A hardcopy of this HASP will remain on Site at all times during the field investigation activities.

1.1 Field Work Activities

Terraphase will oversee the excavation, staging, and offsite disposal of approximately 110,000 cubic yards of soil material and 3,300 cubic yards of pond sediment at the Site by the Remedial Contractor. The soil and sediment are contaminated with metals and pesticides. Terraphase will observe the Remedial contractor's excavation of soil, and screen the excavated soil for signs of contamination. The soil will be segregated based on the field screening results, staged in piles to be sampled for waste characterization by Terraphase, and subsequently loaded into trucks and exported off-site for reuse or disposal. The Remedial Contractor will utilize heavy equipment to excavate and manage the soils and will prepare their own HASP for their proposed means and methods for implementation of the RAWP.

Following the completion of soil and sediment excavations, Terraphase will collect post-excavation at a pre-determined frequency from the base and sidewalls of the shallow excavations (i.e. < 4-foot sidewalls). Samples will be collected in accordance with the RAWP and Quality Assurance Project Plan (QAPP). Soil samples will be collected from various depths and analyzed for a combination of contaminants including volatile organic compounds (VOCs), semi volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), per- and polyfluoroalkyl substances (PFAS), target compound list (TCL) pesticides/herbicides, and target analyte list (TAL) metals.

The detailed scope of the proposed work activities is provided in the RAWP.

1.2 Corporate Policy

Safety should take the highest priority in any Terraphase project; as evident in Terraphase's corporate motto "Safety First." It is Terraphase's policy that its personnel and its sub-contractor(s) on site shall assume full responsibility and liability for compliance with all applicable Federal, State and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the Site, and persons occupying areas adjacent to the Site. Terraphase's hard-earned reputation as a successful consulting company directly correlates to our high standards for safety during our projects. The goal for safety is no illness or injuries with zero lost work days due to work conditions.

1.3 Purpose and Regulatory Compliance

The HASP covers each of the required elements as specified in 29 CFR 1910.120. When combined with the Terraphase Health and Safety Program, this site-specific plan meets all applicable regulatory requirements. This HASP will be made available to all personnel and subcontractors involved for this project. The HASP has been reviewed by the Corporate Health and Safety Officer. By signing the documentation form provided with this plan (Attachment 2), project workers also certify their agreement to comply with the HASP. For subcontractors, this HASP represents minimum safety procedures. Subcontractors are responsible for their own HASP and safety protocols while present onsite or conducting work for this project. Both Terraphase and its subcontractors are independently responsible for the health and safety of their own employees on the project.

2 Site Background

The Site was first developed in 1924 as the Pelhamhurst Golf & Country Club golf course. In 1946, the ownership transferred to John C. Von Glahn, a Trustee, to Elmwood Country Club Inc. The property continued to be managed as a private club and golf course from 1946 until its closure in 2017. The property was purchased by the Participant in 2017.

Roux Environmental Engineering and Geology, D.P.C. (Roux) and Carson Voci conducted a remedial investigation from May through July 2024 and February through June 2025, respectively, to assess the nature and extent of contamination associated with the former Site use as a golf course and country club and the presence of metals and pesticide exceedances across the Site. The investigations evaluated soil, groundwater, soil vapor, surface water, and sediment to determine the nature and extent of impacted media at the Site.

Data collected during the remedial investigation was used to develop a conceptual site model. The model incorporated the Site's history; source, magnitude, fate, transport of contaminants of concern (COPCs); potential exposure pathways; as well as site-specific geology, hydrogeology, and both current and proposed future land use. The COPCs at the Site include pesticides, metals, and polyaromatic hydrocarbons, which do not readily biodegrade and therefore persist in environmental media unless actively remediated. Based on the soil, groundwater, soil vapor, sediment, and surface water results, soil is the primary impacted environmental medium at the Site.

Based on the vertical profiles of pesticides and metals in Site soil, these COPCs are attributed to legacy pesticide applications associated with the historical use of the Site as a golf course and country club. Soils containing pesticides and metals at concentrations exceeding the applicable soil cleanup objectives (SCOs) are found primarily in the upper 0.5 feet of soils, with impacts in some areas extending to 2 feet below ground surface. A limited number of locations demonstrated impacts below 2 feet below ground surface, primarily isolated to individual pesticides or metals. The occasional exceedances of polychlorinated biphenyls and semivolatile organic compounds above the applicable SCOs are not indicative of known historical Site operations and are likely due to historical fill material identified on the portion of the Site that previously contained the clubhouse and surrounding infrastructure.

The Site groundwater does not contain COPCs at levels exceeding the ambient water quality standards (AWQS), except for the per- and polyfluoroalkyl substances (PFAS) COPCs. PFAS was detected at most groundwater monitoring wells at concentrations exceeding the AWQS. Groundwater sampling results indicate the concentrations of pesticides and metals in the Site soils are not impacting groundwater.

PFAS compounds were also detected in soil at levels above the unrestricted use SCOs. However, there is currently no indication of an on-site source of PFAS and/or impacts stemming from known historical Site operations. Therefore, the presence of PFAS at the Site is likely attributable to background levels from diffuse anthropogenic deposition common to the greater New York City metropolitan area, as evidenced by PFAS detections at multiple Brownfield Cleanup Program sites throughout Westchester County.

Soil vapor is not a medium of concern at the Site since regulated soil vapor compounds are not present above applicable standards, criteria, and guidance in any other environmental medium, and detected soil vapor concentrations at the Site do not indicate a requirement for further monitoring or mitigation.

Site surface water does not contain COPCs at concentrations exceeding the AWQS, except for dieldrin at three small stream channel sampling locations in the eastern part of the Site.

The sediment sample results indicated slight to moderate contamination (i.e., Class B sediment) or highly contaminated sediments (i.e., Class C sediment) when compared to the ecologically based freshwater screening guideline values. Exceedances of chlordane (total) and/or various metals were primarily detected in the pond, with minor impacts identified in sediment samples collected in the small stream channel in the eastern part of the Site. Based on the surface water sampling results, impacts to the soil and sediment at the Site do not appear to be readily impacting surface water. The concentrations of pesticides and metals in sediment appear to be related to the impacts in soil, consistent with historical legacy pesticide application at the Site.

3 Hazards

Hazards that could be encountered include chemical hazards, environmental hazards, biological hazards, and/or physical hazards. The sub-categories of these four types of hazards are explained in further detail below.

3.1 Chemical Hazards

Chemical hazards may be encountered during the field activities to be conducted at the Site. These hazards may be encountered through inhalation, absorption (dermal contact), or ingestion. Based on historical site usage and investigation activities, the following COCs may be encountered during surveying, boring activities, and the collection of soil samples:

- VOCs, primarily BTEX compounds
- SVOCs
- PCBs
- PFAS
- Pesticides/herbicides
- Metals, primarily arsenic and mercury

Silica dust may also be encountered when coring, drilling or saw cutting into the concrete, and metals dust may be encountered due to the nature of the work done at the Site.

3.1.1 Absorption and Ingestion Risk

The anticipated concentrations of contaminants of potential concern (COPCs) in soil are such that the absorption and ingestion risk can be minimized by proper personal hygiene and use of personal protective equipment (PPE). The PPE requirements are discussed further in Section 8.0. If work is anticipated in areas where one or more of the COPCs exceed acceptable risk-based screening levels; the work practices, engineering controls, and required PPE will be assessed and modified as necessary in an addendum to this HASP.

3.1.2 Inhalation Risk

3.1.2.1 VOCs and SVOCs

Inhalation risk associated with VOCs and select SVOCs is possible when disturbing the subsurface (e.g., well installation). During the periods of field activities when the subsurface is disturbed, real-time air monitoring of the worker breathing zone will be conducted. Air monitoring is discussed further in section 9.0. If field personnel experience short-term health effects such as headaches, nausea, or eye and respiratory irritation that are often associated with these compounds, they will take a break to relieve symptoms and further assess the risk to other personnel in the immediate area.

3.1.2.2 Other COPCs

The inhalation risk associated with other COPCs at the Site (select SVOCs, PCBs, pesticides/herbicides, and metals) can be minimized with proper dust control during the proposed field activities. The proposed drilling and sampling activities are anticipated to produce minimal dust. The need for air monitoring for dust or metals will be assessed prior to changes in site activities and action levels will be developed as necessary based on soil analytical data in the proposed work areas.

3.1.2.3 Per- and Polyfluoroalkyl Substances (PFAS)

With the exception of workers involved in the making, handling, or processing PFAS and PFAS-containing materials, there is minimal inhalation risk associated with PFAS, especially in soil and groundwater. Similar to metals and PCBs, the risk will be further reduced by minimizing dust generation.

3.1.2.4 Silica Dust

Silica dust may be generated during the coring, drilling, or sawing of concrete prior to the advancement of soil borings or excavations. OSHA recommends engineering controls be implemented during all concrete coring/demolition to minimize inhalation risk to field personnel from silica dust, as outlined in 29 CFR 1926.1153. Engineering controls can substantially reduce the potential for exposure from silica dust.

The required engineering controls, in accordance with Table 1 in 29 CFR 1926.1153, include the following:

- Core saws will be equipped with an integrated water delivery system with water flow rates sufficient to minimize the release of visible dust. The resulting slurry will be cleaned up (most likely with a wet/dry vacuum) to prevent the slurry from drying and releasing silica dust into the air.
- When using a handheld drill (e.g., rotary hammer, hammer drill, etc.), a vacuum dust collection system (e.g., hammer drill collection attachment) will be used to reduce exposure to silica dust. The vacuum must provide adequate airflow to remove dust at the drilling point and be equipped with a HEPA filter.
- If concrete is to be removed with heavy equipment, water and/or dust suppressants will be applied as necessary to minimize visible dust emissions by the demolition contractor.

3.2 Environmental Hazards

In White Plains, New York, the maximum average high temperature occurs in July at around 83 degrees Fahrenheit and the minimum average low temperature occurs in January at around 24 degrees Fahrenheit (°F). The average annual precipitation is approximately 38.6 inches of rain and 27.5 inches of snow. As such, all field personnel should be prepared for a change in weather conditions.

3.2.1 Heat Stress

Heat stress is caused by a number of interacting factors, including environmental conditions, clothing, workload, etc., as well as the physical and conditioning characteristics of the individual. All employees

must be informed of the importance of adequate rest, acclimation, and proper diet in the prevention of heat stress disorders.

Heat stress monitoring and work rest cycle implementation must commence when the ambient temperatures exceed 80°F. The site safety and health officer (SSHO), project manager, and/or task manager should monitor the anticipated high temperatures prior to the start of work, as well and monitor real-time temperatures during the work day using a reputable website (i.e. http://www.weather.gov/) or onsite weather station.

Employees shall be allowed and encouraged to take a preventative cool-down rest in the shade at a time when they feel the need to do so to protect themselves from overheating. Such access to shade shall be permitted at all times. An individual employee who takes a preventative cool-down rest (A) shall be monitored and asked if he or she is experiencing symptoms of heat illness; (B) shall be encouraged to remain in the shade; and (C) shall not be ordered back to work until any signs or symptoms of heat illness have abated, but in no event less than 5 minutes in addition to the time needed to access the shade.

High Heat Procedures will be implemented in accordance with the OSHA heat illness prevention regulations if the temperature at the Site equals or exceeds 95°F. This must include the following:

1. Ensuring that effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor when necessary. An electronic device, such as a cell phone or text messaging device, may be used for this purpose only if reception in the area is reliable.
2. Observing employees for alertness and signs or symptoms of heat illness. The employer shall ensure effective employee observation/monitoring by implementing one or more of the following:
    a. (A) Supervisor or designee observation of 20 or fewer employees, or
    b. (B) Mandatory buddy system, or
    c. (C) Regular communication with sole employee such as by radio or cellular phone, or
    d. (D) Other effective means of observation.
3. Designating one or more employees on each worksite as authorized to call for emergency medical services, and allowing other employees to call for emergency services when no designated employee is available.
4. Reminding employees throughout the work shift to drink plenty of water.

Pre-shift meetings before the commencement of work to review the high heat procedures, encourage employees to drink plenty of water, and remind employees of their right to take a cool-down rest when necessary.

3.2.2 Hypothermia

Hypothermia can result from abnormal cooling of the core body temperature. It is caused by exposure to a cold environment and wind-chill. Wetness or water immersion can also play a significant role. Typical warning signs of hypothermia include fatigue, weakness, lack of coordination, apathy, and

drowsiness. A confused state is a key symptom of hypothermia. Shivering and pallor are usually absent, and the face may appear puffy and pink. Body temperatures below 90°F require immediate treatment to restore temperature to normal. Current medical practice recommends slow re-warming as treatment for hypothermia, followed by professional medical care. This can be accomplished by moving the person into a sheltered area and wrapping with blankets in a warm room. In emergency situations, where body temperature falls below 90°F and heated shelter is not available, use a sleeping bag, blankets, and body heat from another individual to help restore normal body temperature.

3.2.3 Ultraviolet (UV) Radiation (Sunlight)

Moderate to high potential for overexposure to UV light exists for field personnel. To prevent erythema (sunburn), workers will be provided Sun Protection Factor (SPF) 30 or greater sunscreen to apply to areas not covered with clothing or PPE. Workers will be encouraged to seek shade whenever possible.

3.2.4 Rain/Thunder/Lightning

Due to the site's location, foul weather including rain storms can occur frequently. Monitor local weather through available media or a weather radio. Although not as frequent, electrical storms can potentially be very hazardous to field personnel. During lightning and thunderstorms, the following is necessary:

- Equipment shutdown;
- Seek shelter in a building or vehicle; and
- Await further instruction from Project Leader.

A 30-minute STAND DOWN period is required after encountering Lightning or Thunder in order to allow the storm to pass.

3.3 Physical Hazards

Physical hazards discussed under this section include traffic hazards, underground and overhead utilities, drill rigs, machinery and moving parts, electrical hazards, confined space entry, noise, slips, trips, and falls, motor vehicle and heavy equipment operation, and ergonomic hazards.

3.3.1 Underground and Overhead Utilities

Reasonable efforts will be made to identify the location(s) of underground utilities (e.g., pipes, electrical conductors, fuel lines, and water and sewer lines) before soil intrusive work is performed. The state underground utility notification authority UDig NY (New York 811) will be notified at least 3 full business days prior to starting field activities. UDig NY in turn will notify representatives of the utility companies who will mark the location of underground services entering the property. UDig NY markings will be noted prior to drilling to prevent damage to utility lines. In addition, Terraphase will have a private utility locate conducted a geophysical survey at all proposed excavation and soil boring installation locations prior to the initiation of intrusive excavation/drilling activities.

The Project Manager is responsible to ensure that underground utility locations are identified prior to the commencement of any subsurface activities. Resources include site plans, utility companies, and regional utility locating services. The proper utility company personnel should certify the deactivation of utilities, and the certification should be retained in the permanent log. Only qualified persons shall perform subsurface installation locating activities, and all such activities shall be performed.

When soil borings approach the approximate location of subsurface installations, the exact location of the installations shall be determined by safe and acceptable means that will prevent damage to the subsurface installation, as provided by 29 CFR 1926.650-652.

If a utility strike presents an immediate danger to the work crew or general public (i.e., electrical, gas, high pressure water line), then the crew should evacuate to a safe distance, contact 911 immediately, and cordon off the area to prevent public access.

All utility strikes should be reported out to the PM and/or SSHO as soon as it is safe to do so, and then a plan will be made for reporting to the utility company and client. If a utility strike does occur refer to the accident reporting requirements in Section 7.0.

Prior to mechanized drilling, the following techniques will be employed to determine the location of subsurface structures:

- contracting the services of a qualified private utility locator, and
- prior to mechanized drilling, subsurface testing (i.e., hand auguring and/or potholing) to the expected depth of probable utilities (not less than 5 feet)

If utilities cannot be located and/or if unlocated utilities are suspected to be present, subsurface activities (i.e., borings, excavation) should not be conducted prior to confirming the location(s) or absence of underground utilities.

Equipment with articulated upright booms or masts shall not be permitted to pass within 20 feet of an overhead utility line (less than 50 kilovolts [kV]) while the boom is in the upright position. For transmission lines in excess of 50 kV, an additional distance of 4 inches for each 10 kV over 50 kV will be used.

Excavation, drilling, crane, or similar operations adjacent to overhead lines shall not be initiated until operations are coordinated with the utility officials. Operations adjacent to overhead lines are prohibited unless one of the following conditions is satisfied:

- Power has been shut off and positive means (e.g. lockout/tagout) have been taken to prevent lines from being energized. Wherever possible, the SSHO will observe power shut off and place a lock and tag on the switch. In all cases utility company personnel shall certify in writing to the Project Manager or SSHO the deactivation of overhead utilities, and the certification retained in the project files. The Site Manager or SSHO must also attempt to verify power shut off by checking that power is no longer available to the affected building or equipment.
- Equipment, or any part of the equipment, cannot come within the following minimum clearance from energized overhead lines (please note that Terraphase recommends that 10 feet be added to the minimum required clearances presented below):

Power Lines Nominal System (kv)	Minimum Required Clearance
0-50	10 feet
50- 75	11 feet
75-125	13 feet
125-175	15 feet
175-250	17 feet
250-370	21 feet
370-550	27 feet
550-1000	42 feet

3.3.2 Drill Rigs

The operator of the Drill Rig will comply with the precautions specified in the above section. In addition, the following precautions should be observed whenever a drill rig is in use:

- Workers must not wear loose clothing, nor leave long hair, boot laces, or jacket ties uncontrolled while operating moving equipment;
- Hard hats, hearing protection, safety footwear, and eye protections must be worn at all times;
- Prior to the start of daily operations, the drill rig operator should inspect the drill rig carefully to be sure that it is suitable for the day's work;
- The drill rig operator will ensure that there is adequate lighting on the rig to enable the job to be performed safely;
- The drill rig must be equipped with an operable kill switch and personnel must be aware of restarting procedures;
- All fittings, connections, and hydraulic hoses must be of a standard to operate in a safe manner;
- At no time will the operator of the drill rig operate the drill controls and add stem while alone, unless the drill rig is designed to operate as a single person operation;
- Repairs and service must not be attempted while rotary machinery is running; and
- If electrical storms can be seen or heard, drilling operation will be shut down until it is deemed safe by the SSHO.

3.3.3 Machinery/Moving Parts

Drilling and vacuum equipment may have various motors, booms, and other equipment. These present a general physical hazard from moving parts. Personnel will stand clear of machinery at all times unless specific instructions are given by the trained operator, or other person in authority. Steel toed shoes or boots will be worn at all times when on the site. When possible, appropriate guards will be in place

during equipment use. Field personnel should be careful to keep loose clothing, hands, and feet away from vacuum hose inlets.

3.3.4 Hand and Power Tools

Use of power tools presents potential physical hazards (e.g., pinch points, electrical hazards, flying debris, and struck-by/caught-between hazards) to personnel operating them. The following safety rules must be implemented:

- Inspect tools frequently for defects. Turn in all tools which are burred, mushroomed, have split or loose handles, have worn or sprung jaws, have exposed wires, or are generally unsafe.
- Use hand tools properly and for their intended use only.
- Do not to operate power tools, machinery, or equipment without proper training or supervision.
- Do not operate equipment unless all guards and other protective devices are properly secured and correctly adjusted.
- Keep cords of electrical equipment coiled when not in use.
- When using electrical equipment, position its power cord to avoid its being run over by vehicles or equipment.
- Turn off, and if possible unplug, machinery before cleaning, oiling, adjusting, or repairing unless the equipment is designed or fitted with safeguards to protect the person performing the work.
- Do not wear loose or frayed clothing, dangling ties, finger rings, etc. when operating or working near moving machinery or other mechanical sources of entanglement.
- Do not lift or lower portable electric tools by means of a power cord; use a handline.
- Never throw tools, equipment, or material up or down from one working level to another; always use a handline. Do not disconnect air hoses at compressors until hose line has been bled.

3.3.5 X-ray Field Screening Devices

An X-ray Fluorescence (XRF) direct reading instrument will be used to evaluate arsenic and mercury concentrations, the primary COPCs driving off-site disposal. Only a Qualified Environmental Professional (QEP) trained in the use of an XRF and/or equivalent field screening devices utilizing low level radiation with conduct field screenings with the XRF instrument. The XRF results will be used to direct the remedial contractor to the appropriate stockpile for subsequent waste characterization sampling prior to off-site disposal.

3.3.6 Portable Generator Use

A portable generator is not expected to be used by Terraphase personnel for the scope of work. However, if a generator is utilized on-site the following procedures will be observed.

Care shall be exercised while refueling generators to prevent fire and spills. A generator must be shut off prior to refueling. Personnel shall eliminate static electricity by grounding themselves (touching metal) prior to handling refueling hoses and or containers of petroleum liquids. Items being refueled shall be

grounded or be located on the ground and not on a trailer, work bench or inside a truck bed. Equipment that is hot must be allowed to cool prior to refueling. Spill response materials shall be available when conducting refueling operations.

Proper ventilation shall be ensured during generator operation to prevent carbon monoxide poisoning. Portable generators shall never be used indoors or in enclosed spaces and shall maintain a minimum of 3 to 4 feet of clear space on all sides and above to ensure adequate ventilation. The portable generator will never be placed near doors, windows or vents that could allow carbon monoxide to enter a building.

3.3.7 Electrical Hazards

In order to prevent accidents caused by electrical shock, field personnel will inspect electrical equipment being used (e.g. power tools, electrical cords) on a daily basis for evidence of frayed or loose connections.

3.3.8 Lock-out/Tag-out

Lock-out/Tag-out procedures should be used on any pieces of equipment being worked on by field personnel. The only exception to this is equipment with a plug, which can be unplugged and remain in control of the worker. Proper lock-out/tag-out includes the identification and isolation of hazardous energy. The energy sources must be locked out so that only the worker(s) has the key to release the isolation point. Stored energy (e.g. air or water pressure) must also be released prior to conducting work on the equipment. If necessary, all provisions of the OSHA standard as stated in 29 CFR 1910.147 will be followed for controlling hazardous energy or locking out or tagging out electrical and utility hazards.

3.3.9 Confined Spaces

Confined space entry is not anticipated for this project. Terraphase field personnel will not enter any confined space without specific approval of the Project Manager. Subcontractors may need to conduct permit-required confined space entries and should notify Terraphase Project Leader prior to the entry.

If confined space entries are conducted, they will be in accordance with the subcontractor's confined space entry program. An attendant will be stationed above the confined space while the entrant(s) are in the confined space. A full-body harness with emergency retrieval equipment or another means of egress (e.g. ladder) shall be in use if necessary and if the confined space is greater than 6 feet deep.

Before conducting any work inside a confined space (e.g. tank), the personnel will conduct a visual inspection of the area from the opening to identify any hazards before proceeding. Gas measuring devices will be utilized to detect any presence of harmful or dangerous atmospheres. Any floating or rotating machinery that are in the confined space are turned off and locked out prior to beginning any work.

3.3.10 Noise

Appropriate hearing protection (ear muffs or ear plugs with a noise reduction rating of at least 20 decibels [dBA]) will be used if individuals work near high-noise generating equipment (> 85 dBA).

Determination of the need for hearing protection will be made by the Project Leader and follow the Terraphase Hearing Conservation program document and 29 CFR 1910.95. The determination will be based on historical area noise surveys for similar tasks. If recent representative data is not available for specific noise producing equipment/tasks, then area noise surveys will be conducted. Personal noise dosimetry will also be conducted if area noise surveys indicate that employees may be exposed to noise in excess of 85 dBA over an 8-hour time-weighted average (8-hour TWA). To be conservative, hearing protection should be worn when Terraphase staff plan to be within 100 feet of operating equipment.

Hearing protection is further discussed in section 10.5.

3.3.11 Slips, Trips, and Falls

Slips, trips, and falls are a leading cause of injury on construction and remediation worksites. Water and slime collect on horizontal surfaces and stairs, posing a potential hazard. Proper housekeeping is the key to preventing injuries of this nature. To minimize potential for injuries, the following measures will be implemented:

- Site around open manholes, excavations, trenches, etc. will be kept clean and orderly.
- All potential trip and fall hazards will be clearly marked, modified to reduce the hazard, or engineered in a configuration to eliminate the hazard (if possible).
- All floors and stair treads will be kept clean of water, oil, and polymer.
- All hoses will be coiled and stored out of the way when not in use.
- There will be no running on the site.

As with all field work sites, caution will be exercised to prevent slips on rain slick surfaces, stepping on sharp objects, etc. Work will not be performed on elevated platforms without fall protection.

3.3.12 Heavy Equipment Operation

Physical hazards can arise from loading and off-loading heavy equipment from tractor-trailers and locating equipment to designated areas of use. Hazards will be mitigated by personnel avoiding close proximity to moving equipment and immovable objects.

Belts and rotating parts have the ability to injure, crush, or amputate body parts and limbs. Personnel will avoid contact with any moving part. Any loose items will be removed before working around moving or rotating equipment. Any moving parts that can be guarded will have an appropriate machine guard installed. Equipment will not be operated without the proper guards in place. Repairs/adjustments will be done with the equipment stopped and locked out as appropriate.

The following measures will be implemented for heavy equipment operation:

- The minimum required work uniform for all field personnel (e.g. Level D protection) shall be general work clothes, steel-toed construction boots American National Standards Institute (ANSI) approved, safety goggles or glasses, work gloves, high visibility vest, hearing protection, and a hard hat (ANSI approved).
- Adequate workspace shall be maintained during equipment operation.

- Equipment shall be inspected for proper working condition prior to use.
- Field personnel shall only approach operating equipment from the operator's angle of view, and only after making eye contact with the equipment operator.
- A 10-foot perimeter will be maintained around all active equipment as a "Danger Zone".
- Only trained and qualified persons shall operate individual equipment.

On-site haulage or earth-moving vehicles subject to the requirements of OSHA 1926.602 will have a functional audible alarm in compliance with the referenced standard. In addition, the warning sound shall be of such magnitude that it will normally be audible from a distance of 200 feet and will sound immediately on backing. In congested areas or areas with high ambient noise which may obscure the audible alarm, a signaler, in clear view of the operator, shall direct the backing operation.

3.3.13 Excavation Hazards

If hazardous atmospheres are suspected, the atmosphere in any trench or excavation more than 4 feet deep must be monitored in accordance with 29 CFR 1926.651. In addition, a means of egress from excavations (such as a stairway, ladder, ramp, or other safe means of egress) shall be in excavations or trenches greater than 4 feet. However, if excavations will extend beyond 5 feet deep, Terraphase personnel are prohibited from entering a trench or excavation that is deeper than 5 feet. Adequate protection shall be provided by placing and keeping excavated soils, rock, and equipment a minimum of 2 feet back from the edge of each excavation.

3.3.14 Motor Vehicle Operation

Employees may be exposed to vehicle accident hazards associated with the operation of vehicles during the project. To control these hazards, the following safety requirements will be strictly enforced:

- Seat belts shall be worn anytime a vehicle is in motion, regardless of speed or distance to be traveled. Seat belt requirements also apply to the operation of backhoe and other construction equipment;
- The basic speed law shall be followed at all times; and
- Vehicles shall never be operated at a speed that is not safe for the conditions (i.e. road surface, traffic, visibility, weather, etc.).

3.3.15 Traffic Hazards

Although the proposed work is not anticipated to occur along active streets or in the public right-of-way, employees should always follow:

- The traffic control plan prepared for the work (if required).
- Park work vehicle between on-coming traffic and work zone to the extent feasible.
- Demarcate the work zone with high visibility traffic cones.
- Wear high visibility vest.

- Follow all laws regarding pedestrian crossing of streets.
- Traffic considerations should be made to minimize driver frustration and confusion.
- Provide as much barrier between work area and traffic lanes as practicable.
- When possible, employees should not walk between the traffic cones and the active lane of traffic.
- Equipment and supplies should be unloaded from the back of the vehicle or the sidewalk side of the vehicle to minimize the potential to travel in the active traffic lane.

A common hazard on all construction sites is being struck by a moving vehicle or large equipment. Every project is to be planned and organized to ensure vehicles, machines and equipment are not operated in reverse or are operated in reverse as little as possible. All heavy equipment must be equipped with an automatic audible alarm that signals when they are being operated in reverse.

3.3.16 Illumination

Proper illumination is important in the prevention of slips, trips, and falls. It is anticipated that work will be conducted during daylight hours and not within any structures. Therefore, no additional illumination will be required. If site activities are to occur during non-traditional hours (i.e., night-time), or inside the adjacent building, an addendum to this HASP will be prepared to specify auxiliary lighting requirements if necessary as outlined in the HAZWOPER standard.

3.3.17 Ergonomic Hazards

The initial site safety briefing given to all workers prior to the start of the project will cover the basics of ergonomics and focus on the following topics:

- Ergonomic injuries – their prevalence, causes, and significance
- Proper lifting procedures and planning all lifts
- Proper posture when standing, operating a motor vehicle or heavy equipment
- Avoiding overexertion
- Awareness of repetitive task and the hazards that they can pose

3.4 Biological Hazards

This section provides health and safety precautions against potential biological agents that might be encountered by field personnel during field activities. The biological hazards that may be encountered include: microbiological agents, insects and wild animals.

3.4.1 COVID-19

To help prevent infection from, or the spread of, the coronavirus (COVID-19), all staff should follow the recommendations from federal, state, and local experts, including mitigation strategies issued by the Centers for Disease Control and Prevention (CDC; https://www.cdc.gov/coronavirus/2019-ncov/community/index.html).

At a minimum, field staff should practice the following:

- Avoid touching your face, especially eyes, nose, and mouth.
- Cough/sneeze into a tissue or inside of elbow.
- Utilize good hygiene practices and wash hands regularly with soap and water for at least 20 seconds, especially before eating or getting into your field vehicle.
- Face coverings should be considered when working indoors in areas of high COVID transmission.
- Carry a jug of water and hand soap so you can wash hands when permanent or portable facilities are not available.
- Wear nitrile gloves when working in areas where handwashing is not readily available. Change your gloves often and use standard donning and doffing procedures.
- Utilize disposable barriers (e.g., visqueen) to cover work surfaces provided by or shared with contractors at a site.
- Thoroughly disinfect shared equipment and supplies at the end use.
- To the extent feasible, clean and disinfect frequently touched surfaces in Terraphase fleet vehicles prior to transferring the vehicle to another staff.
- If you are sick with any cold or flu-like symptoms, especially those listed by the CDC as potential symptoms of COVID, or expect that you have been exposed to someone with a confirmed case, please stay home, contact project managers so that alternative staffing/scheduling arrangements can be made, and contact Human Resources.
- Ensure complete and thorough documentation is kept of all Terraphase staff, subcontractors, and visitors (i.e. inspectors, vendors, etc.) that are present at the Site each day. This information will be used if contract tracing is necessary.
- Attempt to identify a point of contact for all other contractors and companies working in the general vicinity of Terraphase staff at the Site, and provide them Terraphase contact info should communication related to potential COVID-19 exposures be necessary in the future.
- Additional site-specific protocols may be posted at field sites or communicated by a client, contractor or other site-specific safety representative, especially at construction sites or active businesses and facilities.

3.4.2 Vermin

Feral cats, skunks, rats, mice, squirrels and rabbits may be carriers of disease. Where vermin are identified in work areas, the Project Leader shall be immediately notified. Bites will be immediately reported and medical care obtained. Infections may occur in humans associated with activities that bring humans into contact with rodents, rodent saliva, or rodent excreta. Disturbing rodent-infested areas may bring humans into contact with the etiologic agents causing infections.

Transmission of disease may occur through broken skin, contact with conjunctivae, ingestion of contaminated food or water, or inhalation of aerosols. Personal hygiene practices, such as frequent

hand washing, will help prevent rodent-borne diseases as well as using caution in areas likely to be occupied by vermin.

Workers will be advised that if a fever or respiratory illness develops within 45 days of the potential exposure, they should seek medical attention and inform the physician of potential Hantavirus exposure. All precautions will be made to ensure Hantavirus exposure is eliminated in the field. Rodent-borne diseases, including Hantavirus, result in severe respiratory distress and plague.

3.4.3 Arthropods – Insects, Ticks, and Spiders

The work area does have biological hazards. Venomous spiders native to the area include the Black Widow and the Brown Recluse. The female black widow is normally shiny black, with a red hourglass marking on the underside of abdomen. Black widows can be found both outdoors and indoors. In indoor settings, black widows prefer undisturbed, cluttered areas, which may exist in the warehouse at the site. The same goes for the Brown Recluse. Field personal should wear long sleeves and work gloves if they need to move stored material or debris at the site to avoid Black Widow and Brown Recluse bites. If itching, visually assess the area for swelling, pain, and redness. It may take up to 8 hours for the pain to become intense. Ticks are very common to the area. Make sure to check yourself as tick bites are often painless and it can take over a week to see symptoms.

3.4.4 Snakes

The work area includes is a mix of pavement, grass, trees, and dirt areas and the potential exists for snakes to be present. Workers will be encouraged to be vigilant of the possibility of snakes on the site. Poisonous and nonpoisonous species of snakes including may be encountered at the Site. New York is home to three venomous snakes, which include the Northern Copperhead, Massasauga Rattlesnake, and Timber Rattlesnake.

Snakes typically do not attack people but will bite when provoked, accidentally injured, or stepped on or touched, so field personnel are encouraged to watch their footing. If a snake is encountered, one should avoid making quick, jerky motions and loud noises. Retreat must be accomplished slowly. If bitten, seek medical attention immediately.

Workers should take the following steps to prevent a snake bite:

- Do not try to handle the snake
- Wear boots and long pants when working outdoors
- Wear leather gloves when handling brush and debris
- Stay away from tall grass and piles of leaves when possible
- Be aware that snakes tend to be active at night and in warm weather

Workers should take the following steps if they are bitten by a snake:

- Seek Medical attention as soon as possible (dial 9-1-1 or call local EMS)
- Remain still and calm. This will slow the spread of venom.

- Try to remember the color and shape of the snake, which can help with treatment of the snake bite
- Inform your supervisor and others working at the site.

4 Roles and Responsibilities

The following section describes the roles and responsibilities of the personnel involved with the project. The roles and levels of authority are presented in schematic in Section 4.4 below. Appendix A has a list of contact names and phone numbers related to this project.

4.1 Project Manager/Remedial Engineerr

The project manager has the responsibilities to:

- staff the project with qualified personnel (including proper training and certifications);
- ensure proper documentation is being collected and maintained;
- provide adequate resources and equipment to field personnel;
- monitor the performance of field activities; and
- ensure company policy is in compliance with all applicable regulations.

4.2 Project Leader

The project leader will serve as the SSHO and will report to the Project Manager. The project leader has the responsibilities to:

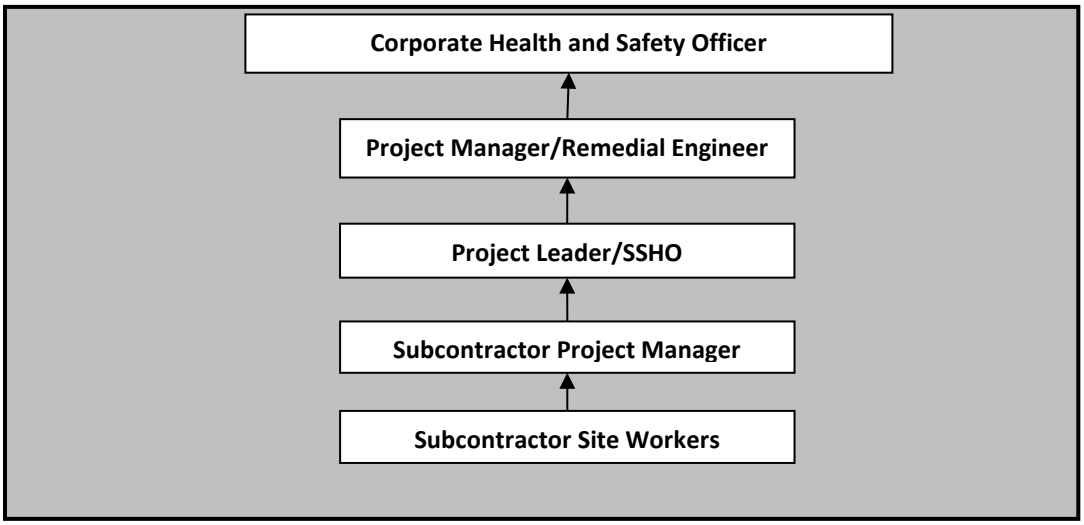
- act as the liaison between field personnel and the subcontractor(s);
- lead the daily and weekly safety meetings;
- ensure the HASP is being followed;
- provide adequate resources and equipment to field personnel; and
- monitor the performance of field activities.

4.3 Subcontractor(s)

Terraphase is responsible for the oversight and implementation of the project safety program. Each subcontractor will be required to designate one individual to work directly with and under the authority of the SSHO to ensure safety responsibilities are being met. Coordination and control of work flow will be achieved through frequent meetings (formal and informal) and job site inspection. The designated subcontractor safety designee (subcontractor project manager) must be granted stop work authority over persons from their company.

Subcontractor control and coordination will be through the chain of command identified in Figure 2. Although each subcontractor is ultimately responsible for the performance and actions of their employees, the SSHO has the authority to take action when a violation of safety guidelines is in question.

4.4 Chain of Command



4.5 Training

Field personnel engaged in project operations that potentially expose them to hazardous wastes, hazardous substances, or any combination of hazardous wastes or hazardous substances shall have satisfied the requirements of 29 CFR Part 1910.120 through completion of:

- Initial 40-hour HAZWOPER training, and
- Annual 8-hour HAZWOPER refresher training current within one year.

4.5.1 General Site-Specific Training

All potential field personnel will review this HASP before commencing work which will serve as site-specific training. The SSHO will review the HASP before field operations begin and the SSHO, or designee, will conduct daily tailgate safety meetings (i.e. pre-entry briefings) to bring up appropriate health and safety concerns and discuss any changes in field conditions. The SSHO will conduct additional pre-entry briefings with entrants to the site who are not present for the tailgate safety meeting. Field personnel will certify their review by signing a HASP acknowledgement form (Appendix B).

Any additional site-specific safety concerns such as, noise, heat illness prevention, or lock-out/tag-out will be addressed by the Project Manager and the SSHO will be provided with proper Site-specific training with accordance with any OSHA regulations prior to the start of the project, as applicable.

4.5.2 First Aid/CPR

Medical assistance is in near proximity to the Site, and therefore, per 29 CFR 1910.151, a designated first aid provider is not required. Personnel trained in first aid/CPR and bloodborne pathogens (29 CFR 1910.151 and 1910.1030) may administer first aid and CPR if needed.

4.5.3 Respiratory Protection

It is not anticipated that respiratory protective equipment will be required for this project. However, field personnel will be properly equipped with a PID to monitor the breathing zone. Should the PID indicate that respiratory protection be necessary, all site activities will halt and a respiratory plan will be enacted. In the case that respiratory protection is required, Terraphase will provide the appropriate mask style and filter type for the specific tasks as well as fit tested prior commencing work. Onsite workers will have successfully completed respiratory protection training in accordance with the requirements of OSHA 1910.134 should it be necessary. More information about breathing zone monitoring with a PID can be found in Section 9.0.

5 Personal Hygiene and Sanitation Facilities

The following personal hygiene requirements, as well as those outlined in Section 3.4.1, will be observed:

- Water Supply: a water supply meeting the following requirements will be utilized:
  - Potable Water: an adequate supply of potable water will be available for field personnel consumption. Potable water will be provided in the form of water bottles, canteens, or water coolers. Potable water containers will be properly identified in order to distinguish them from non-potable water sources.
  - Non-Potable Water: non-potable water may be used for hand washing and cleaning activities. Non-potable water will not be used for drinking purposes. All containers of non-potable water will be marked with a label stating: “Non-Potable Water; Not Intended for Drinking Water Consumption.”
- Toilet Facilities: Restrooms and sanitation facilities may not be available at the Site. The nearest public restroom is located at the Shell gas station at 425 Dobbs Ferry Rd, White Plains, NY 10607. For longer-duration investigations, i.e. at least a week, a portable toilet is expected to be furnished for the Site.

6 Safety Meetings

All workers permitted access to the site will receive a site orientation briefing and a review of pertinent aspects of the project and HASP before the start of work. Personnel will sign a form (Appendix B) documenting they have had an opportunity to review the HASP, understand the requirements, and agree willfully to adhere to the safety aspects of the plan.

The site orientation briefing will include the following aspects:

- Key personnel and responsibilities
- Site hazards (known and potential)
- PPE requirements
- Emergency procedures (including signals, evacuation locations, and what constitutes an emergency)
- Location and route to the nearest medical facility
- Incident reporting procedures

Meetings typically last no less than 10 minutes in time and attendance will be documented. Daily informal safety meeting will be conducted each morning before work commences. Daily meeting attendance will be documented. Sign in sheets for the safety meetings are included in Appendix C.

Personnel are encouraged to immediately report any unsafe work conditions or work practices observed to the SSHO.

7 Accident Reporting

Workers are required to immediately report all accidents, incidents, near-miss incidents, injuries, illnesses and injuries requiring first-aid (no matter how trivial) to their supervisor and/or the SSHO.

In the event of a worker injury or illness, the SSHO must be notified, who will in turn immediately report the incident to the Project Manager to assist with the coordination of required medical assistance and related workers compensation case management follow-up.

Should an incident such as a serious injury (requiring hospitalization), explosion, fire, or a spill or release of toxic materials occur, during the project, the SSHO will immediately report the incident to the project manager and appropriate government agencies. The written report must include the following information:

- Name, organization, telephone number, and location of the contractor
- Name and title of the person(s) reporting the incident
- Date and time of the incident
- Location of the incident
- Approximate chronological summary of details occurring before and at the time of the incident
- Cause of incident (if immediately known)
- Casualty information (fatalities or disabling injuries)
- Details of any existing chemical hazard or contamination
- Estimated property damage (if applicable)
- Nature of the damage and effect on the contract
- Actions taken to preserve safety and security
- Other damages or injuries sustained
- Witness statements

If a utility strike does occur, report this to the Project Manager and utility operator as soon as it is safe to do so. The contact info for potential utility operators near the Site will be available in the One-Call ticket.

8 Personal Protective Equipment

PPE in the form of protective footwear and appropriate work clothing are required for all field activities. PPE for specific field activities is listed below. **Additional specifications for PFAS-free PPE used to avoid cross-contamination during PFAS sampling events are outlined in Terraphase SOP 210-23-00-Low Flow Groundwater Sampling for PFAS.**

All Field Activities:

- Boots – chemical resistant, steel (or equivalent) toe and shank (ASTM F2412-18 and F2413-18, Safety Toe Footwear Classification 75). Boots shall be equipped with deep traction sole.
- Work clothing (e.g. long pants)
- Safety Vests (Yellow or orange with reflective strips)
- Safety Glasses (ANSI Z87.1)

Drilling/Excavation and Loading Operations:

- Hard Hat (ANSI Z89.1-2014 Type 1 Class E and G; if overhead hazards are present)
- Hearing Protection (foam inserts)
- Gloves – Chemical (Nitrile)
- Work Gloves (Leather or equivalent) – if splitting cores or other activities that require more resilient gloves

Soil Sampling:

- Gloves – Chemical (nitrile)
- Work Gloves (Leather or equivalent) – if splitting cores or other activities that require more resilient gloves

If necessary:

- Air-purifying Respirator
- Safety Face Shield (splash hazard)
- Tyvek® suit or similar coverall (splash hazard)
- Rubber boots or over boots (wet conditions or if wet boot decontamination is necessary)

PPE offers a high degree of protection, yet the equipment must be maintained and inspected on a regular basis to ensure its effectiveness. Hard hats should be discarded if cracked. Boots should be maintained (use waterproofing if necessary) to prevent injuries, disease (from wet conditions) and insect/snake bites.

Employees required to wear PPE will be trained to know at least the following:

- When PPE is necessary.
- What PPE is necessary.

- How to properly put on, take off, adjust and wear the PPE.
- The limitations of the PPE.
- Proper care, maintenance, useful life and disposal of PPE.

Changes in the workplace or in the type of required PPE that make prior training obsolete may require additional training or retraining of employees.

If air monitoring exceeds action levels identified Section 9.0, work will be modified to reduce vapors. If air monitoring indicates that an upgrade to level C PPE is necessary, Level C includes the PPE specified above plus the NIOSH-approved half- or full-face air-purifying respirator (APR) equipped with the appropriate filter cartridges for organic vapors. Personnel will be fit-tested for the specific make and model respirator that will be used. Note: safety glasses or goggles are not required when wearing a full-face APR.

The respirator cartridge change-out schedule includes the following:

- Particulate (i.e., P-100, HEPA) – Cartridge to be changed out at the end of each day's use or whenever the employee detects an increase in breathing resistance. This will occur as the filter becomes loaded with particulate matter.
- Sorbent (i.e., organic vapor) – Cartridge to be changed out at the end of each day's use or whenever the employee detects an abnormal odor or other indicator.

9 Air Monitoring

Air monitoring will be conducted during intrusive activities as the potential exists to contact soil impacted with VOCs and select SVOCs. The work environment will be monitored using a PID.

9.1 Direct Reading Instruments

9.1.1 Photoionization Detector

A PID with a 10.6 electron volt (eV) lamp will be used to determine the presence and concentration of organic vapors. Contaminants such as petroleum hydrocarbons and associated VOCs are detectable with a PID. Air monitoring and actions will be implemented identified in 9.2 below.

9.1.2 Particulate Matter

Perimeter ambient air monitoring will be conducted by Terraphase during intrusive excavation activities, with immediate work area monitoring conducted by the Remedial Contractor. Dust control (e.g. wetting of soil) will be implemented to prevent fugitive dust emissions. Should visible dust be present and sustained, air monitoring will be implemented to assess onsite exposures to vanadium as discussed below.

Particulate air monitoring is generally conducted using a real-time aerosol monitor (DustTrak™ II or equivalent). Perimeter air monitoring will be conducted in accordance with a Community Air Monitoring Program (CAMP). Particulate monitoring is used to assess site personnel exposure to airborne particulates and airborne particulates near the perimeter of the excavation activities. The instrument(s) is typically calibrated before the commencement of each day's activities and will be operated and maintained in accordance with the manufacturer's specifications. The DustTrak™ II (or equivalent) provides real-time aerosol mass concentration readings for PM10 and other respirable particles.

9.2 Monitoring Strategy

Inhalation is one of the primary routes of exposure for VOCs. The following approach to air monitoring was selected based onsite conditions and background information presented in Section 2.

9.2.1 Total Organic Vapor Monitoring

During intrusive and remediation activities, SVOCs and VOCs could potentially become airborne and result in exposure to employees. When intrusive activities are being conducted or when known or suspected contaminated soils or groundwater are encountered, total organic vapors will be monitored with a PID or a similar device. **Total organic vapor readings will be taken in the breathing zone approximately once per half hour or more frequently as Site conditions warrant.**

If the PID detects total organic vapors at concentrations greater than 5 parts per million (ppm), then sustained for at least 1 minute, additional controls will be implemented to prevent exposure. If possible,

all personnel will evacuate the area and wait for vapors to dissipate to levels below 5 ppm before resuming work. If personnel must remain in an area where vapors above 5 ppm are present, air-purifying respirators will be worn to try to identify the source of contaminants, and implement engineering controls (e.g., portable fans with pre-staged power such as available onsite power or portable generator, wetting of soils, etc.) to reduce the vapors to below occupational exposure limits (see below). If the PID readings exceed 50 ppm sustained (for greater than 1 minute), all work will be stopped and the project manager notified. Work may not resume until airborne total organic vapors readings are recorded below 50 ppm. Onsite personnel wearing C Level PPE should try to identify the source of the contaminants once readings fall to below 50 ppm.

Chemicals of Potential Concern (COPCs)		
Direct Reading Instrument Action Levels for Area Monitoring and Breathing Zone Monitoring		
Monitored Parameter	**Action Level**	**Response to Action Level**
VOCs in the work area will be monitored using a PID and colorimetric gas detection tubes (as needed).	≥ 5 ppm continuous reading in the breathing zone for 1 minute	The SSHO should: • Stop work • Don Level C (HEPA/OV cartridges) to identify source of airborne contamination • Initiate vapor suppression measures or other engineering controls (e.g. work upwind, blower fan) to maintain levels to less than 5 ppm
	≥ 50 ppm continuous reading in the breathing zone for 1 minute	The SSHO should: • Stop work • Contact PM if VOC levels cannot be controlled to less than 50 ppm total.

The Site action levels were derived using the following regulatory exposure limits:

Compound	**OSHA**		**ACGIH**	
	PEL	**STEL**	**TLV**	**TLV-STEL**
Benzene	1	5	0.5	2.5
Ethylbenzene	100	--	20	--
Toluene	200	300 (c)	20	--
Xylenes	100	--	20	--
Naphthalene	10	--	10	--

Concentrations presented in parts per million (ppm)
(c) = ceiling limit
PEL = permissible exposure limit, 8-hour time weighted average
STEL = short term exposure limit, 15-minute
TLV = threshold limit value, 8-hour time weighted average
ACGIH = American Conference of Governmental Industrial Hygienists

9.2.2 Particulate Matter (Dust) Monitoring

The Remedial Contractor will determine their requirements for personal air monitoring for particulate matter (dust) as the potential exists to encounter soils with elevated concentrations of metals. The personal air monitoring plan, if required, will be included in the Remedial Contractor's HASP.

9.3 Quality Assurance/Quality Control

Adherence to a proper quality assurance and quality control (QA/QC) plan is essential for a meaningful air sampling effort. The major concerns of a QA/QC plan are calibration of equipment and document control.

9.3.1 Calibration and Maintenance Procedures

All direct reading instruments will be calibrated daily before work and checked against calibration gas at the end of the day. Calibration records will be kept that detail date, time span, gas or other standard, and the name of the person performing the calibration. The calibration gas for the PID is isobutylene. The SSHO will ensure that the instrument is kept clean and will follow manufacturer's directions for keeping the lamp clean. The SSHO will perform no other maintenance procedures unless approved by the Project Manager.

9.3.2 Documentation

Strict adherence to document and data control procedures is essential for good QA/QC. Data and calibration records must be accounted for and retrievable at all times. Types of documents that are essential include notes, logbooks, maps, data sheets, and reports. These must be placed in the project files. Copies of all field data reports and personal sampling records will be sent to the project manager for review.

Documentation of employee exposure monitoring results must be made available and maintained in compliance with 29 CFR 1910.1020.

10 Decontamination of Personnel and Equipment

Despite protective procedures, personnel and equipment may come in contact with potentially hazardous compounds while performing work tasks. If so, decontamination must occur using an Alconox or TSP wash (or other effective means), followed by a rinse with clean water. Standard decontamination procedures for levels C and D are as follows:

- equipment drop
- boot cover and outer glove wash and rinse
- boot cover and outer glove removal
- suit wash and rinse
- suit removal
- safety boot wash and rinse
- inner glove wash and rinse
- respirator removal
- inner glove removal
- field wash of hands and face

Additional decontamination specifications for PFAS compounds are detailed in Terraphase SOP 109-23-00-Field Equipment Decontamination. Workers should employ only applicable steps in accordance with level of PPE worn and extent of contamination present. The SSO shall maintain adequate quantities of clean water to be used for personal decontamination (i.e., field wash of hands and face) whenever a suitable washing facility is not located in the immediate vicinity of the work area. Disposable items will be disposed of in an appropriate container. Wash and rinse water generated from decontamination activities will be handled and disposed of properly. Non-disposable items may need to be sanitized before reuse. Each site worker is responsible for the maintenance, decontamination, and sanitizing of his/her own PPE.

Used equipment may be decontaminated as follows:

- An Alconox or TSP and water solution will be used to wash the equipment.
- The equipment will then be rinsed with clean water.

Each person must follow these procedures to reduce the potential for transferring chemically affected materials off site.

11 Medical Surveillance

Any field personnel engaged in project operations that expose them to hazardous wastes, hazardous substances, or any combination of hazardous wastes or hazardous substances shall be participants in a Medical Surveillance program that meet the OSHA requirements. These persons must be medically evaluated and cleared for use of respiratory protection devices and protective clothing for working with hazardous materials by the examining physicians. The medical clearance shall be current within one year through at least the last day of field operations. The applicable requirements under the OSHA standards for HAZWOPER and Respiratory Protection Program will be observed. Current copies of training certificates and statements of medical program participation for all Terraphase personnel are maintained by the Terraphase headquarters office.

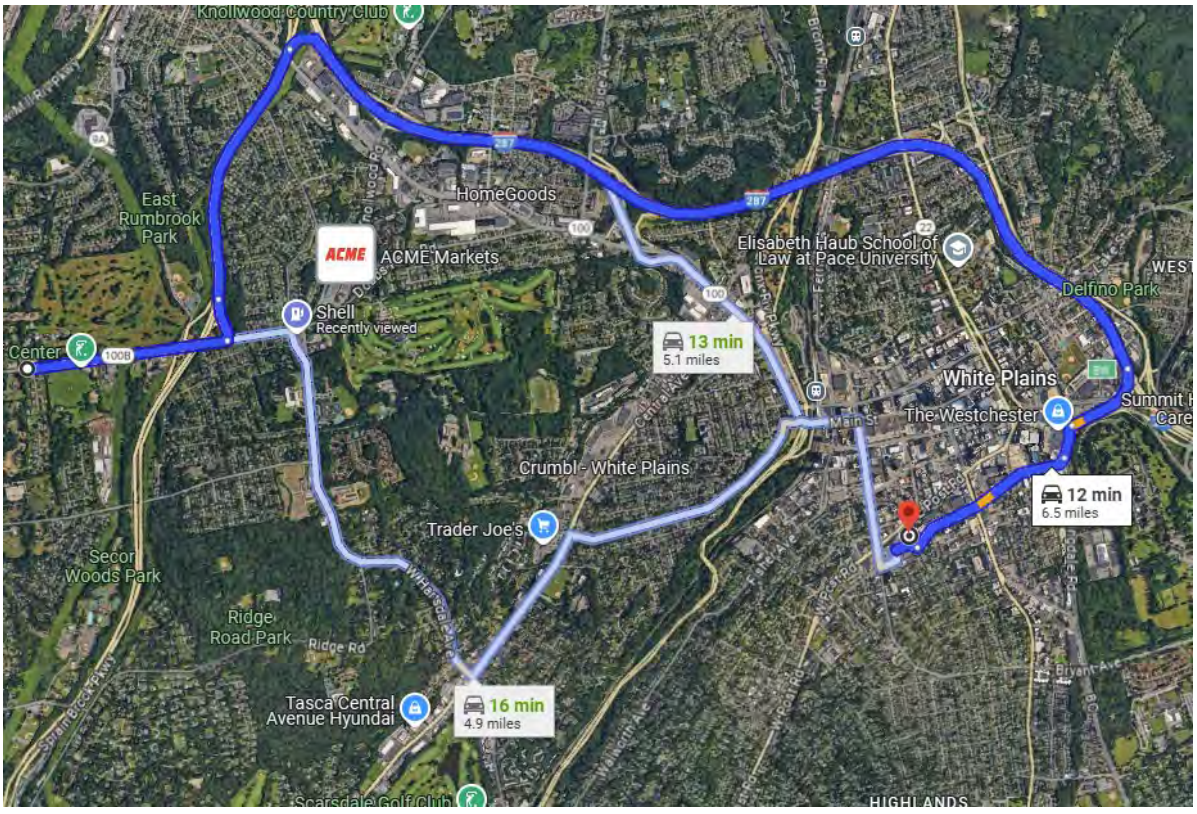
12 First Aid and Medical Treatment

All persons on site must report any near-miss incident, accident, injury, or illness to the SSHO. A trained site first aid provider will provide first aid. Injuries and illnesses requiring medical treatment must be documented. The SSHO must conduct an accident investigation as soon as emergency conditions no longer exist and first aid and/or medical treatment have been completed. All necessary reports must be completed and submitted to the Project Manager within 24 hours after the incident.

If treatment beyond first aid is required, the injured should be transported to the nearest medical facility off-site. If the injured is not ambulatory, or shows any sign of not being in a comfortable and stable condition for transport, then an ambulance/paramedics should be summoned. If there is any doubt as to the injured worker's condition, it is best to let the local paramedic or ambulance service examine and transport the worker.

The closest 24-hour medical facility is White Plains Hospital, as described below. A map of the driving directions is included on the next page and in Appendix D.

Directions to White Plains Hospital, 41 East Post Rd, White Plains, NY 10601 (Map in Appendix D)



850 Dobbs Ferry Rd

White Plains, NY 10607

- Get on Sprain Brook Pkwy N

  2 min (0.9 mi)

- Take I-287 E to Bloomingdale Rd in White Plains.
  Take exit 8W from I-287 E

  5 min (4.8 mi)

- Take Maple Ave to your destination

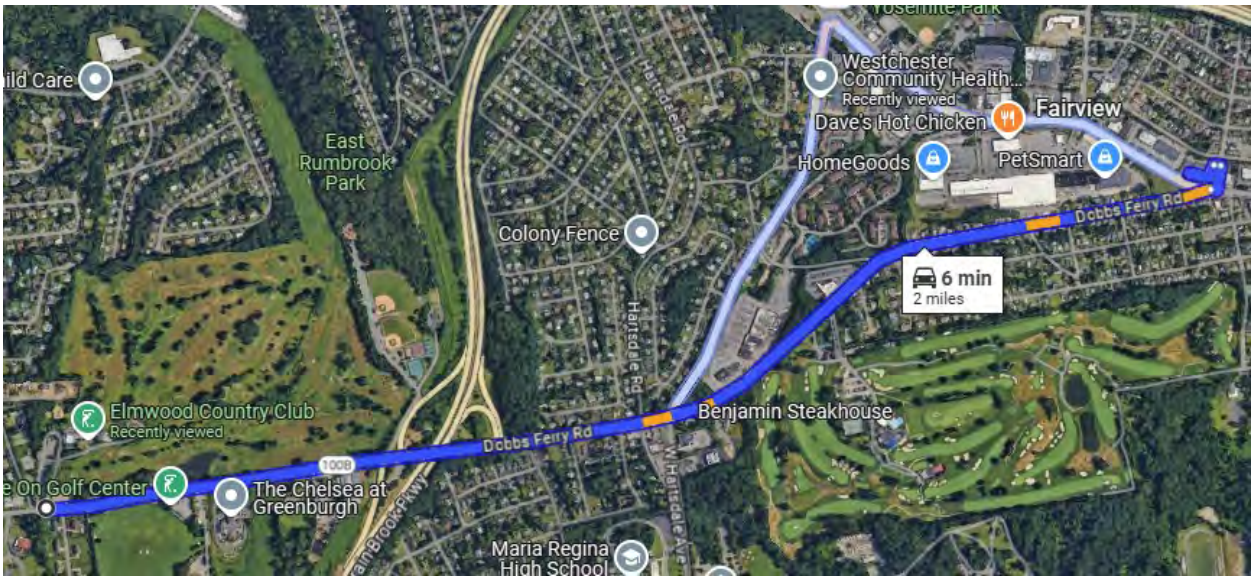
  4 min (0.8 mi)

White Plains Hospital

41 E Post Rd, White Plains, NY 10601

The closest urgent care facility is White Plains Urgent Care, as described below. A map of the driving directions is included on the next page and in Appendix D.

Directions to White Plains Urgent Care, 294 Tarrytown Rd, White Plains, NY 10607 (Map in Appendix D)



850 Dobbs Ferry Rd
White Plains, NY 10607

↑ Head east on NY-100B E/Dobbs Ferry Rd toward Westchester View Ln

1.9 mi

↖ Slight left onto Rosemont Blvd

249 ft

↰ Turn left

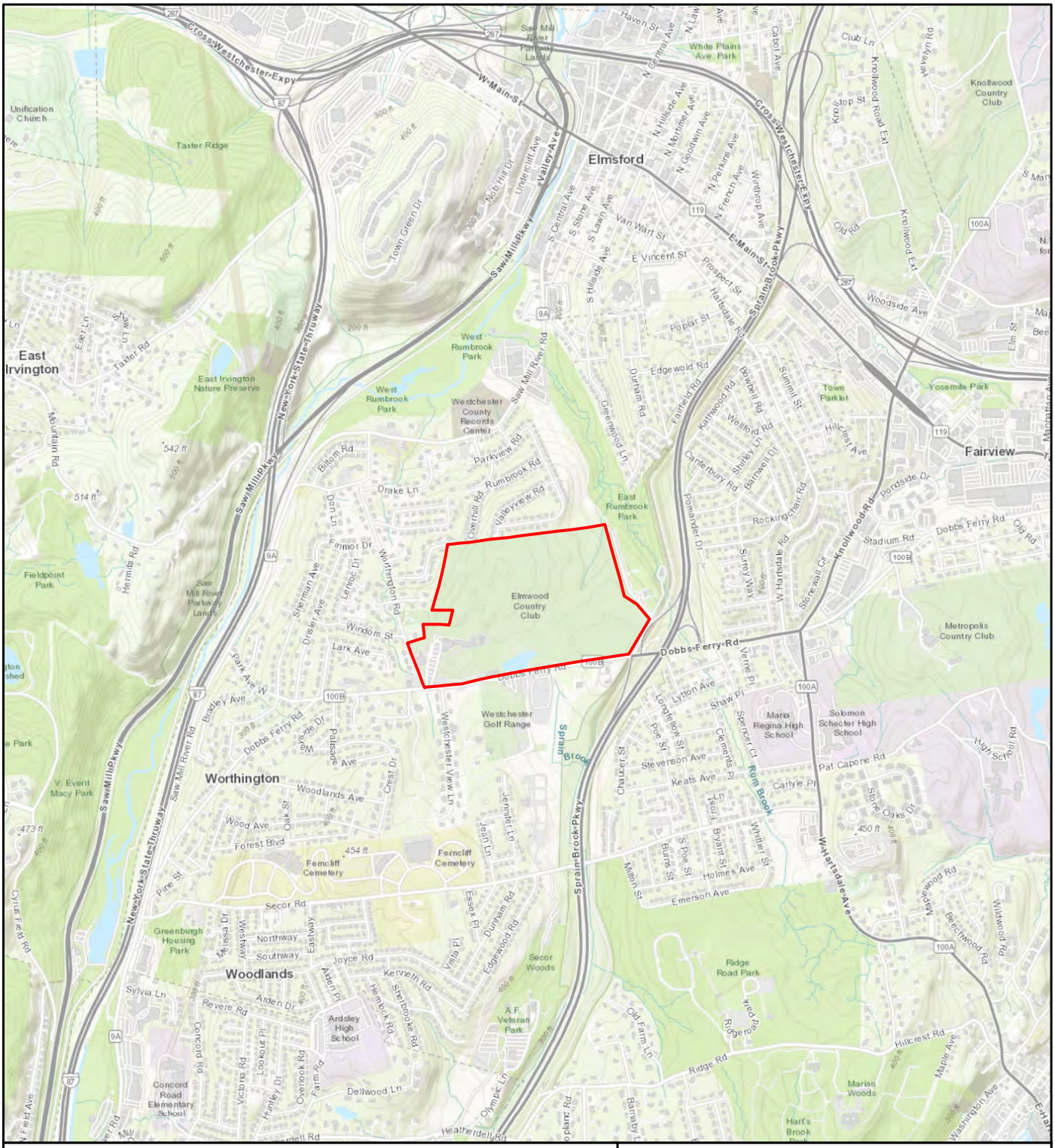
52 ft

↰ Turn left
ⓘ Destination will be on the right

289 ft

White Plains Urgent Care
294 Tarrytown Rd, White Plains, NY 10607

Figures



0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

N

Legend

Approximate Site Boundary

Base Map: ESRI World Topographic Map
(data providers include HERE, Garmin, USGS, et al.)

SAFETY FIRST

carsonvoci
engineering and geology dpc
an affiliate of Terraphase Engineering Inc.

CLIENT: Ridgewood Elmwood Owner, LLC

PROJECT: Elmwood Preserve Site
NYSDEC Site No. C360239
850 Dobbs Ferry Road, White Plains, New York

PROJECT NUMBER: CV04.001

Site Location

FIGURE 1

File: N:\GIS\Prj\J105.004_Elmwood Country Club\MXDs\(20241206) Figure 1 - Site Location.mxd 12/9/2024 Created by: S.Lowe Coordinate System: NAD 1983 StatePlane New York East FIPS 3101 Feet

Appendix A

Contact Names and Phone Numbers

Emergency Contacts

Emergency Services (Police/Fire Department/Ambulance): 911

White Plains Hospital emergency room: (914) 681-0600

WorkCare 24-hour Telehealth Service: (888) 449-7787

National Response Center: (800) 424-8802

Poison Control Center: (800) 876-4766 or (800) 222-1222

CHEMTREC: (800) 424-9300

Terraphase

Conshohocken Office:

Office Number: (215) 297-3502

Princeton Office:

Office Number: (609) 236-8171

Corporate Health and Safety Officer: Daren Roth

Office Number: (925) 444-0555 x38

Cell Number: (925) 719-5496

Project Manager: Nicholas Krasnecky

Cell Number: (201) 552-0224

Project Leader/SSHO: Alex Strohl

Cell Number: (570) 447-0558

Appendix B

HASP Review and Acceptance Form

HASP Review and Acceptance Form

All field personnel working on the site must be familiar with the HASP. By signing below, you confirm you have read, understand, and agree to abide by the HASP. Any questions regarding health and safety on this site may be directed to either the Project Leader/SSHO or Project Manager.

Name	Company	Date

Appendix C

Safety Meeting Sign-In Sheets

Safety Meeting Sign-In Sheet

Conducted By:

Date:

Topics Discussed:

Concerns/Problems/Hazards:

Meeting Attendees

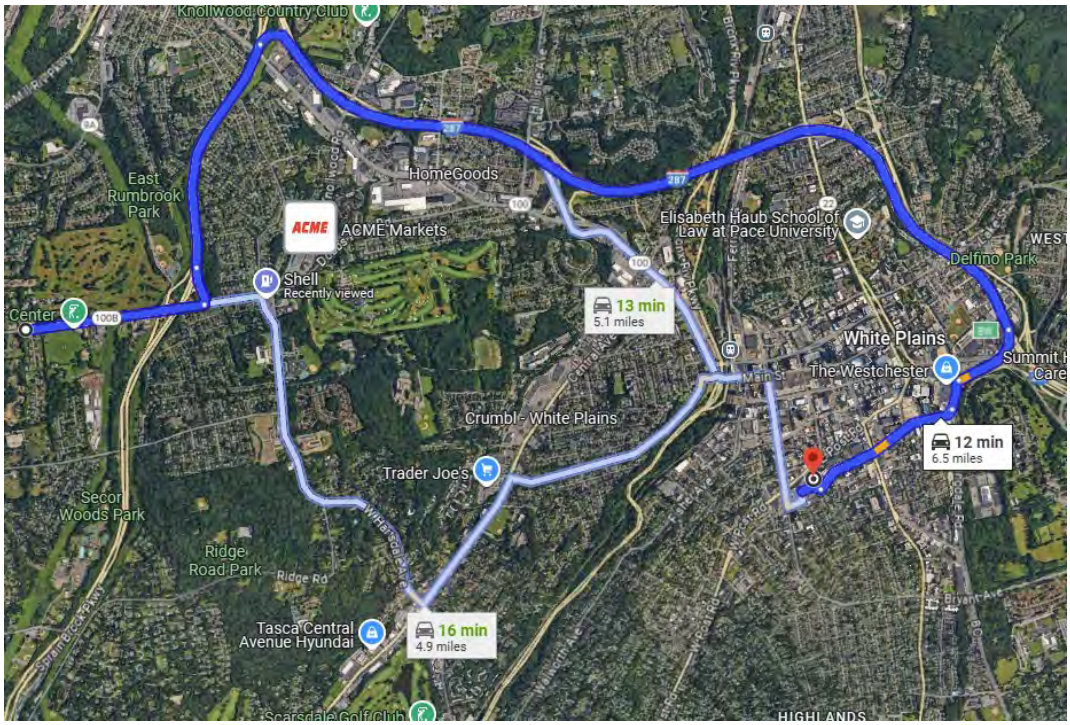
Name	Company

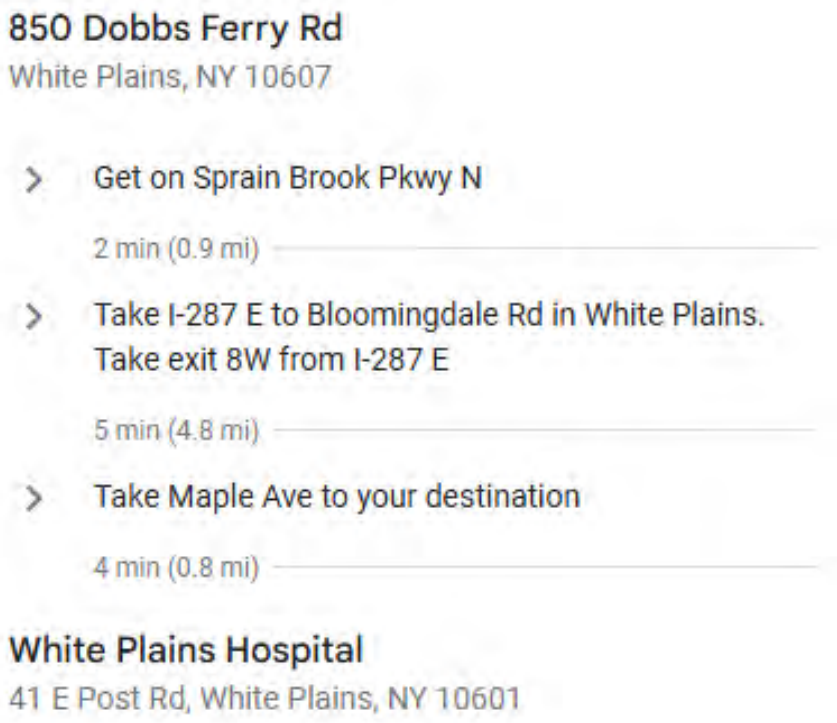
Appendix D

Driving Directions to Nearest Urgent Care or Hospital

The closest 24-hour medical facility is White Plains Hospital, as described below. A map of the driving directions is included on the next page and in Appendix D.

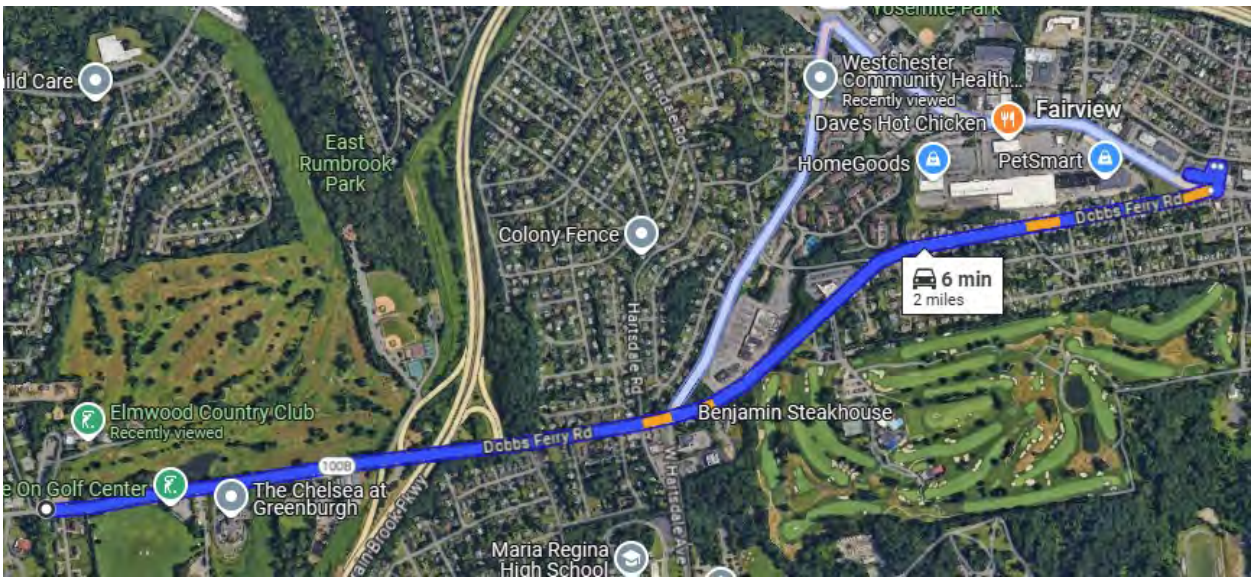
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Take exit 8W from I-287 E
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White Plains, NY 10607

↑ Head east on NY-100B E/Dobbs Ferry Rd toward Westchester View Ln

1.9 mi

↖ Slight left onto Rosemont Blvd

249 ft

↰ Turn left

52 ft

↰ Turn left
ⓘ Destination will be on the right

289 ft

White Plains Urgent Care
294 Tarrytown Rd, White Plains, NY 10607

Appendix L

Request to Import/Reuse Fill Material (if submitted)

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Request to Import/Reuse Fill or Soil

This form is based on the information required by DER-10, Section 5.4(e) and 6NYCRR Part 360.13. Use of this form is not a substitute for reading the applicable regulations and Technical Guidance document.

SECTION 1 – SITE BACKGROUND

The allowable site use is: Choose an item

Have Ecological Resources been identified? Choose an item

Is this soil originating from the site? Choose an item

How many cubic yards of soil will be imported/reused? Choose an item

If greater than 1000 cubic yards will be imported, enter volume to be imported:

SECTION 2 – MATERIAL OTHER THAN SOIL

Is the material to be imported gravel, rock or stone? Choose an item

Does it contain less than 10%, by weight, material that passes a size 100 sieve? Choose an item

Is this virgin material from a permitted mine or quarry? Choose an item

Is this material recycled concrete or brick from a DEC registered processing facility? Choose an item

SECTION 3 - SAMPLING

Provide a brief description of the number and type of samples collected in the space below:

Example Text: 5 discrete samples were collected and analyzed for VOCs. 2 composite samples were collected and analyzed for SVOCs, Inorganics & PCBs/Pesticides.

If the material meets requirements of DER-10 section 5.4(e)5 (other material), no chemical testing needed.

SECTION 3 CONT'D - SAMPLING

Provide a brief written summary of the sampling results or attach evaluation tables (compare to DER-10, Appendix 5):

Example Text: Arsenic was detected up to 17 ppm in 1 (of 5) samples; the allowable level is 16 ppm.

If Ecological Resources have been identified use the "If Ecological Resources are Present" column in Appendix 5.

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source:

Location where fill was obtained:

Identification of any state or local approvals as a fill source:

If no approvals are available, provide a brief history of the use of the property that is the fill source:

Provide a list of supporting documentation included with this request:

The information provided on this form is accurate and complete.

_____ _____

Signature Date

_____

Print Name

_____

Firm

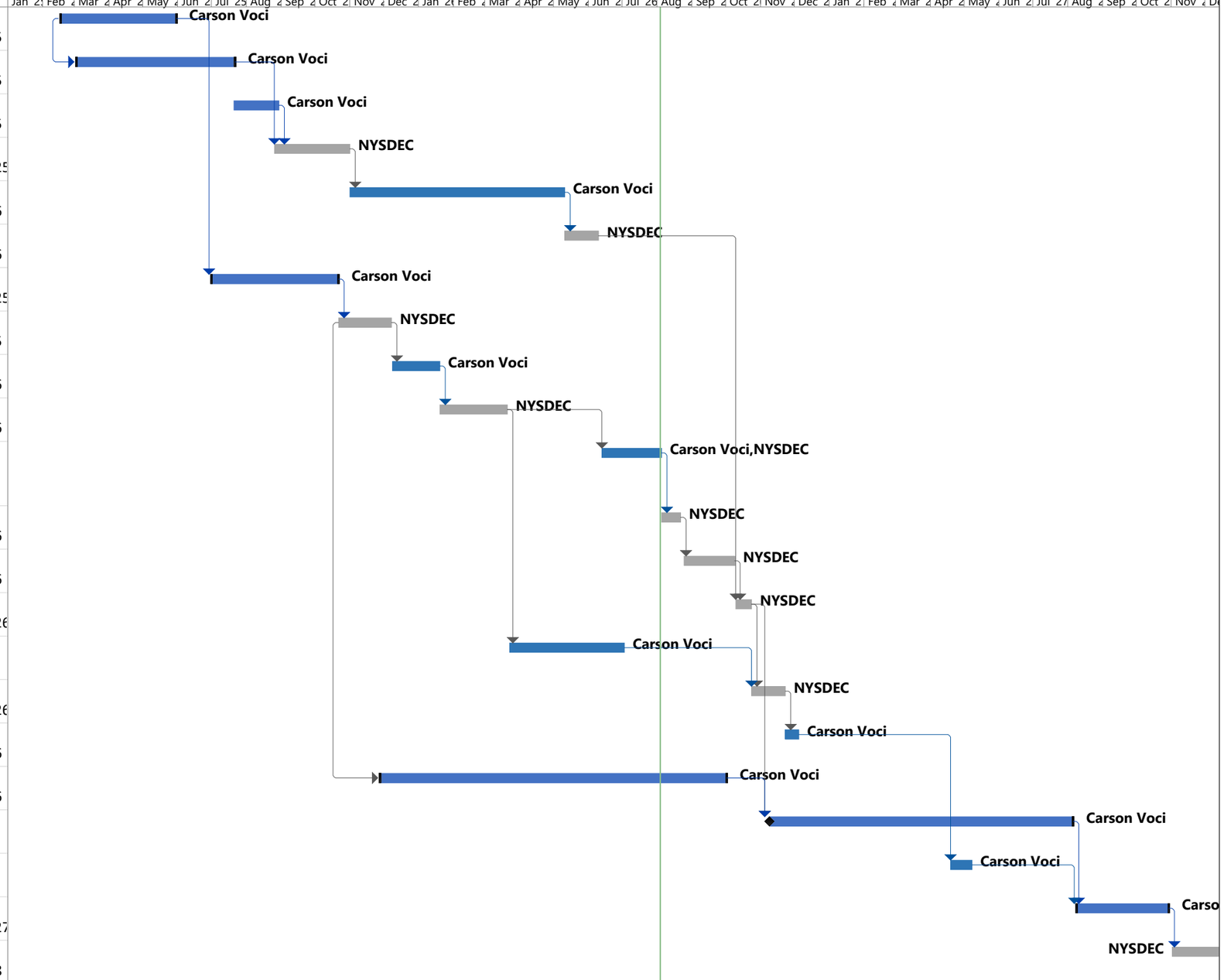
Revised April 2023

Appendix M

Remedial Schedule

Estimated Remedial Schedule
Elmwood Preserve
NYSDEC BCP Site No. C360239

ID	Task Name	Resource Names	Duration	Predecessors	Start	Finish
1	Supplemental Remedial Investigation Implementation	Carson Voci	75 days		Mon 2/17/25	Fri 5/30/25
2	Remedial Investigation Report (RIR) - Preparation and Submittal	Carson Voci	101 days	1SS+20 days	Mon 3/3/25	Mon 7/21/25
3	RIR Addendum (RIR-A) Preparation and Submittal	Carson Voci	30 days		Mon 7/21/25	Fri 8/29/25
4	RIR/RIR-A - NYSDEC Review and Comment	NYSDEC	67 edays	2,3FS-30 days	Mon 8/25/25	Fri 10/31/25
5	Additional RI Investigation, Revised RIR/RIR-A Preparation and Submittal	Carson Voci	191 edays	4	Sat 11/1/25	Mon 5/11/26
6	Revised RIR/RIR-A - NYSDEC Review and Approval	NYSDEC	30 edays	5	Mon 5/11/26	Wed 6/10/26
7	Remedial Action Work Plan (RAWP) - Preparation and Submittal	Carson Voci	81 days	1FS-20 days	Tue 7/1/25	Tue 10/21/25
8	RAWP - NYSDEC Review and Comment	NYSDEC	47 edays	7	Wed 10/22/25	Mon 12/8/25
9	Revised RAWP Preparation and Submittal	Carson Voci	30 days	8	Tue 12/9/25	Mon 1/19/26
10	Revised RAWP - NYSDEC Review and Comment	NYSDEC	60 edays	9	Mon 1/19/26	Fri 3/20/26
11	Additional Revised RAWP(s) Preparation, Submittals, NYSDEC Reviews	Carson Voci,NYSDEC	53 edays	10	Fri 6/12/26	Tue 8/4/26
12	Additional Revised RAWP - NYSDEC Review and Issue for Public	NYSDEC	17 edays	11	Tue 8/4/26	Fri 8/21/26
13	RAWP - 45 Day Public Comment Period	NYSDEC	45 edays	12FS+1 day	Mon 8/24/26	Thu 10/8/26
14	RAWP - NYSDEC Final Review, Approval, and Issue Decision	NYSDEC	14 edays	13FS+1 day,6	Fri 10/9/26	Fri 10/23/26
15	Pond Sediment Remedial Design (RD) - Preparation and Submittal to	Carson Voci	74 days	10	Mon 3/23/26	Thu 7/2/26
16	Pond Sediment RD - NYSDEC Review and Comment	NYSDEC	30 edays	14,15	Fri 10/23/26	Sun 11/22/26
17	Pond Sediment RD - Prepare Final, Approved Document	Carson Voci	10 days	16	Mon 11/23/26	Fri 12/4/26
18	Remedial Contractor Procurement and Permitting	Carson Voci	220 days	8SS+27 days	Fri 11/28/25	Thu 10/1/26
19	Remedial Action Implementation - Soil Remediation	Carson Voci	194 days	18,14FS+10 days	Mon 11/9/26	Thu 8/5/27
20	Remedial Action Implementation - Pond Sediment Remediation	Carson Voci	15 days	17	Mon 4/19/27	Fri 5/7/27
21	Final Engineer Report (FER) - Preparation and Submittal	Carson Voci	60 days	19FS+1 day,20	Mon 8/9/27	Fri 10/29/27
22	FER - NYSDEC Review and Issuance of Certificate of Completion (CoC)	NYSDEC	90 edays	21FS+1 day	Mon 11/1/27	Sun 1/30/28



Project: Elmwood Preserve - Estimated Remedial Schedule
Date: 08/04/26

NYSDEC Task | Milestone - Remediation Start ◆ | Carson Voci Task