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Remedial Investigation Work Plan
36 FROST STREET SITE
36 Frost Street
Brooklyn, New York 11211
Block 2736, Lot 20
NYSDEC BCP No. C224449

November 2025
File No. 41.0163452.10

PREPARED FOR:

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway | Albany, NY 12233

ON BEHALF OF:

36 Frost Street LLC
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Jericho, NY 11753

PREPARED BY:

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November 26, 2025
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New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany NY, 12233

Re: Remedial Investigation Work Plan
36 Frost Street Site
36 Frost Street
Brooklyn, New York 11211
Block 2736, Lot 20
NYSDEC BCP No. C224449

To Whom it may concern:

GZA GeoEnvironmental of New York (GZA) is pleased to provide this revised Remedial Investigation Work Plan (RIWP) for the above-referenced property (Site). This RIWP is being submitted along with a revised New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) Application.

Should you have any questions, please contact Victoria Whelan at (631) 793-8821 or Victoria.Whelan@gza.com.

Very truly yours,

GZA GEOENVIRONMENTAL OF NEW YORK

Ronald A. Lombino II
Project Manager

Kevin Williams
Consultant Reviewer

Victoria Whelan, P.G.
Vice President

Enclosure: Remedial Investigation Work Plan

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CERTIFICATION

I, Victoria D. Whelan, certify that I am currently a Qualified Environmental Professional (QEP) as defined in 6 New York Codes, Rules, and Regulations (NYCRR) Part 375 and that this Remedial Investigation Work Plan (RIWP) was prepared in accordance with all applicable statutes and regulations and substantial conformance with New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation and DER Green and Sustainable Remediation (DER-31).

Victoria D. Whelan, QEP, NYSPG

LIST OF ACRONYMS

Acronym	Definition
ASP	Analytical Services Protocol
AOC	Area of Concern
BCP	Brownfield Cleanup Program
BGS	Below Ground Surface
BTEX	Benzene, Toluene, Ethyl Benzene, and Xylenes
C12-DCE	Cis-1,2-Dichloroethene
CAMP	Community Air Monitoring Plan
COC	Contaminant of Concern
CSCO	Commercial Soil Cleanup Objective
CVOC	Chlorinated Volatile Organic Compounds
EDD	Electronic Data Deliverable
DER	Division of Environmental Remediation
DUSRs	Data Usability Summary Reports
ESA	Environmental Site Assessment
ELAP	Environmental Laboratory Accreditation Program
GPR	Ground Penetrating Radar
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PCBs	Polychlorinated Biphenyls
PCE	Perchloroethylene/Tetrachloroethene/Tetrachloroethylene
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctanesulfonic Acid
PGWSCO	Protection of Groundwater Soil Cleanup Objective
PID	Photoionization Detector
QA/QC	Quality Assurance/Quality Control
QEP	Qualified Environmental Professional
RI	Remedial Investigation
SCOs	Soil Cleanup Objectives
SSDS	Sub-Slab Depressurization System
SVOCs	Semi-Volatile Organic Compounds
T12-DCE	Trans-1,2-Dichloroethene
TCE	Trichloroethene/Trichloroethylene
USDA	United States Department of Agriculture
UST	Underground Storage Tank
UUSCO	Unrestricted Use Soil Cleanup Objectives
TAL	Target Analyte List
VC	Vinyl Chloride
VOCs	Volatile Organic Compounds
WQS	Water Quality Standard

1.0 INTRODUCTION

The following Remedial Investigation Work Plan (RIWP) was prepared by Goldberg Zoino of New York P.C. d/b/a GZA GeoEnvironmental of New York (GZA), on behalf 36 Frost Street LLC (Requester), for the property located at 36 Frost Street, Brooklyn, New York (Site). The Site will be referenced as the 36 Frost Street Site, following acceptance into the New York State Department of Environmental Conservation (NYSDEC), Division of Environmental Remediation (DER), Brownfield Cleanup Program (BCP), per Title 6 of the New York State Official Compilation of Codes, Rules, and Regulation (NYCRR) Part 375-3.4, as a Volunteer, as defined in ECL 27-1405(1)(b).

1.1 PROJECT OBJECTIVES

Previous investigations performed at the Site provided a preliminary understanding of the potential Contaminants of Concern (COCs), specifically, Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), and metals in soil as well as VOCs in groundwater and soil vapor beneath the Site. The objective of this RIWP is to collect sufficient quantity and quality data to fully characterize the nature and extent of impacted media beneath the Site. Data collected during the implementation of this RIWP will be utilized to develop a remedial design that will allow for the beneficial redevelopment of the Site under the BCP. This RIWP is being submitted in conjunction with a BCP Application.

1.2 SCOPE OF WORK

This RIWP further describes the project objectives, Site information and location, relevant historical background information, previous Site investigation data, and field methodologies that will be implemented during the Remedial Investigation (RI). This RIWP was prepared by GZA for the Site in general accordance with the NYSDEC, DER *Technical Guidance for Site Investigation and Remediation (DER-10)*, dated May 2010. Included with this RIWP are plans that detail the Site-specific protocols to be followed during the RI, which include the following Appendices:

- Quality Assurance Project Plan (QAPP) and Field Sampling Plan (FSP) – **Appendix A**
- Health and Safety Plan (HASP) – **Appendix B**
- Community Air Monitoring Plan (CAMP) – **Appendix C.**

2.0 PHYSICAL SITE CHARACTERISTICS

2.1 SITE DESCRIPTION

The Site is located at 36 Frost Street in the Williamsburg neighborhood of Brooklyn, New York. The Site is identified as Block 2736, Lot 20 with a total area of 7,487 square feet (approximately 0.17 acres). The Site is bounded by Frost Street to the north; a residential building (55 Withers Street) to the south; an industrial/manufacturing building occupied by a recording studio (40 Frost Street) to the east; beyond is residential development; and a residential building to the west (32 Frost Street). A topographic map showing the Site Location is included as **Figure 1**.

The Site is developed with a building that covers the entire tax lot parcel and is currently unoccupied. The Site is classified as M1-2/R6B for manufacturing and residential. The Site is bound by concrete sidewalk along the northern side of the Site, by residential buildings with a driveway along the southern side of the Site, by a commercial building along the eastern side of the Site, and a residential building along the western side of the Site.

A Site Map showing existing features is included as **Figure 2**.

2.2 SITE HISTORY

According to Sanborn fire insurance maps, the Site first appears developed on the 1887 map with a vacant building, two residential buildings, two one-story structures, one two-story structure, and one building labeled “roofing”. The Site appears to remain with residential buildings until 1951 where an accessory garage building appears along with a building labeled “rag storage”. In 1965 the Site is developed with two residential buildings on the western portion of the Site and a parking lot on the remainder. On the 1978 Sanborn map, the Site appears to be developed with the current one-story manufacturing building. Currently, the Site building is vacant.

The following investigations were previously conducted at the Site:

1. Phase I Environmental Site Assessment (Phase I ESA) by Touchstone Environmental Geology, PC (Touchstone), May 2025
2. Phase II Environmental Site Investigation (Phase II ESI) by GZA, July 2025
3. Supplemental Phase II ESI by GZA, September 2025

Phase I ESA by Touchstone, May 2025

The May 2025 Touchstone Phase I ESA identified the following Recognized Environmental Conditions (RECs) for the Site:

1. Historical Use of the Site; and
2. E-Designation at the Site.

In conclusion, Touchstone recommended that, based on the historical operations, a subsurface investigation should be performed at the Site.

Phase II ESI by GZA, July 2025

GZA performed a Phase II ESI at the Site, based on the May 2025 Touchstone Phase I ESA recommendations. As part of the investigation, GZA performed a geophysical survey, collected ten (10) soil samples, collected two (2) groundwater samples, and collected three (3) sub-slab soil vapor samples at the Site.

Based upon the results of the Phase II ESI, GZA provided the following conclusions:

- The geophysical survey did not reveal the presence of anomalies indicative of Underground Storage Tanks (USTs) at the Site.
- The subsurface conditions at the Site consist of fill, which includes fine to medium sand, gravel, and miscellaneous fill material to a maximum depth of 5 feet bgs, with native fine to medium sands and silts to the maximum terminal depth of 16 feet bgs.
- Laboratory analysis of ten (10) soil samples collected throughout the Site reported elevated concentrations of contaminants, including SVOCs and metals, in unsaturated soils in exceedance of the NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (UUSCOs), Restricted-Residential SCOs (RRUSCOs), and/or Protection of Groundwater SCOs (PGWSCOs). This is typical of fill material found in the five boroughs of New York City (NYC) and is not necessarily indicative of a reportable quantity for a spill or release at the Site.
- Laboratory analysis of two (2) groundwater samples did not reveal results indicative of reportable quantity for a spill or release at the Site.
- New York State does not have standards, criteria, or guidance values for VOCs in soil vapor samples. However, as a screening tool, the soil vapor analytical results were summarized compared to concentrations of VOCs in NYSDOH Decision Matrices. Laboratory analysis of the three (3) soil vapor samples did report elevated concentrations of both petroleum-related VOCs and chlorinated VOCs (cVOCs), specifically tetrachloroethylene (PCE) and trichloroethylene (TCE).

Supplemental Phase II ESI by GZA, September 2025

GZA performed a Supplemental Phase II ESI at the Site, based on the findings of the initial Phase II ESI. As part of the supplemental investigation, GZA collected ten (10) additional soil samples and collected two (2) groundwater samples at the Site, in the vicinity where elevated PCE and TCE sub-slab soil vapor concentrations were detected.

Based upon the results of the Supplemental Phase II ESI, GZA provided the following conclusions:

- Laboratory analysis of ten (10) soil samples reported elevated concentrations of PCE and TCE in three unsaturated shallow soil samples in exceedance of their UUSCOs.
- Laboratory analysis of two (2) groundwater samples were not detected above standards.

2.3 AREAS OF CONCERN

Based on the Site history and the findings of previous studies, the Areas of Concern (AOCs) to be further investigated during the RI are described below:

AOC-1 Historical Site Use

Based on the findings of the Touchstone Phase I ESA as well as the GZA Phase II ESI and Supplemental Phase II ESI, the Historical Site Use is considered an AOC. Additionally, a NYC Office of Environmental Remediation (OER) E-Designation (E-299) is associated with this Site for air quality, hazardous materials and noise. Acceptance into the BCP will satisfy any NYC OER requirements associated with this Site as the Site was issued a "P" referral package from NYC OER to NYSDEC on August 27, 2025.

The historical Site use is considered an AOC.

AOC-2 – Impacted Media

The previous environmental investigations performed at the Site found that soil, groundwater and sub-slab soil vapor beneath the Site has been impacted by Chlorinated VOCs (CVOCs), specifically PCE and TCE. The known impacted media is considered an AOC.

2.4 SURROUNDING LAND USE

The Site is located in a M1-2/R6B zoning district in the Williamsburg neighborhood of Brooklyn, New York. The area surrounding the Site consists of residential and other commercial properties.

The following table lists the properties that are adjacent to the Site and describes their current use:

Direction	Street Address/Location	Name (as applicable) and Current Use
North	Frost Street with residential properties beyond	Residential property
South	55 Withers Street	Residential property
East	40 Frost Street	Industrial/manufacturing building occupied by a recording studio
West	32 Frost Street	Residential property

2.5 PROPOSED REDEVELOPMENT/PROJECT DESCRIPTION

The planned future development will include constructing a five-story market-rate residential apartment building. The goal of this project is to investigate and remediate the Site through the NYSDEC BCP.

3.0 ENVIRONMENTAL AND PHYSIOGRAPHIC SETTING

The following subsections provide information regarding the general physiographic, hydrologic, and soil conditions around the Site.

3.1 REGIONAL PHYSIOGRAPHY

Based on a review of the United States Geological Survey (USGS) topographic map, Brooklyn Quadrangle, New York, 7.5-minute series, 2023, the Site is situated at an approximate elevation of 16 feet above mean sea level (amsl) based on the North American Vertical Datum of 1988 (NAVD88). The topographic gradient near the Site is relatively flat. The closest waterbody is the East River, located approximately 0.9 miles west of the Site.

3.2 GEOLOGIC, HYDROGEOLOGIC, AND HYDROLOGIC CONDITIONS

Based on the United States Department of Agriculture Soil Conservation Services Web Soil Survey, overburden at the Site consists of Urban Land, with 0 to 3 percent slopes (UmA), fill.

Based on the 1994 USGS publication, Bedrock and Engineering Geologic Map of New York County and Parts of Kings and Queens counties, New York, and Parts of Bergen and Hudson Counties, New Jersey (Baskerville 1994), and the USGS online GIS database, bedrock near the Site is categorized as an unconsolidated sequence of glacial and alluvial deposits from the Quaternary era, Hartland formation. This bedrock consists of mostly gray and gray-weathering, fine-grained quartz-feldspar kyanite granulite with minor biotite and garnet. Based on the 2023 USGS publication, Bedrock Surface Elevation and Overburden Thickness Maps of the Five Boroughs, New York City (DeMott, et al. 2023), bedrock would be encountered at a depth approximately 131 feet below ground surface (bgs).

Based on the 2013 USGS depth to groundwater viewer, the estimated depth to groundwater is between approximately eleven (11) to twelve (12) feet bgs. Based on local topography and surface water flow patterns, the inferred direction of groundwater flow is west-southwest toward the East River. However, the localized direction of groundwater flow near the Site may vary due to underground utilities, tidal influence, subsurface preferential pathways, variations in weather, or heterogeneous geological and/or anthropogenic conditions

3.3 HISTORICAL ENVIRONMENTAL SAMPLING RESULTS

Information from the GZA Phase II ESI and Supplemental Phase II ESI, identified COCs in soil, groundwater, and sub-slab soil vapor that may be attributed to the historical Site use. The laboratory analytical results were evaluated and the primary COCs include cVOCs (specifically PCE and TCE), SVOCs and metals in soil as well as cVOCs (specifically PCE and TCE) in groundwater and sub-slab soil vapor.

The previous environmental reports data tables are included in **Appendix D.**

Soil Chemistry

VOCs

Two (2) cVOCs, PCE (max of 4.6 milligrams per kilogram [mg/kg]) and TCE (max of 7 mg/kg) were detected above UUSCOs in three soil samples.

SVOCs

Seven (7) SVOCs, benzo(a)anthracene (max of 9.61 mg/kg), benzo(a)pyrene (10.6 mg/kg), benzo(b)fluoranthene (max of 9.68 mg/kg), benzo(k)fluoranthene (max of 6.82 mg/kg), chrysene (max of 8.69 mg/kg), dibenzo(a,h)anthracene (max of 2.09 mg/kg), and indeno(1,2,3-cd)pyrene (max of 5.6 mg/kg) were detected above the UUSCOs, RRUSCOS, and/or PGWSCOs.

Metals

The metals arsenic (max of 17.8 mg/kg), barium (max of 1,660 mg/kg), cadmium (max of 15.5 mg/kg), copper (max of 3,990 mg/kg), lead (max of 1,780 mg/kg), mercury (max of 3.69 mg/kg), nickel (max of 46.8 mg/kg), and zin (max of 5,320 mg/kg) were detected above UUSCOs, RRUSCOs and/or PGWSCOs.

A spider diagram of soil chemistry exceedances is included as **Figure 3**.

Groundwater Chemistry

VOCs

VOCs detected in groundwater samples were reported at concentrations below their applicable AWQS.

SVOCs

Six (6) SVOCs, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene were reported at concentrations exceeding their applicable AWQS in one sample.

Metals

Three (3) metals, manganese (max of 2,250 micrograms per liter [µg/L]), selenium (max of 22 µg/L), and sodium (max of 217,000 µg/L) were reported at concentrations exceeding their applicable AWQS.

A spider diagram showing the groundwater exceedances is included as **Figure 4**.

Soil Vapor Chemistry

Three (3) soil vapor samples were collected during the Phase II ESI. The soil vapor samples reported elevated detections of PCE, with a maximum concentration of 19,000 micrograms per cubic meter (µg /m^3) and TCE, with a maximum concentration of 41,000 µg/m^3.

A spider diagram showing the soil vapor concentrations is included as **Figure 5**.

4.0 REMEDIAL INVESTIGATION

The proposed RI field program will focus on collecting soil, groundwater, and soil vapor data to delineate and characterize the nature and extent of impacts at the Site. The scope of the RI will include the collection of sufficient data so that the entire Site will be fully characterized to support the development of a Site-wide Remedial Action Work Plan (RAWP).

To accomplish this, the scope of work for the RI will include the following:

- The advancement of soil borings, collection of soil samples, installation of permanent groundwater monitoring wells, collection of groundwater samples from newly installed monitoring wells, installation of soil vapor points, and sampling of newly installed soil vapor points;
- The collection of soil, groundwater, and soil vapor sufficient to define the nature and extent of impacted media and current Site conditions and offsite groundwater and/or soil vapor migration potential;
- The collection of a synoptic round of groundwater level measurements and the collection of additional land survey data as needed for developing a groundwater elevation contour map; and
- The performance of a Qualitative Human Health Exposure Assessment (QHHEA) to identify existing and potential exposure pathways and evaluate contaminant fate and transport.

The proposed scope of work includes:

<u>Soil</u>
- Advancement of 11 soil borings (designated SB-01 through SB-11) to a maximum depth of 20 ft bgs.
- Collection and laboratory analyses of two soil samples from each boring for a minimum total of 22 soil samples. One from the upper fill layer (approximately 0-2 ft bgs) and one from 8-10 ft bgs. If intervals of high impact are observed based on visual/olfactory senses and/or photoionization detector readings above or below the groundwater table, an additional soil sample will be collected.

<u>Groundwater</u>
- Five (5) permanent monitoring wells will be installed at the depth intervals described in **Section 4.3**.
- Gauging and development of the permanent monitoring wells.
- Collection and laboratory analyses of five (5) groundwater samples for full suite analysis from the newly installed monitoring wells (MW-01 through MW-05).
- Elevation survey of all well locations.

<u>Soil Vapor Investigation</u>
- Installation and sampling of five (5) soil vapor points (SV-01 through SV-05).

The RI will be conducted in accordance with the applicable requirements of the DER-10. The data will be produced in accordance with the NYSDOH Analytical Services Protocol (ASP) Category B deliverables and will be reviewed and validated by an independent data validator. The data validator will prepare a Data Usability Summary Report (DUSR) before data is incorporated into the Remedial Investigation Report (RIR) for the Site. All data will be submitted to NYSDEC in electronic format, in accordance with DER-10.

The sample summary and rationale are provided in **Table 1**. The proposed RI sample locations are shown on **Figure 4**. The following sections describe the methods, rationale, and proposed sampling schedule for the soil investigation activities summarized above. Sampling will be performed in accordance with the QAPP/FSP presented in **Appendix A**.

4.1 UTILITY CLEARANCE

A geophysical survey will be completed across the entire Site to scan the shallow subsurface for the presence of anomalies (e.g., underground storage tanks and associated piping, utilities, and foundation slabs). The geophysical survey will include one or more of the following techniques to assist in detecting subsurface anomalies: Ground Penetrating Radar (GPR), electromagnetic surveys and/or subsurface utility surveys. Anomalies detected by the geophysical survey will be marked with spray paint and/or flags. A written geophysical survey report and figure will be appended to the RIR.

Additionally, a mark-out of underground utility lines will be performed prior to the start of fieldwork by calling the New York City One-Call Center. A utility mark-out verification reference number for the Site will be obtained and a record of the utilities will be kept.

4.2 SOIL INVESTIGATION

As shown on **Figure 6**, GZA proposes to advance 11 soil borings (designated as SB-01 to SB-11) across the Site. The soil borings will be performed under field observation of a GZA engineer or geologist. Discrete soil samples will be obtained utilizing a Geoprobe drill rig with 3- or 5-foot steel MacroCore™ samplers using disposable acetate liners. The MacroCore™ sampler will be advanced through the subsurface to collect representative soil samples down to a depth of 20 ft bgs.

GZA's drilling contractor will collect soil samples continuously from grade to the target depth and GZA will observe/document the soil samples for staining and/or odors and soil characteristics. GZA will screen the soil samples for total organic vapors with a hand-held, Photo-Ionization Detector (PID) with an 11.7 eV bulb (capable of detecting cVOCs) and record lithological descriptions of the soil and field screening results on the soil boring logs. An example soil boring log is included in **Appendix E**.

The GZA field representative will retain selected samples for laboratory analyses from the soil samples that indicate the comparatively highest impacts based on visual, olfactory, and PID screening results, and/or based on our evaluation of relevant Site features and conditions. GZA will collect two (2) soil sample sets per boring, totaling 24 soil sample sets. Discrete samples will be collected with an EnCore® sampler (or similar) in compliance with USEPA Method 5035 from the 6-inch interval with the highest visual, olfactory and PID evidence of environmental impacts from the proposed sample intervals. Full suite samples will be collected in the shallow fill layer (approximately 0 to 2 ft bgs) and from the 8-10 ft bgs interval. The soil samples will be analyzed as follows:

- Target compound list (TCL) VOCs by USEPA Method 8260 with TICs (discrete);
- TCL SVOC by USEPA Method 8270 with TICs, including 1,4 Dioxane;
- Target analyte list (TAL) Metals by USEPA Method 6010C / 7471B, including hexavalent chromium and total cyanide;
- TCL Pesticides by USEPA Method 8081;
- Herbicides by USEPA Method 8151;
- Polychlorinated Biphenyls (PCBs) by USEPA Method 8082A; and
- Per- and Polyfluoroalkyl Substances (PFAS) by USEPA Method 1633.

Each sample set will be labeled, sealed, and placed in a cooler for shipment under standard chain-of-custody protocol to a NYSDOH Environmental Laboratory Approval Program (ELAP)-laboratory.

4.3 GROUNDWATER INVESTIGATION

As shown on **Figure 6**, GZA proposes to install five (5) permanent monitoring wells (MW-01 through MW-05) during the RI. The permanent monitoring wells will be installed to a maximum depth of approximately 20 ft bgs and screened at approximately 10 to 20 ft bgs, depending on the depth of the encountered water table. Each monitoring well will consist of a 2-inch diameter PVC riser and at least 10 feet long of 0.02-inch slotted 2-inch diameter PVC screen (if silty clay or clay is observed, then 0.01-inch slot screen may be utilized) with the shallow screened interval designed to span across the water table to detect petroleum sheens or Light Non-Aqueous Phase Liquids (LNAPL). A 2-foot bentonite plug will be placed above the filter pack. The remaining annular space will be filled with bentonite. The wells will be completed with a flush-mount manhole and locking cap. An example of a monitoring well construction log is provided in **Appendix E**. The monitoring wells will be developed (i.e., the wells will be allowed to equilibrate for at least seven days prior to sampling) in accordance with applicable methods outlined in the QAPP/FSP presented in **Appendix A**. The monitoring well schedule is shown in the table below:

Well ID	Screened Interval (ft bgs)	Proposed/Existing	Full-Suite Analysis/VOC Analysis
MW-01	10-20*	Proposed	Full-Suite
MW-02	10-20*	Proposed	Full-Suite
MW-03	10-20*	Proposed	Full-Suite
MW-04	10-20*	Proposed	Full-Suite
MW-05	10-20*	Proposed	Full-Suite

Table Notes:
Ft bgs: feet below ground surface
*: Screened interval may be adjusted based on field observations

Well Development

Following installation, the five new groundwater monitoring wells will be developed using a submersible pump (or equivalent) until the water is reasonably free of turbidity and field readings (pH, conductivity, temperature, and dissolved oxygen) sufficiently stabilize. GZA will develop to 50 nephelometric turbidity units (NTUs) or less as the turbidity goal, but this will not be an absolute value. The monitoring wells will be developed aggressively to remove fines from the formation and sand pack. The monitoring wells will be allowed to equilibrate for seven (7) days prior to sampling. The volume of water removed, the well development time, and field instrument readings will be recorded in the logbook.

Groundwater Sampling

At least seven (7) days after the groundwater monitoring wells are installed and developed, groundwater samples will be collected from the monitoring wells by bladder pump and with dedicated high-density polyethylene (HDPE) tubing via USEPA low-flow sampling methodology. Prior to sample collection, a minimum of three well screen volumes will be purged from each well point with the pump intake placed at the approximate midpoint of the screened interval. At the ground surface, the water will pass through a sealed flow through cell containing probes which will measure the water temperature, pH, specific conductivity, turbidity, oxidation-reduction potential (ORP), and dissolved oxygen (DO). One groundwater sample will be collected after the water quality parameters have stabilized and turbidity is less than 10 Nephelometric Turbidity Units (NTUs). If less than 10 NTUs cannot be reasonably achieved, samples will be collected at less than 50 NTUs. Stabilization is defined by three successive readings that are within ± 0.1 for pH, ± 3% for conductivity, ± 10 mv for ORP, and ± 10% for turbidity and DO. An example well purge log is provided in **Appendix E**.

The full-suite groundwater samples will be analyzed for the following parameters:

- TCL VOCs with TICs by USEPA Method 8260;
- TCL SVOC with TICs by USEPA Method 8270 including 1-4 Dioxane by EPA Method 8270 SIM;
- Total and dissolved TAL Metals by USEPA Method 6010C / 7471B, cyanide by USEPA Method 9010/9012, and hexavalent chromium;
- Pesticides by USEPA Method 8081;
- PCBs by USEPA Method 8082A;
- Herbicides by USEPA Method 8151; and
- PFAS by EPA Method 1633

One trip blank sample will accompany the groundwater sample (at a frequency of one per day of sampling with a sample submitted to the laboratory for TCL VOC analysis) and will be analyzed for TCL VOCs.

4.4 SOIL VAPOR SAMPLING

As shown on **Figure 6**, GZA proposes to install five (5) soil vapor points (designated as SV-01 to SV-05) to a depth of 5-feet bgs. GZA will collect each of the soil vapor samples using methods consistent with the NYSDOH Guidance for Evaluating Soil Vapor Intrusion, dated October 2006 (as amended). GZA proposes to collect all soil vapor samples utilizing laboratory supplied 6-liter Summa® canisters equipped with 8-hour flow regulators. The soil vapor samples will be submitted to a NYSDOH ELAP-accredited laboratory. The soil vapor samples will be submitted for TCL VOCs analysis via USEPA Method TO-15. The analytical results will be compared to NYSDOH-specified guidance values. Following soil vapor sample collection, the soil vapor sampling point materials will be removed from the ground. An example soil vapor sampling log is included in **Appendix E**.

4.5 GREEN AND SUSTAINABLE REMEDIATION (GSR) PRACTICES

According to NYSDEC DER-31 Green Remediation guidance document, green remediation approaches should be considered during site remediation. GZA and its subcontractors will incorporate sustainability practices to reduce the environmental footprint of the RI and future Remedial Action. In accordance with ASTM E2893-16e1 the project GSR goals include the following:

- To minimize total energy use and maximize use of renewable energy,
- To minimize air pollutants and greenhouse gas emissions,
- To minimize water, use and impact to water resources,
- To reduce, reuse and recycle materials and waste; and
- To protect land and ecosystems

GZA will incorporate best management practices to lower our environmental footprint during the RI phase of the project. GZA will incorporate the following practicable measures during the planned scope of work:

1. Limit the use of generators, drilling equipment, and vehicles to reduce emissions.
2. Minimize truck travel for disposal of waste generated by selecting local disposal facilities, where possible.
3. Manage onsite resources and materials efficiently to limit excessive use of consumable items and natural resources.
4. Use local subcontractors during the investigation to minimize vehicle emissions during commute.
5. Request investigation subcontractors to use clean diesel equipment to reduce emissions.
6. Request project staff and subcontractors to use public transportation and carpooling during RI implementation to the extent practicable.
7. Reducing waste, increasing recycling, and increasing reuse of materials that otherwise would be considered waste.

As required, a climate screen checklist and an environmental footprint analysis have been completed for the project and are attached in **Appendix F**.

4.6 QUALITY ASSURANCE /QUALITY CONTROL

As part of the field investigation, GZA will also collect Quality Assurance/Quality Control (QA/QC) samples in accordance with the QAPP, presented in **Appendix A**, to confirm the usability of the data. QA/QC samples include equipment rinsate/field blanks, trip blanks, sample duplicates and matrix spike/matrix spike duplicates (MS/MSDs).

When applicable, the sample result summary tables will list the laboratory method detection limit (MDL) at which a compound was non-detectable. The laboratory results will be reported to the sample-specific practical quantitation limit (PQL), equal to the sample-specific MDL, supported by the instrument calibrations. The reliability of laboratory data is supported by compliance with sample holding times and laboratory MDLs below cleanup criteria. Accuracy and precision of the laboratory analytical methods will be maintained using calibration and calibration verification procedures, laboratory control samples, and surrogate, matrix, and analytical spikes.

4.7 DATA MANAGEMENT AND VALIDATION

GZA will coordinate with the laboratory to prepare the laboratory analytical reports in accordance with NYSDEC ASP Category B data deliverables, which include:

- Sample Delivery Group Narrative;
- Contract Lab Sample Information sheets;
- NYSDEC Data Package Summary Forms;
- Chain-of-custody forms; and,
- Test analyses results (including TICs for analysis of VOCs and SVOCs).

Plus, related QA/QC information and documentation consisting of:

- Calibration standards;
- Surrogate recoveries;
- Blank results;
- Spike recoveries
- Duplicate results;
- Confirmation (lab check/QC) samples;

- Internal standard area and retention time summary;
- Chromatograms;
- Raw data files; and
- Other specific information as described in the most current NYSDEC ASP

GZA will coordinate with the laboratory to prepare the results in Electronic Data Deliverables (EDDs) format compatible with EQuIS that can be uploaded into an EQuIS database for storage and development of tables or output to other data analysis tools and GIS as needed. GZA will have a third-party data validator evaluate the data package for inclusion into a DUSR that will subsequently be prepared to document the usability of the data. Additional details regarding QA/QC and data management and validation are included in **Appendix A – QAPP/FSP**.

4.8 CHAIN OF CUSTODY AND SHIPPING

A chain-of-custody form will trace the path of sample containers from the Site to the laboratory. The project manager will notify the laboratory of upcoming field sampling events and the subsequent transfer of samples. This notification will include information concerning the number and type of samples, and the anticipated date of arrival. Insulated sample shipping containers (typically coolers) will be provided by the laboratory for shipping samples. All sample bottles within each shipping container will be individually labeled with an adhesive identification label provided by the laboratory. Project personnel receiving the sample containers from the laboratory will check each cooler for the condition and integrity of the bottles prior to field work.

The field sampler will indicate the sample designation/location number in the space provided on the chain-of-custody form for each sample. The chain-of-custody forms will be signed and placed in a sealed plastic Ziploc bag in the cooler. If sent via third party carrier, the shipping container will be closed for transport with nylon strapping, or a similar shipping tape, and a paper custody seals will be affixed to the lid. The seals must be broken to open the cooler and will indicate tampering if the seals are broken before receipt at the laboratory. A label may be affixed identifying the cooler as containing "Environmental Samples" and the cooler will be shipped via courier or by an overnight delivery service to the laboratory. When the laboratory receives the coolers, the custody seals will be checked, and lab personnel will sign the chain-of-custody form.

The following typical chain-of-custody procedures will be implemented by GZA during the soil sampling:

A. The samples are under custody of the GZA field personnel, if:
   1. they are in his/her possession;
   2. they are in view after being in possession;
   3. they are locked up or sealed securely to prevent tampering; or
   4. they are in a designated secure area.

B. The original of the chain-of-custody form must accompany the samples at all times after collection, until receipt at the analytical laboratory. A copy of the chain-of-custody form will be kept by the sample collector until it is filed in the project file.

C. When the possession of samples is transferred, the individuals relinquishing and receiving the samples will sign, date, and note the time on the chain-of-custody form.

D. When samples are shipped, the GZA personnel, or designated representative, will note the courier’s name, and air bill number, if applicable, on the chain-of-custody form. Prior to shipping, coolers will be secured with signed custody seals so the laboratory may confirm coolers were not opened during shipping.

The chain-of-custody form will contain information to distinguish each sample from any other sample. This information will include:

A. The project name and address for which sampling is being conducted;
B. The name(s) and signature(s) of sampler(s);
C. The matrix being sampled (groundwater, soil, etc.);
D. The sampling date and time;
E. The specific sampling location in sufficient detail to allow re-sampling at the same location;
F. The number of containers and the volume of sample collected, and
G. The analytical method to be performed.

4.9 STORAGE AND DISPOSAL OF INVESTIGATION-DERIVED WASTE

Investigation Derived Waste (IDW) generated during the RI will be containerized and properly characterized and disposed of. Containers, which are United States Department of Transportation (USDOT) approved storage containers (55-gallon drums) or a small bulk roll-off container, will be properly labeled and grouped by environmental matrix (soil, water, PPE/plastic, etc.). All drums or roll-offs will be staged in a central location on-Site prior to off-Site disposal.

If drums are used, they will be tracked as they are filled and given unique identification codes based on the following:

- A prefix indicating the drum's contents: i.e., S – Soil, W – Water, P – PPE/Plastic, and C&D – Construction Debris.
- Following the prefix and a hyphen will be the origin of the drum's contents. For example, drum SB-01, SB-02, SB-03 is a generated drum filled with soils from soil boring locations SB-01, SB-02, and SB-03; drum MW-01 is water generated from monitoring well MW-01.
- As drums are generated, their identification code, date of generation, contents, source (i.e., drill cuttings from location x, purge water from well y), and date sampled will be entered on a tracking table.

The drums will be centrally stored on-Site. Subsequently, the waste soils and/or water will be characterized with laboratory analyses for proper disposal.

5.0 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

A QHHEA will be performed following the collection of all RI data. The Exposure Assessment (EA) will be performed in accordance with Section 3.3(c)4 of DER-10 and the NYSDOH guidance for performing a qualitative EA (DER-10; Appendix 3B). The QHHEA will characterize the exposure setting, identify potentially complete exposure pathways, and qualitatively evaluate potential fate and transport of constituents from one medium to another (i.e., soil-to-air or soil-to-groundwater).

An exposure pathway is considered complete when the following five conditions are met:

1. Source identified (i.e., metals in paint on exterior building surfaces);
2. Release and transport mechanism from source to environmental media (i.e., into the subsurface or volatilization to the air of an overlying building);
3. Point of human exposure (i.e., an occupied building or surface soil);
4. A route of exposure (ingestion, dermal contact, or inhalation); and
5. A receptor population (i.e., on-Site workers).

Once potentially complete exposure pathways are identified, the QHHEA will characterize Site conditions to determine whether the Site poses an existing or potential future hazard to the potentially exposed population. The evaluation will include a qualitative discussion of potential fate and transport mechanisms at the Site. The results of the QHHEA will be included as part of the RIR.

According to Section 3.10 of DER-10, and the Fish and Wildlife Resources Impact Analysis Decision Key in DER-10 Appendix 3C, a Fish and Wildlife exposure assessment will be performed (if needed) based on the results of the RI.

6.0 HEALTH AND SAFETY

The work outlined above will be completed under a GZA Site-specific HASP, attached as **Appendix B**, in accordance with OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations. A PID will be used to monitor the breathing zone of workers performing investigative activities in areas where there is a potential for the presence of organic vapors (i.e., groundwater and soil vapor sampling). A dust meter will also be used to screen for dust in the breathing zone that has the potential presence of metal contamination. GZA anticipates the work will be completed in Modified Level D personal protective equipment (PPE); however, workers will be prepared to elevate to more protective PPE based on the conditions encountered during field activities.

6.1 <u>PROJECT KICKOFF AND UTILITY CLEARANCE</u>

A project kick-off meeting will be held prior to initiating field work to orient field team members and subcontractors with the Site background, scope of work, potential hazards, health and safety requirements, emergency contingencies and other field procedures.

Prior to performing any subsurface work, a utility clearance survey will be performed in accordance with New York State Dig-Safe protocol. Sample locations will be screened using surface geophysical techniques such as electromagnetic (EM), ground penetrating radar (GPR) and/or radiofrequency (RF) techniques.

6.2 <u>COMMUNITY AIR MONITORING PLAN</u>

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 (see **Appendix C**).

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 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 would generally consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging, and taking a reading prior to leaving a sample location.

<u>VOC Monitoring, Response Levels, and Actions</u>

VOCs will be monitored at the Site perimeter on a continuous basis during earthwork activities unless otherwise specified in the CAMP. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. 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 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 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 in excess of 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.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored at the Site perimeter and in work zones on a continuous basis during earthwork. 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.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) 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 mcg/m3 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/m3 above the upwind level, work will be stopped, and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.
3. Readings will be recorded and be available for State (NYSDEC and NYSDOH) personnel to review.

7.0 REPORTING

During the duration of the RI activities, daily and monthly field reports will be completed and submitted to the NYSDEC. Upon completion of the field activities, a RIR will be prepared to document the findings of the investigations performed at the Site and the proposed remedy. The RIR will be consistent with the specifications presented in the DER-10 document and will include:

- An executive summary;
- A Site description and history;
- Summary information regarding previous investigations and remedial work performed at the Site;
- Descriptions of field activities performed;
- A summary of pertinent field observations, field measurements, and laboratory analytical data summarized in tabular format - analytical results will be compared to appropriate NYSDEC guidance and standards;
- Spider diagrams for analytical results showing exceedances and comparisons to applicable standards;
- Plan view and cross-section figures presenting laboratory analytical data and field observations of surface and subsurface soil and groundwater impacts. A minimum of two profiles will be developed, one perpendicular to and one parallel with groundwater flow direction at the Site;
- A qualitative human health risk assessment which assesses the sources of impact, on and off-Site human and ecological receptors, and exposure pathways;
- A data usability review and DUSRs for the laboratory data collected during the RI;
- An integration of field observations and measurements with laboratory analytical data to evaluate the nature and extent of impacts and to develop a site conceptual model of potential contaminant migration;
- A set of conclusions for the RI; and
- Recommendations

Data collected during the RI will be submitted in the Department's Environmental Information Management System (EIMS) format for Electronic Data Delivery (EDD).

8.0 PROJECT SCHEDULE AND PROJECT PERSONNEL

Our anticipated schedule to perform the investigation activities described in the Gantt chart on the following page:

BROWNFIELD CLEANUP PROGRAM
36 Frost Street, Brooklyn

Project Milestones	Start	End	2025			2026												2027			
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
BCP Application and RIWP Submission to NYSDEC	October 2025	November 2025																			
NYSDEC BCP Application Review and Determination of Completeness	November 2025	December 2025																			
Revisions to BCP Application and RIWP	December 2025	January 2026																			
30-Day Public Comment for BCP Application & RIWP	December 2025	January 2026																			
CPP Submission and Review	December 2025	January 2026																			
NYSDEC and NYSDOH Review of RIWP and Submission of Revisions	January 2026	February 2026																			
BCA Execution	February 2026	February 2026																			
RIWP Implementation	February 2026	March 2026																			
RIR Preparation	March 2026	April 2026																			
RAWP Preparation	April 2026	May 2026																			
NYSDEC and NYSDOH Review of RIR and RAWP, Submission of Revisions and 45-Day Comment Period	May 2026	July 2026																			
Approval of the RIR and RAWP, Issuance of Decision Document	July 2026	August 2026																			
Pre-construction Meeting with NYSDEC	August 2026	August 2026																			
RAWP Implementation, Documentation of Engineering Controls	August 2026	November 2026																			
Preparation of FER and SMP	November 2026	January 2027																			
NYSDEC Review of FER and SMP	January 2027	March 2027																			
Issuance of COC	April 2027	April 2027																			

* The chart above presents a schedule for the proposed BCP Project Implementation and Reporting.
If the schedule for remediation and development activities changes, it will be updated and submitted to NYSDEC, as necessary.

We note that the proposed schedule may be adjusted if unforeseen delays occur due to inclement weather, USDOT permit approval, drill rig availability or other conditions that are beyond GZA's control.

The following GZA project personnel are proposed to be involved as part of the remedial investigation activities. Qualifications of personnel are provided in **Appendix G**. Drilling and laboratory subcontractors have not yet been retained.

Personnel	**Role**	**Contact Information**
Victoria D. Whelan, P.G.	Qualified Environmental Professional / Vice President	631-793-8821
Ronald A. Lombino II	Project Manager	631-804-5992
TBD		

TABLES

TABLES

Table 1 - Sample Summary and Rationale
Remedial Investigation Work Plan
36 Frost Street Site
36 Frost Street
Brooklyn, New York

Sample Name	Sample / Boring Termination Depth (feet below ground level)	Approximate Number of Samples	Rationale for Sampling	Laboratory Analysis
Soil				**Analyses**
SB-01	20	2 - Full Suite	To characterize soil conditions and delineate extent and depths of contamination at the Site	SB-01 (0-2 ft bgs), SB-01 (8-10 ft bgs) - Full Suite
SB-02	20	2 - Full Suite		SB-02 (0-2 ft bgs), SB-02 (8-10 ft bgs) - Full Suite
SB-03	20	2 - Full Suite		SB-03 (0-2 ft bgs), SB-03 (8-10 ft bgs) - Full Suite
SB-04	20	2 - Full Suite		SB-04 (0-2 ft bgs), SB-04 (8-10 ft bgs) - Full Suite
SB-05	20	2 - Full Suite		SB-05 (0-2 ft bgs), SB-05 (8-10 ft bgs) - Full Suite
SB-06	20	2 - Full Suite		SB-06 (0-2 ft bgs), SB-06 (8-10 ft bgs) - Full Suite
SB-07	20	2 - Full Suite		SB-07 (0-2 ft bgs), SB-07 (8-10 ft bgs) - Full Suite
SB-08	20	2 - Full Suite		SB-08 (0-2 ft bgs), SB-08 (8-10 ft bgs) - Full Suite
SB-09	20	2 - Full Suite		SB-09 (0-2 ft bgs), SB-09 (8-10 ft bgs)
SB-10	20	2 - Full Suite		SB-10 (0-2 ft bgs), SB-10 (8-10 ft bgs) - Full Suite
SB-11	20	2 - Full Suite		SB-11 (0-2 ft bgs), SB-11 (8-10 ft bgs) - Full Suite;

Soil Analysis Description

Full Suite : TCL VOCs + TICs, including 1-4 Dioxane (USEPA Method SW 846 8260, isotope dilution for 1-4 Dioxane), TCL SVOCs + TICs (USEPA Method 8270), TAL metals (USEPA Methods SW 846 6010/6020/7470) + cyanide (USEPA Method SW 846 9010/9012) and hexavalent chromium, pesticides/herbicides/PCBs (USEPA Methods SW 846 8081/8151/8082), Per- and polyfluoroalkyl substances (USEPA Method 1633)

Notes:
ft bgs = feet below ground surface
TCL = Target Compound List
TAL = Target Analyte List
VOCs + TICs = volatile organic compounds plus tentatively identified compounds
SVOCs + TICs = semi-volatile organic compounds plus tentatively identified compounds
PCBs = polychlorinated biphenyls
PFAS = per and polyfluoroalkyl substances
* = if impacts are observed, additonal discrete sample will be collected

Table 1 - Sample Summary and Rationale
Remedial Investigation Work Plan
36 Frost Street Site
36 Frost Street
Brooklyn, New York

Sample Name	Sample / Boring Termination Depth (feet below ground surface)	Approximate Number of Samples	Rationale for Sampling	Laboratory Analysis
Groundwater - Permanent Wells				**Analyses**
MW-1	20	1	To characterize the groundwater conditions at the Site	Full Suite
MW-2	20	1		Full Suite
MW-3	20	1		Full Suite
MW-4	20	1		Full Suite
MW-5	20	1		Full Suite

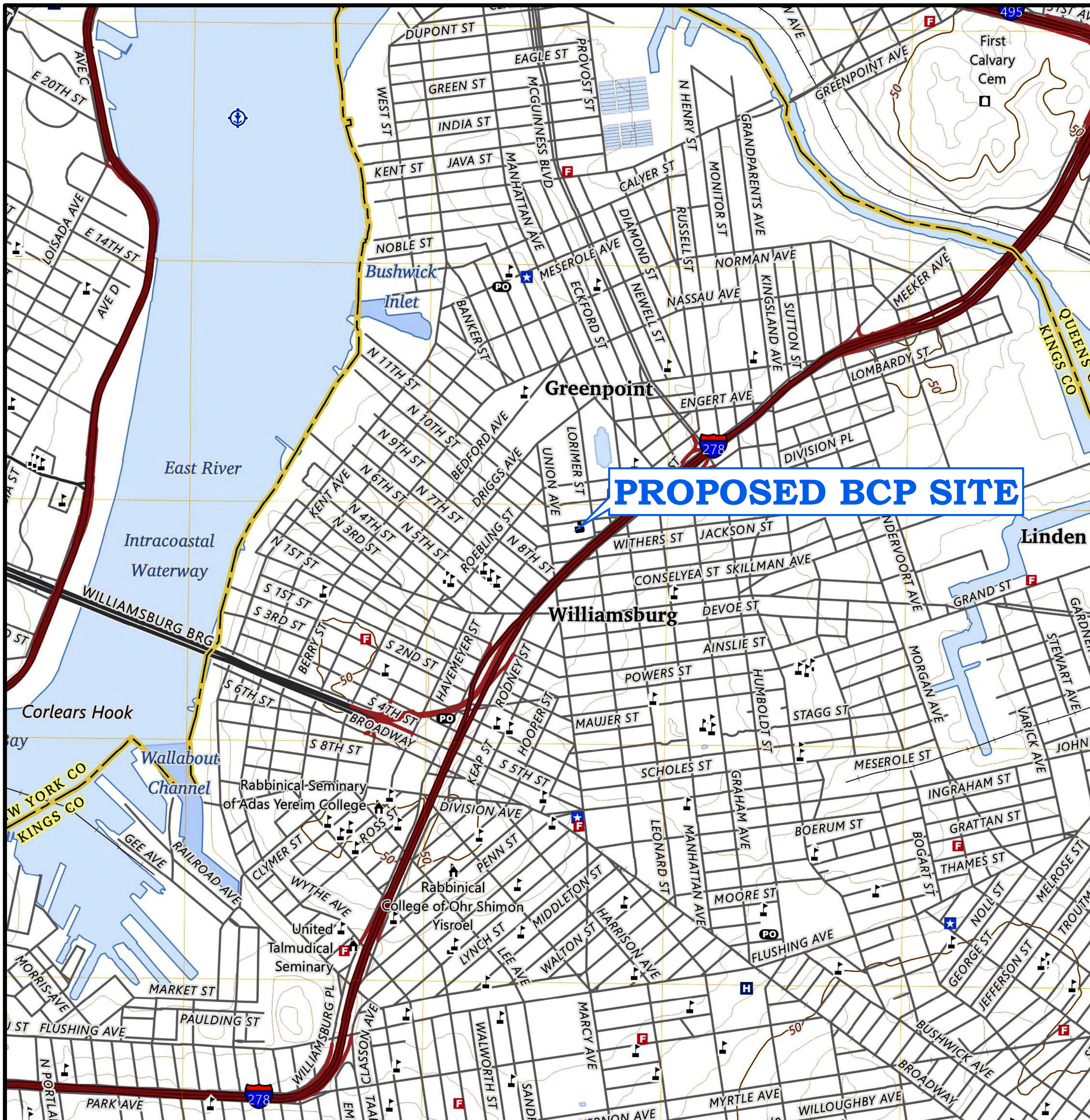
Notes:
Based on information obtained from USGS and previous investigations, the water table is anticipated to be encountered at approximately 8 to 10 ft bgs

Groundwater Analysis Description
Full Suite: TCL VOCs + TICs, including 1-4 Dioxane (USEPA Method SW 846 8260, isotope dilution for 1-4 Dioxane), TCL SVOCs + TICs (USEPA Method SW 846 8270), pesticides/herbicides/PCBs (USEPA Methods SW 846 8081/8151/8082), total and dissolved TAL metals (USEPA Methods SW 846 6010/6020/7470), cyanide (USEPA Method SW 846 9010/9012), hexavalent chromium; PFAS (USEPA Method 1633)

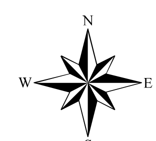
Sample Name	Sample / Boring Termination Depth	Approximate Number of Samples	Rationale for Sampling	Laboratory Analysis
Soil Vapor				**Analysis**
SV-01	5- ft bgs	1	To characterize soil vapor impacts across the Site.	USEPA Method TO-15 for VOCs
SV-02	5- ft bgs	1		
SV-02	5- ft bgs	1		
SV-04	5- ft bgs	1		
SV-05	5- ft bgs	1		

Soil Vapor Analysis Description
VOCs (USEPA Method TO-15)

FIGURES



Source:
USGS TOPOGRAPHIC MAPS: BROOKLYN, NY (2023).
CONTOUR INTERVAL 10FT., NAVD-1988, ORIGINAL SCALE 1:24,000 (1IN.=2,00FT.).



36 FROST STREET, BROOKLYN, NEW YORK 11211	GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: 36 FROST STREET LLC
SITE LOCATION MAP	PROJ MGR: LS	REVIEWED BY: LS	CHECKED BY: MS
	DESIGNED BY: LD	DRAWN BY: PM	SCALE: 1" = 2,000'
	DATE: SEPTEMBER 2025	PROJECT NO. 41.0163452.10	REVISION NO.
			FIGURE 1 SHEET NO. 1 OF 1

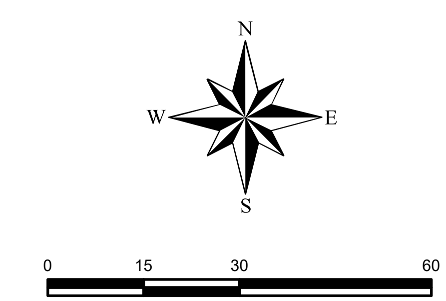
File: 36FrostSt_BrooklynNY_BCP.mxd Date: 9/24/2025

General Notes:
1. Parcels Developed from New York City Department of Planning MapPLUTO.
2. Road Centerline sourced from New York Department of Transportation.
3. Aerial Source: NY ITS Geospatial Services, 2024.

Legend

Proposed BCP Site Boundary

Limits of Tax Parcels



36 FROST STREET,
BROOKLYN, NEW YORK 11211

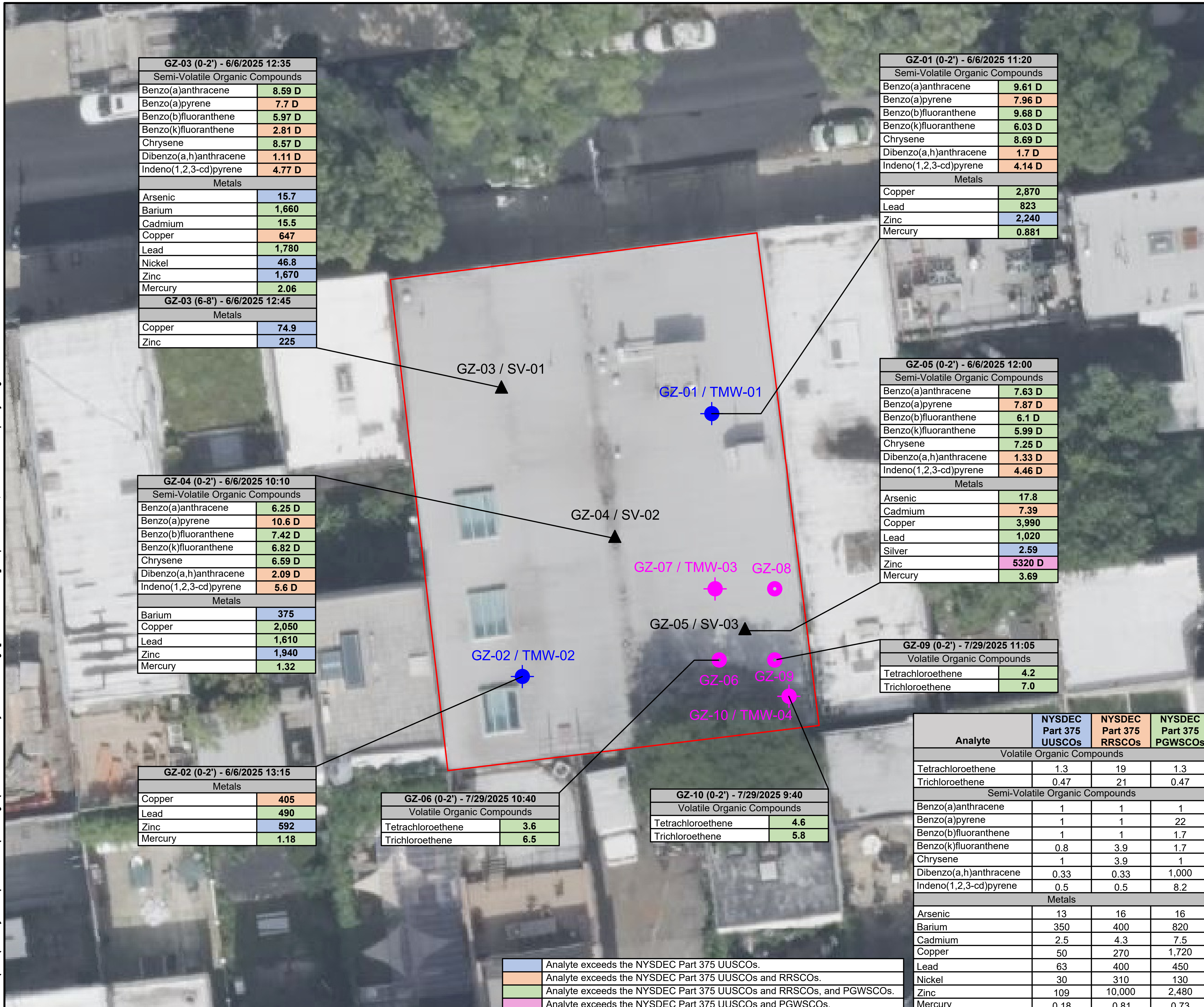
SITE PLAN

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
36 FROST STREET LLC

PROJ MGR: MM	REVIEWED BY: MM	CHECKED BY: MM	FIGURE 2
DESIGNED BY: MM	DRAWN BY: PTMP	SCALE: 1" = 2,000'	
DATE: SEPT 2025	PROJECT NO. 41.0163452.10	REVISION NO.	SHEET NO.

File: 36FrostSt_BrooklynNY_BCP.mxd Date: 9/24/2025



GZ-03 (0-2') - 6/6/2025 12:35	
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	8.59 D
Benzo(a)pyrene	7.7 D
Benzo(b)fluoranthene	5.97 D
Benzo(k)fluoranthene	2.81 D
Chrysene	8.57 D
Dibenzo(a,h)anthracene	1.11 D
Indeno(1,2,3-cd)pyrene	4.77 D
Metals	
Arsenic	15.7
Barium	1,660
Cadmium	15.5
Copper	647
Lead	1,780
Nickel	46.8
Zinc	1,670
Mercury	2.06
GZ-03 (6-8') - 6/6/2025 12:45	
Metals	
Copper	74.9
Zinc	225

GZ-01 (0-2') - 6/6/2025 11:20	
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	9.61 D
Benzo(a)pyrene	7.96 D
Benzo(b)fluoranthene	9.68 D
Benzo(k)fluoranthene	6.03 D
Chrysene	8.69 D
Dibenzo(a,h)anthracene	1.7 D
Indeno(1,2,3-cd)pyrene	4.14 D
Metals	
Copper	2,870
Lead	823
Zinc	2,240
Mercury	0.881

GZ-05 (0-2') - 6/6/2025 12:00	
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	7.63 D
Benzo(a)pyrene	7.87 D
Benzo(b)fluoranthene	6.1 D
Benzo(k)fluoranthene	5.99 D
Chrysene	7.25 D
Dibenzo(a,h)anthracene	1.33 D
Indeno(1,2,3-cd)pyrene	4.46 D
Metals	
Arsenic	17.8
Cadmium	7.39
Copper	3,990
Lead	1,020
Silver	2.59
Zinc	5320 D
Mercury	3.69

GZ-04 (0-2') - 6/6/2025 10:10	
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	6.25 D
Benzo(a)pyrene	10.6 D
Benzo(b)fluoranthene	7.42 D
Benzo(k)fluoranthene	6.82 D
Chrysene	6.59 D
Dibenzo(a,h)anthracene	2.09 D
Indeno(1,2,3-cd)pyrene	5.6 D
Metals	
Barium	375
Copper	2,050
Lead	1,610
Zinc	1,940
Mercury	1.32

GZ-09 (0-2') - 7/29/2025 11:05	
Volatile Organic Compounds	
Tetrachloroethene	4.2
Trichloroethene	7.0

GZ-02 (0-2') - 6/6/2025 13:15	
Metals	
Copper	405
Lead	490
Zinc	592
Mercury	1.18

GZ-06 (0-2') - 7/29/2025 10:40	
Volatile Organic Compounds	
Tetrachloroethene	3.6
Trichloroethene	6.5

GZ-10 (0-2') - 7/29/2025 9:40	
Volatile Organic Compounds	
Tetrachloroethene	4.6
Trichloroethene	5.8

Analyte	NYSDEC Part 375 UUSCOs	NYSDEC Part 375 RRSCOs	NYSDEC Part 375 PGWSCOs
Volatile Organic Compounds			
Tetrachloroethene	1.3	19	1.3
Trichloroethene	0.47	21	0.47
Semi-Volatile Organic Compounds			
Benzo(a)anthracene	1	1	1
Benzo(a)pyrene	1	1	22
Benzo(b)fluoranthene	1	1	1.7
Benzo(k)fluoranthene	0.8	3.9	1.7
Chrysene	1	3.9	1
Dibenzo(a,h)anthracene	0.33	0.33	1,000
Indeno(1,2,3-cd)pyrene	0.5	0.5	8.2
Metals			
Arsenic	13	16	16
Barium	350	400	820
Cadmium	2.5	4.3	7.5
Copper	50	270	1,720
Lead	63	400	450
Nickel	30	310	130
Zinc	109	10,000	2,480
Mercury	0.18	0.81	0.73

Blue	Analyte exceeds the NYSDEC Part 375 UUSCOs.
Orange	Analyte exceeds the NYSDEC Part 375 UUSCOs and RRSCOs.
Green	Analyte exceeds the NYSDEC Part 375 UUSCOs and RRSCOs, and PGWSCOs.
Pink	Analyte exceeds the NYSDEC Part 375 UUSCOs and PGWSCOs.

GENERAL NOTES

1. EXPLORATION LOCATIONS SHOWN ARE BASED ON TAPE MEASUREMENTS FROM TOPOGRAPHICAL FEATURES. THE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
2. SEE LABORATORY REPORTS FOR ADDITIONAL INFORMATION INCLUDING QUALIFIER DESCRIPTIONS.
3. ONLY EXCEEDANCES OF THE APPLICABLE NYSDEC PART 375 SOIL CLEANUP OBJECTIVES ARE SHOWN. FOR FULL ANALYTICAL RESULTS, SEE TABLES LOCATED IN REPORT.

LEGEND

PROPOSED BCP SITE BOUNDARY

GZ-01/ TMW-01 APPROXIMATE SOIL BORING AND TEMPORARY MONITORING WELL LOCATION

GZ-03/ SV-01 APPROXIMATE SOIL BORING AND SOIL VAPOR SAMPLE LOCATION

GZ-07/ TMW-03 APPROXIMATE SUPPLEMENTAL SOIL BORING AND TEMPORARY MONITORING WELL LOCATION

GZ-06 APPROXIMATE SUPPLEMENTAL SOIL BORING SAMPLE LOCATION

N W E S

0 10 20 40

SCALE IN FEET

NO.	ISSUE/DESCRIPTION	BY	DATE

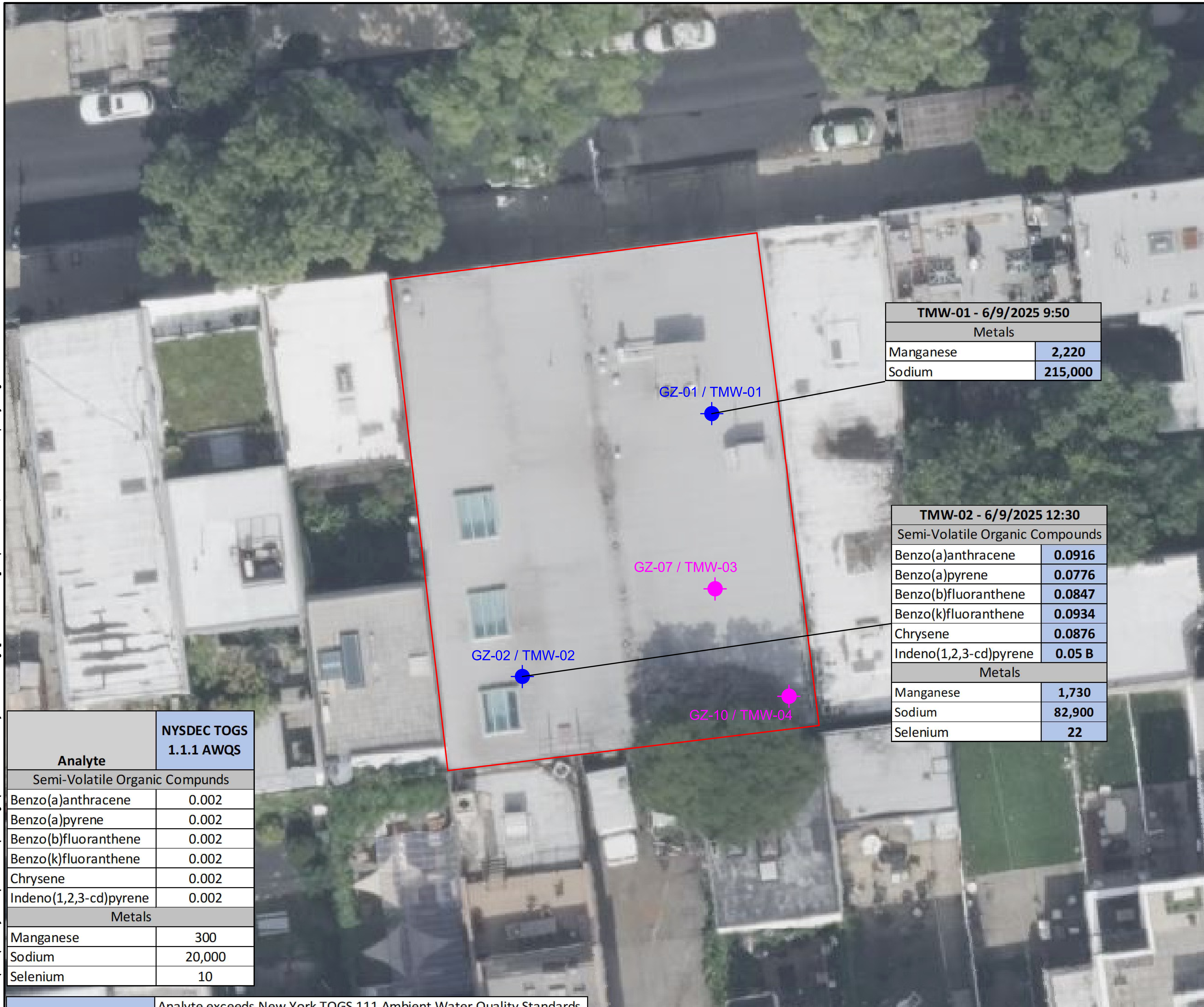
36 FROST STREET
BROOKLYN, NY 11211

SOIL EXCEEDANCES

PREPARED BY: GZA GeoEnvironmental of NY Engineers and Scientists www.gza.com

PREPARED FOR: 36 FROST STREET LLC

PROJ MGR: RL	REVIEWED BY: RL	CHECKED BY: VW	FIGURE 3
DESIGNED BY: SG	DRAWN BY: PM	SCALE: 1" = 20'	
DATE: SEPT 2025	PROJECT NO. 41.0163452.10	REVISION NO. -	SHEET NO.



TMW-01 - 6/9/2025 9:50	
Metals	
Manganese	2,220
Sodium	215,000

TMW-02 - 6/9/2025 12:30	
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	0.0916
Benzo(a)pyrene	0.0776
Benzo(b)fluoranthene	0.0847
Benzo(k)fluoranthene	0.0934
Chrysene	0.0876
Indeno(1,2,3-cd)pyrene	0.05 B
Metals	
Manganese	1,730
Sodium	82,900
Selenium	22

Analyte	NYSDEC TOGS 1.1.1 AWQS
Semi-Volatile Organic Compunds	
Benzo(a)anthracene	0.002
Benzo(a)pyrene	0.002
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Indeno(1,2,3-cd)pyrene	0.002
Metals	
Manganese	300
Sodium	20,000
Selenium	10

Analyte exceeds New York TOGS 111 Ambient Water Quality Standards.

GENERAL NOTES

1. EXPLORATION LOCATIONS SHOWN ARE BASED ON TAPE MEASUREMENTS FROM TOPOGRAPHICAL FEATURES. THE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
2. SEE LABORATORY REPORTS FOR ADDITIONAL INFORMATION INCLUDING QUALIFIER DESCRIPTIONS.
3. ONLY EXCEEDANCES OF THE APPLICABLE NYSDEC TOGS 1.1.1. AMBIENT WATER QUALITY STANDARDS ARE SHOWN. FOR FULL ANALYTICAL RESULTS, SEE TABLES LOCATED IN REPORT.

LEGEND

PROPOSED BCP SITE BOUNDARY

GZ-01/ TMW-01 APPROXIMATE SOIL BORING AND TEMPORARY MONITORING WELL LOCATION

GZ-07/ TMW-03 APPROXIMATE SUPPLEMENTAL SOIL BORING AND TEMPORARY MONITORING WELL LOCATION

N W E S

0 10 20 40
SCALE IN FEET

NO.	ISSUE/DESCRIPTION	BY	DATE

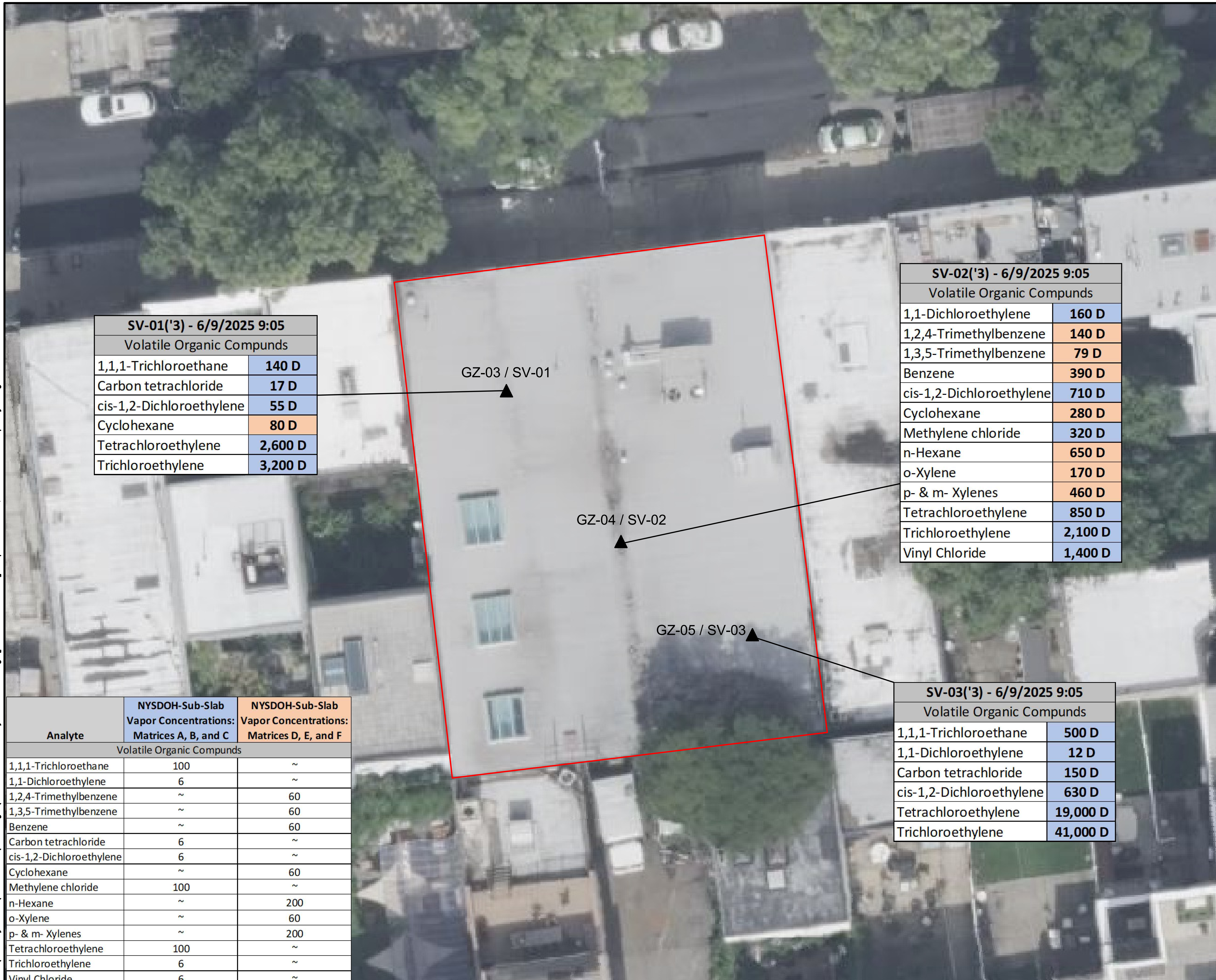
36 FROST STREET
BROOKLYN, NY 11211

GROUNDWATER EXCEEDANCES

PREPARED BY: GZA GeoEnvironmental of NY, Engineers and Scientists, www.gza.com

PREPARED FOR: 36 FROST STREET LLC

PROJ MGR: RL	REVIEWED BY: RL	CHECKED BY: VW	FIGURE
DESIGNED BY: SG	DRAWN BY: SG	SCALE: 1" = 20'	4
DATE: SEPT 2025	PROJECT NO. 41.0163452.10	REVISION NO. -	SHEET NO.



SV-01('3) - 6/9/2025 9:05	
Volatile Organic Compounds	
1,1,1-Trichloroethane	140 D
Carbon tetrachloride	17 D
cis-1,2-Dichloroethylene	55 D
Cyclohexane	80 D
Tetrachloroethylene	2,600 D
Trichloroethylene	3,200 D

SV-02('3) - 6/9/2025 9:05	
Volatile Organic Compounds	
1,1-Dichloroethylene	160 D
1,2,4-Trimethylbenzene	140 D
1,3,5-Trimethylbenzene	79 D
Benzene	390 D
cis-1,2-Dichloroethylene	710 D
Cyclohexane	280 D
Methylene chloride	320 D
n-Hexane	650 D
o-Xylene	170 D
p- & m- Xylenes	460 D
Tetrachloroethylene	850 D
Trichloroethylene	2,100 D
Vinyl Chloride	1,400 D

SV-03('3) - 6/9/2025 9:05	
Volatile Organic Compounds	
1,1,1-Trichloroethane	500 D
1,1-Dichloroethylene	12 D
Carbon tetrachloride	150 D
cis-1,2-Dichloroethylene	630 D
Tetrachloroethylene	19,000 D
Trichloroethylene	41,000 D

Analyte	NYSDOH-Sub-Slab Vapor Concentrations: Matrices A, B, and C	NYSDOH-Sub-Slab Vapor Concentrations: Matrices D, E, and F
Volatile Organic Compunds		
1,1,1-Trichloroethane	100	~
1,1-Dichloroethylene	6	~
1,2,4-Trimethylbenzene	~	60
1,3,5-Trimethylbenzene	~	60
Benzene	~	60
Carbon tetrachloride	6	~
cis-1,2-Dichloroethylene	6	~
Cyclohexane	~	60
Methylene chloride	100	~
n-Hexane	~	200
o-Xylene	~	60
p- & m- Xylenes	~	200
Tetrachloroethylene	100	~
Trichloroethylene	6	~
Vinyl Chloride	6	~

(blue)	Analyte exceeds the NYSDOH Indoor AGV Matrix A, B, and C Subslab Vapor "No Further Action" Concentration (May 2017).
(orange)	Analyte exceeds the NYSDOH Indoor AGV Matrix D, E, and F Subslab Vapor "No Further Action" Concentration (February 2024).

GENERAL NOTES

1. EXPLORATION LOCATIONS SHOWN ARE BASED ON TAPE MEASUREMENTS FROM TOPOGRAPHICAL FEATURES. THE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
2. SEE LABORATORY REPORTS FOR ADDITIONAL INFORMATION INCLUDING QUALIFIER DESCRIPTIONS.
3. ONLY EXCEEDANCES OF THE APPLICABLE NYSDOH INDOOR AIR GUIDANCE VALUE – SUB-SLAB VAPOR "NO FURTHER ACTION" CONCENTRATIONS ARE SHOWN. FOR FULL ANALYTICAL RESULTS, SEE TABLES LOCATED IN REPORT.

LEGEND

PROPOSED BCP SITE BOUNDARY

GZ-03/ SV-01 APPROXIMATE SOIL BORING AND SOIL VAPOR SAMPLE LOCATION

NO.	ISSUE/DESCRIPTION	BY	DATE

36 FROST STREET
BROOKLYN, NY 11211

SOIL VAPOR EXCEEDANCES

PREPARED BY: GZA GeoEnvironmental of NY, Engineers and Scientists, www.gza.com

PREPARED FOR: 36 FROST STREET LLC

PROJ MGR: RL	REVIEWED BY: RL	CHECKED BY: VW	FIGURE 5
DESIGNED BY: SG	DRAWN BY: SG	SCALE: 1" = 20'	
DATE: SEPT 2025	PROJECT NO. 41.0163452.10	REVISION NO. -	SHEET NO.

GENERAL NOTES

1. EXPLORATION LOCATIONS SHOWN ARE BASED ON TAPE MEASUREMENTS FROM TOPOGRAPHICAL FEATURES. THE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

LEGEND

- SITE BOUNDARY
- APPROXIMATE SOIL BORING, MONITORING WELL AND SOIL VAPOR LOCATION
- APPROXIMATE SOIL BORING LOCATION

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SCALE IN FEET

NO.	ISSUE/DESCRIPTION	BY	DATE

36 FROST STREET
BROOKLYN, NY 11211

PROPOSED SAMPLE LOCATION MAP

PREPARED BY:	PREPARED FOR:
GZA GeoEnvironmental of NY Engineers and Scientists www.gza.com	36 FROST STREET LLC

PROJ MGR: RL	REVIEWED BY: RL	CHECKED BY: VW	FIGURE
DESIGNED BY: RL	DRAWN BY: PM	SCALE: 1" = 20'	6
DATE: NOVEMBER 2025	PROJECT NO. 41.0163452.10	REVISION NO. -	SHEET NO.

APPENDIX A – QUALITY ASSURANCE PROJECT PLAN (QAPP) / FIELD SAMPLING PLAN (FSP)

Quality Assurance Project Plan (QAPP) / Field Sampling Plan (FSP)

36 FROST STREET SITE
36 Frost Street
Brooklyn, New York 11211
Block 2736, Lot 20
NYSDEC BCP No. C224449

October 2025
File No. 41.0163452.10

PREPARED FOR:

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway | Albany, NY 12233

ON BEHALF OF:

36 Frost Street LLC
100 Jericho Quadrangle, Suite 220
Jericho, NY 11753

PREPARED BY:

GOLDBERG-ZOINO ASSOCIATES OF NEW YORK P.C.
D/B/A GZA GEOENVIRONMENTAL OF NEW YORK
324 South Service Road | Melville, NY 11747

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FIGURES

TABLE

ATTACHMENTS

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) and Field Sampling Plan (FSP), referred to as the "Plan", presents the organization, objectives, planned activities, and specific quality assurance/quality control (QA/QC) procedures associated with the Remedial Investigation Work Plan (RIWP) for the site located at 36 Frost Street, Brooklyn, New York (Site). **Figure 1** presents a Site Location Map.

This QAPP/FSP describes specific protocols for field sampling, sample handling and storage, chain-of-custody, laboratory analysis, and data handling and management. Preparation of the Plan was based on EPA Quality Assurance Project Plan guidance documents, including:

EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5, March 2001); and

Guidance for Quality Assurance Project Plans (EPA QA/G-5, December 2002).

The data generated from the analysis of samples will be used to determine the extent of contamination, identify impacted targets, and to compare the results of the remedial actions to Site-specific cleanup goals. Potential parameters to be analyzed, including their respective quantitation limits (QLs), and data quality levels (DQLs), are provided in **Table 1A through Table 1C**.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITY

A qualified person will coordinate and manage the Site sampling and analysis program, data reduction, QA/QC, data validation, analysis, and reporting. Victoria Whelan, P.G. is a qualified environmental professional (QEP), as defined by the New York State Department of Environmental Conservation (NYSDEC) and will direct the sampling activities and coordinate laboratory and drilling activities. The intent of this QAPP/FSP is to outline the methods to be followed during the Remedial Investigation (RI), in accordance with the technical guidance applicable to Technical Guidance for Site Investigation and Remediation (DER-10), and Sampling, Analysis and Assessment of Per- and Polyfluoroalykly Substances (PFAS) under NYSDEC's Part 375 Remedial Programs, dated April 2023.

A qualified person will ensure that the QA/QC plan is implemented and will oversee data validation. GZA's Senior Technical Specialist, Dr. Chunhua Liu will provide oversight and technical support for the sampling and analytical procedures followed acting as the project QA Officer. This individual has the broad authority to approve or disapprove project plans, specific analyses, and final reports. The QEP is independent from the data generation activities. In general, the QA officer will be responsible for reviewing and advising on all QA/QC aspects of this program.

Laboratories used will be New York State Department of Health Environmental (NYSDOH) Laboratory Approval Program (ELAP) certified laboratories. The laboratories will communicate directly with the sampler regarding the analytical results and reporting and will be responsible for providing all labels, sample containers, field blank water, trip blanks, shipping coolers, and laboratory documentation. Qualifications of the QA officer are provided in **Attachment A.**

3.0 QA OBJECTIVES FOR DATA MANAGEMENT

The analytical data will be provided by the laboratory using the NYSDEC Category B deliverable format. Analytical data collected for disposal characteristics that may be requested by off-site soil or wastewater disposal facilities will be provided in the format that the facility requests.

All analytical measurements will be made so that the results are representative of the media sampled and the conditions measured. Data will be reported in consistent dry weight units for solid samples [i.e., micrograms per kilogram (µg/kg) and/or milligram per kilogram (mg/kg), micrograms per liter (µg/L) or milligrams per liter (mg/L) for aqueous samples and in micrograms per cubic meter (µg/m^3) for soil vapor and air samples. **Table 2** presents the proposed samples, sampling and analytical parameters, analytical methods, sample preservation requirements and containers.

Quantitation Limits (QLs) are laboratory-specific and reflect those values achievable by the laboratory performing the analyses. Data Quality Levels (DQLs) are those reporting limits required to meet the objectives of the program (i.e., program action levels, cleanup standards, etc.). Data Quality Objectives (DQOs) define the quality of data and documentation required to support decisions made in the various phases of the data collection activities. The DQOs are dependent on the end uses of the data to be collected and are also expressed in terms of objectives for precision, accuracy, representativeness, completeness, and comparability.

The analytical methods to be used at this Site provide the highest level of data quality and can be used for purposes of risk assessment, evaluation of remedial alternatives and verification that cleanup standards have been met. However, in order to ensure that the analytical methodologies are capable of achieving the DQOs, measurement performance criteria have been set for the analytical measurements in terms of accuracy, precision, and completeness.

The overall QA objective is to develop and implement procedures for field sampling, chain-of-custody, laboratory analysis, and reporting which will provide results that are scientifically valid, and the levels of which are sufficient to meet DQOs. Specific procedures for sampling, chain of custody, laboratory instrument calibration, laboratory analysis, reporting of data, internal quality control, and corrective action are described in other sections of this QAPP/FSP.

Table 3 through Table 5 present the precision and accuracy requirements for each parameter to be analyzed. For quantitation limits for parameters associated with soil, sediment, and solid waste samples, the laboratory will be required to attempt to meet or surpass the parameter-specific limits listed in 6 NYCRR Part 375.

For quantitation limits for parameters associated with groundwater samples, the laboratory will be required to attempt to meet or surpass the parameter-specific limits for groundwater from the Division of Water Technical and Operational Guidance Series (TOGS 1.1.1) Ambient Water Quality Standards and Guidance Values. In certain instances, if the TOGS criteria are not achievable due to analytical limitations, the laboratory will report the lowest possible quantitation limit.

For quantitation limits for parameters associated with soil gas samples, the laboratory will be required to meet the parameter-specific limits from EPA's Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance), Table 3c-SG:

Question 5 Soil Gas Screening Levels for Scenario-Specific Vapor Attenuation Factors (**α=**$2H10^{-3}$), November 2002. In certain instances, if these criteria are not achievable due to analytical limitations, the laboratory will report the lowest possible quantitation limits (see **Table 1A through Table 1C** for affected analytes).

The QA objectives are defined as follows:

> ***Accuracy*** is the closeness of agreement between an observed value and an accepted reference value. The difference between the observed value and the reference value includes components of both systematic error (bias) and random error.
>
> Accuracy in the field is assessed through the adherence to all field instrument calibration procedures, sample handling, preservation, and holding time requirements, and through the collection of equipment blanks prior to the collection of samples for each type of equipment being used (e.g., split spoons, groundwater sampling pumps).
>
> The laboratory will assess the overall accuracy of their instruments and analytical methods (independent of sample or matrix effects) through the measurement of "standards," materials of accepted reference value. Accuracy will vary from analysis to analysis because of individual sample and matrix effects. In an individual analysis, accuracy will be measured in terms of blank results, the percent recovery (%R) of surrogate compounds in organic analyses, or %R of spiked compounds in matrix spikes (MSs), matrix spike duplicates (MSDs) and/or laboratory control samples (LCSs). This gives an indication of expected recovery for analytes tending to behave chemically like the spiked or surrogate compounds. **Table 3 through Table 5** summarize the laboratory accuracy requirements.
>
> ***Precision*** is the agreement among a set of replicate measurements without consideration of the "true" or accurate value: i.e., variability between measurements of the same material for the same analyte. Precision is measured in a variety of ways including statistically, such as calculating variance or standard deviation.
>
> Precision in the field is assessed through the collection and measurement of field duplicates (one extra sample in addition to the original field sample). Field duplicates will be collected at a frequency of one per twenty investigative samples per matrix per analytical parameter, with the exception of the Toxicity Characteristic Leaching Procedure (TCLP) parameters and parameters associated with wastewater samples. Precision will be measured through the calculation of relative percent differences (RPDs). The resulting information will be used to assess sampling and analytical variability. Field duplicate RPDs must be $\leq$ 50 for soil samples and $\leq$ 30 for aqueous samples. These criteria apply only if the sample and/or duplicate results are >5x the quantitation limit; if both results are $\leq$ 5x the quantitation limit, the criterion will be doubled. Due to the uncertainty of available representative soil gas volume, field duplicates will not be collected for this matrix.
>
> Precision in the laboratory is assessed through the calculation of RPD for duplicate samples. For organic soil, sediment and water analyses, laboratory precision will be assessed through the analysis of MS/MSD samples and field duplicates. For the inorganic analyses, laboratory precision will be assessed through the analysis of matrix duplicates and field duplicates. For soil gas analyses, laboratory precision will be assessed through the analysis of matrix duplicates. MS/MSD samples

or matrix duplicates will be performed at a frequency of one per twenty investigative samples per matrix per parameter. **Table 3 through Table 5** summarize the laboratory precision requirements.

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions. "Normal conditions" are defined as the conditions expected if the sampling plan was implemented as planned.

Field completeness is a measure of the amount of (1) valid measurements obtained from all the measurements taken in the project and (2) valid samples collected. The field completeness objective is greater than 90 percent.

Laboratory completeness is a measure of the amount of valid measurements obtained from all valid samples submitted to the laboratory. The laboratory completeness objective is greater than 95 percent.

Representativeness is a qualitative parameter that expresses the degree to which data accurately and precisely represent either a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition within a defined spatial and/or temporal boundary. To ensure representativeness, the sampling locations have been selected to provide coverage over a wide area and to highlight potential trends in the data. In addition, field duplicate samples will provide an additional measure of representativeness at a given location.

Representativeness is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the Work Plans and QAPP are followed, and that proper sampling, sample handling, and sample preservation techniques are used.

Representativeness in the laboratory is ensured by using the proper analytical procedures, appropriate methods, and meeting sample holding times.

Comparability expresses the confidence with which one data set can be compared to another. Comparability is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the Work Plans and QAPP are followed and that proper sampling techniques are used. Maximization of comparability with previous data sets is expected because the sampling design and field protocols are consistent with those previously used.

Comparability is dependent on the use of recognized EPA or equivalent analytical methods and the reporting of data in standardized units. Laboratory procedures are consistent with those used for previous sampling efforts.

4.0 SAMPLING PLAN

Environmental sampling may include soil, groundwater, and soil vapor sampling. Additionally, wastes generated during remediation or development will be sampled and tested for characterization for disposal. Direct push drilling (GeoProbe®) drilling will be the preferred methods for obtaining subsurface soil samples. Groundwater samples will be collected using peristaltic pumps. Soil vapor samples will be collected in SUMMA® canisters. Performing grab or composite sampling using appropriate hand-held sampling equipment will be the preferred method for waste characterization sampling.

4.1. Utility Clearance

New York State law requires that New York 811 be notified at least three working days prior to subsurface work is conducted to initiate the utility locating activities. Companies with subsurface utilities present will locate and mark out subsurface utility lines. However, New York 811 contractors will only locate utilities on public property and rights-of-way.

GZA will subcontract a subsurface utility locator to perform a geophysical survey of the Site prior to commencement of the RI. Subsurface anomalies, including utilities, will be clearly marked with spray paint. A GZA representative will be on-Site during the geophysical survey to record the locations of subsurface anomalies with the subcontractor.

4.2. Test Pit Soil Sampling

Test pitting and/or excavating may be conducted during the RI, if necessary. Test pits will allow for visual characterization of subsurface soil conditions and the collection of grab soil samples. Prior to soil sample collection, headspace screening will be conducted to evaluate whether analysis of soil samples is warranted, and if so, which soils should be collected.

Prior to completing a test pit or excavation, underground utilities should be identified as discussed in **Section 4.1**. Should active, underground utilities be located in the vicinity of the intended excavation, hand or vacuum excavation methods should be employed, as appropriate, to confirm the location and depth prior to initiating the excavation.

The size and type of excavator used to complete the test pits will be selected based on the anticipated depth and overall size of the excavation required to meet the project objectives. At no time will field personnel enter a test pit/excavation unless it has been deemed safe to enter by an Excavation Competent person based on training and experience required by 29CFR 1926.652.

Grab soil/solid samples will be collected from the material or interval in question by retrieving a volume for analysis using a clean stainless steel, aluminum, or mild steel/ disposable scoop, trowel, spoon, or bucket auger and placing the soil in a cleaned stainless-steel pan for homogenization before inserting into the sample container. Samples collected for analysis for volatile organic compounds and total organic halides will not be homogenized. Samples for volatile organics analysis and total organic halides will be placed directly into the sample container.

Composite samples will be collected in the same manner described above, except that the discrete sample volumes will be placed in a clean stainless-steel pan and mixed to form the composite. Composite sampling will be performed for the following objectives:

- Waste characterization;
- Determination of the suitability of the soil for on-Site re-use; and
- Evaluation of health and safety requirements for workers that will disturb the soil during subsequent construction work.

4.3. Direct Push Drilling Soil Sampling

This drilling method is typically used to collect shallow overburden soils and create boreholes for temporary monitoring well installations, or soil vapor sampling points. Sampling will be performed using four or five-foot-long acetate sleeves that will be advanced continuously to the desired depth below the surface. Soil samples from each sleeve will be screened using a photoionization detector (PID) to detect possible organic vapors. Organic vapor screening will be performed by slicing open the acetate sleeve, making a small slice in the soil column with a clean knife or sampling tool, inserting the PID probe and pushing the slice closed, and monitoring the soil for approximately 5 to 10 seconds. This procedure will be repeated at intervals along the soil column at the field geologist's discretion.

The samples will be examined for staining, discoloration, odors, and debris indicative of contamination (ash, coal fragments, wood chips, cinders, petroleum staining, etc.). Samples for laboratory analysis will be collected from the six-inch interval most likely to be contaminated, based on PID readings, discoloration, staining, and the field geologist's judgment (field conditions may require a section longer than six inches to make sufficient sample; however, this decision will be field based).

The samples will be collected by cutting the soil in two places with a decontaminated steel, stainless steel, or aluminum trowel, spoon, or knife and homogenized in a decontaminated stainless-steel pan before being placed in the sample bottles. Samples collected for analysis for VOCs and total organic halides will be placed directly into the sample containers without homogenization (as per EPA sampling method 5035A). Samplers will wear phthalate-free gloves such as nitrile (no latex will be used) and will avoid contact of the gloves with the sample. Clean metal/disposable instruments will be used to transfer samples. If there is insufficient soil volume in the spoon, then this will be made up by attempting a second direct push sleeve at the same depth, or by using the next immediate sample interval above or below this depth, if appropriate. If there is no recovery, then the sample depth will be skipped, and drilling will progress to the next depth interval.

Soil samples will be collected in laboratory provided containers and transported to a NYSDOH ELAP certified laboratory, under proper chain of custody procedures for analysis. Once the sample containers are filled, they will be immediately placed in the cooler with ice (in Ziploc plastic bags to prevent leaking) or synthetic ice packs to maintain the samples at below $4^{o}C$.

4.4. Roto-Sonic Drill Rig Soil Sampling

The roto-sonic drilling system employs simultaneous high frequency vibration and low speed rotational motion along with downward pressure to advance the cutting shoes of the drill string. This technique provides a continuous soil core and generates minimal cuttings. Due to the continuous sampling of the system, accurate depictions of the stratigraphy and lithology of the overburden are obtained (minimal sloughing). Additionally, few cuttings are mobilized to the surface. Most of the formation material enters the core barrel, except small amounts, which are pushed into the borehole wall.

Drilling operations take place from the drill platform, which is about 4-feet above ground. Steel drill casing and core barrel are connected to the head from the work platform/support truck and are then hoisted to vertical in the derrick. Tool joints are connected and broken by a hydraulic vise/wrench that is in the base of the derrick. The roto-sonic head is able to pivot 90 degrees to facilitate connection of the drilling rods.

The roto-sonic drilling system uses an override core barrel system and can create a 4- or 6-inch diameter borehole. This is followed by the override casing drilled to the same depth as the core barrel cutting shoe. The core barrel is then removed, and cores are extruded into plastic sleeves. The outer casing prevents cross contamination and formation mixing and allows for a very controlled placement of wells.

GZA proposes, if required, to use a track-mounted roto-sonic drill rig collecting soil continuously from either five-foot long or 10-foot-long cores. Samples will be extruded from the core barrel into polyethylene sleeves. Once the plastic sleeve is cut open, soil will be screened using a PID to detect possible organic vapors. Organic vapor screening will be performed by making a small slice in the soil column with a clean knife or sampling tool, inserting the PID probe and pushing the slice closed, and monitoring the soil for approximately 5 to 10 seconds. This procedure will be repeated at intervals along the soil column at the field geologist's discretion.

The samples will be examined for staining, discoloration, odors, and debris indicative of contamination (ash, coal fragments, wood chips, cinders, petroleum staining, etc.) Samples for laboratory analysis will be collected from the six-inch interval most likely to be contaminated, based on PID readings, discoloration, staining, and the field geologist's judgment (field conditions may require a section longer than six inches to make sufficient sample; however, this decision will be field based).

The samples will be collected by cutting the soil in two places with a decontaminated steel, stainless steel, or aluminum trowel, spoon, or knife and homogenized in a decontaminated stainless-steel pan before being placed in the sample bottles. Samples collected for analysis for VOCs and total organic halides will be placed directly into the sample containers without homogenization (as per EPA sampling method 5035A). Samplers will wear phthalate-free gloves such as nitrile (no latex will be used) and will avoid contact of the gloves with the sample. Clean metal/disposable instruments will be used to transfer samples. If there is insufficient soil volume in the spoon, then this will be made up by attempting a second direct push sleeve at the same depth, or by using the next immediate sample interval above or below this depth, if appropriate. If there is no recovery, then the sample depth will be skipped, and drilling will progress to the next depth interval.

Soil samples will be collected in laboratory provided containers and transported to a NYSDOH ELAP certified laboratory, under proper chain of custody procedures for analysis. Once the sample containers are filled, they will be immediately placed in the cooler with ice (in Ziploc plastic bags to prevent leaking) or synthetic ice packs to maintain the samples at below 4°C.

4.5. Temporary Well Point Installation and Sampling

If proposed for site characterization, temporary well points will be immediately installed in drilled soil direct-push soil borings by placing a one-inch diameter PVC screen and riser pipe directly into the borehole. No additional materials will be placed around the annual space. The screen will be set to straddle the water table. Temporary wells will not be purged prior to sample collection. Depth to water will be measured in each well point to provide data to approximate groundwater flow direction.

Groundwater samples will be collected from the temporary well point using a dedicated microbailer. The samples will be collected in sample bottles (pre-preserved, if appropriate), placed in iced coolers, and removed from light immediately after collection. In addition, all sample bottles must be filled to the top so that no aeration of the samples occurs during transport. All bottles will be filled to avoid cascading and aeration of the samples, the goal being to minimize any precipitation of colloidal matter. Samples for dissolved metals will be collected in unpreserved containers and will be filtered and preserved at the laboratory within 24 hours of sampling. Samples will be transported to a NYSDOH ELAP certified laboratory under proper chain of custody procedures for analysis.

Screen and riser pipes will be removed from the borehole and the borehole will be backfilled.

4.6. Permanent Well Installation and Sampling

Groundwater sampling of permanent monitoring wells is described according to the following distinct phases of this work: well installation/construction, well development, well purging, and well sampling.

4.6.1. *Well Installation/Construction*

To collect representative groundwater samples, soil borings drilled with the direct push or roto-sonic drilling method will be converted into permanent two-inch diameter monitoring wells. Groundwater monitoring wells will be constructed of threaded two-inch diameter PVC well casing and 20-slot well screen (to investigate the potential of floating product). The 10-foot screen will be set seven feet below the measured water table. Clean silica sand, Morie No. 1 or equivalent, will be placed in the annular space around the well to a minimum of one foot above the top of the well screen, two feet being optimal. Solid PVC riser, attached to the well screen, will extend to grade or above if the well is a stick-up. For a two-inch diameter well, the annular space for the filter pack should be 4 inches thick meaning a minimum six-inch diameter soil boring. In general, direct push borings will be enlarged by running hollow stem augers after soil sampling is complete and the permanent wells will be installed within the augered borehole. A two-foot-thick bentonite seal will then be placed above the sand pack and moistened with potable water for a minimum of 15 minutes before backfilling the remaining space with a cement-bentonite grout. If warranted by depth, filling will be completed using a tremie pipe placed below the surface of the grout. A stick-up or flush-mount protective casing with a locking well cap will then be installed, and a measuring point marked on each PVC well riser. Well construction diagrams will be prepared for each well.

4.6.2. Well Development

Following installation, the groundwater monitoring wells will be developed using a submersible pump (or equivalent) until the water is reasonably free of turbidity and field readings (pH, conductivity, temperature, and dissolved oxygen) sufficiently stabilize. Fifty nephelometric turbidity units (NTUs) or less will be the turbidity goal but not an absolute value. The wells will be developed aggressively to remove fines from the formation and sand pack. The wells will be allowed to equilibrate for seven days prior to sampling. The volume of water removed, the well development time, and field instrument readings will be recorded in the logbook.

4.6.3. Well Purging

The objective is to purge monitoring wells until turbidity stabilizes to a level as low as possible and this parameter will be given the greatest weight in determining when groundwater sampling may begin. With this objective in mind, a low-flow pump will be used to avoid entrainment of particulates within the well or from the formation. Groundwater from each well will be purged until parameters have stabilized. A turbidity level of fifty NTUs or less is the well purging goal, but not an absolute value before sampling. Other field parameters including temperature, conductivity, pH, and dissolved oxygen (DO) will also be monitored. As practical, all field measurements will be taken from the flow cell and will be recorded during and after purging, and before sampling. Field parameters should generally be within ±10 percent for three consecutive readings, one minute apart, prior to sampling.

Upon opening each monitoring well and point, the concentration of VOCs in the headspace will be measured using a PID and water level measurements will be recorded using an electronic interface probe. The depth to product (if present), depth to water, and the total depth will be measured from the top of the marked PVC casings. Water level and free product measurements will first be made and the volume of water in the well determined. The volume of water in the well will be calculated so that the number of well volumes purged and an estimate of the time required to purge the well can be made. Before sampling, the wells will be purged utilizing a low-flow submersible stainless-steel pump using high-density polyethylene (HDPE) tubing connected to a flow cell. Very low purging rates are proposed, on the order of 100 ml/minute to 500 ml/minute, to minimize suspension of particulate matter in the well.

Purging will be done with the pump intake placed at the midpoint of the well screen or the midpoint of the water column (to be determined based on the depth and length of the screen interval) to ensure that all stagnant water in the well is removed, while not stirring up sediment that may have accumulated on the bottom of the well. Equipment will be lowered into the well very carefully to prevent suspension of bottom sediment and subsequent entrainment onto sampling equipment. Surging will be avoided. Tubing will be replaced between each well. Pumps must be carefully cleaned between wells according to the procedures specified in **Section 4.15,** below. It is anticipated that no more than three well volumes will be purged in order for turbidity to reach a minimum and the other parameters to stabilize. Ideally, pumping rates will be at a rate so that no drawdown of the groundwater level occurs (i.e., pumping rate is less than recharge rate). During purging, the sampler will actively monitor and track the volume of water purged and the field parameter readings. Data will be recorded in the field logbook. For example, the sampler will record the running total volume purged from each well and note the readings for the corresponding field parameters.

4.6.4. Well Sampling

Once groundwater conditions have stabilized and groundwater levels have recovered, samples will be collected from the flow cell outlet (connected to the low-flow peristaltic pump) vis United States Environmental Protection Agency (USEPA) low-flow sampling methods. All non-disposable/non-dedicated (re-usable) sampling equipment will be cleaned according to the procedures specified in **Section 4.15**.

Sampling will be performed with the pump intake at the same location used for purging. Pumping rates for withdrawing the samples will be similar to those followed for well purging.

The samples will be collected in sample bottles (pre-preserved, if appropriate), placed in iced coolers, and removed from light immediately after collection. In addition, all sample bottles must be filled to the top so that no aeration of the samples occurs during transport. All bottles will be filled to avoid cascading and aeration of the samples, the goal being to minimize any precipitation of colloidal matter. Samples will be transported to a NYSDOH ELAP certified laboratory under proper chain of custody procedures for analysis. Samples for dissolved metals will be collected in unpreserved containers and will be filtered and preserved at the laboratory within 24 hours of sampling.

4.7. Borehole Abandonment

Soils extracted during the advancement of the borings will be used to backfill the borings, provided that the borings are not to be used for installation of permanent monitoring wells. However, soils that exhibit “gross” contamination, as evidenced by staining or free-phase product, or any visual, olfactory, or PID readings greater than 50 ppm above background, will be managed in accordance with **Section 9**. In this event, bentonite chips or pellets to within 0.5 feet below ground surface. The ground surface will be restored to a similar condition as the surrounding grade (e.g., topsoil, asphalt, or concrete).

4.8. Monitoring Well Abandonment

There may be occasions when monitoring wells will require abandonment. For temporary monitoring wells, the approach will be to pull the PVC well materials from the borehole and backfill the remaining open portion of the borehole with cement/bentonite grout to approximately 0.5 feet below the ground surface. The ground surface will be restored to a similar condition as the surrounding grade (e.g., topsoil, asphalt, or concrete). For permanent overburden and bedrock monitoring wells, depending on the Site-specific subsurface geologic conditions and nature of contamination, the abandonment approach will be in accordance with NYSDEC Policy CP-43 – Groundwater Monitoring Well Decommissioning Policy.

4.9. Soil Reuse Sampling and Worker Health & Safety Sampling

Soil reuse sampling may be performed to determine whether the soil can be reused elsewhere on the Site, or to determine whether contaminant levels in the soil would warrant OSHA 40-hour HAZWOPER training for workers disturbing the soil during post-remediation construction activities. This sampling would consist of compositing discrete soil samples from borings advanced by direct push (see **Section 4.3**), or during test pits following the procedures outlined in **Section 4.2**.

4.10. Waste Characterization Sampling

Waste classification sampling may be conducted to characterize soil, liquids, and/or groundwater for the purpose of proper off-site waste disposal. Specific methods for sampling liquid and solid wastes are briefly discussed below.

4.10.1. Solid Waste

Solid sampling methods include utilizing dedicated stainless steel or HDPE scoops/shovels, triers, and thiefs. Scoops and shovels are the preferred method for sampling solids from piles or containers. Stainless steel triers are similar to a scoop and are used for the collection of a core sample of a solid material.

4.10.2. Liquid Waste

Liquid sampling methods include utilizing dedicated dippers, glass tube samplers, pump, and tubing, kemmerer bottles, and Bacon Bomb samplers. Dippers are used to collect samples from the surface of the liquid and are appropriate for wastes that are homogeneous. Glass tube samplers consist of glass tubes of varying length and diameter used to collect a full-depth liquid sample from a drum or similar container. Pump and tubing (e.g., bladder pump or peristaltic pump) are used to collect liquid samples from a depth (up to approximately 20 feet below grade), and are typically relied upon for sampling subsurface structures, such as underground storage tanks. To minimize the loss of volatile organic components in the liquid, the lowest achievable flow rate is utilized for collecting the sample by this method. Kemmerer bottles and Bacon Bomb samplers are discrete-depth samplers. These samplers are lowered into the liquid and opened to collect a sample at a desired depth.

4.10.3. Grab versus Composite Sampling

Waste characterization of a liquid or a solid can involve grab or composite sampling depending upon the homogeneity and the volume of the waste. Grab sampling consists of collecting a discrete sample or samples of a material and submitting each sample for separate analysis. Grab sampling is appropriate for characterizing small quantities of waste as well as waste streams of varying content (e.g., drums of different contents). Composite sampling consists of taking discrete grab samples of a material and combining them into a smaller number of samples for analysis. Composite sampling generally is appropriate for large volumes of a homogenous waste material, such as a pile of soil or construction debris. The specific number of composite and grab samples will depend upon the size and nature of the waste pile (i.e., cubic yards) as well as the analysis required for characterization of the waste.

4.11. <u>Soil Vapor Sampling</u>

A direct-push drill rig will be utilized to drive rods with a decontaminated stainless-steel point to the desired sample depth, which will be to a depth of 5 feet below ground surface. The soil vapor points will then be purged at a flow rate not greater than 0.2 liters/minute to evacuate one to three volumes using a photoionization detector (PID) with an integrated vacuum pump (MiniRAE 3000 or appropriate alternate). Peak and stabilized PID readings will be recorded prior to sample collection. Following the stabilization period, each probe will be connected to an evacuated laboratory-supplied 6-liter SUMMA® canister. SUMMA® canisters are passivated stainless steel vessels that have been cleaned and certified contaminant-free by the contract laborer. After connecting the SUMMA® canister to the soil vapor point, a regulator valve on the canister will be opened and the vacuum will slowly draw the sample into the canister over a period of 20 minutes. The samples will not be drawn at greater than 0.2 liters per minute. Quantitation limits for all analytes range between 1.6 ppbV and 4.0 ppbV, depending on the compound. After collecting the soil vapor sample, the valve will be closed and disconnected from the soil vapor point. The soil vapor samples will be transported to a NYSDOH ELAP certified laboratory for TO-15 analysis.

Prior to sample collection, helium will be used as a tracer gas to evaluate the potential for infiltration of outdoor ambient air into the sample. Subsequent rounds of soil vapor sampling would include the use of tracer gas only if the initial round of sampling indicates that outdoor ambient air has the potential to influence soil vapor sample results.

When soil vapor samples are collected, the following conditions that may influence the interpretation of results will be documented:

- Identification of any nearby commercial or industrial buildings that likely uses VOCs;
- A sketch of the Site, showing streets, neighboring commercial or industrial facilities (with estimated distances to the Site, and soil-gas sampling locations);

- Weather conditions (e.g., precipitation, outdoor temperature, barometric pressure, wind speed and direction); and
- Any pertinent observations, such as odors or readings from field instrumentation.

4.12. Ambient Air Sampling

Ambient air samples, if required, will be collected with an evacuated laboratory-supplied 6-liter SUMMA® canister. SUMMA® canisters are passivated stainless steel vessels that have been cleaned and certified contaminant-free by the contract laborer. The sample will be set at an elevation of approximately 4 to 5 feet above grade, to represent breathing zone air quality conditions. The samples will not be drawn at greater than 0.2 liters per minute. After collecting the ambient air sample, the valve will be closed, and the canister will be labeled with the necessary information. The soil-gas samples will be transported to a NYSDOH ELAP certified laboratory for TO-15 analysis.

When ambient air samples are collected, the following conditions that may influence the interpretation of results will be documented:

- Identification of any nearby commercial or industrial buildings that likely uses volatile organic compounds;
- A sketch of the Site, showing streets, neighboring commercial or industrial facilities (with estimated distances to the Site, and soil-gas sampling locations);
- Weather conditions (e.g., precipitation, outdoor temperature, barometric pressure, wind speed and direction); and
- Any pertinent observations, such as odors or readings from field instrumentation.

4.13. QC Sample Collection

QC samples will include equipment blanks, trip blanks, field duplicates and MS/MSDs.

Equipment blanks will consist of distilled water and will be used to check for potential contamination of the equipment that may cause sample contamination. Equipment blanks will be collected by routing the distilled water through the sampling equipment prior to sample collection. Equipment blanks will be submitted to the laboratory at a frequency of one per day per matrix per type of equipment being used per parameter. Equipment blanks will not be collected with samples for analysis for TCLP parameters, parameters associated with wastewater samples, samples collected for disposal purposes, soil gas samples, chip samples, wipe samples and samples collected for grain size analyses.

Trip blanks will consist of distilled water (supplied by the laboratory) and will be used to assess the potential for volatile organic compound contamination of groundwater samples due to contaminant migration during sample shipment and storage. Trip blanks will be transported to the Site unopened, stored with the investigative samples, and kept closed until analyzed by the laboratory. Trip blanks will be submitted to the laboratory at a frequency of one per cooler that contains groundwater samples for analysis for VOCs.

Field duplicates are an additional aliquot of the same sample submitted for the same parameters as the original sample. Field duplicates will be used to assess the sampling and analytical reproducibility. Field duplicates will be collected by alternately filling sample bottles from the source being sampled. Field duplicates will be submitted at a frequency of one per 20 samples for all matrices and all parameters with the exception of TCLP parameters, parameters associated with wastewater samples, samples collected for waste characterization purposes, chip samples, wipe samples and samples collected for grain size analyses. Soil gas field duplicates will be obtained by using a tubing a T-splitter.

MS and MSDs are two additional aliquots of the same sample submitted for the same parameters as the original sample. However, the additional aliquots are spiked with the compounds of concern. Matrix spikes provide information about the effect of the sample matrix on the measurement methodology. MS/MSDs will be submitted at a frequency of one per 20 investigative samples per matrix for organic parameters for soil, sediment, and groundwater. MS will be submitted at a frequency of one per 20 investigative samples per matrix for inorganic parameters.

4.14. <u>Sample Preservation and Containerization</u>

The analytical laboratory will supply the sample containers for the chemical samples. These containers will be cleaned by the manufacturer to meet or exceed all analyte specifications established in the latest U.S. EPA's *Specifications and Guidance for Contaminant-Free Sample Containers*. Certificates of analysis are provided with each bottle lot and maintained on file to document conformance to EPA specifications. The containers will be pre-preserved, where appropriate (see **Table 2**).

Table 6 presents a summary of QC sample preservation and container requirements.

4.15. <u>Equipment Decontamination</u>

4.15.1. Reuseable Sampling Equipment

Stainless steel and aluminum sampling equipment shall be cleaned <u>between each use</u> in the following manner:

- Wash/scrub with a biodegradable degreaser ("Simple Green") if there is oily residue on equipment surface
- Tap water rinse
- Wash and scrub with Alconox and water mixture

- Tap water rinse
- Distilled/deionized water rinse
- Air dry

Cleaned equipment shall be wrapped in aluminum foil if not used immediately after air-drying.

Groundwater sampling pumps will be cleaned by washing and scrubbing with an Alconox/water mixture, rinsing with tap water, and irrigating with distilled/deionized water.

4.15.2. Disposable Sampling Equipment

Disposable sampling equipment includes disposable gloves, bailers, string, tubing associated with groundwater sampling/purging pumps, or polyethylene sampling spatulas. Disposable sampling equipment will be used only once, and following its use, will be properly drummed or bagged for off-site disposal (see Section 4.6, below).

4.15.3. Heavy Equipment

Certain heavy equipment such as drilling augers may be used to obtain samples. Such equipment will be subject to high-pressure hot water or steam cleaning between uses. A member of the sampling team will visually inspect the equipment to check that visible contamination has been removed by similar procedure listed above prior to sampling and between drilling locations. The drilling casing and down-hole equipment will be cleaned prior to arrival on Site and between soil test borings. Drilling equipment decontamination will be performed on-site in temporary, bermed decontamination pads.

4.16. <u>Investigation Derived Waste</u>

Field investigation derived waste (IDW) generated during drilling will be collected in properly labeled USDOT approved storage containers (55-gallon drums) and grouped by environmental matrix (soil, water, PPE/plastic, construction debris).

Drums will be tracked and given unique identification codes based on the following:

- A prefix indicating the site where the drum was generated and the drum's contents: i.e., S – Soil, W – Water, and P – PPE/Plastic.
- Following the prefix and a hyphen will be the drum's chronological number of generation. For example, drum S-1 will be the first drum filled with soil for the project; while drum W-8 will be the eighth drum generated and contains water.
- As drums are generated, their identification code, date of generation, contents, source (i.e., drill cuttings from location x, purge water from well y), and date sampled will be entered on a tracking table.

- For example, the full nomenclature of S-2/SB-2 100725 would be the second drum produced during the program with its contents from Soil Boring No. 2 generated on October 7, 2025.

The drums will be centrally stored on-Site. Subsequently, the waste soils and/or water will be characterized with laboratory analyses for proper disposal. Waste transportation and disposal of all contaminated wastes will be managed by GZA and the subcontractor. GZA anticipates that drummed IDW will be disposed of off the Site to a permitted disposal facility. GZA will retain copies of each waste disposal manifest for documentation.

5.0 DOCUMENTATION AND CHAIN-OF-CUSTODY

5.1. Sample Collection Documentation

5.1.1. Field Notes

Field team members will keep a field logbook to document all field activities. Field logbooks will provide the means of recording the chronology of data collection activities performed during the remediation. As such, entries will be described in as much detail as possible so that a particular situation could be reconstructed without reliance on memory.

The logbook will be a bound notebook with water-resistant pages. Logbook entries will be dated, legible, and contain accurate and inclusive documentation of the activity. The title page of each logbook should contain the following:

- Person to whom the logbook is assigned
- The logbook number
- Project name and number
- Site name and location
- Project start date
- End date

Entries into the logbook will contain a variety of information. At the beginning of each entry, the date, start time, weather, and names of sampling team members present will be entered. Each page of the logbook will be signed and dated by the person making the entry. All entries will be made in permanent ink, signed, and dated and no erasures or obliterations will be made. If an incorrect entry is made, the information will be crossed out with a single strike mark that is signed and dated by the sampler. The correction shall be written adjacent to the error.

Field activities will be fully documented. Information included in the logbook should include, but may not be limited to, the following:

- Chronology of activities, including entry and exit times

- Names of all people involved in sampling activities
- Level of personal protection used
- Any changes made to planned protocol
- Names of visitors to the site during sampling and reason for their visit
- Sample location and identification
- Changes in weather conditions
- Dates (month/day/year) and times (military) of sample collection
- Measurement equipment identification (model/manufacturer) and calibration information
- Sample collection methods and equipment
- Sample depths
- Whether grab or composite sample collected
- How sample composited, if applicable
- Sample description (color, odor, texture, etc.)
- Sample identification code
- Tests or analyses to be performed
- Sample preservation and storage conditions
- Equipment decontamination procedures
- QC sample collection
- Unusual observations
- Record of photographs
- Sketches or diagrams
- Signature of person recording the information

Field logbooks will be reviewed on a daily basis by the Field Team Leader. Logbooks will be supported by standardized forms.

5.1.2. Chain-of-Custody Records

On a regular basis (daily or on such a basis that all holding times will be met), samples will be transferred to the custody of the respective laboratories, via third-party commercial carriers or via laboratory courier service.

Chain-of-custody records are initiated by the samplers in the field. The field portion of the custody documentation should include: (1) the project name; (2) signatures of samplers; (3) the sample number, date and time of collection, and whether the sample is grab or composite; (4) signatures of individuals involved in sampling; and (5) if applicable, air bill or other shipping number. Sample receipt and log-in procedures at the laboratory are described in **Section 5.2.2** of this Plan.

5.1.3. Sample Labeling

Immediately upon collection, each sample will be labeled with a pre-printed adhesive label, which includes the date and time of collection, sampler's initials, tests to be performed, preservative (if applicable), and a unique identifier.

A. The following identification scheme will be used:

Soil borings will be assigned sequential numbers. For soil samples collected from soil borings, sample numbers will be assigned as follows:

SB-#(sampling interval)

Example:
Sample SB-4(4-6') = soil sample collected from soil boring #4 at a depth of 4-6' below grade.

Groundwater wells will be assigned sequential numbers. Groundwater samples will be identified by the well that the sample was collected from.

Examples:
MW-01 = groundwater sample collected from permanent well point #1

Sub-slab soil vapor/soil vapor/ambient air will be assigned numbers coordinating with the adjacent soil boring or a sequential number due to sample names being identical to a previous Site sampling event. Vapor samples will be identified by the soil vapor point that the sample was collected from.

Examples:
SV-01 = Soil vapor sample collected from the soil vapor point
OA-01 = Outdoor ambient air sample

Duplicate samples will be labeled as blind duplicates by giving them sample numbers indistinguishable from a normal sample.

Blanks should be spelled out and identify the associated matrix, e.g., Equipment Blank, Soil

MS/MSDs will be noted in the Comments column of the COC.

B. The analysis required will be indicated for each sample.

Example: SVOC

C. Date taken will be the date the sample was collected, using the format: MM-DD-YY.

Example: 11-07-24

D. Time will be the time the sample was collected, using military time.

Example: 14:30

E. The sampler's name will be printed in the "Sampled By" section.

F. Other information relevant to the sample.

Example: Equipment Blank

An example sample label is presented below:

Job No:	XXXXXXXXX
Client:	Name
Sample No:	SB-01(5-5.5')
Matrix:	Soil
Date Taken:	10/07/25
Time Taken:	14:30
Sampler:	TBD
Analysis:	SVOC

Job No. ______________________________

Client: ______________________________

Sample Number ______________________________

Date ________________ Sample Time ________________

Sample Matrix ______________________________

Grab or Composite (explain) ______________________________

Preservatives ______________________________

Analyses ______________________________

Sampler Signature______________________________

This sample label contains the authoritative information for the sample. Inconsistencies with other documents will be settled in favor of the vial or container label unless otherwise corrected in writing from the field personnel collecting samples or the QEP.

5.2. Sample Custody

Custody is one of several factors that are necessary for the admissibility of environmental data as evidence in a court of law. Custody procedures help to satisfy the two major requirements for admissibility: relevance and authenticity. Sample custody is addressed in three parts: field sample collection, laboratory analysis, and final evidence files.

A sample or evidence file is considered to be under a person's custody if

- the item is in the actual possession of a person
- the item is in the view of the person after being in actual possession of the person
- the item was in the actual physical possession of the person but is locked up to prevent tampering
- the item is in a designated and identified secure area

5.2.1. Field Custody Procedures

Samples will be collected following the sampling procedures documented in **Section 4.0** of this Plan. Documentation of sample collection is described in **Section 5.1** of this Plan. Sample chain-of-custody and packaging procedures are summarized below. These procedures are intended to ensure that the samples will arrive at the laboratory with the chain-of-custody intact.

- The field sampler is personally responsible for the care and custody of the samples until they are transferred or dispatched properly. Field procedures have been designed such that as few people as possible will handle the samples.

- All bottles will be identified by the use of sample labels with sample numbers, sampling locations, date/time of collection, and type of analysis.

- Sample labels will be completed for each sample using waterproof ink unless prohibited by weather conditions. For example, a logbook notation would explain that a pencil was used to fill out the sample label because the pen would not function in wet weather.

- Samples will be accompanied by a properly completed chain-of-custody form. The sample numbers and locations will be listed on the chain-of-custody form. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents the transfer of custody of samples from the sampler to another person, to a mobile laboratory, to the permanent laboratory, or to/from a secure storage location.

- All shipments will be accompanied by the chain-of-custody record identifying the contents. The original record will accompany the shipment, and copies will be retained by the sampler and placed in the project files.

- Samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis, with a separate signed custody record enclosed in and secured to the inside top of each sample box or cooler. If third party commercial carriers are used for transfer to the laboratory, shipping containers will be secured with strapping tape and custody seals prior to shipment. The custody seals will be attached to the front right and back left of the cooler and covered with clear plastic tape after being signed by field personnel. The cooler will be strapped shut with strapping tape in at least two locations.

- If the samples are sent by third party commercial carrier, the air bill will be used. Air bills will be retained as part of the permanent documentation. Commercial carriers are not required to sign off on the custody forms since the custody forms will be sealed inside the sample cooler and the custody seals will remain intact.

- Samples remain in the custody of the sampler until transfer of custody is completed. This consists of delivery of samples to the laboratory courier or sample custodian, and signature of the laboratory courier or sample custodian on chain-of-custody document as receiving the samples and signature of sampler as relinquishing samples.

5.2.2. Laboratory Custody Procedures

Samples will be received and logged in by a designated sample custodian or his/her designee. Upon sample receipt, the sample custodian will:

- Examine the shipping containers to verify that the custody tape is intact,
- Examine all sample containers for damage,
- Determine if the temperature required for the requested testing program has been maintained during shipment and document the temperature on the chain-of-custody records,
- Compare samples received against those listed on the chain-of-custody,
- Verify that sample holding times have not been exceeded,
- Examine all shipping records for accuracy and completeness,
- Determine sample pH (if applicable) and record on chain-of-custody forms,
- Sign and date the chain-of-custody immediately (if shipment is accepted) and attach the air bill,
- Note any problems associated with the coolers and/or samples on the cooler receipt form and notify the Laboratory Project Manager, who will be responsible for contacting the QEP,
- Attach laboratory sample container labels with unique laboratory identification and test, and
- Place the samples in the proper laboratory storage.

Following receipt, samples will be logged in according to the following procedure:

- The samples will be entered into the laboratory tracking system. At a minimum, the following information will be entered: project name or identification, unique sample numbers (both client and internal laboratory), type of sample, required tests, date and time of laboratory receipt of samples, and field ID provided by field personnel.
- The Laboratory Project Manager will be notified of sample arrival.
- The completed chain-of-custody, air bills, and any additional documentation will be placed in the final evidence file.

6.0 CALIBRATION PROCEDURES

6.1. Field Instruments

Field instruments will be calibrated according to the manufacturer's specifications. Calibration procedures performed will be documented in the field logbook and will include the date/time of calibration, name of person performing the calibration, reference standard used, temperature at which the readings were taken, and the readings.

6.2. Laboratory Instruments

Calibration procedures for a specific laboratory instrument will consist of initial calibrations, initial calibration verifications, and/or continuing calibration verification. Detailed descriptions of the calibration procedures for a specific laboratory instrument are included in the laboratory's standard operating procedures (SOPs), which describe the calibration procedures, their frequency, acceptance criteria, and the conditions that will require recalibration. These procedures are as required in the respective analytical methodologies (summarized in **Table 2** of this Plan). The initial calibration associated with all analyses must contain a low-level calibration standard which is less than or equal to the quantitation limit.

7.0 SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

No field analyses are anticipated for this program. If Site conditions were to warrant field analysis, the responsible contractor will prepare an addendum establishing the field analytical procedures. Analyses of all samples will be performed by NYSDOH ELAP certified laboratories. **Table 2** summarizes the analytical methods to be used during the remediation.

8.0 DATA REDUCTION, VALIDATION, AND REPORTING

Appropriate QC measures will be used to ensure the generation of reliable data from sampling and analysis activities. Proper collection and organization of accurate information followed by clear and concise reporting of the data is a primary goal in this project. Complete data packages suitable for data validation will be provided by the analytical laboratory.

For all analyses, the laboratory will report results that are below the laboratory's reporting limit; these results will be qualified as estimated (J) by the laboratory. The laboratory may be required to report tentatively identified compounds (TICs) for the VOC and SVOC analyses; this will be requested by the sampler on an as-needed basis. A Data Usability Summary Report (DUSR) will be prepared and will be included in the Remedial Investigation Report (RIR). A DUSR preparer for the RIR has not been employed.

8.1. Data Evaluation/Validation

8.1.1. Field Data Evaluation

Measurements and sample collection information will be transcribed directly into the field logbook or onto standardized forms. If errors are made, results will be legibly crossed out, initialed, and dated by the person recording the data, and corrected in a space adjacent to the original (erroneous) entry. Daily reviews of the field records by the Field Team Leader will ensure that:

- Logbooks and standardized forms have been filled out completely and that the information recorded accurately reflects the activities that were performed.
- Records are legible and in accordance with good record keeping procedures, i.e., entries are signed and dated, data are not obliterated, changes are initialed, dated, and explained.
- Sample collection, handling, preservation, and storage procedures were conducted in accordance with the protocols described in the Plan, and that any deviations were documented and approved by the appropriate personnel.

8.1.2. Data Usability

A DUSR will be prepared in accordance with the DER-10.

The data usability evaluation will include reviewing the QA/QC information including: (1) chain-of-custody; (2) the summary QA/QC information provided by the laboratory; and (3) the project narrative.

For each data package the following questions will be evaluated:

- Is the data package complete as defined under the requirements for the NYSDEC ASP Category B, USEPA CLP deliverables or other standards/guidance?
- Have all holding times and preservation requirements been met?
- Do the quality control (QC) data fall within the laboratory and project established limits and specifications?

8.2. Identification and Treatment of Outliers

Any data point which deviates markedly from others in its set of measurements will be investigated; however, the suspected outlier will be recorded and retained in the data set. One or both of the following tests will be used to identify outliers.

Dixon's test for extreme observations is an easily computed procedure for determining whether a single very large or very small value is consistent with the remaining data. The one-tailed t-test for difference may also be used in this case. It should be noted that these tests are designed for testing a single value.

If more than one outlier is suspected in the same data set, other statistical sources may be consulted and the most appropriate test of hypothesis will be used and documented, if warranted.

Since an outlier may result from unique circumstances at the time of sample analysis or data collection, those persons involved in the analysis and data reduction will be consulted. This may provide an experimental reason for the outlier. Further statistical analysis may be performed with and without the outlier to determine its effect on the conclusions. In many cases, two data sets may be reported, one including, and one excluding the outlier.

In summary, every effort will be made to include the outlying values in the reported data. If the value is rejected, it will be identified as an outlier, reported with its data set and its omission noted.

9.0 INTERNAL QUALITY CONTROL

The subcontracting laboratories' Quality Assurance Project Plans will identify the supplemental internal analytical quality control procedures to be used. At a minimum, this will include:

- MS and/or MSD samples;
- Matrix duplicate analyses;
- Laboratory control samples;
- Instrument calibrations;
- Instrument tunes for SW-846 8260B and 8270C and EPA Method TO-15 analyses;
- Method and/or instrument blanks;
- Surrogate spikes for organic analyses;
- Internal standard spikes for SW-846 8260B and 8270C and EPA Method TO-15 analyses; and
- Quantitation limit determination and confirmation by analysis of low-level calibration standard.

As outlined on **Table 5** and summarized in **Section 4.13**, field quality control samples will include:

- Equipment blanks;
- Field duplicate samples;
- Trip blanks; and
- MS/MSDs.

10.0 CORRECTIVE ACTION

The entire sampling program will be under the direction of the QEP. The emphasis in this program is on preventing problems by identifying potential errors, discrepancies, and gaps in the data-collection-laboratory-analysis-interpretation process. Any problems identified will be promptly resolved. Likewise, follow-up corrective action is always an option in the event that preventative corrective actions are not totally effective.

The acceptance limits for the sampling and analyses to be conducted in this program will be those stated in the method or defined by other means in the Plan. Corrective actions are likely to be immediate in nature and most often will be implemented by the contracted laboratory analyst or the Program Manager. The corrective action will usually involve recalculation, reanalysis, or resampling.

10.1. Immediate Corrective Action

Corrective action in the field may be needed when the sample network is changed (i.e., more/less samples, sampling locations other than those specified in the Plan), or when sampling procedures and/or field analytical procedures require modification, etc. due to unexpected conditions. The field team may identify the need for corrective action. The Field Team Leader will approve the corrective action and notify the Program Manager. The Program Manager will approve the corrective measure. The Field Team Leader will ensure that the corrective measure is implemented by the field team.

Corrective actions will be implemented and documented in the field logbook. Documentation will include:

- A description of the circumstances that initiated the corrective action,
- The action taken in response,
- The final resolution, and
- Any necessary approvals

No staff member will initiate corrective action without prior communication of findings through the proper channels.

Corrective action in the laboratory may occur prior to, during, and after initial analyses. A number of conditions such as broken sample containers, omissions or discrepancies with chain-of-custody documentation, low/high pH readings, and potentially high concentration samples may be identified during sample log-in or just prior to analysis. Following consultation with laboratory analysts and Laboratory Section Leaders, it may be necessary for the Laboratory QA Manager to approve the implementation of corrective action. The laboratory SOPs specify some conditions during or after analysis that may automatically trigger corrective action or optional procedures. These conditions may include dilution of samples, additional sample extract cleanup, automatic reinjection/reanalysis when certain QC criteria are not met, loss of sample through breakage or spillage, etc.

The analyst may identify the need for corrective action. The Laboratory Section Leader, in consultation with the staff, will approve the required corrective action to be implemented by the laboratory staff. The Laboratory QA Manager will ensure implementation and documentation of the corrective action. If the nonconformance causes project objectives not to be achieved, the QEP will be notified. The QEP will notify the Program Manager, who in turn will contact all levels of project management for concurrence with the proposed corrective action.

These corrective actions are performed prior to release of the data from the laboratory. The corrective action will be documented in both the laboratory's corrective action files, and the narrative data report sent from the laboratory to the Program Manager. If the corrective action does not rectify the situation, the laboratory will contact the Program Manager, who will determine the action to be taken and inform the appropriate personnel.

If potential problems are not solved as an immediate corrective action, the contractor will apply formalized long-term corrective action, if necessary.

TABLES

Table 1 A
Soil Criteria Table

36 Frost Street Site
Brooklyn, New York
BCP Site No. ___
QAPP/FSP

Contaminant	Protection of Public Health					Protection of Ecological Resources[n]	Protection of Groundwater
	Unrestricted Use	Residential	Restricted-Residential	Commercial	Industrial		
All soil cleanup objectives (SCOs) are in parts per million (ppm); approximately equivalent to mg/kg.							
Metals							
Arsenic	13 [m]	16 [f]	17 [f]	18 [f]	19 [f]	13 [f]	16 [f]
Barium	350 [m]	350 [f]	400	400	10,000 [d]	433	820
Beryllium	7.2	14	72	590	2,700	10	47
Cadmium	2.5 [m]	2.5 [f]	4.3	9.3	60	4	7.5
Chromium, hexavalent [h]	1 [l]	22	110	400	800	1 [e]	19
Chromium, trivalent[h]	30 [m]	36	180	1,500	6,800	41	NS
Copper	50	270	270	270	10,000 [d]	50	1,720
Total Cyanide [h]	27	27	27	27	10,000 [d]	NS	40
Lead	63 [m]	400	400	1,000	3,900	63 [f]	450
Manganese	1600 [m]	2,000 [f]	2,000 [f]	10,000 [d]	10,000 [d]	1600 [f]	2,000 [f]
Total Mercury	0.18 [m]	0.81 [j]	0.81 [j]	2.8 [j]	5.7 [j]	0.18 [f]	0.73
Nickel	30	140	310	310	10,000 [d]	30	130
Selenium	3.9 [m]	36	180	1,500	6,800	3.9 [f]	4 [f]
Silver	2	36	180	1,500	6,800	2	8.3
Zinc	109 [m]	2200	10,000 [d]	10,000 [d]	10,000 [d]	109 [f]	2,480
PCBs/Pesticides							
2,4,5-TP Acid (Silvex)	3.8	58	100 [a]	500 [b]	1,000 [c]	NS	3.8
4,4'-DDE	0.0033 [l]	1.8	8.9	62	120	0.0033 [e]	17
4,4'-DDT	0.0033 [l]	1.7	7.9	47	94	0.0033 [e]	136
4,4'-DDD	0.0033 [l]	2.6	13	92	180	0.0033 [e]	14
Aldrin	0.005 [m]	0.019	0.097	0.68	1.4	0.14	0.19
alpha-BHC	0.02	0.097	0.48	3.4	6.8	0.04 [g]	0.02
beta-BHC	0.036	0.072	0.36	3	14	0.6	0.09
Chlordane (alpha)	0.094	0.91	4.2	24	47	1.3	2.9
delta-BHC	0.04	100 [a]	100 [a]	500 [b]	1,000 [c]	0.04 [g]	0.25
Dibenzofuran	7	14	59	350	1,000 [c]	NS	210
Dieldrin	0.005 [m]	0.039	0.2	1.4	2.8	0.006	0.1
Endosulfan I	2.4	4.8 [i]	24 [i]	200 [i]	920 [i]	NS	102
Endosulfan II	2.4	4.8 [i]	24 [i]	200 [i]	920 [i]	NS	102
Endosulfan sulfate	2.4	4.8 [i]	24 [i]	200 [i]	920 [i]	NS	1,000 [c]
Endrin	0.014	2.2	11	89	410	0.014	0.06
Heptachlor	0.042	0.42	2.1	15	29	0.14	0.38
Lindane	0.1	0.28	1.3	9.2	23	6	0.1
Polychlorinated biphenyls	0.1	1	1	1	25	1	3.2
Semivolatiles							
Acenaphthene	20	100 [a]	100 [a]	500 [b]	1,000 [c]	20	98
Acenapthylene	100 [k]	100 [a]	100 [a]	501 [b]	1,000 [c]	NS	107
Anthracene	100 [k]	100 [a]	100 [a]	502 [b]	1,000 [c]	NS	1,000 [c]
Benz(a)anthracene	1 [m]	1 [f]	1 [f]	5.6	11	NS	1[f]
Benzo(a)pyrene	1 [m]	1 [f]	1 [f]	1 [f]	1.1	2.6	22
Benzo(b)fluoranthene	1 [m]	1 [f]	1 [f]	5.6	11	NS	1.7
Benzo(g,h,i)perylene	100	100 [a]	100 [a]	500 [b]	1,000 [c]	NS	1,000 [c]
Benzo(k)fluoranthene	0.8 [m]	1	3.9	56	110	NS	1.7
Chrysene	1 [m]	1[f]	3.9	56	110	NS	1[f]
Dibenz(a,h)anthracene	0.33 [l]	0.33 [e]	0.33 [e]	0.56	1.1	NS	1,000 [c]
Fluoranthene	100 [k]	100 [a]	100 [a]	500 [b]	1,000 [c]	NS	1,000 [c]
Fluorene	30	100 [a]	100 [a]	500 [b]	1,000 [c]	30	386
Indeno(1,2,3-cd)pyrene	0.5 [m]	0.5 [f]	0.5 [f]	5.6	11	NS	8.2
m-Cresol	0.33 [l]	100 [a]	100 [a]	500 [b]	1,000 [c]	NS	0.33 [e]
Naphthalene	12	100 [a]	100 [a]	500 [b]	1,000 [c]	NS	12
o-Cresol	0.33 [l]	100 [a]	100 [a]	500 [b]	1,000 [c]	NS	0.33 [e]
p-Cresol	0.33 [l]	34	100 [a]	500 [b]	1,000 [c]	NS	0.33 [e]
Pentachlorophenol	0.8 [l]	2.4	6.7	6.7	55	0.8 [e]	0.8 [e]
Phenanthrene	100	100 [a]	100 [a]	500 [b]	1,000 [c]	NS	1,000 [c]
Phenol	0.33 [l]	100 [a]	100 [a]	500 [b]	1,000 [c]	30	0.33 [e]
Pyrene	100	100 [a]	100 [a]	500 [b]	1,000 [c]	NS	1,000 [c]

Table 1 A
Soil Criteria Table

36 Frost Street Site
Brooklyn, New York
BCP Site No. ___
QAPP/FSP

Contaminant	Protection of Public Health					Protection of Ecological Resources[n]	Protection of Groundwater
	Unrestricted Use	Residential	Restricted-Residential	Commercial	Industrial		
All soil cleanup objectives (SCOs) are in parts per million (ppm); approximately equivalent to mg/kg.							
Volatiles							
1,1,1-Trichloroethane	0.68	100[a]	100[a]	500[b]	1,000[c]	NS	0.68
1,1-Dichloroethane	0.27	19	26	240	480	NS	0.27
1,1-Dichloroethene	0.33	100[a]	100[a]	500[b]	1,000[c]	NS	0.33
1,2-Dichlorobenzene	1.1	100[a]	100[a]	500[b]	1,000[c]	NS	1.1
1,2-Dichloroethane	0.02[m]	2.3	3.1	30	60	10	0.02[f]
cis-1,2-Dichloroethene	0.25	59	100[a]	500[b]	1,000[c]	NS	0.25
trans-1,2-Dichloroethene	0.19	100[a]	100[a]	500[b]	1,000[c]	NS	0.19
1,3-Dichlorobenzene	2.4	17	49	280	560	NS	2.4
1,4-Dichlorobenzene	1.8	9.8	13	130	250	20	1.8
1,4-Dioxane	0.1[l]	9.8	13	130	250	0.1[e]	0.1[e]
Acetone	0.05	100[a]	100[b]	500[b]	1,000[c]	2.2	0.05
Benzene	0.06	2.9	4.8	44	89	70	0.06
Butylbenzene	12	100[a]	100[a]	500[b]	1,000[c]	NS	12
Carbon tetrachloride	0.76	1.4	2.4	22	44	NS	0.76
Chlorobenzene	1.1	100[a]	100[a]	500[b]	1,000[c]	40	1.1
Chloroform	0.37	10	49	350	700	12	0.37
Ethylbenzene	1	30	41	390	780	NS	1
Hexachlorobenzene	0.33[l]	0.33[e]	1.2	6	12	NS	3.2
Methyl ethyl ketone	0.12	100[a]	100[a]	500[b]	1,000[c]	100[a]	0.12
Methyl tert-butyl ether	0.93	62	100[a]	500[b]	1,000[c]	NS	0.93
Methylene chloride	0.05	51	100[a]	500[b]	1,000[c]	12	0.05
n-Propylbenzene	3.9	100[a]	100[a]	500[b]	1,000[c]	NS	3.9
sec-Butylbenzene	11	100[a]	100[a]	500[b]	1,000[c]	NS	11
tert-Butylbenzene	5.9	100[a]	100[a]	500[b]	1,000[c]	NS	5.9
Tetrachloroethene	1.3	5.5	19	150	300	2	1.3
Toluene	0.7	100[a]	100[a]	500[b]	1,000[c]	36	0.7
Trichloroethene	0.47	10	21	200	400	2	0.47
1,2,4-Trimethylbenzene	3.6	47	52	190	380	NS	3.6
1,3,5- Trimethylbenzene	8.4	47	52	190	380	NS	8.4
Vinyl chloride	0.02	0.21	0.9	13	27	NS	0.02
Xylene (mixed)	0.26	100[a]	100[a]	500[b]	1,000[c]	0.26	1.6
Per-and Polyfluoroalkyl Substances (PFAs)[o]							
PFOA	0.00066	0.0066	0.033	0.5	0.6	NS	0.0011
PFOS	0.00088	0.0088	0.044	0.44	0.44	NS	0.0037

Notes:

[a] The SCOs for residential, restricted-residential and ecological resources use were capped at a maximum value of 100 ppm.
[b] The SCOs for commercial use were capped at a maximum value of 500 ppm.
[c] The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm.
[d] The SCOs for metals were capped at a maximum value of 10,000 ppm.
[e] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.
[f] For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.
[g] This SCO is derived from data on mixed isomers of BHC.

[h] The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.
[i] This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.
[j] This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts).
[k] The SCOs for unrestricted use were capped at a maximum value of 100 ppm.
[l] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.
[m] For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 1 SCO value for this use of the site.
[n] Protection of ecological resources SCOs were not developed for contaminants identified in Table 375-6.8(b) with "NS". Where such contaminants appear in Table 375-6.8(a), the applicant may be required by the Department to calculate a protection of ecological resources SCO according to the TSD.
[o] SCOs for PFAs are taken from the NYSDEC Sampling, Analysis, and Assessment of Per-and-Polyfluoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Programs, dated April 2023.

Table 1B
Groundwater Criteria Table
36 Frost Street Site
Brooklyn, New York
BCP Site No. ___

Contaminant	Aqueous Water Quality Standards[1], ug/L
Metals	
Antimony	3
Arsenic	---
Arsenic	25
Barium	1,000
Beryllium	3
Cadmium	5
Chromium, hexavalent	---
Chromium, trivalent	50
Copper	200
Cyanide	---
Iron	300
Lead	25
Magnesium	35,000
Manganese	300
Mercury	0.7
Nickel	100
Selenium	10
Silver	50
Sodium	20,000
Thallium	0.5
Zinc	2000
PCBs/Pesticides	
alpha-BHC	0.01
2,4,5-TP Acid (Silvex)	---
4,4'-DDD	0.3
4,4'-DDE	0.2
4,4'-DDT	0.2
Aldrin	---
beta-BHC	0.04
Chlordane (alpha)	---
Dibenzofuran	---
Dieldrin	0.004
Endosulfan I	0.12
Endosulfan II	0.12
Endosulfan sulfate	0.12
Endrin	---
Endrin aldehyde	5
Endrin ketone	5
gamma-BHC (Lindane)	0.05

Table 1B
Groundwater Criteria Table
36 Frost Street Site
Brooklyn, New York
BCP Site No. ___

Contaminant	Aqueous Water Quality Standards[1], ug/L
PCBs/Pesticides, Con't.	
gamma-Chlordane	0.12
Heptachlor	0.04
Heptachlor epoxide	0.03
Lindane	---
Methoxychlor	35
Polychlorinated biphenyls	---
Toxaphene	0.06
Semivolatiles	
1,1’-Biphenyl	5
2,2’-oxybis(1-Chloropropane)	5
2,4,5-Trichlorophenol	1
2,4-Dichlorophenol	1
2,4-Dimethylphenol	50
2,4-Dinitrophenol	10
2,4-Dinitrotoluene	5
2,6-Dinitrotoluene	5
2-Chloronaphthalene	10
2-Chlorophenol	1
2-Methylnaphthalene	502
2-Methylphenol	1
2-Nitroaniline	5
2-Nitrophenol	1
3,3’-Dichlorobenzidine	5
3-Nitroaniline	5
4-Chloro-3-methylphenol	1
4-Chloroaniline	5
4-Methylphenol	1
4-Nitroaniline	5
4-Nitrophenol	1
Acenaphthene	20
Acenapthylene	202
Anthracene	50
Atrazine	7.5
Benz(a)anthracene	0.002
Benzo(a)pyrene	---
Benzo(b)fluoranthene	0.002
Benzo(g,h,i)perylene	52
Benzo(k)fluoranthene	0.002
bis(2-Chloroethoxy)methane	5

Table 1B
Groundwater Criteria Table
36 Frost Street Site
Brooklyn, New York
BCP Site No. ___

Contaminant	Aqueous Water Quality Standards[1], ug/L
Semivolatiles, Con't.	
Bis(2-Chloroethyl)ether	1
bis(2-Ethylhexyl)phthalate	5
Butylbenzylphthalate	50
Chrysene	0.002
Dibenz(a,h)anthracene	502
Dibenzofuran	52
Diethylphthalate	50
Dimethylphthalate	50
Di-n-butylphthalate	50
Di-n-octylphthalate	50
Fluoranthene	50
Fluorene	50
Hexachlorobenzene	0.04
Hexachlorobutadiene	0.5
Hexachlorocyclopentadiene	5
Hexachloroethane	5
Indeno(1,2,3-cd)pyrene	0.002
Isophorone	50
m-Cresol	---
Naphthalene	10
Nitrobenzene	0.4
N-Nitrosodiphenylamine	50
o-Cresol	---
p-Cresol	---
Pentachlorophenol	1
Phenanthrene	50
Phenol	1
Pyrene	50
Volatiles	
1,1,1-Trichloroethane	5
1,1,2,2-Tetrachloroethane	5
1,1,2-Trichloro-1,2,2-trifluoroethane	5
1,1,2-Trichloroethane	1
1,1-Dichloroethane	5
1,1-Dichloroethene	5
1,1-Dichloroethylene	---
1,2,4-Trichlorobenzene	---

Table 1B
Groundwater Criteria Table
36 Frost Street Site
Brooklyn, New York
BCP Site No. ___

Contaminant	Aqueous Water Quality Standards[1], ug/L
Volatiles, Con't.	
1,2,4-Trimethylbenzene	5
1,2-Dibromo-3-chloropropane	0.04
1,2-Dibromoethane	0.0006
1,2-Dichlorobenzene	3
1,2-Dichloroethane	0.6
1,2-Dichloropropane	1
1,3,5- Trimethylbenzene	---
1,3-Butadiene	---
1,3-Dichlorobenzene	3
1,3-Dichlorobenzene	---
1,4-Dichlorobenzene	3
1,4-Dichlorobenzene	---
1,4-Dioxane	0.35[2]
2-Butanone	50
2-Hexanone	50
4-Methyl-2-pentanone	502
Acetone	50
Benzene	1
Bromodichloromethane	50
Bromoform	50
Bromomethane	5
Butylbenzene	---
Carbon Disulfide	60
Carbon tetrachloride	5
Chlorobenzene	5
Chloroethane	5
Chloroform	7
Chloromethane	5
Cis- 1,3-Dichloropropene	0.4
cis-1,2-Dichloroethene	5
cis-1,2-Dichloroethylene	---
Cyclohexane	---
Dibromochloromethane	50
Dichlorodifluoromethane	5
Ethyl Acetate	---
Ethylbenzene	5
Freon 113	---
Hexachlorobenzene	---

Table 1B
Groundwater Criteria Table
36 Frost Street Site
Brooklyn, New York
BCP Site No. ___

Contaminant	Aqueous Water Quality Standards[1], ug/L
Volatiles, Con't.	
Hexachlorobutadiene	---
Hexane	---
Isopropylbenzene	5
m,p-Xylene	---
m-Dichlorobenzene	---
Methyl Acetate	NS
Methyl ethyl ketone	---
Methyl Isobutyl Ketone	---
Methyl tert-butyl ether	10
Methylcyclohexane	---
Methylene chloride	5
n-Propylbenzene	---
o-Dichlorobenzene	---
o-Xylene	---
p-Dichlorobenzene	---
sec-Butylbenzene	---
Styrene	5
tert-Butylbenzene	---
Tertiary Butyl Alcohol	---
Tetrachloroethene	5
Toluene	5
trans-1,2-Dichloroethene	5
trans-l,3-Dichloropropene	0.4
Trichloroethene	5
Trichlorofluoromethane	5
Vinyl Acetate	---
Vinyl Chloride	2
Xylene (mixed)	5
Per- and Polyfluoroalkyl Substances (PFAS)	
PFOA	0.0067[3]
PFOS	0.0027[3]

Notes:

[1] - Division of Water Technical and Operational Guidance Values (TOGS) Ambient Water Quality Standards and Guidance Values (AWQS), ug/L

[2] - Guidance value for PFOA, PFOS, and 1,4-dioxane is from the NYSDEC final AWQGVs, dated March 2023.

ug/L - micro gram per liter

Table 1C
Soil Vapor Criteria Table
36 Frost Street Site
Brooklyn, New York
BCP Site No. ___

Volatile Organics in Air	CAS No.	NYSDOH Soil Vapor Intrusion Guidance Criteria				Toxicity	Decision Matrix
		1	2	3	4		
1,1,1-Trichloroethane	71556	2.5	20.6	-	-	L	**B**
1,1,2,2-Tetrachloroethane	79345	0.4	-	-	-	M	TD
1,1,2-Trichloroethane	79005	0.4	<1.5	-	-	H	TD
1,1-Dichloroethane	75343	0.4	<0.7	-	-	L	TD
1,1-Dichloroethene	75354	0.4	<1.4	-	-	M	B
1,2,4-Trichlorobenzene	120821	0.5	<6.8	-	-	NA	TD
1,2,4-Trimethylbenzene	95636	9.8	9.5	-	-	NA	D
1,2-Dibromoethane	106934	0.4	<1.5	-	-	H	TD
1,2-Dichlorobenzene	95501	0.5	<1.2	-	-	M	TD
1,2-Dichloroethane	107062	0.4	<0.9	-	-	H	TD
1,2-Dichloropropane	78875	0.4	<1.6	-	-	M	TD
1,3,5-Trimethybenzene	108678	3.9	3.7	-	-	M	D
1,3-Butadiene	106990	-	<3.0	-	-	H	TD
1,3-Dichlorobenzene	541731	0.5	<2.4	-	-	M	TD
1,4-Dichlorobenzene	106467	1.2	5.5	344	-	M	TD
1,4-Dioxane	123911	-	-	-	-	M	TD
2,2,4-Trimethylpentane	540841	5	-	-	-	M	D
2-Butanone	78933	16	12	-	-	M	TD
2-Hexanone	591786	-	-	-	-	NA	TD
3-Chloropropene	107051	-	-	-	-	M	TD
4-Ethyltoluene	622968	-	3.6	-	-	NA	TD
4-Methyl-2-pentanone	108101	1.9	6	-	-	M	TD
Acetone	67641	115	98.9	45.8	-	L	TD
Benzene	71432	13	9.4	10	-	H	D
Benzyl chloride	100447	-	<6.8	-	-	H	TD
Bromodichloromethane	75274	-	-	-	-	M	TD
Bromoform	75252	-	-	-	-	M	TD
Bromomethane	74839	0.5	<1.7	-	-	M	TD
Carbon disulfide	75150	-	4.2	-	-	M	TD
Carbon tetrachloride	56235	1.3	<1.3	1.1	-	H	A
Chlorobenzene	108907	0.4	<0.9	-	-	M	TD
Chloroethane	75003	0.4	<1.1	-	-	L	TD
Chloroform	67663	1.2	1.1	6.34	-	H	TD
Chloromethane	74873	4.2	3.7	-	-	M	TD
cis-1,2-Dichloroethene	156592	0.4	<1.9	-	-	M	B
cis-1,3-Dichloropropene	10061015	0.4	<2.3	-	-	NA	TD
Cyclohexane	110827	6.3	-	-	-	L	D

Table 1C
Soil Vapor Criteria Table
36 Frost Street Site
Brooklyn, New York
BCP Site No. ___

Volatile Organics in Air	CAS No.	NYSDOH Soil Vapor Intrusion Guidance Criteria				Toxicity	Decision Matrix
		1	2	3	4		
Dibromochloromethane	124481	-	-	-	-	NA	TD
Dichlorodifluoromethane	75718	10	16.5	-	-	NA	TD
Ethanol	64175	1300	210	-	-	L	TD
Ethyl Acetate	141786	-	5.4	-	-	M	TD
Ethylbenzene	100414	6.4	5.7	7.62	-	M	D
Freon-113	76131	2.5	3.5	-	-	L	TD
Freon-114	76142	0.4	<6.8	-	-	NA	TD
Heptane	142825	18	-	-	-	M	E
Hexachlorobutadiene	87683	0.5	<6.8	-	-	M	TD
Isopropanol	67630	-	-	-	-	M	TD
Methyl tert butyl ether	1634044	14	11.5	36	-	M	TD
Methylene chloride	75092	16	10	7.5	60	NA	TD
n-Hexane	110543	14	10.2	-	-	M	E
o-Xylene	95476	7.1	7.9	7.24	-	M	D
p/m-Xylene	179601231	11	22.2	22.2	-	M	E
Styrene	100-42-5	1.4	1.9	5.13	-	M	TD
Tertiary butyl Alcohol	75-65-0	-	-	-	-	NA	TD
Tetrachloroethene (PCE)	127184	2.5	15.9	6.01	30	H	B
Tetrahydrofuran	109999	0.8	-	-	-	M	TD
Toluene	108883	57	43	39.8	-	L	F
trans-1,2-Dichloroethene	156605	-	-	-	-	NA	TD
trans-1,3-Dichloropropene	10061026	NC	<1.3	-	-	NA	TD
Trichloroethene	79016	0.5	4.2	1.36	2	H	A
Trichlorofluoromethane	75694	12	18.1	-	-	L	TD
Vinyl bromide	593602	-	-	-	-	H	TD
Vinyl chloride	75014	0.4	<1.9	-	-	H	A

Notes
Decision Criteria used:
Martix A: Sub-Slab >5, Indoor Air >5 ND - Non-detect
Martix B: Sub-Slab >100, Indoor Air >30 NA - Not applicable
Toxicities from DAR-1 Appendix C/SCG/ACG NFA - No further action
(H) HIGH Toxicity Contaminant. TD - To be determined based on the NYSDOH VI Decision
(M) MODERATE Toxicity Contaminant.
(L) LOW Toxicity Contaminant. Reasonable - Take reasonable/practical actions to identify source/reduce exposure

NYSDOH Soil Vapor Intrusion Guidance Criteria
1 - Table C-1 2003 Upper Fence Study of Volatile Organic Chemicals in air of Fuel Oil Heated Homes for Indoor Air
2 - Table C-2 2001 USEPA BASE 90th Percentile for Indoor Air
3 -Table C-5 2005 Health Effects Institute 95th Percentile for Indoor Air
4 -NYSDOH Air Guidance Value
NYSDOH Specific Compounds for Matrix Eval

Table 2

Typical Analytical Parameters, Methods, Preservation, Holding Time and Container Requirements

36 Frost Street Site

Brooklyn, New York

BCP Site No.

Sample Matrix	Analytical Parameter	Numer of Samples[1]	EPA Analytical Method	Sample Preservation	Holding Time[2]	Sample Container[3]
Soil	VOCs + TICs (TCL)	22	SW-846 Method 8260C/5035	Cool to 4° C no headspace	14 days to analysis	(3) Encore
Soil	PCBs	22	SW-846 Method 8082A	Cool to 4° C	365 days to analysis	(1) 250 mL amber glass jar
Soil	Pesticides (TCL)	22	SW-846 Method 8081A	Cool to 4° C	14 days to extraction	(1) 250 mL amber glass jar
Soil	SVOCs + TICs (TCL)	22	SW-846 Method 8270D	Cool to 4° C	14 days to extraction	(1) 250 mL amber glass jar
Soil	1,4-Dioxane	22	SW-846 Method 8270D	Cool to 4° C	7 days to extraction	(2) 250 mL amber glass jars
Soil	Metals	22	SW-846 Method 6010DSeries	Cool to 4° C	180 days to analysis	(1) 60 mL glass jar
Soil	Mercury	22	SW-846 Method 7470 A	Cool to 4° C	28 days to analysis	(1) 60 mL glass jar
Soil	Hexavalent chromium		EPA 3060A/7196A	Cool to 4° C	14 days to analysis	(1) 250 mL amber glass jar
Soil	Cyanide	22	SW-846 Method 9010C/9012B	Cool to 4° C	14 days to analysis	(1) 250 mL amber glass jar
Soil	Herbicides		SW-846 Method 8151A	Cool to 4° C	14 days to extraction	(1) 250 mL amber glass jar
Soil	PFAS	22	EPA Method 1633	Cool to 4° C	14 Days	(1) 250 mL plastic container
Groundwater	VOCs (TCL)	5	SW-846 Method 8260C	HCl; Cool to 4° C; no headspace	14 days to analysis	(3) Vial
Groundwater	VOCs with TICs, including 1,4-Dioxane (TCL)	5	SW-846 Method 8260C	HCl; Cool to 4° C; no headspace	14 days to analysis	(3) Vial
Groundwater	1,4-Dioxane	5	SW-846 Method 8270D	Cool to 4° C	7 days to analysis	(2) 250 mL amber glass jar
Groundwater	SVOCs (TCL)	5	SW-846 Method 8270D	Cool to 4° C	7 days to extraction	(2) 250 mL amber glass jar
Groundwater	SVOCs with TICs (TCL)	5	SW-846 Method 8270D	Cool to 4° C	7 days to extraction	(2) 250 mL amber glass jar
Groundwater	Metals- total (TAL)	5	SW-846 Method 6020B/7470A Series	HNO_3; Cool to 4° C	28 days to analysis for Hg; 180 days to analysis for other	(1) 500 mL plastic container
Groundwater	Metals-dissolved (TAL)	5	SW-846 Method 6020B/7470A Series	HNO3; Cool to 4° C	28 days to analysis for Hg; 180 days to analysis for other metals	(1) 500 mL plastic container
Groundwater	Pesticides (TCL)	5	SW-846 Method 8081B	Cool to 4° C	7 days to extraction	(2) 120 mL amber glass jar
Groundwater	Herbicides (TCL)	5	SW-846 Method 8151A	Cool to 4° C	7 days to extraction	(2) 1000 mL amber glass jar
Groundwater	PCBs	5	SW-846 Method 8082A	Cool to 4° C	365 days to analysis	(1) 250 mL amber glass jar
Groundwater	Cyanide	5	SW-846 Method 9012A	Cool to 4° C	14 days to analysis	(1) 250 mL amber glass jar
Groundwater	Hexavalent chromium	5	EPA 3060A/7196A	Cool to 4° C	14 days to analysis	(1) 250 mL amber glass jar
Groundwater	Mercury	5	SW-846 Method 7470 A	HNO3; Cool to 4° C	28 days to analysis	(1) 250 mL plastic container
Groundwater	PFAS	5	EPA Method 1633	Cool to 4° C	14 Days	(1) 250 mL plastic container
Soil Vapor	VOCs	5	EPA Method TO-15	None	14 days to analysis	(1) Evacuated 6-Liter SUMMA® canister

Notes:

[1] Actual number of samples may vary depending on field conditions, sample material availability, and field observations. See RIWP for estimates.

[2] Holding times listed are method holding time calculated from time of collection and not NYSDEC ASP holding times.

[3] MS/MSDs require duplicate volume for all parameters for solid matrices; MS/MSDs require triplicate volume for organic parameters for aqueous matrices and duplicate volume for inorganic parameters for aqueous matrices

Table 3
Typical Laboratory Data Quality Objectives
Soil Samples
36 Frost Street, Brooklyn, NY
BCP Site No. ___

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
VOCs (TCL)	SW-846 Methods 8260B/5035	Soil	Surrogates % Rec. 1,2-Dichloroethane-d4 70-130 4-Bromofluorobenzene 70-130 Dibromofluoromethane 70-130 Toluene-d8 70-130 2-Chloroethoxyethane 70-130 Matrix Spikes 30-151% recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 30 per matrix type	Field Duplicates RPD <30 MS/MSDs (RPD) RPD <30	Field Duplicates: One per 20 per soils MS/MSDs: One per 30 per matrix type
VOCs with Tentatively Identified Compounds (TICs)	SW-846 Method 8260C	Soil	Surrogates % Rec. 1,2-Dichloroethane-d4 70-130 4-Bromofluorobenzene 70-130 Dibromofluoromethane 70-130 Toluene-d8 70-130 Matrix Spikes 36-162 % recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20	Field Duplicates RPD <30 MS/MSDs RPD RPD<30	Field Duplicates: One per 20 MS/MSDs: One per 20
PCBs	SW-846 Method 8082A	Soil	Surrogates % Rec. 2,4,5,6-Tetrachloro-m-xylene 30-150 Decachlorobiphenyl 30-150 Matrix Spikes 40-140% recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20 per matrix type	Field Duplicates RPD <50 MS/MSDs (RPD) RPD<50	Field Duplicates: One per 20 per soils MS/MSDs: One per 20 per matrix type
SVOCs	SW-846 Method 8270D	Soil	Surrogates % Rec. Phenol-d6 10-120 2-Fluorophenol 25-120 2,4,6-Tribromophenol 10-136 Nitrobenzene-d5 23-120 2-Fluorobiphenyl 30-120 4-Terphenyl-d14 18-120 Matrix Spikes 14-144% recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 50 per matrix type	Field Duplicates RPD <50 MS/MSDs (RPD)	Field Duplicates: One per 20 per soils MS/MSDs: One per 20 per matrix type
SVOCs with TICs	SW-846 Method 8270D	Soil	Surrogates % Rec. Phenol-d5 10-120 2-Fluorophenol 21-120 2,4,6-Tribromophenol 10-120 Nitrobenzene-d5 23-120 2-Fluorobiphenyl 15-120 4-Terphenyl-d14 41-149 Matrix Spikes 14-144%	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20	Field Duplicates RPD <50 MS/MSDs RPD RPD<50	Field Duplicates: One per 20 MS/MSDs: One per 20
1,4-Dioxane	SW-846 Method 8270D	Soil	Surrogates % Rec. 1,4-Dioxane-d8 15-110 Matrix Spikes 40-140% recovery	Surrogates: All samples, standards, QC samples	Field Duplicates RPD <30 MS/MSDs (RPD) RPD<30	Field Duplicates: One per 20 per soils MS/MSDs: One per 20
Pesticides (TCL)	SW-846 Method 8081A	Soil	Surrogates % Rec. Decachlorobiphenyl 30-150 Tetrachloro-m-xylene 30-150 Matrix Spikes 30-150% Recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20 per matrix type	Field Duplicates RPD <50 MS/MSDs (RPD) RPD<50	Field Duplicates: One per 20 per soils MS/MSDs: One per 20 per matrix type
Total Petroleum Hydrocarbons	SW-846 Method 8015B	Soil	Surrogates % Rec. o-Terphenyl 27-153 Tetracosane-d50 28-148 5α-androstane 27-148 TPH-DRO 10-149	Surrogates: All samples, standards, QC samples One per 20 per matrix type	Field Duplicates RPD <50 TPH-DRO 44	Field Duplicates: One per 20 per soils One per 20 per matrix type
Herbicides	SW-846 Method 8151A	Soil	Surrogates % Rec. 2,4-DCAA 30-150 Matrix Spikes 30-150% Recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20 per matrix type	Field Duplicates RPD <50 MS/MSDs (RPD) RPD<50	Field Duplicates: One per 20 per soils MS/MSDs: One per 20 per matrix type
Metals (TAL)	SW-846 Method 6010D	Soil	Surrogates % Rec. Matrix Spikes 75-125% recovery	Surrogates: Matrix Spikes: One per 20 per matrix type	Field Duplicates RPD <20 MS/MSDs (RPD) RPD <20	Field Duplicates: One per 20 per soils MS/MSDs: One per 20 per matrix type

Table 3
Typical Laboratory Data Quality Objectives
Soil Samples
36 Frost Street, Brooklyn, NY
BCP Site No. ___

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
PFAs	LCMSMS- Isotope Dilution	Soil	Surrogates % Rec. Perfluoro[13C4]Butanoic Acid (MPFBA) 61-135 Perfluoro[13C4]Butanoic Acid (MPFBA) 58-132 Perfluoro[13C5]Pentanoic Acid (M5PFPEA) 62-163 Perfluoro[13C5]Pentanoic Acid (M5PFPEA) 58-150 Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) 70-131 Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) 74-139 Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) 57-129 Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) 66-128 Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) 60-129 Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) 71-129 Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) 71-134 Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) 78-139 Perfluoro[13C8]Octanoic Acid (M8PFOA) 62-129 Perfluoro[13C8]Octanoic Acid (M8PFOA) 75-130 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) 14-147 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) 20-154 Perfluoro[13C9]Nonanoic Acid (M9PFNA) 59-139 Perfluoro[13C9]Nonanoic Acid (M9PFNA) 72-140 Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) 79-136 Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) 69-131 Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) 75-130 Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) 62-124 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) 19-175 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) 10-162 N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) 24-116 N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) 31-134 Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) 61-155 Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) 55-137 Perfluoro[13C8]Octanesulfonamide (M8FOSA) 10-112 Perfluoro[13C8]Octanesulfonamide (M8FOSA) 10-117 N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) 34-137 N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) 27-126 Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) 48-131 Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) 54-150 Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) 22-136 Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) 24-159 Matrix Spikes 46-182% recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20 per matrix type	Field Duplicates RPD <30 MS/MSDs (RPD) RPD <30	Field Duplicates: One per 20 per soils MS/MSDs: One per 20 per matrix type
Mercury	SW-846 Method 7471B	Soil	Surrogates % Rec. Matrix Spikes 80-125% recovery	Surrogates: Matrix Spikes: One per 20 per matrix type	Field Duplicates RPD <20 MS/MSDs (RPD) RPD <20	Field Duplicates: One per 20 per soils MS/MSDs: One per 20 per matrix type
Cyanide	SW-846 Method 9012A	Soil	Surrogates % Rec. Matrix Spikes 75-125% Recovery	Surrogates: Matrix Spikes: One per 35 per matrix type	Field Duplicates RPD <35 MS/MSDs (RPD) RPD <35	Field Duplicates: One per 20 per soils MS/MSDs: One per 20 per matrix type

Recovery criteria for laboratory control samples must be at least as stringent as MS/MSD criteria.
Laboratory control limits are periodically updated. The latest control limits will be utilized at the time of sample analysis.

Table 4

Typical Laboratory Data Quality Objectives
Groundwater Samples
36 Frost Street, Brooklyn, NY
BCP Site No. ___

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
VOCs (TCL)	SW-846 Method 8260C	Groundwater	Surrogates % Rec. 1,2-Dichloroethane-d4 70-130 4-Bromofluorobenzene 70-130 Dibromofluoromethane 70-130 Toluene-d8 70-130 Matrix Spikes 36-162 % recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20	Field Duplicates RPD <20 MS/MSDs RPD RPD <20	Field Duplicates: One per 20 MS/MSDs: One per 20
VOCs with Tentatively Identified Compounds (TICs)	SW-846 Method 8260C	Groundwater	Surrogates % Rec. 1,2-Dichloroethane-d4 70-130 4-Bromofluorobenzene 70-130 Dibromofluoromethane 70-130 Toluene-d8 70-130 Matrix Spikes 36-162 % recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20	Field Duplicates RPD <20 MS/MSDs RPD RPD <20	Field Duplicates: One per 20 MS/MSDs: One per 20
SVOCs TCL	SW-846 Method 8270D	Groundwater	Surrogates % Rec. Phenol-d5 10-120 2-Fluorophenol 21-120 2,4,6-Tribromophenol 10-120 Nitrobenzene-d5 23-120 2-Fluorobiphenyl 15-120 4-Terphenyl-d14 41-149 Matrix Spikes 14-144%	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20	Field Duplicates RPD <50 MS/MSDs RPD RPD <50	Field Duplicates: One per 20 MS/MSDs: One per 20
SVOCs with TICs	SW-846 Method 8270D	Groundwater	Surrogates % Rec. Phenol-d5 10-120 2-Fluorophenol 21-120 2,4,6-Tribromophenol 10-120 Nitrobenzene-d5 23-120 2-Fluorobiphenyl 15-120 4-Terphenyl-d14 41-149 Matrix Spikes 14-144%	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20	Field Duplicates: RPD <50 MS/MSDs RPD RPD <50	Field Duplicates: One per 20 MS/MSDs: One per 20
1,4-Dioxane	SW-846 Method 8270D	Groundwater	Surrogates % Rec. 1,4-Dioxane-d8 15-110 Matrix Spikes 40-140% recovery	Surrogates: All samples, standards, QC samples	Field Duplicates RPD <30 Matrix Duplicates RPD<30	Field Duplicates: One per 20 per soils MS/MSDs: One per 20
Metals (Total and Dissolved)	SW-846 Methods 6020B	Groundwater	Matrix Spikes 75-125% recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20	Field Duplicates RPD <20 Matrix Duplicates RPD <20	Field Duplicates: One per 20 MS/MSDs: One per 20
Mercury (Total and Dissolved)	SW-846 Methods 7470A	Groundwater	Matrix Spikes 75-125% recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20	Field Duplicates RPD <35 (dissolved) RPD<20 (Total) Matrix Duplicates RPD <35 (dissolved) RPD<20 (Total)	Field Duplicates: One per 20 MS/MSDs: One per 20
PCBs	SW-846 Method 8082A	Groundwater	Surrogates % Rec. 2,4,5,6-Tetrachloro-m-xylene 30-150 Decachlorobiphenyl 30-150 Matrix Spikes 40-140% recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20 per matrix type	Field Duplicates RPD <50 MS/MSDs (RPD) RPD<50	Field Duplicates: One per 20 MS/MSDs: One per 20 per matrix type
Herbicides	SW-846 Method 8151A	Groundwater	Surrogates % Rec. 2,4-DCAA 30-150 Matrix Spikes 30-150% Recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20 per matrix type	Field Duplicates: RPD <50 MS/MSDs (RPD) RPD<50	Field Duplicates: One per 20 MS/MSDs: One per 20 per matrix type

Table 4
Typical Laboratory Data Quality Objectives
Groundwater Samples
36 Frost Street, Brooklyn, NY
BCP Site No. ___

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
Pesticides (TCL)	SW-846 Method 8081B	Groundwater	Surrogates % Rec. Decachlorobiphenyl 15-142 2,4,5,6-Tetrachloro-m-xylene 36-126 Matrix Spikes 30-150% recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20	Field Duplicates RPD <30 MS/MSDs RPD RPD <30	Field Duplicates: One per 20 MS/MSDs: One per 20
PFAs	EPA Method 1633	Grounwater	Surrogates Perfluoro[13C4]Butanoic Acid (MPFBA) Perfluoro[13C4]Butanoic Acid (MPFBA) Perfluoro[13C5]Pentanoic Acid (M5PFPEA) Perfluoro[13C5]Pentanoic Acid (M5PFPEA) Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) Perfluoro[13C8]Octanoic Acid (M8PFOA) Perfluoro[13C8]Octanoic Acid (M8PFOA) 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2- 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2- Perfluoro[13C9]Nonanoic Acid (M9PFNA) Perfluoro[13C9]Nonanoic Acid (M9PFNA) Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2- 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2- N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) Perfluoro[13C8]Octanesulfonamide (M8FOSA) Perfluoro[13C8]Octanesulfonamide (M8FOSA) N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5- N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5- Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) Matrix Spikes 46-182% recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 20 per matrix type	Field Duplicates RPD <30 MS/MSDs (RPD) RPD <30	Field Duplicates: One per 20 MS/MSDs: One per 20 per matrix
Cyanide	EPA Method 9012B	Groundwater	 Matrix Spikes 75-125% recovery	Surrogates: All samples, standards, QC samples Matrix Spikes: One per 35	Field Duplicates RPD <35 Matrix Duplicates RPD <35	Field Duplicates: One per 20 Matrix Duplicates: One per 20

Recovery criteria for laboratory control samples must be at least as stringent as MS/MSD criteria.

Laboratory control limits are periodically updated. The latest control limits will be utilized at the time of sample analysis.

Table 5
Typical Laboratory Data Quality Objectives
Soil Vapor Samples
36 Frost Street, Brooklyn, NY
BCP Site No. ___

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
VOCs	EPA Method TO-15	Soil Vapor	Surrogates % Rec. 4-Bromofluorobenzene 78-124	Surrogates: All samples, standards, QC samples	Matrix Duplicates RPD < 30	Matrix Duplicates One per 20

Table 6
QC Sample Preservation and Container Requirements
36 Frost Street, Brooklyn, NY
BCP Site No. ___

Sample Matrix	Analytical Parameter	No. of Samples	EPA Analytical Method	Sample Preservation	Holding Time[1]	Sample Container
Soil	VOCs (TCL)	2	SW-846 Method 8260C/5035	Cool to 4^0 C no headspace	14 days to analysis	(3) Encore
Soil	PCBs	2	SW-846 Method 8082A	Cool to 4^0 C	365 days to analysis	(1) 250 mL amber glass jar
Soil	SVOCs (TCL)	2	SW-846 Method 8270D	Cool to 4° C	14 days to extraction	(1) 250 mL amber glass jar
Soil	1,4-Dioxane	2	SW-846 Method 8270D	Cool to 4° C	7 days to extraction	(2) 250 mL amber glass jars
Soil	Metals (TAL)	2	SW-846 Method 6010DSeries	Cool to 4^0 C	180 days to analysis	(1) 60 mL glass jar
Soil	Mercury	2	SW-846 Method 7471B	Cool to 4^0 C	28 days to analysis	(1) 60 mL glass jar
Soil	Hexavalent chromium	2	EPA 3060A/7196A	Cool to 4^0 C	14 days to analysis	(1) 250 mL amber glass jar
Soil	Cyanide	2	SW-846 Method 9010C/9012B	Cool to 4^0 C	14 days to analysis	(1) 250 mL amber glass jar
Soil	Herbicides	2	SW-846 Method 8151A	Cool to 4^0 C	14 days to extraction	(1) 250 mL amber glass jar
Soil	Pesticides	2	SW-846 Method 8141A[6]	Cool to 4^0 C	14 days to extraction	(1) 300 mL amber glass jar
Soil	PFAS	2	EPA Method 1633	Cool to 4^0 C	14 Days	(1) 250 mL plastic container

Table 6

QC Sample Preservation and Container Requirements

36 Frost Street, Brooklyn, NY

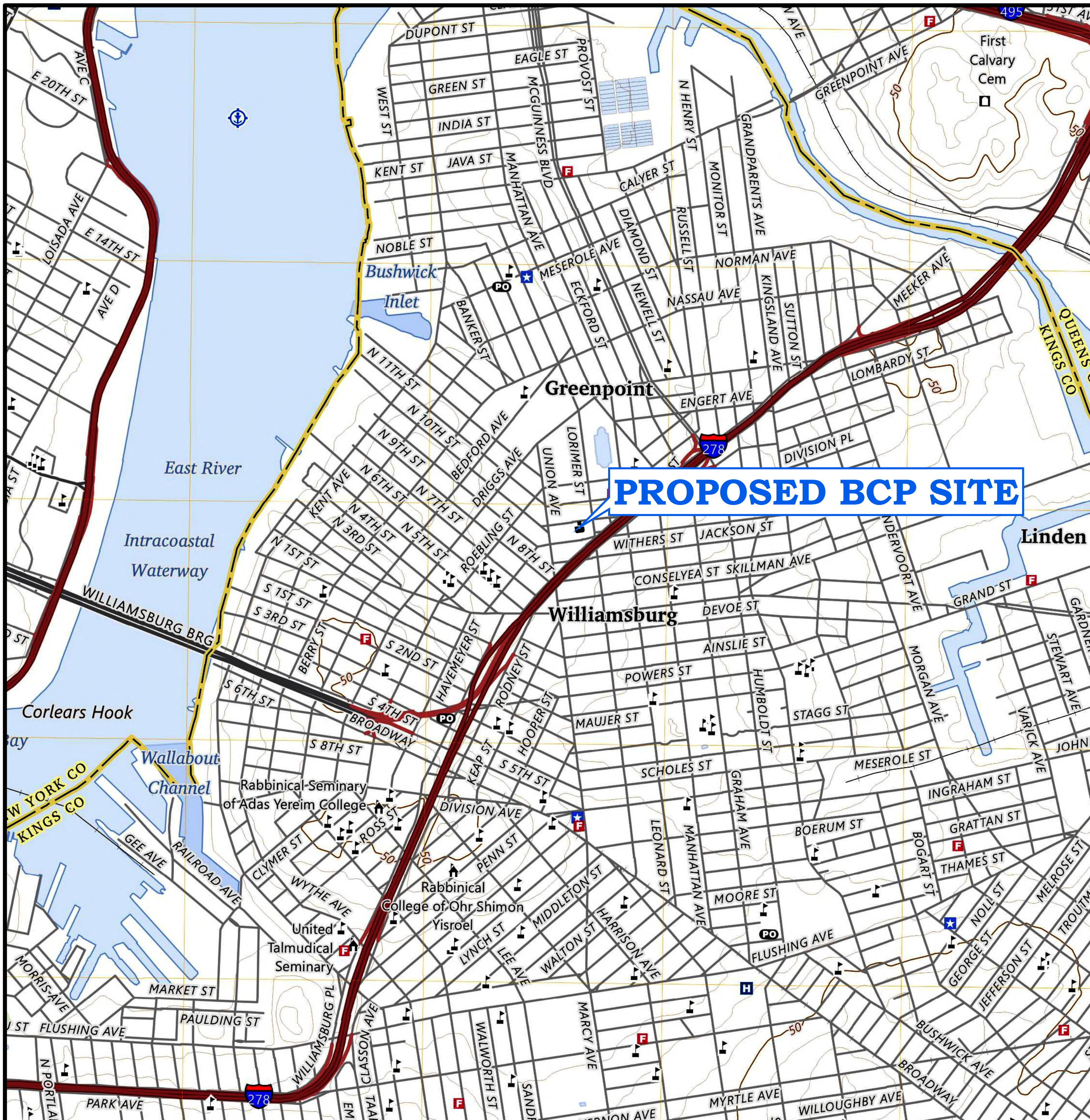
BCP Site No. ___

Groundwater	VOCs (TCL)	1	SW-846 Method 8260C	HCl; Cool to 4^0 C; no headspace	14 days to analysis	(3) Vial
Groundwater	1,4-Dioxane	1	SW-846 Method 8270D	Cool to 4^0 C	7 days to analysis	(2) 250 mL amber glass jar
Groundwater	SVOCs (TCL)	1	SW-846 Method 8270D	Cool to 4^0 C	7 days to extraction	(2) 250 mL amber glass jar
Groundwater	Metals- total (TAL)	1	SW-846 Method 6020B/7470A Series	HNO_3; Cool to 4° C	28 days to analysis for Hg; 180 days to analysis for other metals	(1) 500 mL plastic container
Groundwater	Metals-dissolved (TAL)	1	SW-846 Method 6020B/7470A Series	HNO3; Cool to 4° C	28 days to analysis for Hg; 180 days to analysis for other metals	(1) 500 mL plastic container
Groundwater	Pesticides (TCL)	1	SW-846 Method 8081B	Cool to 4^0 C	7 days to extraction	(2) 120 mL amber glass jar
Groundwater	Herbicides (TCL)	1	SW-846 Method 8151A	Cool to 4^0 C	7 days to extraction	(2) 1000 mL amber glass jar
Groundwater	PCBs	1	SW-846 Method 8082A	Cool to 4^0 C	365 days to analysis	(1) 250 mL amber glass jar
Groundwater	Hexavalent Chromium	1	EPA 3060A/7196A	Cool to 4^0 C	14 days to analysis	(1) 250 mL amber glass jar
Groundwater	Cyanide	1	SW-846 Method 9012A	Cool to 4^0 C	14 days to analysis	(1) 250 mL amber glass jar
Groundwater	Mercury	1	SW-846 Method 7470 A	HNO3; Cool to 4° C	28 days to analysis	(1) 250 mL plastic container
Groundwater	PFAS	1	EPA Method 1633	Cool to 4^0 C	14 Days	(1) 250 mL plastic container
Soil Vapr	VOCs	1	EPA Method TO-15	None	14 days to analysis	(1) Evacuated 6-Liter SUMMA® canister

Notes:

1 Holding times listed are method holding time calculated from time of collection and not NYSDEC ASP holding times.

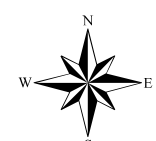
FIGURE



NEW YORK

QUADRANGLE LOCATION

Source:
USGS TOPOGRAPHIC MAPS: BROOKLYN, NY (2023).
CONTOUR INTERVAL 10FT., NAVD-1988, ORIGINAL SCALE
1:24,000 (1IN.=2,00FT.).



36 FROST STREET,
BROOKLYN, NEW YORK 11211

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

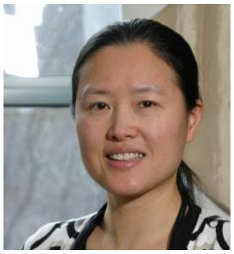
PREPARED FOR:
36 FROST STREET LLC

SITE LOCATION MAP

PROJ MGR: LS	REVIEWED BY: LS	CHECKED BY: MS	FIGURE
DESIGNED BY: LD	DRAWN BY: PM	SCALE: 1" = 2,000'	1
DATE: SEPTEMBER 2025	PROJECT NO. 41.0163452.10	REVISION NO.	SHEET NO. 1 OF 1

File: 36FrostSt_BrooklynNY_BCP.mxd Date: 9/24/2025

ATTACHMENTS



Chunhua Liu, PhD

Senior Technical Specialist

Summary of Experience

Dr. Liu is a senior chemist with more than 10 years of experience in analytical chemistry, data validation and management, and quality control and quality assurance for remedial investigations and remedial actions. Her experience includes laboratory chemical analysis, EPA Region I and Region II data validation and data usability evaluation, data usability evaluation for Massachusetts Contingency Plan (MCP), sampling and analysis plan development in accordance with the NYSDEC Analytical Service Protocol and Massachusetts Compendium of Quality Assurance and Quality Control Requirements (QA/QC) and Performance Standards for Selected Analytical Methods, and quality control and quality assurance for Superfund and MCP projects.

Dr. Liu majored in environmental chemistry and during her doctoral study at Harvard School of Public Health, she researched analytical methods for sediment and evaluated metal fate and transport in sediment. Dr. Liu worked at Parsons for over seven years and at Gradient for one year before joining GZA. At Parsons, Dr. Liu led the quality control and assurance and data management efforts from developing Quality Assurance Project Plan (QAPP) to assuring implementation of QA/QC requirements and from field sampling preparation and arrangement to chemical data management. Dr. Liu was responsible for the QA/QC and data validation and data usability evaluation for a 10,000-acre BRAC and Superfund NPL site in New York and assisted in the successful transfer of over 8,000 acres of land. Dr. Liu performed data usability evaluation for various Massachusetts Contingency Plan sites at Gradient and GZA.

Education

B.E., 1992, Environmental Engineering, Tsinghua University, Beijing, China
M.E., 1995, Environmental Engineering, Tsinghua University, Beijing, China
M.S., 1998, Environmental Health, Harvard School of Public Health
D.S., 2000, Environmental Chemistry, Harvard School of Public Health

Areas of Specialization

- Human Health Risk Assessment
- Ecological Risk Assessment
- Data Usability Evaluation
- Project Quality Control and Assurance
- Fate and Transport Modeling

Relevant Project Experience

Senior Technical Specialist. Leads GZA human health risk assessment efforts for federal and state level superfund and MCP projects. Dr. Liu is also responsible for data usability evaluation for various projects.

Technical Director. Directed preparation and submittal of the Site-Wide Sampling and Analysis Plan (SAP) and the Site-Wide Quality Assurance Project Plan (QAPP) for a 10,000-acre Superfund site in New York in accordance with the Department of Defense (DOD), NYSDEC ASP, EPA Region II and EPA guidance. Directed project field sampling and data management. Supervised data validation in accordance with EPA Region II SOPs and NYSDEC ASP based on the NYSDEC ASP Category B deliverables. Identified laboratories qualified for project chemical analyses and interfaced with various analytical laboratories to address analytical deficiencies. Submitted data summary report to EPA Region II on a quarterly basis.

Lead Chemist and Risk Assessor. Led data usability evaluation and supported the successful closure of a 125-acre Hingham Annex Guaranteed Fixed Price Remediation Project. Dr. Liu also led the risk assessment effort and the effort of evaluating pesticide fate and transport at the site and successfully demonstrated that the pesticide conditions at the site were related to the past normal use of pesticides and therefore were not associated with the release at the Site.

Technical Director. Directed preparation and submittal of the SAP and the QAPP for various Formerly Used Defense (FUD) Sites. Supervised field sampling and data validation in accordance with guidance from various EPA regions. Reviewed data validation and data usability report.

Technical Director. Directed data validation for various Superfund sites in EPA Region I and Region II in accordance with the EPA regional and state SOPs and the EPA Functional Guidelines. Led data validation for numerous MCP sites for various analytical analyses including metal, VOC, SVOC, pesticide, PCB, EPH, VPH, and TPH analyses.

Project Chemist. Evaluated different analytical methods for hexavalent chromium analysis. Compared analytical methods developed by NJDEP and EPA and identified the appropriate method for a CERCLA site in New Jersey.

Project Chemist. Evaluated quantitatively potential impacts to metal data usability by interference caused by common metals in environmental samples for a CERCLA site in New York.

Project Chemist. Performed data validation for indoor air samples for various CERCLA and MCP Sites to assist evaluation of potential vapor intrusion pathway.

Project Chemist. Performed Level IV data validation for a Superfund site in New York for various analytical analyses including metal, VOC, SVOC, pesticide, and PCB analyses. Reviewed TIC identification and quantitation and assessed chromatograms and mass spectrums for VOCs and SVOCs.

Project Chemist. Provided technical support, prepared QAPPs, established proper data quality objectives (DQOs) for various projects, maintained project quality control, trained junior scientists, coordinated project field sampling and laboratory analyses, addressed non-conformance issues associated with the data produced by the laboratory, conducted statistical analysis, and prepared data validation reports on numerous RCRA/CERCLA and MCP projects.

ENVIRONMENTAL ASSESSMENT AND REMEDIATION PROJECTS

(Former Malden MGP) Senior Scientist - Lead Risk Assessor, Chemist, Site Assessment, Malden, Massachusetts. Leading ongoing risk assessment work at large, complex former MGP that encompasses more than 16 acres of land and more than 10 different properties. Work has included vapor intrusion pathway evaluation, imminent hazard evaluation, substantial hazard evaluation, data usability evaluation, and risk characterizations for evaluation of effectiveness of sub-slab depressurization systems and remediation, direction of Site remediation and investigations, and verification of the need for AULs. GZA was able to demonstrate that indoor air impacts in a residential area were not related to MGP residuals, allowing for closure of that portion of the Site. Risk characterizations also demonstrated that Site conditions did not pose substantial hazards, confirming the effectiveness of the Temporary Solution.

(Commercial Point LNG Facility) Senior Scientist - Lead Risk Assessor, Site Assessment and Closure, Dorchester Massachusetts. Directed risk characterization to support MCP closure of former MGP facility that was currently being used as a Liquefied Natural Gas (LNG) storage and distribution facility. Performed risk characterization to support supplemental Phase II – IV MCP investigations and Permanent Solution status while allowing for beneficial reuse of the facility for LNG operations and a solar power generating facility. Also performed focused risk characterizations in support of an AUL filing and potential reuse options for portions of the Site.

(Former Haverhill Holder Site) Senior Scientist - Lead Risk Assessor, Site Closure, Haverhill Massachusetts. Directed risk characterization to support MCP closure of former MGP gas holder facility where wastes had been disposed. Conducted risk characterization to facilitate development of cost-effective cleanup plan involving focused soil excavation and use restrictions that allowed for achievement of a Permanent Solution. Performed a Method 3 risk characterization to support the complex supplemental Phase II investigation. This complex site encompassed properties owned by seven different parties, including residential land and portions of a river/tributary system.

(Gloucester Former MGP) Senior Scientist - Lead Risk Assessor, Human Health Risk Assessment, North Shore, Massachusetts. Performed Method 3 Risk Characterization for multiple parcels to support the Supplemental Phase II Comprehensive Site Assessment initiated by other consultants under the Massachusetts Contingency Plan. This Site included MGP impacts to

Chunhua Liu, PhD
Senior Technical Specialist

approximately 45 acres of Gloucester Harbor sediment. GZA evaluated potential human health risks via exposure to soil, groundwater, sediment, surface water, homegrown produce, and consumption of fish. In addition, Risk Characterization was used in the early stages of the project to assist identification of data gaps and Site investigation.

(Salem Power Plant) Project Manager, Cost Recovery Negotiations, Salem, Massachusetts. Working through counsel, provided advice to a prior owner with respect to remedial obligations under the Massachusetts Contingency Plan (MCP) associated with impacts to soil at this power generating facility. Work included review of hot spot evaluation, risk characterization, and remediation performed at the Site. Given the Site use, we concluded that most of the claimed costs that had been incurred by the current owner were not necessary under the MCP and thus should not be subject to recovery from our client.

(Sawyer Passway) Senior Scientist - Lead Risk Assessor, Chemist, MGP Site Closure, Fitchburg, Massachusetts. Performed a Substantial Hazard Evaluation and a Method 3 Risk Characterization to support fast-track Massachusetts Contingency Plan (MCP) Phase II/III study of large, complex former MGP facility on the banks of a major New England river. The work had to be completed within two months to meet a key regulatory deadline. Work included a risk evaluation to support a streamlined supplemental field exploration program, a risk evaluation to direct the focused soil excavation, and a substantial hazard evaluation for the cost-effective temporary solution within the required regulatory deadlines. GZA's continuing work on this project has included technical support for an insurance cost-recovery claim, periodic evaluations of the temporary solution, completion of soil stabilization/solidification pilot studies, implementation of focused remedial programs during site building demolition work and development of remedial, plans directed at achieving a Permanent Solution (PS). Based on updated evaluations, a cost-effective approach to a PS was developed in 2014 and a Method 3 Risk Characterization was performed to support a PSS in 2015.

(Former Army Depot Activity Site), Technical Director, Syracuse, New York. Directed preparation and submittal of the Site-Wide Sampling and Analysis Plan (SAP) and the Site-Wide QAPP for a 10,000-acre Superfund site in New York in accordance with the Department of Defense (DOD), NYSDEC ASP, USEPA Region II and USEPA guidance. Directed project field sampling and data management. Supervised data validation in accordance with USEPA Region II SOPs and NYSDEC ASP based on the NYSDEC ASP Category B deliverables. Identified laboratories qualified for project chemical analyses and interfaced with various analytical laboratories to address analytical deficiencies. Submitted data summary report to USEPA Region II on a quarterly basis.

(Waverley Oaks Road), Senior Scientist - Lead Risk Assessor, Human Health Risk Assessment, Waltham, Massachusetts. This property has been impacted by improper storage of large quantities of waste oil that was to be used to heat on-site green houses, or to be processed and resold. This Site is regulated under the Massachusetts Contingency Plan; Massachusetts Department of Environmental Protection reviewed and approved all work plans and reports for the site investigation and risk assessment; it was downgraded from a Tier 1A to a Tier 1B Site following completion of the Phase II investigations.

Waste oil releases have impacted nearly 10-acres of an on-Site pond, stream and wetland, including 3 acres that have visible oil presented within surficial wetland soil and sediment. GZA conducted a Method 3 Risk Characterization to support the permanent solution of the Site. For the Vapor Intrusion pathway, GZA identified constituents not related to Site release and verified the conclusion based on the evaluation of Site-specific attenuation factors.

Publications and Presentations

Liu, C., J. Jay, T. Ford. Evaluation of Environmental Effects on Metal Transport from Capped Contaminated Sediment under Conditions of Submarine Groundwater Discharge. Env. Sci. Tech. 2001 35: 4549-4555.

Liu, C., J. Jay, R. Ika, S. James, and T. Ford. Capping efficiency for metal-contaminated marine sediment under conditions of groundwater inflow. Env. Sci. Tech. 2001 35: 2334-2340.

Blanchet, R., Liu, C., Bowers, T. Summary of Available Freshwater and Marine Sediment Quality Guidelines and Their Use in North America. Abstract accepted at SEATEC Conference, November, 2001

Blanchet, R., Liu, C., Bowers, T. Estimation of Average Exposure Point Concentrations for Pesticides Assuming Accumulation and Degradation in the Environment. Abstract accepted at SEATEC Conference, November, 2001

Chunhua Liu, PhD
Senior Technical Specialist

Seeley, M.R., Schettler, S., Liu, C., Blanchet, R.J., Bowers, T.S. Assessing Cancer Risks Due to Use of Insecticides to Control the Mosquito-borne West Nile Virus: Use of the Margin of Exposure Approach. Abstract accepted at Society of Toxicology, 41st Annual Meeting, March 17-21, 2002.

Chunhua Liu, Jennifer Jay, Ravi Ika, Shine James, Timothy Ford. Capping Efficiency for Metal-Contaminated Marine Sediment under Conditions of Submarine Groundwater Discharge. Poster presentation at Conference on Dredged Material Management: Options and Environmental Considerations. December 3-6, 2000

Chunhua Liu, Jennifer Jay, Timothy Ford. Evaluation of Environmental Effects on Metal Transport from Capped Contaminated Sediment Under Conditions of Submarine Groundwater Discharge. Poster presentation at Conference on Dredged Material Management: Options and Environmental Considerations. December 3-6, 2000

Chunhua Liu, Jennifer Jay, Timothy Ford. Core analysis: Is it a good indicator of metal release and capping efficiency? Poster presentation at Conference on Dredged Material Management: Options and Environmental Considerations. December 3-6, 2000

Chunhua Liu. 2000. Capping Efficiency for Metal Contaminated Marine Sediment under Conditions of Submarine Groundwater Discharge. Doctoral Thesis. Harvard School of Public Health

Chunhua Liu, Ravi Ika, Tim Ford. 1998. Metal flux in near shore capping sites under conditions of submarine groundwater discharge. In: Fourth Marine & Estuarine Shallow Water Science & Management Conference. March 15-19, 1998

Wei Lin, Guowei Fu, Chunhua Liu. 1996. Study on allocating permissible pollutants discharge based on axioms system. Chin. J. Environ. Sci. 1996 17(3):35-37

Wei Lin, Chunhua Liu, Guowei Fu. 1995. Environmental conflict analysis and its application in environmental planning and management: siting of public facilities. Chin. J. Environ. Sci. 1995 16(6): 36-39

Chunhua Liu, Yongfeng Nie, Wei Lin. 1995. Application prospects of landfill gas utilization technique in China. Pollution Control Technology 1995 8(3): 143-145

Chunhua Liu. 1995. Evaluation of gas production from sanitary landfill. Master's thesis. Tsinghua University, Beijing, P.R.China

Wei Lin, Chunhua Liu. 1994. Rudimentary study on countermeasure to comprehensively control air pollution caused by motor vehicles in China. Pollution Control Technology 1994 7(4): 1-3

Xiurong Zhang, Chunhua Liu, Yanru Yang, Qingzhong Bai. 1993. Environmental impact report of wastewater treatment plant project in Xuanhua City, China.

Chunhua Liu, Yongfeng Nie. 1993. Water balance evaluation in Hongmei hazardous waste landfill. In: Environmental Impact Assessment of Hongmei Hazardous Waste Landfill: 25-33

Chunhua Liu. 1992. Modeling landfill leachate production and migration. Bachelor Thesis. Tsinghua University, Beijing, P.R.China

Chunhua Liu. 1991. A discussion with the author of "clean water extraction from ocean water". Technology of Water Purification 1991(1): 39-41

Affiliations/Memberships

- Member, LSP Association
- Member, Society for Risk Analysis
- Certified EIT in Massachusetts

APPENDIX B – HEALTH AND SAFETY PLAN (HASP)

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

1. CLIENT/SITE/PROJECT INFORMATION		
Client: 36 Frost Street LLC ☐ Check to confirm Client-Specific EHS Requirements have been reviewed and included within this HASP		
Site Address (include nearest address able to be found using GPS that wil assist staff and EMS in finding the site. This can also include lat/long if helpful to staff. If remote area or part of a larger site, consider adding a screenshot of an aerial photo below with the site identified)): 36 Frost Street, Brooklyn, NY 11211		
Site Description & Work Environment (be sure to list pertinent site features, chemicals used at the facility, and other potential hazard sources as well as the current status of the site, such as active manufacturing, office, vacant site, undeveloped property, etc.): Single story industrial/manufacturing building that is currently not in operation.		
☐ Public Access Property ☒ Private Property ☐ Government / Municipal Property ☐ Other		
Brief summary of known or suspected chemical releases (for Environmental sites only, NA if none): NA		
Project # & Task: 41.0163452.10	Estimated Start Date: TBD	Estimated Finish Date: TBD
Site is Covered by (Check all that apply):	☐ OSHA HAZWOPER Standard	☐ Mine Safety and Health Administration
☐ Other:	☒ OSHA Construction Regulations	☒ OSHA General Industry Regulations

2. EMERGENCY INFORMATION		
Hospital Name: Wyckoff Heights Medical Center		Hospital Phone: +1 718-963-7272
Hospital Address: 374 Stockholm Street, Brooklyn, NY 11237		Directions and Street Map Attached: ☒ Yes
Local Fire #: 911 or	Local Ambulance #: 911 or	Local Police #: 911 or
WorkCare Incident Intervention Services: For non-emergencies, if an employee becomes hurt or sick call 888-449-7787		
Other Emergency Contact(s): Ron Lombino	Phone #'s: 631-847-1609	

3. SCOPE OF WORK	
General project description, and phase(s) of work to which this H&S Plan applies[1].	Advancement of soil borings, monitoring wells, and installation of sub-slab vapor points.
Specific Tasks Performed by GZA:	Collection of soil, groundwater, and soil vapor samples.
Concurrent Tasks to be Performed by GZA-hired Subcontractors (List Subcontractors by Name & confirm they are safety prequalified):	Advancement of soil borings to maximum depth of 20 ft bgs ☒ Check to confirm subcontractors are safety prequalified
Concurrent Tasks to be Performed by Others:	

Any OSHA PERMIT-REQUIRED CONFINED SPACE entry? ☐ YES ☒ NO IF YES, ADD CONFINED SPACE ENTRY PERMIT FOR THAT PORTION OF THE WORK	
Any INDOOR fieldwork? ☒ YES ☐ NO **IF YES, EXPLAIN:** REMEDIAL INVESTIGATION WILL TAKE PLACE WITHIN AN EXISITING BUILDING THAT IS CURRENTLY VACANT	

[1] Copy from or reference proposal or applicable design plan as appropriate.

Scan the QR Code Below to conduct a Site Safety Audit

If a GZA Employee or Contractor gets hurt, Please Follow these Steps:

Site-Specific Emergency Preparedness/Response Procedures/Concerns (Use this space to document any client- or site-specific emergency response actions that must be conducted in the event of a site emergency or incident. Also include any complications that could arise during an emergency, such as site access, site navigation, locating personnel on a large site, etc):

- All EHS Events must be reported immediately to the Project Manager and to the GZA People-Based Safety mobile app.
- In the event of a chemical release greater than 5 gallons, site personnel will evacuate the affected area and relocate to an upwind location. The GZA Field Safety Officer and client site representative shall be contacted immediately.
- Site work shall not be conducted during severe weather, including high winds and lightning. In the event of severe weather, stop work, lower any equipment (drill rigs), and evacuate the affected area.

4. SUB-SURFACE WORK, UNDERGROUND UTILITY LOCATION

☐ Not Applicable, No Subsurface Investigations anticipated as part of this project

Will subsurface explorations be conducted for this work (drilling, excavation, test pits)?	☒ Yes ☐ No
Have GZA project-related files been searched for existing private utility drawings?	☒ Yes ☐ No ☐ N/A
Has GZA requested utility drawings from our Client, property owner, and others?	☒ Yes ☐ No ☐ N/A
Have existing drawings been reviewed for possible conflicts with planned work?	☒ Yes ☐ No ☐ N/A
Will GZA personnel be required to use a hand-auger as part of this work?	☐ Yes ☒ No ☐ N/A
Site property ownership where underground explorations will be conducted on: Private property	Public Access Property ☐ Yes ☒ No Private Property ☒ Yes ☐ No
Have Necessary Underground Utility Notifications for Subsurface Work Been Made?	☒ Yes ☐ Yet to be conducted

Specify Clearance Date & Time, Dig Safe Clearance I.D. #, And Other Relevant Information:

IMPORTANT! For subsurface work, prior to the initiation of ground penetrating activities, GZA personnel to assess whether the underground utility clearance (UUC) process has been completed in an manner that appears acceptable, based on participation/ confirmation by other responsible parties (utility companies, subcontractor, client, owner, etc.), for the following:

Electric:	☒ Yes	☐ No	☐ NA	☐ Other________________
Fuel (gas, petroleum, steam):	☒ Yes	☐ No	☐ NA	☐ Other________________
Communication:	☒ Yes	☐ No	☐ NA	☐ Other________________
Water:	☒ Yes	☐ No	☐ NA	☐ Other________________
Sewer:	☒ Yes	☐ No	☐ NA	☐ Other________________
Other:________________	☒ Yes	☐ No	☐ NA	☐ Other________________

Comments: Geophysical survey to be conducted prior to drilling.

5. HAZARD ASSESSMENT

A. TASK HAZARD ASSESSMENTS (CHECK ALL THAT APPLY TO YOUR SCOPE OF WORK)

☐ 1.1 Terrestrial Evaluations	☐ 6.7 Soil Density Testing
☐ 1.2 Aquatic Evaluations	☐ 6.8 Train Tunnel Inspections
☐ 2.0 Phase I Site Assessments - Site Inspections	☐ 6.9 Seismic Downhole Inspections
☐ 3.0 Property Conditions Assessments	☐ 6.10 Bridge Inspections
☒ 4.1 Drilling Ob- Monitoring Well Inst-Observations-Soil Sampling - Instrumentation Installation and Monitoring	☐ 6.11 Hydraulic Testing
☒ 4.2 Groundwater Sampling	☐ 6.12 Slurry wall Installation Operations
☐ 4.3 Surface Water and Sediment Sampling	☐ 7.1 Stormwater Inspections
☐ 4.4A Excavation and Trenching (Heavy Equipment)	☐ 7.2 Septic Design
☐ 4.4B Manual Excavation and Trenching	☐ 8.00 Stack Testing
☐ 4.5 Soil-Gas Sampling	☐ 9.00 Visual Impact Studies
☐ 4.6 Temporary-Permanent Sampling Equipment Installation and Monitoring	☐ 10.10 Dam Inspections - Phase I
☒ 4.7 Sub-Slab Vapor Sampling	☐ 10.20 Dam Inspections - Phase II
☐ 4.8 Landfill Sampling	☐ 11.0 Hazardous Materials Survey and Remediation
☐ 5.1 Pump and Treat	☐ 12.0 EHS-IH Compliance Audit and Sampling
☐ 5.2 Soil Vapor - Air Sparging	☐ 13.0 Mine Walkthrough and Sampling
☐ 5.3 In-Situ Treatment -Substrate Injection	☐ 14.1 Boat and Trailer Operations
☐ 5.4 Product Recovery	☐ 14.2 Underwater Inspection - Diving
☐ 5.5 UST-AST Removal, Inspection and Sampling	☐ 14.3 Above water Inspection
☐ 5.6 Building Demolition	☐ 14.4 Remote Operated Vehicles (ROV)
☐ 6.1 Sampling/Logging/Survey - Test Pits and Excavations	☐ 14.5 Hydrographic Surveying
☐ 6.2 Pile and Sheet Pile Installations	☐ 15.0 Offshore Drilling and Construction
☐ 6.3 Underpinning Observations	☐ 16.0 Bioremediation Applications
☐ 6.4 Pile Load Testing	☐ 17.0 Construction Oversight
☐ 6.5 Rock Anchoring - Load Testing	☐ 18.0 Remediation Systems - O&M
☐ 6.6 Vibration/Blast Monitoring	☐ 19.1 Airlogics - Turnkey Operations
	☒ 20.11 Field Sampling
	☒ 21.10 General Outdoor Field Work

B. Site Specific Physical Hazards

☐ Confined Space Entry (Add Confined Space Entry Permit)	☐ Overhead Hazards (i.e. Falling Objects, Overhead Power Lines)
☐ Abandoned or Vacant Building/Enclosed Spaces	☐ Portable Hand Tools or Power Tools
☐ Significant Slip/Trip/Fall Hazards	☐ Lifting or Ergonomic Hazards
☐ Unsanitary/Infectious Hazards	☐ Electrical Hazards (I.E. Equipment 120 Volts or Greater, Work Inside Electrical Panels, or Maintenance of Electrical Equipment)
☐ Poisonous Plants	☐ Other Stored Energy Hazards (I.E. Equipment With High Pressure or Stored Chemicals)
☒ Biting/Stinging Insects	☐ Fire and/or Explosion Hazard
☐ Feral Animal Hazards	☒ Elevated Noise Levels
☐ Water/Wetlands Hazards	☒ Subsurface Work (Drilling/Excavations/Test Pits)
☐ Remote Locations/Navigation/Orientation Hazards	☐ Explosives or Unexploded Ordinance/Mec
☐ Heavy Traffic or Work Alongside a Roadway	☐ Long Distance or Overnight Travel
☐ Motor Vehicle Operation Hazards	☐ Sharp Edges or Use of Cutting Tools
☒ Heavy Equipment Hazards	☐ Working From Heights
☐ Structural Hazards (I.E. Unsafe Floors/Stairways/Roof)	☐ Other:
☐ Demolition/Renovation	
☐ Presence of Pedestrians or the General Public	
☐ Personal Security or High Crime Area Hazards	
☐ Working Alone	

C. Chemical/Exposure Hazards

☐ Concrete/Silica Dust	☐ Chemicals Subject to OSHA Hazard Communication (attach Safety Data Sheet for each chemical GZA brings to the site)
☐ Hydrogen Sulfide (H_2S)	☐ Containerized Waste, Chemicals in Piping & Process Equipment
☐ Cyanides, Hydrogen Cyanide (HCN)	☒ Emissions from Gasoline-, Diesel-, Propane-fired Engine, Heater, Similar Equipment
☐ Carbon Monoxide	☒ General Work Site Airborne Dust Hazards
☐ Corrosives, Acids, Caustics, Strong Irritants	☐ Fuel Oil, Gasoline, Petroleum Products, Waste Oil
☐ Compressed Gases:	☐ Oxygen Deficiency, Asphyxiation Hazards
☐ Flammable/Combustible Liquids:	☐ Other:
☐ Radiation Hazards (i.e. radioactive sealed/open source, x-rays, ultra violet, infrared, radio-frequency, etc.)	

D. Contamination Hazards ☐ Not Applicable, No Contamination Anticipated

Contaminants are Contained in ☒ SOIL, ☐ WATER, ☐ GROUNDWATER ☒ SOIL GAS/VAPOR ☐ AIRBORNE

☐ Herbicides, Pesticide, Fungicide, Animal Poisons	☐ Methane
☐ Metals, Metal Compounds:	☐ Corrosives, Acids, Caustics, Strong Irritants:
☐ Polychlorinated Biphenyls (PCBs)	☐ Fuel Oil, Gasoline, Petroleum Products, Waste Oil
☐ Polycyclic Aromatic Hydrocarbons (PAHs)	☐ Asbestos
☐ Volatile Organic Compounds (VOCs), BTEX	☐ Other:
☒ Chlorinated Organic Compounds	

6A. SITE-SPECIFIC OVERVIEW OF H&S HAZARDS/MITIGATIONS (NOTE: Based on Hazard Assessment, Section 5)	
Describe the major hazards expected to be present at the jobsite, and describe the safety measures to be implemented for worker protection (refer to items checked in Section 5 above). Use brief abstract statements or more detailed narrative as may be appropriate. Note: This HASP was developed on the anticipated expectancy, layout, and use of structures/sites where documentation and monitoring will be required. GZA field staff should review the site in coordination with the PM to make updates to this HASP on a case-by-case basis to identify any hazards not identified.	
Owning Zero	Ensure all GZA personnel on-site have downloaded the People-Based Safety app to their mobile phones and are familiar with using it to report safety events. Prior to work each day, review Owning Zero rules with all on-site during the morning safety meeting and document using the Tailgate Safety Meeting form.
Stop Work Authority	Pause and Stop Work Authority is allowed by GZA policy for GZA and GZA-hired contractor personnel. If a true Stop Work occurs, GZA personnel will take prudent corrective action to secure the Work and provide safe conditions for Site personnel and the environment. In order to resume work, the onsite Field Safety Officer, PM, and (if possible) project PIC must all agree that work is safe to resume. All Stop Work occurrences must be accompanied by a GZA EHS Event report using the PBS App as directed in this HASP, and shall be provided as soon as possible but, at a minimum, by 10 a.m. the next day. GZA's Core Safety Team may require an incident investigation to occur, depending on the circumstances of the Stop Work situation.
Weather-Related Hazards	Weather conditions will be assessed prior to on-site work and the forecast examined for anticipated period of work. If weather for an anticipated period of work permits field work, then workers will dress appropriately. Should inclement weather be encountered, the project scope may be reduced or rescheduled. Appropriate clothing will be worn, and breaks will be taken to reduce exposure to the elements. If conditions change and lightning or thunder is observed, then work will be suspended immediately, and workers will seek shelter. Work can resume if thunder and/or lightening cease for 30 minutes. In the case of cold weather, proper warm gear should be worn to minimize cold exposure. Hand warmers (e.g. “Hot Hands”) should be used when appropriate to keep extremities warm. Take multiple breaks within a warm area (vehicle with heat) should be taken. Review the signs of cold stress, heat stress, and dehydration before the start of field work. Bring water, sunscreen, hardhat, tinted sunglasses, rain gear (if necessary). Plan to take periodic breaks as needed. Be sure to consume plenty of liquids to avoid dehydration and stay out of direct sunlight for extended periods of time to the extent possible. Use protective ointments such as sunscreen and chap stick, as appropriate to the field conditions. Consult the OSHA Heat Safety App Daily.
Motor vehicle operation Hazards	Ensure vehicle is operating properly prior to leaving office. Review directions and check air pressure in vehicle tires prior to departure. Plan to take periodic breaks while driving long distances. Do not use cell phone (handheld or hands-free) while vehicle motor is running. While driving, be observant of other drivers and potential for severe weather conditions. Maintain appropriate speeds for the road conditions.
ON-SITE PHYSICAL HAZARDS:	**HAZARD MITIGATIONS:**
Elevated noise levels	In accordance with 29 cfr 1910.95(b)(1) when employees are subjected to sound exceeding those listed in table g-16, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of table g-16, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table. Table g-16 - permissible noise exposures (1) duration per day, hours | sound level dba slow response 8..| 90 6..| 92 4..| 95 3..| 97 2..| 100 1 1/2 ....| 102

	1...| 105 1/2 ....| 110 1/4 or less..................................| 115 hearing protection in the form of disposable ear plugs will be worn during field work with sound levels anticipated above those listed in table g-16. Use sound meter app on phone to assess required ppe. Be aware that hearing protection can diminish warning sounds - do not stand with back to operating equipment and be alert for changing conditions.
Heavy equipment hazards	Coordinate all required observation activities with contractor and perform them at a safe distance from operating equipment. Wear appropriate ppe: hard hat, steel toe boots, gloves, hearing protection, safety glasses, and high-visibility vest. Stay within sight of operator but at least 6-10 feet away, and even further if the swing radius of the equipment dictates. Never pass under a suspended load. Stay at least 6 feet away from any heavy equipment that is operating, and do not approach unless the equipment is shut down. Equipment should stay at least 10 feet away from overhead lines, if applicable, and a spotter may be necessary to assist avoiding the overhead line. No loose clothing, jewelry, or unsecured long hair is permitted near the rig, and avoid any “pinch points” where one could become trapped between the equipment and other objects. Maintain clear lines of communication (verbal and/or visual) with the operator. Perform daily tailgate safety meetings at the start of the day to discuss hazards. Make sure equipment have fire extinguisher available that has current annual certification (10 pound abc extinguisher, at minimum). Gza personnel are not authorized to be on equipment or to operate the equipment; however, be sure gza personnel on site are familiar with the location of emergency kill switches and understand how to operate the switch in the event of an emergency.
Observation of drill rig mobilization	Before drilling begins, confirm that drill rig has been parked properly and securely by the drilling contractor. Wear high visibility vests. Make sure that the driver can see you and is aware of your location at all times. Inform the driller if it is observed that the rig is being moved with the mast raised and/or tools and other equipment on the rig are not secured and can fall over and potentially hurt personnel.
ON-SITE CHEMICAL HAZARDS:	**HAZARD MITIGATIONS**:
Emissions from gasoline-, diesel-, propane-fired engine, heater, similar equipment	Field equipment may be powered by the use of gasoline combustion engines. Avoid standing near the exhaust system and/or downwind of the gasoline combustion emissions when possible. Ensure personnel are properly trained. Vent exhaust outdoors if equipment is operating inside building.
General work site airborne dust hazards	There may be opportunities for dust generation during the excavation of soils or dumping of soils collected. Soils may contain silica or other soil contaminants (see below) which impacts the respiratory system. Contractor should follow the osha construction regulations for silica dust, especially while operating excavation equipment or dumping collected soils. Table 1 of the regulations covers this operation and as long as those controls are in place no air monitoring is required. Gza employees should be aware of visible dust being generated and maintain a safe distance and not breathe in the dust. If respiratory protection is required due to site conditions

	generating significant dust, gza employee must follow the osha respiratory protection standard and all its required elements before wearing a respirator.
Groundwater sampling	Use of flammable materials requires proper storage and handling during use. Use approved containers and store in locations that will prevent spills, and away from incompatible materials. Use proper bonding and gorunding when transfering flammable materials to secondary containers. Use drip pans and or funnels to prevent / control spills during material tranfer. No smoking on the job site is allowed. Keep other open flames away from flammable and combustible materials. Store out of direct sunlight. Ensure caps are closed on containers when not actively performing material transfer.
Soil and water sampling hazards	Wear nitrile gloves, and safety glasses at a minimum when handling sample containers. Wash hands and face before eating or applying cosmetics (i.e. Sunscreen or chapstick). Do not eat within the work zone. Keep samples upright during transport. Sample containers may have broken during transport. Don leather work gloves in addition to nitrile gloves to remove any broken or cracked containers. Pack containers in an upright orientation and use packaging (such as bubble wrap) between each glass container to prevent breakage. Do not over-tighten glass jars (especially voas); they can break, causing a laceration.
Chlorinated organic compounds	Chlorinated organic compounds. Exposure to the vapors of many chlorinated organic compounds such as chlorobenzene, dichlorobenzenes, and benzene above their respective permissible exposure limits (pels) will result in similar symptoms. The actual pels as set by the occupational safety and health administration (osha) vary depending on the specific compound. Overexposure to the vapor of these compounds can cause irritation of the eyes, nose and throat. The liquid if splashed in the eyes, may cause burning irritation and damage. Repeated or prolonged skin contact with the liquid may cause dermatitis. Acute overexposure to chlorinated hydrocarbons depresses the central nervous system exhibiting such symptoms as drowsiness, dizzi¬ness, headache, blurred vision, loss of coordination, mental confusion, flushed skin, tremors, nausea, vomiting, fatigue and cardiac arrhythmia. Alcohol may make symptoms of overexposure worse. If alcohol has been consumed, the overexposed worker may become flushed. Some of these compounds are considered to be potential human carcinogens. Exposure to vinyl chloride is regulated by a comprehensive osha standard (29 cfr 1910.1017).

6B. ADDITIONAL H&S HAZARDS/MITIGATIONS (NOTE: Based on On-Site Hazard Assessment)	
Describe any additional hazards observed during start of work or daily site reviews, and describe the safety measures implemented for worker protection. Use brief abstract statements or more detailed narrative as may be appropriate. The PM should be immediately notified if any hazards deviate from this approved plan. All work should be conducted per OSHA CFR 1926 and 1910 and other applicable standards which each facility may require.	
OBSERVED HAZARDS:	**HAZARD MITIGATIONS:**

7. AIR MONITORING ACTION LEVELS – Make sure air monitoring instruments are in working order, calibrated before use, and 'bump-checked' periodically throughout the day and/or over multiple days of use

Is field screening being performed for site or media characterization? Yes ☒ No ☐

Is personal breathing zone air monitoring being performed for this project? Yes ☐ No ☒

Is area or perimeter air monitoring being performed for this project? Yes ☐ No ☒

ACTION LEVELS FOR OXYGEN DEFICIENCY AND EXPLOSIVE ATMOSPHERIC HAZARDS **(Action levels apply to occupied work space in general work area)**

☐ Applicable, See Below. ☒ Not Applicable

Parameter	Response Actions for Elevated Airborne Hazards
Oxygen	At 19.5% or below – Exit area, provide adequate ventilation, or proceed to Level B, or discontinue activities Verify presence of adequate oxygen (approx. 12% or more) before taking readings with LEL meter. Note: If oxygen levels are below 12%, LEL meter readings are not valid.
LEL	Less than 10% LEL – Continue working, continue to monitor LEL levels Greater than or Equal to 10% LEL – Discontinue work operations and immediately withdraw from area. Resume work activities ONLY after LEL readings have been reduced to less than 10% through passive dissipation, or through active vapor control measures.

ACTION LEVELS FOR INHALATION OF TOXIC/HAZARDOUS SUBSTANCES

☒ Applicable, See Below. ☐ Not Applicable

Air Quality Parameters (Check all that apply)	**Remain in Level D or Modified D**	**Response Actions for Elevated Airborne Hazards** **Action levels apply to sustained breathing zone concentrations (measured for at least 5 minutes continuous)**
☒ VOCs	0 to 5 ppm	If greater than X ppm: Discontinue Activities and consult EHS Team continuously in the breathing zone for more than 5 minutes, stop work and evacuate the area, ventilate the area, retest. If elevated levels persist contact the EHS Team.
☐ Carbon Monoxide	0 to 35 ppm	At greater than 35 ppm, exit area, provide adequate ventilation, proceed to Level B, or discontinue activities.
☐ Hydrogen Sulfide	0 to 10 ppm	At greater than 10 ppm, exit area, provide adequate ventilation, proceed to Level B, or discontinue activities
☐ Dust	0 to mg/m^3	
☐	0 to	

SPECIAL INSTRUCTIONS/COMMENTS REGARDING AIR MONITORING (IF APPLICABLE)

8. HEALTH AND SAFETY EQUIPMENT AND CONTROLS

AIR MONITORING INSTRUMENTS

- ☒ PID Type: MiniRae 3000 Lamp Energy: eV
- ☐ FID Type:
- ☐ Carbon Monoxide Meter
- ☐ Hydrogen Sulfide Meter
- ☐ O_2/LEL Meter
- ☐ Particulate (Dust) Meter
- ☐ Calibration Gas Type
- ☐ Others:

OTHER H&S EQUIPMENT & GEAR

- ☐ Fire Extinguisher
- ☐ Caution Tape
- ☐ Traffic Cones or Stanchions
- ☐ Warning Signs or Placards
- ☐ Decon Buckets, Brushes, etc.
- ☐ Portable Ground Fault Interrupter (GFI)
- ☐ Lockout/Tagout Equipment
- ☐ Ventilation Equipment
- ☒ First Aid Kit
- ☒ Cell phone
- ☐ Flashlight
- ☐ Soap and Water
- ☐ Others:

PERSONAL PROTECTIVE EQUIPMENT

- ☐ Respirator – Type
- ☐ Respirator - Cartridge Type:
- ☒ Hardhat
- ☒ Outer Gloves Type: Nitrile
- ☐ Inner Gloves Type:
- ☒ Safety boots/shoes
- ☐ Coveralls – Type
- ☐ Outer Boots – Type
- ☐ Eye Protection with side shields
- ☐ Face Shield
- ☐ Traffic Vest – Type
- ☐ Personal Flotation Device (PFD) – Type
- ☐ Fire Retardant Clothing – Type
- ☐ EH (Electrical Hazard) Rated Boots, Gloves, etc.
- ☒ Noise/Hearing Protection
- ☐ Personal Fall Arrest System
- ☐ Others:

Discuss/Clarify, as Appropriate:

9. H&S TRAINING/QUALIFICATIONS FOR FIELD PERSONNEL

- ☒ Project-Specific H&S Orientation (Required for All Projects/Staff)
- ☒ OSHA 40-Hour HAZWOPER/8 Hour Refreshers
- ☒ Hazard Communication (for project-specific chemical products)
- ☐ First Aid/CPR (required for HAZWOPER for at least one individual on site)
- ☐ Current Medical Clearance Letter (required for HAZWOPER & Respirator)
- ☐ OSHA 10-hour Construction Safety Training
- ☐ Fall Protection Training
- ☐ Confined Space Entry Training
- ☐ Lockout/Tagout Training
- ☐ Electrical Safety Training
- ☐ Bloodborne Pathogen Training
- ☐ Respirator Training & Fit Test
- ☐ Trenching & Excavation Training
- ☐ Safe Drilling Training
- ☐ MSHA, Certified Miner
- ☐

Discuss/Clarify, as needed:

10. PERSONNEL AND EQUIPMENT DECONTAMINATION (SECTION ONLY REQUIRED FOR HAZWOPER SITES)

Describe personnel decontamination procedures for the project site, including "dry decon" (simple removal of PPE)	Wash hands and other exposed skin before leaving Site or taking breaks. Change PPE before leaving site.

11. PROJECT PERSONNEL - ROLES AND RESPONSIBILITIES

GZA ON-SITE PERSONNEL:

Name(s)	Project Title/Assigned Role	Telephone Numbers
Ron Lombino	Site Supervisor	Work: (212) 594-8140 Cell: 631-847-1609
Jackson Bogach	Field Safety Officer (must have completed FSO Program)	Work: (212) 594-8140 Cell: 332-215-6349
Jackson Bogach	First Aid Personnel (must have current First Aid/CPR Training)	Work: (212) 594-8140 Cell: 332-215-6349
TBD	GZA Project Team Members	Work: (212) 594-8140 Cell:

☒ Check to confirm assigned employees have completed the required training

Site Supervisors and Project Managers (SS/PM): Responsibility for compliance with GZA Health and Safety programs, policies, procedures and applicable laws and regulations is shared by all GZA management and supervisory personnel. This includes the need for effective oversight and supervision of project staff necessary to control the Health and Safety aspects of GZA on-site activities.

Field Safety Officer (FSO): The FSO is responsible for implementation of the Site Specific Health and Safety Plan. An FSO is required for all field projects.

First Aid Personnel: At least one individual designated by GZA who has current training and certification in basic first aid and cardiopulmonary resuscitation (CPR) must be present during on-site activities involving multiple GZA personnel at HAZWOPER sites.

GZA Project Team: Follow instructions relayed by the HASP and GZA manager on-site.

OTHER PROJECT PERSONNEL:

Name	Project Title/Assigned Role	Telephone Numbers
Victoria Whelan	Principal-in-Charge	Work: (212) 594-8140 Cell: 631-793-8821
Ron Lombino	Project Manager	Work: (212) 594-8140 Cell: 631-847-1609
Jackson Bogach	Office Safety Coordinator	Work: (212) 594-8140 Cell: 332-215-6349
Chris Mayne	Corporate Safety Lead	Work: 860-858-3191 Cell: 860-266-3837
Mel Kenerson	GZA Safety Manager	Work: 781-278-4815 Cell: 781-223-6517

Principal-in-Charge: Responsible of overall project oversight, including responsibility for Health and Safety.

Project Manager: Responsible for day-to-day project management, including Health and Safety.

Office Safety Coordinator: General Health and Safety guidance and assistance.

Corporate Safety Lead/Safety Manager: H&S technical and regulatory guidance, assistance regarding GZA H&S policies and procedures.

12. PLAN ACKNOWLEDGEMENT AND APPROVALS		
GZA Project Site Worker Plan Acknowledgement		
I have read, understood, and agree to abide by the information set forth in this Safety and Accident Prevention Plan. I will follow guidance in this plan and in the GZA Health and Safety Program Manual. I understand the training and medical monitoring requirements covered by the work outlined in this plan and have met those requirements.		
GZA Employee Name	GZA Employee Signature	Date
Subcontractor Site Worker Plan Acknowledgement		
GZA has prepared this plan solely for the purpose of protecting the health and safety of GZA employees. Subcontractors, visitors, and others at the site must refer to their organization's health and safety program or site-specific HASP for their protection. Subcontractor employees may use this plan for general informational purposes only. Subcontractor firms are obligated to comply with safety regulations applicable to their work, and understand this plan covers GZA activities only. ***PLEASE ADD ADDITIONAL SIGNATURES TO THE BACK OF THE HASP.***		
Subcontractor Employee Name	Subcontractor Employee Signatures	Date
GZA HASP Approval Signatures		
This HASP has been reviewed by the HASP Preparer, Core Safety Team, and Principal in Charge. These individuals indicate their acknowledgement and/or approval of the contents of this Site Specific H&S Plan based on their understanding of project work activities, associated hazards and the appropriateness of health and safety measures to be implemented. Evidence of review is marked in the HASP Review database. A final approved copy of this document must be present at the project site at all times work is being performed.		

APPENDIX C – COMMUNITY AIR MONITORING PLAN (CAMP)

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GZA GeoEnvironmental of New York
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F: 212.279.8180
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Appendix C
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. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

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. A 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 bailing/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 (NYSDEC 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/m3 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/m3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (NYSDEC and NYSDOH) and County Health personnel to review.

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.

1. 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.

2. If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m3 or less at the monitoring point.

3. 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 D – HISTORICAL DATA TABLES

LOCATION SAMPLE DATE LAB SAMPLE ID SAMPLE DEPTH (ft.)	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives- Protection of GW	GZ-01 (0-2') 25F0476-01 6/6/2025 11:20:00 AM Soil		GZ-01 (6-8') 25F0476-02 6/6/2025 11:30:00 AM Soil		GZ-02 (0-2') 25F0476-03 6/6/2025 1:15:00 PM Soil		GZ-02 (6-8') 25F0476-04 6/6/2025 1:30:00 PM Soil		GZ-03 (0-2') 25F0476-05 6/6/2025 12:35:00 PM Soil	
				Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds (VOC) BY EPA Method 5035/8260 (mg/kg)													
1,1,1,2-Tetrachloroethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,1,1-Trichloroethane	0.68	100	0.68	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,1,2,2-Tetrachloroethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,1,2-Trichloroethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,1-Dichloroethane	0.27	26	0.27	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,1-Dichloroethylene	0.33	100	0.33	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,1-Dichloropropylene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,2,3-Trichlorobenzene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,2,3-Trichloropropane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,2,4,5-Tetramethylbenzene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,2,4-Trichlorobenzene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,2,4-Trimethylbenzene	3.6	52	3.6	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,2-Dibromo-3-chloropropane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,2-Dibromoethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,2-Dichlorobenzene	1.1	100	1.1	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,2-Dichloroethane	0.02	3.1	0.02	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,2-Dichloropropane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,3,5-Trimethylbenzene	8.4	52	8.4	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,3-Dichlorobenzene	2.4	49	2.4	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,3-Dichloropropane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,4-Dichlorobenzene	1.8	13	1.8	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
1,4-Dioxane	0.1	13	0.1	0.045	U	0.053	U	0.043	U	0.043	U	0.054	U
2,2-Dichloropropane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
2-Butanone	0.12	100	0.12	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
2-Chloroethylvinyl ether	~	~	~	0.0091	U	0.011	U	0.0087	U	0.0087	U	0.011	U
2-Chlorotoluene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
2-Hexanone	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
4-Chlorotoluene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
4-Methyl-2-pentanone	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Acetone	0.05	100	0.05	0.0045	U	0.0053	U	0.0043	U	0.0043	U	0.0054	U
Acrolein	~	~	~	0.0045	U	0.0053	U	0.0043	U	0.0043	U	0.0054	U
Acrylonitrile	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Benzene	0.06	4.8	0.06	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Bromobenzene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Bromochloromethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Bromodichloromethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Bromoform	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Bromomethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Carbon disulfide	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Carbon tetrachloride	0.76	2.4	0.76	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Chlorobenzene	1.1	100	1.1	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Chloroethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Chloroform	0.37	49	0.37	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Chloromethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
cis-1,2-Dichloroethylene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
cis-1,3-Dichloropropylene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Cyclohexane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Dibromochloromethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Dibromomethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Dichlorodifluoromethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Diisopropyl ether (DIPE)	~	~	~	0.0036	U	0.0043	U	0.0035	U	0.0035	U	0.0044	U
Ethanol	~	~	~	0.036	U	0.043	U	0.035	U	0.035	U	0.044	U
Ethyl Benzene	1	41	1	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Ethyl tert-butyl ether (ETBE)	~	~	~	0.0036	U	0.0043	U	0.0035	U	0.0035	U	0.0044	U
Hexachlorobutadiene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Iodomethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Isopropylbenzene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Methyl acetate	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Methyl Methacrylate	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Methyl tert-butyl ether (MTBE)	0.93	100	0.93	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Methylcyclohexane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Methylene chloride	0.05	100	0.05	0.0045	U	0.0053	U	0.0043	U	0.0043	U	0.0054	U
Naphthalene	12	100	12	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
n-Butylbenzene	12	100	12	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
n-Propylbenzene	3.9	100	3.9	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
o-Xylene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
p- & m- Xylenes	~	~	~	0.0045	U	0.0053	U	0.0043	U	0.0043	U	0.0054	U
p-Diethylbenzene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
p-Ethyltoluene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
p-Isopropyltoluene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
sec-Butylbenzene	11	100	11	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Styrene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
tert-Amyl alcohol (TAA)	~	~	~	0.036	U	0.043	U	0.035	U	0.035	U	0.044	U
tert-Amyl methyl ether (TAME)	~	~	~	0.0036	U	0.0043	U	0.0035	U	0.0035	U	0.0044	U
tert-Butyl alcohol (TBA)	~	~	~	0.011	U	0.013	U	0.011	U	0.011	U	0.014	U
tert-Butylbenzene	5.9	100	5.9	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Tetrachloroethylene	1.3	19	1.3	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Tetrahydrofuran	~	~	~	0.0045	U	0.0053	U	0.0043	U	0.0043	U	0.0054	U
Toluene	0.7	100	0.7	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
trans-1,2-Dichloroethylene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
trans-1,3-Dichloropropylene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
trans-1,4-dichloro-2-butene	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Trichloroethylene	0.47	21	0.47	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0037	J
Trichlorofluoromethane	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Vinyl acetate	~	~	~	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Vinyl Chloride	0.02	0.9	0.02	0.0023	U	0.0027	U	0.0022	U	0.0022	U	0.0027	U
Xylenes, Total	0.26	100	1.6	0.0068	U	0.008	U	0.0065	U	0.0065	U	0.0082	U

Table Notes:

--: No guidance value.
mg/kg: Milligrams per Kilogram.
U: Not detected at the reported detection limit for the sample.
J: Estimate Value. The analyte concentration is below the quantitative limit (RL), but above the method detection limit (MDL) or estimated detection limit (EDL).
E: Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

LOCATION SAMPLE DATE LAB SAMPLE ID SAMPLE DEPTH (ft.)	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives- Protection of GW	GZ-03 (6-8') 25F0476-06 6/6/2025 12:45:00 PM Soil		GZ-04 (0-2') 25F0476-07 6/6/2025 10:10:00 AM Soil		GZ-04 (6-8') 25F0476-08 6/6/2025 10:15:00 AM Soil		GZ-05 (0-2') 25F0476-09 6/6/2025 12:00:00 PM Soil		GZ-05 (6-8') 25F0476-10 6/6/2025 12:10:00 PM Soil	
				Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds (VOC) BY EPA Method 5035/8260 (mg/kg)													
1,1,1,2-Tetrachloroethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,1,1-Trichloroethane	0.68	100	0.68	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,1,2,2-Tetrachloroethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,1,2-Trichloroethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,1-Dichloroethane	0.27	26	0.27	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,1-Dichloroethylene	0.33	100	0.33	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,1-Dichloropropylene	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,2,3-Trichlorobenzene	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,2,3-Trichloropropane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,2,4,5-Tetramethylbenzene	~	~	~	0.0027	U	0.088		0.0025	U	0.0026	U	0.0024	U
1,2,4-Trichlorobenzene	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,2,4-Trimethylbenzene	3.6	52	3.6	0.0027	U	0.34	E	0.0025	U	0.0026	U	0.0024	U
1,2-Dibromo-3-chloropropane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,2-Dibromoethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,2-Dichlorobenzene	1.1	100	1.1	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,2-Dichloroethane	0.02	3.1	0.02	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,2-Dichloropropane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,3,5-Trimethylbenzene	8.4	52	8.4	0.0027	U	0.11		0.0025	U	0.0026	U	0.0024	U
1,3-Dichlorobenzene	2.4	49	2.4	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,3-Dichloropropane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,4-Dichlorobenzene	1.8	13	1.8	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
1,4-Dioxane	0.1	13	0.1	0.053	U	0.049	U	0.049	U	0.053	U	0.047	U
2,2-Dichloropropane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
2-Butanone	0.12	100	0.12	0.0027	U	0.005		0.0025	U	0.0026	U	0.0024	U
2-Chloroethylvinyl ether	~	~	~	0.011	U	0.0099	U	0.0098	U	0.011	U	0.0095	U
2-Chlorotoluene	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
2-Hexanone	~	~	~	0.0027	U	0.0083		0.0025	U	0.0026	U	0.0024	U
4-Chlorotoluene	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
4-Methyl-2-pentanone	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Acetone	0.05	100	0.05	0.0053	U	0.039		0.0049	U	0.0053	U	0.0047	U
Acrolein	~	~	~	0.0053	U	0.0049	U	0.0049	U	0.0053	U	0.0047	U
Acrylonitrile	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Benzene	0.06	4.8	0.06	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Bromobenzene	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Bromochloromethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Bromodichloromethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Bromoform	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Bromomethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Carbon disulfide	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Carbon tetrachloride	0.76	2.4	0.76	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Chlorobenzene	1.1	100	1.1	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Chloroethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Chloroform	0.37	49	0.37	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Chloromethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
cis-1,2-Dichloroethylene	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.006		0.0024	U
cis-1,3-Dichloropropylene	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Cyclohexane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Dibromochloromethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Dibromomethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Dichlorodifluoromethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Diisopropyl ether (DIPE)	~	~	~	0.0043	U	0.0039	U	0.0039	U	0.0042	U	0.0038	U
Ethanol	~	~	~	0.043	U	0.04	J	0.039	U	0.042	U	0.038	U
Ethyl Benzene	1	41	1	0.0027	U	0.032		0.0025	U	0.0026	U	0.0024	U
Ethyl tert-butyl ether (ETBE)	~	~	~	0.0043	U	0.0039	U	0.0039	U	0.0042	U	0.0038	U
Hexachlorobutadiene	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Iodomethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Isopropylbenzene	~	~	~	0.0027	U	0.017		0.0025	U	0.0026	U	0.0024	U
Methyl acetate	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Methyl Methacrylate	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Methyl tert-butyl ether (MTBE)	0.93	100	0.93	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Methylcyclohexane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Methylene chloride	0.05	100	0.05	0.0053	U	0.0049	U	0.0049	U	0.0053	U	0.0047	U
Naphthalene	12	100	12	0.0027	U	0.16		0.0025	U	0.0026	U	0.0024	U
n-Butylbenzene	12	100	12	0.0027	U	0.033		0.0025	U	0.0026	U	0.0024	U
n-Propylbenzene	3.9	100	3.9	0.0027	U	0.055		0.0025	U	0.0026	U	0.0024	U
o-Xylene	~	~	~	0.0027	U	0.011		0.0025	U	0.0026	U	0.0024	U
p- & m- Xylenes	~	~	~	0.0053	U	0.029		0.0049	U	0.0053	U	0.0047	U
p-Diethylbenzene	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
p-Ethyltoluene	~	~	~	0.0027	U	0.082		0.0025	U	0.0026	U	0.0024	U
p-Isopropyltoluene	~	~	~	0.0027	U	0.0069		0.0025	U	0.0026	U	0.0024	U
sec-Butylbenzene	11	100	11	0.0027	U	0.018		0.0025	U	0.0026	U	0.0024	U
Styrene	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
tert-Amyl alcohol (TAA)	~	~	~	0.043	U	0.039	U	0.039	U	0.042	U	0.038	U
tert-Amyl methyl ether (TAME)	~	~	~	0.0043	U	0.0039	U	0.0039	U	0.0042	U	0.0038	U
tert-Butyl alcohol (TBA)	~	~	~	0.013	U	0.012	U	0.012	U	0.013	U	0.012	U
tert-Butylbenzene	5.9	100	5.9	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Tetrachloroethylene	1.3	19	1.3	0.0027	U	0.0025	U	0.0025	U	0.047		0.0024	U
Tetrahydrofuran	~	~	~	0.0053	U	0.0049	U	0.0049	U	0.0053	U	0.0047	U
Toluene	0.7	100	0.7	0.0027	U	0.0054		0.0025	U	0.0026	U	0.0024	U
trans-1,2-Dichloroethylene	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
trans-1,3-Dichloropropylene	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
trans-1,4-dichloro-2-butene	~	~	~	0.0027	U	0.01		0.0025	U	0.0026	U	0.0024	U
Trichloroethylene	0.47	21	0.47	0.0027	U	0.0025	U	0.0025	U	0.32	E	0.0024	U
Trichlorofluoromethane	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Vinyl acetate	~	~	~	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0024	U
Vinyl Chloride	0.02	0.9	0.02	0.0027	U	0.0038	J	0.0025	U	0.0026	U	0.0024	U
Xylenes, Total	0.26	100	1.6	0.008	U	0.04		0.0074	U	0.0079	U	0.0071	U

Table Notes:

--: No guidance value.
mg/kg: Milligrams per Kilogram.
U: Not detected at the reported detection limit for the sample.
J: Estimate Value. The analyte concentration is below the quantitative limit (RL), but above the method detection limit (MDL) or estimated detection limit (EDL).
E: Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

Table 1b - Volatile Organic Compounds in Soil

36 Frost Street
Brooklyn, New York

LOCATION SAMPLE DATE LAB SAMPLE ID SAMPLE DEPTH (ft.)	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives-Protection of GW	GZ-06 (0-2') 7/29/2025 L2547375-01 Soil		GZ-06 (6-8') 7/29/2025 L2547375-02 Soil		GZ-07 (0-2') 7/29/2025 L2547375-03 Soil		GZ-07 (6-8') 7/29/2025 L2547375-04 Soil		GZ-08 (0-2') 7/29/2025 L2547375-05 Soil	
				Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds (VOC) BY EPA Method 5035/8260 (mg/kg)													
1,1,1,2-Tetrachloroethane	~	~	~	0.015	U	0.00046	U	0.00058	U	0.00051	U	0.00061	U
1,1,1-Trichloroethane	0.68	100	0.68	0.1		0.00046	U	0.00058	U	0.00051	U	0.00032	J
1,1,2,2-Tetrachloroethane	~	~	~	0.015	U	0.00046	U	0.00058	U	0.00051	U	0.00061	U
1,1,2-Trichloroethane	~	~	~	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
1,1-Dichloroethane	0.27	26	0.27	0.0097	J	0.00093	U	0.0012	U	0.001	U	0.0012	U
1,1-Dichloroethene	0.33	100	0.33	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
1,1-Dichloropropene	~	~	~	0.015	U	0.00046	U	0.00058	U	0.00051	U	0.00061	U
1,2,3-Trichlorobenzene	~	~	~	0.017	J	0.0018	U	0.0023	U	0.002	U	0.0024	U
1,2,3-Trichloropropane	~	~	~	0.061	U	0.0018	U	0.0023	U	0.002	U	0.011	
1,2,4,5-Tetramethylbenzene	~	~	~	0.012	J	0.00035	J	0.0023	U	0.002	U	0.0024	U
1,2,4-Trichlorobenzene	~	~	~	0.026	J	0.0018	U	0.0023	U	0.002	U	0.0024	U
1,2,4-Trimethylbenzene	3.6	52	3.6	0.015	J	0.00037	J	0.0023	U	0.002	U	0.0024	U
1,2-Dibromo-3-chloropropane	~	~	~	0.091	U	0.0028	U	0.0035	U	0.0031	U	0.0037	U
1,2-Dibromoethane	~	~	~	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
1,2-Dichlorobenzene	1.1	100	1.1	0.0044	J	0.0018	U	0.0023	U	0.002	U	0.0024	U
1,2-Dichloroethane	0.02	3.1	0.02	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
1,2-Dichloroethene, Total	~	~	~	0.078	J	0.00093	U	0.00082	J	0.001	U	0.0065	J
1,2-Dichloropropane	~	~	~	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
1,3,5-Trimethylbenzene	8.4	52	8.4	0.0085	J	0.0018	U	0.0023	U	0.002	U	0.00049	J
1,3-Dichlorobenzene	2.4	49	2.4	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
1,3-Dichloropropane	~	~	~	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
1,3-Dichloropropene, Total	~	~	~	0.015	U	0.00046	U	0.00058	U	0.00051	U	0.00061	U
1,4-Dichlorobenzene	1.8	13	1.8	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
1,4-Dioxane	0.1	13	0.1	2.4	U	0.074	U	0.093	U	0.082	U	0.098	U
2,2-Dichloropropane	~	~	~	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
2-Butanone	0.12	100	0.12	0.3	U	0.0093	U	0.012	U	0.01	U	0.012	U
2-Hexanone	~	~	~	0.3	U	0.0093	U	0.012	U	0.01	U	0.012	U
4-Methyl-2-pentanone	~	~	~	0.3	U	0.0093	U	0.012	U	0.01	U	0.012	U
Acetone	0.05	100	0.05	0.3	U	0.0093	U	0.012	U	0.01	U	0.012	U
Acrylonitrile	~	~	~	0.12	U	0.0037	U	0.0046	U	0.0041	U	0.0049	U
Benzene	0.06	4.8	0.06	0.015	U	0.00064		0.00086		0.00075		0.00024	J
Bromobenzene	~	~	~	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
Bromochloromethane	~	~	~	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
Bromodichloromethane	~	~	~	0.015	U	0.00046	U	0.00058	U	0.00051	U	0.00061	U
Bromoform	~	~	~	0.12	U	0.0037	U	0.0046	U	0.0041	U	0.0049	U
Bromomethane	~	~	~	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
Carbon disulfide	~	~	~	0.3	U	0.0093	U	0.012	U	0.01	U	0.012	U
Carbon tetrachloride	0.76	2.4	0.76	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
Chlorobenzene	1.1	100	1.1	0.015	U	0.00046	U	0.00058	U	0.00051	U	0.00061	U
Chloroethane	~	~	~	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
Chloroform	0.37	49	0.37	0.061		0.0014	U	0.00016	J	0.0015	U	0.0006	J
Chloromethane	~	~	~	0.12	U	0.0037	U	0.0046	U	0.0041	U	0.0049	U
cis-1,2-Dichloroethene	0.25	100	0.25	0.068		0.00093	U	0.00066	J	0.001	U	0.0049	
cis-1,3-Dichloropropene	~	~	~	0.015	U	0.00046	U	0.00058	U	0.00051	U	0.00061	U
Dibromochloromethane	~	~	~	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
Dibromomethane	~	~	~	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
Dichlorodifluoromethane	~	~	~	0.3	U	0.0093	U	0.012	U	0.01	U	0.012	U
Ethyl ether	~	~	~	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
Ethylbenzene	1	41	1	0.0051	J	0.00028	J	0.00022	J	0.00034	J	0.0012	U
Hexachlorobutadiene	~	~	~	0.12	U	0.0037	U	0.0046	U	0.0041	U	0.0049	U
Isopropylbenzene	~	~	~	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
Methyl tert butyl ether	0.93	100	0.93	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
Methylene chloride	0.05	100	0.05	0.15	U	0.0046	U	0.0058	U	0.0051	U	0.0061	U
n-Butylbenzene	12	100	12	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
n-Propylbenzene	3.9	100	3.9	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
Naphthalene	12	100	12	0.079	J	0.00072	J	0.0046	U	0.0041	U	0.0049	U
o-Chlorotoluene	~	~	~	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
o-Xylene	~	~	~	0.011	J	0.00042	J	0.0012	U	0.00047	J	0.0012	U
p-Chlorotoluene	~	~	~	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
p-Diethylbenzene	~	~	~	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
p-Ethyltoluene	~	~	~	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
p-Isopropyltoluene	~	~	~	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
p/m-Xylene	~	~	~	0.027	J	0.001	J	0.0007	J	0.0012	J	0.0024	U
sec-Butylbenzene	11	100	11	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
Styrene	~	~	~	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
tert-Butylbenzene	5.9	100	5.9	0.061	U	0.0018	U	0.0023	U	0.002	U	0.0024	U
Tetrachloroethene	1.3	19	1.3	3.6		0.00096		0.015		0.00026	J	0.03	
Toluene	0.7	100	0.7	0.03	U	0.0012		0.0012		0.0016		0.0012	U
trans-1,2-Dichloroethene	0.19	100	0.19	0.0097	J	0.0014	U	0.00016	J	0.0015	U	0.0016	J
trans-1,3-Dichloropropene	~	~	~	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
trans-1,4-Dichloro-2-butene	~	~	~	0.15	U	0.0046	U	0.0058	U	0.0051	U	0.0061	U
Trichloroethene	0.47	21	0.47	6.5		0.0011		0.024		0.00055		0.11	
Trichlorofluoromethane	~	~	~	0.12	U	0.0037	U	0.0046	U	0.0041	U	0.0049	U
Vinyl acetate	~	~	~	0.3	U	0.0093	U	0.012	U	0.01	U	0.012	U
Vinyl chloride	0.02	0.9	0.02	0.03	U	0.00093	U	0.0012	U	0.001	U	0.0012	U
Xylenes, Total	1.6	100	0.26	0.038	J	0.0014	J	0.0007	J	0.0017	J	0.0012	U

Table Notes:

--: No guidance value.
mg/kg: Milligrams per Kilogram.
U: Not detected at the reported detection limit for the sample.
J: Estimate Value. The analyte concentration is below the quantitative limit (RL), but above the method detection limit (MDL) or estimated detection limit (EDL).
(green shading): Value exceeds its Part 375 Unrestricted Use Soil Cleanup Objectives and Restricted Use Soil Cleanup Objectives-Protection of GW.

Table 1b - Volatile Organic Compounds in Soil

36 Frost Street
Brooklyn, New York

LOCATION SAMPLE DATE LAB SAMPLE ID SAMPLE DEPTH (ft.)	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives- Protection of GW	GZ-08 (6-8') 7/29/2025 L2547375-06 Soil		GZ-09 (0-2') 7/29/2025 L2547375-07 Soil		GZ-09 (6-8') 7/29/2025 L2547375-08 Soil		GZ-10 (0-2') 7/29/2025 L2547375-09 Soil		GZ-10 (6-8') 7/29/2025 L2547375-10 Soil	
				Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds (VOC) BY EPA Method 5035/8260 (mg/kg)													
1,1,1,2-Tetrachloroethane	~	~	~	0.00056	U	0.021	U	0.00054	U	0.028	U	0.00061	U
1,1,1-Trichloroethane	0.68	100	0.68	0.00056	U	0.05		0.00054	U	0.0099	J	0.00061	U
1,1,2,2-Tetrachloroethane	~	~	~	0.00056	U	0.021	U	0.00054	U	0.028	U	0.00061	U
1,1,2-Trichloroethane	~	~	~	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
1,1-Dichloroethane	0.27	26	0.27	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
1,1-Dichloroethene	0.33	100	0.33	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
1,1-Dichloropropene	~	~	~	0.00056	U	0.021	U	0.00054	U	0.028	U	0.00061	U
1,2,3-Trichlorobenzene	~	~	~	0.0022	U	0.024	J	0.0022	U	0.11	U	0.0024	U
1,2,3-Trichloropropane	~	~	~	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
1,2,4,5-Tetramethylbenzene	~	~	~	0.0022	U	0.033	J	0.0022	U	0.11	U	0.00024	J
1,2,4-Trichlorobenzene	~	~	~	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
1,2,4-Trimethylbenzene	3.6	52	3.6	0.0022	U	0.052	J	0.0022	U	0.11	U	0.00055	J
1,2-Dibromo-3-chloropropane	~	~	~	0.0034	U	0.12	U	0.0033	U	0.17	U	0.0036	U
1,2-Dibromoethane	~	~	~	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
1,2-Dichlorobenzene	1.1	100	1.1	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
1,2-Dichloroethane	0.02	3.1	0.02	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
1,2-Dichloroethene, Total	~	~	~	0.0011	U	0.028	J	0.0011	U	0.034	J	0.0012	U
1,2-Dichloropropane	~	~	~	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
1,3,5-Trimethylbenzene	8.4	52	8.4	0.0022	U	0.028	J	0.0022	U	0.11	U	0.0024	U
1,3-Dichlorobenzene	2.4	49	2.4	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
1,3-Dichloropropane	~	~	~	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
1,3-Dichloropropene, Total	~	~	~	0.00056	U	0.021	U	0.00054	U	0.028	U	0.00061	U
1,4-Dichlorobenzene	1.8	13	1.8	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
1,4-Dioxane	0.1	13	0.1	0.09	U	3.3	U	0.087	U	4.4	U	0.097	U
2,2-Dichloropropane	~	~	~	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
2-Butanone	0.12	100	0.12	0.011	U	0.42	U	0.011	U	0.55	U	0.012	U
2-Hexanone	~	~	~	0.011	U	0.42	U	0.011	U	0.55	U	0.012	U
4-Methyl-2-pentanone	~	~	~	0.011	U	0.42	U	0.011	U	0.55	U	0.012	U
Acetone	0.05	100	0.05	0.011	U	0.42	U	0.011	U	0.55	U	0.012	U
Acrylonitrile	~	~	~	0.0045	U	0.17	U	0.0044	U	0.22	U	0.0049	U
Benzene	0.06	4.8	0.06	0.00056	U	0.009	J	0.00029	J	0.014	J	0.0015	
Bromobenzene	~	~	~	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
Bromochloromethane	~	~	~	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
Bromodichloromethane	~	~	~	0.00056	U	0.021	U	0.00054	U	0.028	U	0.00061	U
Bromoform	~	~	~	0.0045	U	0.17	U	0.0044	U	0.22	U	0.0049	U
Bromomethane	~	~	~	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
Carbon disulfide	~	~	~	0.011	U	0.42	U	0.011	U	0.55	U	0.012	U
Carbon tetrachloride	0.76	2.4	0.76	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
Chlorobenzene	1.1	100	1.1	0.00056	U	0.021	U	0.00054	U	0.028	U	0.00061	U
Chloroethane	~	~	~	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
Chloroform	0.37	49	0.37	0.0017	U	0.015	J	0.0016	U	0.083	U	0.0018	U
Chloromethane	~	~	~	0.0045	U	0.17	U	0.0044	U	0.22	U	0.0049	U
cis-1,2-Dichloroethene	0.25	100	0.25	0.0011	U	0.018	J	0.0011	U	0.015	J	0.0012	U
cis-1,3-Dichloropropene	~	~	~	0.00056	U	0.021	U	0.00054	U	0.028	U	0.00061	U
Dibromochloromethane	~	~	~	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
Dibromomethane	~	~	~	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
Dichlorodifluoromethane	~	~	~	0.011	U	0.42	U	0.011	U	0.55	U	0.012	U
Ethyl ether	~	~	~	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
Ethylbenzene	1	41	1	0.0011	U	0.042	U	0.0011	U	0.055	U	0.00062	J
Hexachlorobutadiene	~	~	~	0.0045	U	0.17	U	0.0044	U	0.22	U	0.0049	U
Isopropylbenzene	~	~	~	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
Methyl tert butyl ether	0.93	100	0.93	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
Methylene chloride	0.05	100	0.05	0.0056	U	0.21	U	0.0054	U	0.28	U	0.0061	U
n-Butylbenzene	12	100	12	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
n-Propylbenzene	3.9	100	3.9	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
Naphthalene	12	100	12	0.0045	U	8.3		0.0044	U	0.041	J	0.0011	J
o-Chlorotoluene	~	~	~	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
o-Xylene	~	~	~	0.0011	U	0.016	J	0.0011	U	0.055	U	0.00076	J
p-Chlorotoluene	~	~	~	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
p-Diethylbenzene	~	~	~	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
p-Ethyltoluene	~	~	~	0.0022	U	0.02	J	0.0022	U	0.11	U	0.0024	U
p-Isopropyltoluene	~	~	~	0.0011	U	0.0058	J	0.0011	U	0.055	U	0.0012	U
p/m-Xylene	~	~	~	0.0022	U	0.024	J	0.0022	U	0.11	U	0.0022	J
sec-Butylbenzene	11	100	11	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
Styrene	~	~	~	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
tert-Butylbenzene	5.9	100	5.9	0.0022	U	0.084	U	0.0022	U	0.11	U	0.0024	U
Tetrachloroethene	1.3	19	1.3	0.00056	U	4.2		0.0011		4.6		0.00061	U
Toluene	0.7	100	0.7	0.0011	U	0.024	J	0.00068	J	0.05	J	0.0027	
trans-1,2-Dichloroethene	0.19	100	0.19	0.0017	U	0.0098	J	0.0016	U	0.019	J	0.0018	U
trans-1,3-Dichloropropene	~	~	~	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
trans-1,4-Dichloro-2-butene	~	~	~	0.0056	U	0.21	U	0.0054	U	0.28	U	0.0061	U
Trichloroethene	0.47	21	0.47	0.0007		7		0.0012		5.8		0.00041	J
Trichlorofluoromethane	~	~	~	0.0045	U	0.17	U	0.0044	U	0.22	U	0.0049	U
Vinyl acetate	~	~	~	0.011	U	0.42	U	0.011	U	0.55	U	0.012	U
Vinyl chloride	0.02	0.9	0.02	0.0011	U	0.042	U	0.0011	U	0.055	U	0.0012	U
Xylenes, Total	1.6	100	0.26	0.0011	U	0.04	J	0.0011	U	0.055	U	0.003	J

Table Notes:

--: No guidance value.
mg/kg: Milligrams per Kilogram.
U: Not detected at the reported detection limit for the sample.
J: Estimate Value. The analyte concentration is below the quantitative limit (RL), but above the method detection limit (MDL) or estimated detection limit (EDL).
(green shading): Value exceeds its Part 375 Unrestricted Use Soil Cleanup Objective Restricted Use Soil Cleanup Objectives-Protection of GW.

Table 2 - Semivolatile Organic Compounds in Soil

36 Frost Street
Brooklyn, New York

LOCATION SAMPLE DATE LAB SAMPLE ID SAMPLE DEPTH (ft.)	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives- Protection of GW	GZ-01 (0-2') 25F0476-01 6/6/2025 11:20:00 AM Soil		GZ-01 (6-8') 25F0476-02 6/6/2025 11:30:00 AM Soil		GZ-02 (0-2') 25F0476-03 6/6/2025 1:15:00 PM Soil		GZ-02 (6-8') 25F0476-04 6/6/2025 1:30:00 PM Soil		GZ-03 (0-2') 25F0476-05 6/6/2025 12:35:00 PM Soil	
				Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatile Organic Compounds (VOC) BY EPA Method 8270 (mg/kg)													
1,1-Biphenyl	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0729	JD
1,2,4,5-Tetrachlorobenzene	~	~	~	0.0906	U	0.0988	U	0.0906	U	0.0976	U	0.0970	U
1,2,4-Trichlorobenzene	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
1,2-Dichlorobenzene	1.1	100	1.1	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
1,2-Diphenylhydrazine (as Azobenzene)	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
1,3-Dichlorobenzene	2.4	49	2.4	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
1,4-Dichlorobenzene	1.8	13	1.8	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
2,3,4,6-Tetrachlorophenol	~	~	~	0.0906	U	0.0988	U	0.0906	U	0.0976	U	0.0970	U
2,4,5-Trichlorophenol	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
2,4,6-Trichlorophenol	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
2,4-Dichlorophenol	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
2,4-Dimethylphenol	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
2,4-Dinitrophenol	~	~	~	0.0906	U	0.0988	U	0.0906	U	0.0976	U	0.0970	U
2,4-Dinitrotoluene	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
2,6-Dinitrotoluene	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
2-Chloronaphthalene	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
2-Chlorophenol	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
2-Methylnaphthalene	~	~	~	0.560	D	0.0495	U	0.0454	U	0.0489	U	0.192	D
2-Methylphenol	0.33	100	0.33	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
2-Nitroaniline	~	~	~	0.0906	U	0.0988	U	0.0906	U	0.0976	U	0.0970	U
2-Nitrophenol	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
3- & 4-Methylphenols	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
3,3-Dichlorobenzidine	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.257	D
3-Nitroaniline	~	~	~	0.0906	U	0.0988	U	0.0906	U	0.0976	U	0.0970	U
4,6-Dinitro-2-methylphenol	~	~	~	0.0906	U	0.0988	U	0.0906	U	0.0976	U	0.0970	U
4-Bromophenyl phenyl ether	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
4-Chloro-3-methylphenol	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
4-Chloroaniline	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
4-Chlorophenyl phenyl ether	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
4-Nitroaniline	~	~	~	0.0906	U	0.0988	U	0.0906	U	0.0976	U	0.0970	U
4-Nitrophenol	~	~	~	0.0906	U	0.0988	U	0.0906	U	0.0976	U	0.0970	U
Acenaphthene	20	100	98	1.490	D	0.0495	U	0.0454	U	0.0489	U	0.610	D
Acenaphthylene	100	100	107	0.748	D	0.0495	U	0.0710	JD	0.0489	U	0.425	D
Acetophenone	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Aniline	~	~	~	0.181	U	0.198	U	0.181	U	0.195	U	0.194	U
Anthracene	100	100	1,000	4.070	D	0.0495	U	0.421	D	0.0489	U	2.110	D
Atrazine	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Benzaldehyde	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Benzidine	~	~	~	0.181	U	0.198	U	0.181	U	0.195	U	0.194	U
Benzo(a)anthracene	1	1	1	**9.61**	D	0.0495	U	0.335	D	0.0489	U	**8.59**	D
Benzo(a)pyrene	1	1	22	**7.96**	D	0.0495	U	0.320	D	0.0489	U	**7.7**	D
Benzo(b)fluoranthene	1	1	1.7	**9.68**	D	0.0495	U	0.456	D	0.0489	U	**5.97**	D
Benzo(g,h,i)perylene	100	100	1,000	4.690	D	0.0495	U	0.217	D	0.0489	U	5.640	D
Benzo(k)fluoranthene	0.8	3.9	1.7	**6.03**	D	0.0495	U	0.156	D	0.0489	U	**2.81**	D
Benzoic acid	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Benzyl alcohol	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Benzyl butyl phthalate	~	~	~	0.0492	JD	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Bis(2-chloroethoxy)methane	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Bis(2-chloroethyl)ether	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Bis(2-chloroisopropyl)ether	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Bis(2-ethylhexyl)phthalate	~	~	~	0.0796	JD	0.0495	U	0.0454	U	0.0489	U	0.114	D
Caprolactam	~	~	~	0.0906	U	0.0988	U	0.0906	U	0.0976	U	0.0970	U
Carbazole	~	~	~	1.580	D	0.0495	U	0.0454	U	0.0489	U	0.739	D
Chrysene	1	3.9	1	**8.69**	D	0.0495	U	0.375	D	0.0489	U	**8.57**	D
Dibenzo(a,h)anthracene	0.33	0.33	1,000	**1.7**	D	0.0495	U	0.0688	JD	0.0489	U	**1.11**	D
Dibenzofuran	7	59	210	1.070	D	0.0495	U	0.0454	U	0.0489	U	0.340	D
Diethyl phthalate	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Dimethyl phthalate	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Di-n-butyl phthalate	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.320	D
Di-n-octyl phthalate	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Fluoranthene	100	100	1,000	20	D	0.0495	U	0.650	D	0.0489	U	18.200	D
Fluorene	30	100	386	1.410	D	0.0495	U	0.0454	U	0.0489	U	0.588	D
Hexachlorobenzene	0.33	1.2	3.2	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Hexachlorobutadiene	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Hexachlorocyclopentadiene	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Hexachloroethane	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Indeno(1,2,3-cd)pyrene	0.5	0.5	8.2	**4.14**	D	0.0495	U	0.256	D	0.0489	U	**4.77**	D
Isophorone	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Naphthalene	12	100	12	0.735	D	0.0495	U	0.0454	U	0.0489	U	0.254	D
Nitrobenzene	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
N-Nitrosodimethylamine	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
N-nitroso-di-n-propylamine	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
N-Nitrosodiphenylamine	~	~	~	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Pentachlorophenol	0.8	6.7	0.8	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Phenanthrene	100	100	1,000	17	D	0.0495	U	0.427	D	0.0489	U	14.500	D
Phenol	0.33	100	0.33	0.0454	U	0.0495	U	0.0454	U	0.0489	U	0.0486	U
Pyrene	100	100	1,000	20.100	D	0.0495	U	0.705	D	0.0489	U	19.600	D

Table Notes:

~: No guidance value

mg/kg: Milligrams per Kilogram

D: The result is from an analysis that required a dilution.

U: Not detected at the reported detection limit for the sample

J: Estimate Value. The analyte concentration is below the quantitative limit (RL), but above the method detection limit (MDL) or estimated detection limit (EDL)

(orange)	Analyte exceeds the NYSDEC Part 375 Unrestricted Use and Restricted-Residential Use SCOs.
(green)	Analyte exceeds the NYSDEC Part 375 Unrestricted Use, Restricted-Residential Use, and Protection of Groundwater SCOs.

Table 2 - Semivolatile Organic Compounds in Soil

36 Frost Street
Brooklyn, New York

LOCATION	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives- Protection of GW	GZ-03 (6-8')		GZ-04 (0-2')		GZ-04 (6-8')		GZ-05 (0-2')		GZ-05 (6-8')	
SAMPLE DATE				6/6/2025 12:45:00 PM		6/6/2025 10:10:00 AM		6/6/2025 10:15:00 AM		6/6/2025 12:00:00 PM		6/6/2025 12:10:00 PM	
LAB SAMPLE ID				25F0476-06		25F0476-07		25F0476-08		25F0476-09		25F0476-10	
SAMPLE DEPTH (ft.)				Soil		Soil		Soil		Soil		Soil	
				Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatile Organic Compounds (VOC) BY EPA Method 8270 (mg/kg)													
1,1-Biphenyl	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
1,2,4,5-Tetrachlorobenzene	~	~	~	0.0912	U	0.0866	U	0.0879	U	0.0929	U	0.0913	U
1,2,4-Trichlorobenzene	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
1,2-Dichlorobenzene	1.1	100	1.1	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
1,2-Diphenylhydrazine (as Azobenzene)	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
1,3-Dichlorobenzene	2.4	49	2.4	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
1,4-Dichlorobenzene	1.8	13	1.8	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
2,3,4,6-Tetrachlorophenol	~	~	~	0.0912	U	0.0866	U	0.0879	U	0.0929	U	0.0913	U
2,4,5-Trichlorophenol	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
2,4,6-Trichlorophenol	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
2,4-Dichlorophenol	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
2,4-Dimethylphenol	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
2,4-Dinitrophenol	~	~	~	0.0912	U	0.0866	U	0.0879	U	0.0929	U	0.0913	U
2,4-Dinitrotoluene	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
2,6-Dinitrotoluene	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
2-Chloronaphthalene	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
2-Chlorophenol	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
2-Methylnaphthalene	~	~	~	0.0457	U	0.171	D	0.0441	U	0.0668	JD	0.0457	U
2-Methylphenol	0.33	100	0.33	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
2-Nitroaniline	~	~	~	0.0912	U	0.0866	U	0.0879	U	0.0929	U	0.0913	U
2-Nitrophenol	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
3- & 4-Methylphenols	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
3,3-Dichlorobenzidine	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
3-Nitroaniline	~	~	~	0.0912	U	0.0866	U	0.0879	U	0.0929	U	0.0913	U
4,6-Dinitro-2-methylphenol	~	~	~	0.0912	U	0.0866	U	0.0879	U	0.0929	U	0.0913	U
4-Bromophenyl phenyl ether	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
4-Chloro-3-methylphenol	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
4-Chloroaniline	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
4-Chlorophenyl phenyl ether	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
4-Nitroaniline	~	~	~	0.0912	U	0.0866	U	0.0879	U	0.0929	U	0.0913	U
4-Nitrophenol	~	~	~	0.0912	U	0.0866	U	0.0879	U	0.0929	U	0.0913	U
Acenaphthene	20	100	98	0.0457	U	0.232	D	0.0441	U	0.286	D	0.0457	U
Acenaphthylene	100	100	107	0.0457	U	0.854	D	0.0441	U	0.380	D	0.0457	U
Acetophenone	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Aniline	~	~	~	0.183	U	0.174	U	0.176	U	0.186	U	0.183	U
Anthracene	100	100	1,000	0.0457	U	1.130	D	0.0441	U	1.520	D	0.0457	U
Atrazine	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Benzaldehyde	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Benzidine	~	~	~	0.183	U	0.174	U	0.176	U	0.186	U	0.183	U
Benzo(a)anthracene	1	1	1	0.0457	U	**6.25**	D	0.0441	U	**7.63**	D	0.0457	U
Benzo(a)pyrene	1	1	22	0.0457	U	**10.6**	D	0.0441	U	**7.87**	D	0.0457	U
Benzo(b)fluoranthene	1	1	1.7	0.0457	U	**7.42**	D	0.0441	U	**6.1**	D	0.0457	U
Benzo(g,h,i)perylene	100	100	1,000	0.0457	U	7.610	D	0.0441	U	5.390	D	0.0457	U
Benzo(k)fluoranthene	0.8	3.9	1.7	0.0457	U	**6.82**	D	0.0441	U	**5.99**	D	0.0457	U
Benzoic acid	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Benzyl alcohol	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Benzyl butyl phthalate	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Bis(2-chloroethoxy)methane	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Bis(2-chloroethyl)ether	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Bis(2-chloroisopropyl)ether	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Bis(2-ethylhexyl)phthalate	~	~	~	0.0457	U	0.404	D	0.0513	JD	0.0743	JD	0.0457	U
Caprolactam	~	~	~	0.0912	U	0.0866	U	0.0879	U	0.0929	U	0.0913	U
Carbazole	~	~	~	0.0457	U	0.263	D	0.0441	U	0.369	D	0.0457	U
Chrysene	1	3.9	1	0.0457	U	**6.59**	D	0.0441	U	**7.25**	D	0.0457	U
Dibenzo(a,h)anthracene	0.33	0.33	1,000	0.0457	U	**2.09**	D	0.0441	U	**1.33**	D	0.0457	U
Dibenzofuran	7	59	210	0.0457	U	0.115	D	0.0441	U	0.148	D	0.0457	U
Diethyl phthalate	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Dimethyl phthalate	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Di-n-butyl phthalate	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Di-n-octyl phthalate	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Fluoranthene	100	100	1,000	0.0457	U	7.950	D	0.0441	U	13.300	D	0.0457	U
Fluorene	30	100	386	0.0457	U	0.299	D	0.0441	U	0.282	D	0.0457	U
Hexachlorobenzene	0.33	1.2	3.2	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Hexachlorobutadiene	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Hexachlorocyclopentadiene	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Hexachloroethane	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Indeno(1,2,3-cd)pyrene	0.5	0.5	8.2	0.0457	U	**5.6**	D	0.0441	U	**4.46**	D	0.0457	U
Isophorone	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Naphthalene	12	100	12	0.0457	U	0.201	D	0.0441	U	0.106	D	0.0457	U
Nitrobenzene	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
N-Nitrosodimethylamine	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
N-nitroso-di-n-propylamine	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
N-Nitrosodiphenylamine	~	~	~	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Pentachlorophenol	0.8	6.7	0.8	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Phenanthrene	100	100	1,000	0.0457	U	4.020	D	0.0441	U	6.840	D	0.0457	U
Phenol	0.33	100	0.33	0.0457	U	0.0434	U	0.0441	U	0.0466	U	0.0457	U
Pyrene	100	100	1,000	0.0457	U	9.520	D	0.0441	U	15.200	D	0.0457	U

Table Notes:

~: No guidance value

mg/kg: Milligrams per Kilogram

D: The result is from an analysis that required a dilution.

U: Not detected at the reported detection limit for the sample

J: Estimate Value. The analyte concentration is below the quantitative limit (RL), but above the method detection limit (MDL) or estimated detection limit (EDL)

(Orange shading) Analyte exceeds the NYSDEC Part 375 Unrestricted Use and Restricted-Residential Use SCOs.

(Green shading) Analyte exceeds the NYSDEC Part 375 Unrestricted Use, Restricted-Residential Use, and Protection of Groundwater SCOs.

Table 3 - Metals in Soil Samples

36 Frost Street
Brooklyn, New York

LOCATION SAMPLE DATE LAB SAMPLE ID SAMPLE DEPTH (ft.)	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives- Protection of GW	GZ-01 (0-2') 25F0476-01 6/6/2025 11:20:00 AM Soil		GZ-01 (6-8') 25F0476-02 6/6/2025 11:30:00 AM Soil		GZ-02 (0-2') 25F0476-03 6/6/2025 13:15 Soil		GZ-02 (6-8') 25F0476-04 6/6/2025 1:30:00 PM Soil		GZ-03 (0-2') 25F0476-05 6/6/2025 12:35:00 PM Soil	
				Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Metals, Target Analyte (mg/kg)													
Aluminum	~	~	~	9,040		7,250		10,400		15,600		9,990	
Antimony	~	~	~	4.7		2.48	U	2.27	U	2.45	U	2.43	U
Arsenic	13	16	16	12.5		1.49	U	5.95		3.7		**15.7**	
Barium	350	400	820	268		34		149		33.4		**1,660**	
Beryllium	7.2	72	47	0.266		0.178		0.235		0.294		0.61	
Cadmium	2.5	4.3	7.5	1.99		0.297	U	0.572		0.293	U	**15.5**	
Calcium	~	~	~	12,300		536		2,960		670		31,500	
Chromium	~	~	~	17.8		13.2		20		19.4		104	
Cobalt	~	~	~	6.5		7.29		7.05		7.84		21.8	
Copper	50	270	1,720	**2,870**		34.2		**405**		17		**647**	
Iron	~	~	~	21,000		21,600		18,500		20,800		25,700	
Lead	63	400	450	**823**		8.39		**490**		19.8		**1,780**	
Magnesium	~	~	~	2,210		2,420		2,790		2,730		2,990	
Manganese	1,600	2,000	2,000	473		506		329		289		339	
Nickel	30	310	130	18.2		12.4		14.8		13.8		**46.8**	
Potassium	~	~	~	881		933		1,430		1,200		1,250	
Selenium	3.9	180	4	2.27	U	2.48	U	2.27	U	2.45	U	2.43	U
Silver	2	180	8.3	1.51		0.499	U	0.458	U	0.493	U	1.91	
Sodium	~	~	~	357		75.8		192		137		551	
Thallium	~	~	~	1.82	U	1.98	U	1.82	U	1.96	U	1.95	U
Vanadium	~	~	~	22.3		20.8		26.6		27.4		31.8	
Zinc	109	10,000	2,480	**2,240**		62.6		**592**		**262**		**1,670**	
Mercury by 7473 (mg/kg)													
Mercury	0.18	0.81	0.73	**0.881**		0.0693		**1.18**		0.0352	U	**2.06**	

Table Notes:

--: No guidance value.

mg/kg: Milligrams per Kilogram.

D: The result is from an analysis that required a dilution.

U: Not detected at the reported detection limit for the sample.

Analyte exceeds the NYSDEC Part 375 Unrestricted Use SCO.

Table 3 - Metals in Soil Samples

36 Frost Street
Brooklyn, New York

LOCATION / SAMPLE DATE / LAB SAMPLE ID / SAMPLE DEPTH (ft.)	NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives- Protection of GW	GZ-03 (6-8') 25F0476-06 6/6/2025 12:45 Soil		GZ-04 (0-2') 25F0476-07 6/6/2025 10:10:00 AM Soil		GZ-04 (6-8') 25F0476-08 6/6/2025 10:15:00 AM Soil		GZ-05 (0-2') 25F0476-09 6/6/2025 12:00:00 PM Soil		GZ-05 (6-8') 25F0476-10 6/6/2025 12:10:00 PM Soil	
				Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Metals, Target Analyte (mg/kg)													
Aluminum	~	~	~	7,620		7,490		6,500		8,250		6,970	
Antimony	~	~	~	2.28	U	2.17	U	2.21	U	2.89		2.29	U
Arsenic	13	16	16	2.64		10.4		1.88		**17.8**		2.07	
Barium	350	400	820	40.8		**375**		23.5		219		42.9	
Beryllium	7.2	72	47	0.197		0.264		0.109		0.307		0.088	
Cadmium	2.5	4.3	7.5	0.43		1.650		0.265	U	**7.39**		0.275	U
Calcium	~	~	~	881		5,530		587		16,900		624	
Chromium	~	~	~	17		29.5		13.4		25.2		16.7	
Cobalt	~	~	~	6.52		7.03		4.88		6.65		6.43	
Copper	50	270	1,720	**74.9**		**2,050**		26.4		**3,990**		21.4	
Iron	~	~	~	23,700		21,400		18,800		22,400		20,100	
Lead	63	400	450	10.2		**1,610**		5.1		**1,020**		4.63	
Magnesium	~	~	~	2,410		2,350		2,220		2,770		2,630	
Manganese	1,600	2,000	2,000	550		548		201		355		433	
Nickel	30	310	130	11.2		15.5		9.23		17		11.3	
Potassium	~	~	~	1,610		1,100		1,190		1,070		1,430	
Selenium	3.9	180	4	2.28	U	2.17	U	2.21	U	2.34	U	2.29	U
Silver	2	180	8.3	0.461	U	1.68		0.446	U	**2.59**		0.463	U
Sodium	~	~	~	160		660		196		397		78.8	
Thallium	~	~	~	1.83	U	1.74	U	1.77	U	1.87	U	1.84	U
Vanadium	~	~	~	21.9		19.9		20.9		21.1		21.7	
Zinc	109	10,000	2,480	**225**		**1,940**		43.5		**5,320**	D	39.7	
Mercury by 7473 (mg/kg)													
Mercury	0.18	0.81	0.73	0.11		**1.32**		0.0531		**3.69**		0.0561	

Table Notes:

--: No guidance value.

mg/kg: Milligrams per Kilogram.

D: The result is from an analysis that required a dilution.

U: Not detected at the reported detection limit for the sample.

Analyte exceeds the NYSDEC Part 375 Unrestricted Use SCO.

Table 4a - Volatile Organic Compounds in Groundwater

36 Frost Street
Brooklyn, New York

LOCATION	NYSDEC TOGS 1.1.1 Ambient Water Quality Standards	TMW-01		TMW-02	
LAB SAMPLE ID		25F0569-01		25F0569-02	
SAMPLING DATE		6/9/2025 9:50:00 AM		6/9/2025 12:30:00 PM	
SAMPLE TYPE		Ground Water		Ground Water	
		Result	Q	Result	Q
Volatile Organics 8260 LOW MASTER (ug/L)					
1,1,1,2-Tetrachloroethane	5	0.216	U	0.216	U
1,1,1-Trichloroethane	5	0.266	U	0.266	U
1,1,2,2-Tetrachloroethane	5	0.256	U	0.256	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	5	0.286	U	0.286	U
1,1,2-Trichloroethane	1	0.249	U	0.249	U
1,1-Dichloroethane	5	0.272	U	0.272	U
1,1-Dichloroethylene	5	0.327	U	0.327	U
1,1-Dichloropropylene	5	0.314	U	0.314	U
1,2,3-Trichlorobenzene	5	0.222	U	0.222	U
1,2,3-Trichloropropane	0.04	0.273	U	0.273	U
1,2,4,5-Tetramethylbenzene	~	0.255	U	0.255	U
1,2,4-Trichlorobenzene	5	0.138	U	0.138	U
1,2,4-Trimethylbenzene	5	0.310	U	0.310	U
1,2-Dibromo-3-chloropropane	0.04	0.432	U	0.432	U
1,2-Dibromoethane	0.0006	0.215	U	0.215	U
1,2-Dichlorobenzene	3	0.270	U	0.270	U
1,2-Dichloroethane	0.6	0.377	U	0.377	U
1,2-Dichloropropane	1	0.327	U	0.327	U
1,3,5-Trimethylbenzene	5	0.347	U	0.347	U
1,3-Dichlorobenzene	3	0.283	U	0.283	U
1,3-Dichloropropane	5	0.260	U	0.260	U
1,4-Dichlorobenzene	3	0.311	U	0.311	U
1,4-Dioxane	0.35	35.300	U	35.300	U
2,2-Dichloropropane	5	0.466	U	0.466	U
2-Butanone	50	0.421	U	0.650	
2-Chlorotoluene	5	0.376	U	0.376	U
2-Hexanone	50	0.320	U	0.320	U
4-Chlorotoluene	5	0.311	U	0.311	U
4-Methyl-2-pentanone	~	0.365	U	0.365	U
Acetone	50	2.230	JB	2.850	JB
Acrolein	~	0.447	U	0.447	U
Acrylonitrile	~	0.422	U	0.422	U
Benzene	1	0.279	U	0.279	U
Bromobenzene	5	0.367	U	0.367	U
Bromochloromethane	5	0.354	U	0.354	U
Bromodichloromethane	50	0.245	U	0.245	U
Bromoform	50	0.163	U	0.163	U
Bromomethane	5	0.500	U	0.500	U
Carbon disulfide	~	0.362	U	0.362	U
Carbon tetrachloride	5	0.204	U	0.204	U
Chlorobenzene	5	0.284	U	0.284	U
Chloroethane	5	0.448	U	0.448	U
Chloroform	7	0.243	U	0.243	U
Chloromethane	5	0.372	U	0.372	U
cis-1,2-Dichloroethylene	~	0.294	U	0.294	U
cis-1,3-Dichloropropylene	0.4	0.262	U	0.262	U
Cyclohexane	~	0.491	U	0.491	U
Dibromochloromethane	50	0.146	U	0.146	U
Dibromomethane	~	0.203	U	0.203	U
Dichlorodifluoromethane	5	0.451	U	0.451	U
Diisopropyl ether (DIPE)	~	0.466	U	0.466	U
Ethyl Benzene	5	0.290	U	0.290	U
Ethyl tert-butyl ether (ETBE)	~	0.479	U	0.479	U
Hexachlorobutadiene	0.5	0.241	U	0.241	U
Iodomethane	~	0.500	U	0.500	U
Isopropylbenzene	5	0.405	U	0.405	U
Methyl acetate	~	0.442	U	0.442	U
Methyl Methacrylate	~	0.415	U	0.415	U
Methyl tert-butyl ether (MTBE)	10	0.244	U	4.730	
Methylcyclohexane	~	0.477	U	0.477	U
Methylene chloride	5	0.397	U	0.397	U
Naphthalene	10	0.212	U	0.212	U
n-Butylbenzene	5	0.399	U	0.399	U
n-Propylbenzene	5	0.384	U	0.384	U
o-Xylene	5	0.261	U	0.261	U
p- & m- Xylenes	~	0.578	U	0.578	U
p-Diethylbenzene	~	0.341	U	0.341	U
p-Ethyltoluene	~	0.200	U	0.200	U
p-Isopropyltoluene	5	0.377	U	0.377	U
sec-Butylbenzene	5	0.444	U	0.444	U
Styrene	5	0.255	U	0.255	U
tert-Amyl alcohol (TAA)	~	4.160	U	4.160	U
tert-Amyl methyl ether (TAME)	~	0.511	U	0.511	U
tert-Butyl alcohol (TBA)	~	0.608	U	0.608	U
tert-Butylbenzene	5	0.367	U	0.367	U
Tetrachloroethylene	5	0.700		0.239	U
Tetrahydrofuran	~	0.485	U	0.485	U
Toluene	5	0.346	U	0.346	U
trans-1,2-Dichloroethylene	~	0.279	U	0.279	U
trans-1,3-Dichloropropylene	0.4	0.229	U	0.229	U
trans-1,4-dichloro-2-butene	~	0.283	U	0.283	U
Trichloroethylene	5	0.690		0.330	J
Trichlorofluoromethane	5	0.337	U	0.337	U
Vinyl acetate	~	0.477	U	0.477	U
Vinyl Chloride	2	0.469	U	0.469	U
Xylenes, Total	5	0.839	U	0.839	U

Table Notes:

--: No guidance value.

ug/L: Micrograms per Liter.

U: Not detected at the reported detection limit for the sample.

J: Indicates an estimate value.

B: Indicates analyte found in the analysis batch blank.

Table 4b - Volatile Organic Compounds in Groundwater

36 Frost Street
Brooklyn, New York

LOCATION	NYSDEC TOGS 1.1.1 Ambient Water Quality Standards	TMW-03		TMW-04	
LAB SAMPLE ID		7/29/2025		7/29/2025	
SAMPLING DATE		L2547375-11		L2547375-12	
SAMPLE TYPE		Ground Water		Ground Water	
		Result	Q	Result	Q
Volatile Organics by GC/MS (ug/L)					
1,1,1,2-Tetrachloroethane	5	2.5	U	2.5	U
1,1,1-Trichloroethane	5	2.5	U	2.5	U
1,1,2,2-Tetrachloroethane	5	0.5	U	0.5	U
1,1,2-Trichloroethane	1	1.5	U	1.5	U
1,1-Dichloroethane	5	2.5	U	2.5	U
1,1-Dichloroethene	5	0.5	U	0.5	U
1,1-Dichloropropene	5	2.5	U	2.5	U
1,2,3-Trichlorobenzene	5	2.5	U	2.5	U
1,2,3-Trichloropropane	0.04	2.5	U	2.5	U
1,2,4,5-Tetramethylbenzene	5	2	U	2	U
1,2,4-Trichlorobenzene	5	2.5	U	2.5	U
1,2,4-Trimethylbenzene	5	2.5	U	2.5	U
1,2-Dibromo-3-chloropropane	0.04	2.5	U	2.5	U
1,2-Dibromoethane	0.0006	2	U	2	U
1,2-Dichlorobenzene	3	2.5	U	2.5	U
1,2-Dichloroethane	0.6	0.5	U	0.5	U
1,2-Dichloroethene, Total	~	2.5	U	2.5	U
1,2-Dichloropropane	1	1	U	1	U
1,3,5-Trimethylbenzene	5	2.5	U	2.5	U
1,3-Dichlorobenzene	3	2.5	U	2.5	U
1,3-Dichloropropane	5	2.5	U	2.5	U
1,3-Dichloropropene, Total	'~	0.5	U	0.5	U
1,4-Dichlorobenzene	3	2.5	U	2.5	U
1,4-Dioxane	0.35	250	U	250	U
2,2-Dichloropropane	5	2.5	U	2.5	U
2-Butanone	50	5	U	5	U
2-Hexanone	50	5	U	5	U
4-Methyl-2-pentanone	'~	5	U	5	U
Acetone	50	5	U	5	U
Acrylonitrile	5	5	U	5	U
Benzene	1	0.5	U	0.5	U
Bromobenzene	5	2.5	U	2.5	U
Bromochloromethane	5	2.5	U	2.5	U
Bromodichloromethane	50	0.5	U	0.5	U
Bromoform	50	2	U	2	U
Bromomethane	5	2.5	U	2.5	U
Carbon disulfide	60	5	U	5	U
Carbon tetrachloride	5	0.5	U	0.5	U
Chlorobenzene	5	2.5	U	2.5	U
Chloroethane	5	2.5	U	2.5	U
Chloroform	7	2.5	U	2.5	U
Chloromethane	'~	2.5	U	2.5	U
cis-1,2-Dichloroethene	5	2.5	U	2.5	U
cis-1,3-Dichloropropene	0.4	0.5	U	0.5	U
Dibromochloromethane	50	0.5	U	0.5	U
Dibromomethane	5	5	U	5	U
Dichlorodifluoromethane	5	5	U	5	U
Ethyl ether	'~	2.5	U	2.5	U
Ethylbenzene	5	2.5	U	2.5	U
Hexachlorobutadiene	0.5	2.5	U	2.5	U
Isopropylbenzene	5	2.5	U	2.5	U
Methyl tert butyl ether	10	2.5	U	2.5	U
Methylene chloride	5	2.5	U	2.5	U
n-Butylbenzene	5	2.5	U	2.5	U
n-Propylbenzene	5	2.5	U	2.5	U
Naphthalene	10	2.5	U	2.5	U
o-Chlorotoluene	5	2.5	U	2.5	U
o-Xylene	5	2.5	U	2.5	U
p-Chlorotoluene	5	2.5	U	2.5	U
p-Diethylbenzene	~	2	U	2	U
p-Ethyltoluene	~	2	U	2	U
p-Isopropyltoluene	5	2.5	U	2.5	U
p/m-Xylene	5	2.5	U	2.5	U
sec-Butylbenzene	5	2.5	U	2.5	U
Styrene	5	2.5	U	2.5	U
tert-Butylbenzene	5	2.5	U	2.5	U
Tetrachloroethene	5	1.1		0.5	U
Toluene	5	2.5	U	2.5	U
trans-1,2-Dichloroethene	5	2.5	U	2.5	U
trans-1,3-Dichloropropene	0.4	0.5	U	0.5	U
trans-1,4-Dichloro-2-butene	5	2.5	U	2.5	U
Trichloroethene	5	2.7		0.5	U
Trichlorofluoromethane	5	2.5	U	2.5	U
Vinyl acetate	~	5	U	5	U
Vinyl chloride	2	1	U	1	U
Xylenes, Total	~	2.5	U	2.5	U

Table Notes:

~: No guidance value.

ug/L: Micrograms per Liter.

U: Not detected at the reported detection limit for the sample.

Table 5 - Semi-Volatile Organic Compounds in Groundwater

36 Frost Street
Brooklyn, New York

LOCATION	NYSDEC TOGS 1.1.1 Ambient Water Quality Standards	TMW-01		TMW-02	
LAB SAMPLE ID		25F0569-01		25F0569-02	
SAMPLING DATE		6/9/2025 9:50:00 AM		6/9/2025 12:30:00 PM	
SAMPLE TYPE		Ground Water		Ground Water	
		Result	Q	Result	Q
Semivolatile Organics 8270 LOW MASTER (ug/L)					
1,1-Biphenyl	~	2.5	U	2.5	U
1,2,4,5-Tetrachlorobenzene	~	2.5	U	2.5	U
2,3,4,6-Tetrachlorophenol	~	2.5	U	2.5	U
2,4,5-Trichlorophenol	1	2.5	U	2.5	U
2,4,6-Trichlorophenol	1	2.5	U	2.5	U
2,4-Dichlorophenol	5	2.5	U	2.5	U
2,4-Dimethylphenol	50	2.5	U	2.5	U
2,4-Dinitrophenol	10	2.5	U	2.5	U
2,4-Dinitrotoluene	5	2.5	U	2.5	U
2,6-Dinitrotoluene	5	2.5	U	2.5	U
2-Chloronaphthalene	10	2.5	U	2.5	U
2-Chlorophenol	1	2.5	U	2.5	U
2-Methylnaphthalene	~	2.5	U	2.5	U
2-Methylphenol	1	2.5	U	2.5	U
2-Nitroaniline	5	2.5	U	2.5	U
2-Nitrophenol	1	2.5	U	2.5	U
3- & 4-Methylphenols	~	2.5	U	2.5	U
3,3-Dichlorobenzidine	5	2.5	U	2.5	U
3-Nitroaniline	5	2.5	U	2.5	U
4,6-Dinitro-2-methylphenol	~	2.5	U	2.5	U
4-Bromophenyl phenyl ether	~	2.5	U	2.5	U
4-Chloro-3-methylphenol	1	2.5	U	2.5	U
4-Chloroaniline	5	2.5	U	2.5	U
4-Chlorophenyl phenyl ether	~	2.5	U	2.5	U
4-Nitroaniline	5	2.5	U	2.5	U
4-Nitrophenol	1	5	U	5	U
Acetophenone	~	2.5	U	2.5	U
Benzaldehyde	~	2.5	U	2.5	U
Benzyl butyl phthalate	50	2.5	U	2.5	U
Bis(2-chloroethoxy)methane	5	2.5	U	2.5	U
Bis(2-chloroethyl)ether	1	1	U	1	U
Bis(2-chloroisopropyl)ether	5	2.5	U	2.5	U
Caprolactam	~	2.5	U	2.5	U
Carbazole	~	2.5	U	2.5	U
Dibenzofuran	~	2.5	U	2.5	U
Diethyl phthalate	50	2.5	U	2.5	U
Dimethyl phthalate	50	2.5	U	2.5	U
Di-n-butyl phthalate	50	2.5	U	2.5	U
Di-n-octyl phthalate	50	2.5	U	2.5	U
Hexachlorocyclopentadiene	5	5	U	5	U
Isophorone	50	2.5	U	2.5	U
N-nitroso-di-n-propylamine	~	2.5	U	2.5	U
N-Nitrosodiphenylamine	50	2.5	U	2.5	U
Phenol	1	0.75	U	0.75	U
Propargite	~	2.5	U	2.5	U
Pyridine	50	2.5	U	2.5	U
Semivolatile Organics 8270 SIM MASTER (ug/L)					
Acenaphthene	20	0.0500	U	0.0500	U
Acenaphthylene	~	0.0500	U	0.0500	U
Anthracene	50	0.0500	U	0.0500	U
Atrazine	~	0.500	U	0.500	U
Benzo(a)anthracene	0.002	0.0500	U	**0.0916**	
Benzo(a)pyrene	0.002	0.0500	U	**0.0776**	
Benzo(b)fluoranthene	0.002	0.0500	U	**0.0847**	
Benzo(g,h,i)perylene	~	0.0500	U	0.0521	B
Benzo(k)fluoranthene	0.002	0.0500	U	**0.0934**	
Bis(2-ethylhexyl)phthalate	5	0.500	U	0.500	U
Chrysene	0.002	0.0500	U	**0.0876**	
Dibenzo(a,h)anthracene	~	0.0500	U	0.0500	U
Fluoranthene	50	0.0500	U	0.212	
Fluorene	50	0.0500	U	0.0500	U
Hexachlorobenzene	0.04	0.0200	U	0.0200	U
Hexachlorobutadiene	0.5	0.500	U	0.500	U
Hexachloroethane	5	0.500	U	0.500	U
Indeno(1,2,3-cd)pyrene	0.002	0.0500	U	**0.0500**	B
Naphthalene	10	0.0500	U	0.0500	U
Nitrobenzene	0.4	0.250	U	0.250	U
N-Nitrosodimethylamine	~	0.500	U	0.500	U
Pentachlorophenol	1	0.250	U	0.250	U
Phenanthrene	50	0.0500	U	0.167	
Pyrene	50	0.0500	U	0.155	

Table Notes:

(shaded) Results exceed New York TOGS 111 Ambient Water Quality Standards and all addendum through June 2004.

~: No guidance value.

ug/L: Micrograms per Liter.

U: Not detected at the reported detection limit for the sample.

J: Indicates an estimate value.

B: Indicates analyte found in the analysis batch blank.

Table 6 - Total and Dissolved Metals in Groundwater

36 Frost Street
Brooklyn, New York

LOCATION	NYSDEC TOGS 1.1.1 Ambient Water Quality Standards	TMW-01		TMW-02	
LAB SAMPLE ID		25F0569-01		25F0569-02	
SAMPLING DATE		6/9/2025 9:50		6/9/2025 12:30:00 PM	
SAMPLE TYPE		Ground Water		Ground Water	
		Result	Q	Result	Q
Metals, Target Analyte (ug/L)					
Aluminum	~	469		1,470	
Barium	1,000	69.8		66.1	
Calcium	~	60,600		178,000	
Chromium	50	5.56	U	5.56	U
Cobalt	~	4.44	U	4.44	U
Copper	200	22.2	U	22.2	U
Iron	~	831		2,560	
Lead	25	5.56	U	8.67	
Magnesium	35,000	8,850		29,000	
Manganese	300	**2,250**		**1,810**	
Nickel	100	11.1	U	11.1	U
Potassium	~	15,300		23,000	
Silver	50	5.56	U	5.56	U
Sodium	20,000	**217,000**		**82,900**	
Vanadium	~	11.1	U	11.1	U
Zinc	2,000	27.8	U	59.6	
Dissolved Metals, Target Analyte (ug/L)					
Aluminum	~	55.6	U	55.6	U
Barium	1,000	64.3		46.8	
Calcium	~	61,500		178,000	
Chromium	50	5.56	U	5.56	U
Cobalt	~	4.44	U	4.44	U
Copper	200	22.2	U	22.2	U
Iron	~	278	U	278	U
Lead	25	5.56	U	5.56	U
Magnesium	35,000	9,140		29,500	
Manganese	300	**2,220**		**1,730**	
Nickel	100	11.1	U	11.1	U
Potassium	~	16,100		25,400	
Silver	50	5.56	U	5.56	U
Sodium	20,000	**215,000**		**82,900**	
Vanadium	~	11.1	U	11.1	U
Zinc	2,000	27.8	U	28.8	
Metals, Target Analyte, ICPMS (ug/L)					
Antimony	3	1.11	U	1.11	U
Arsenic	25	1.11	U	1.11	U
Beryllium	3	0.333	U	0.333	U
Cadmium	5	0.556	U	0.556	U
Selenium	10	2.77		**22**	
Thallium	~	1.11	U	1.11	U
Metals, Target Analyte, ICPMS Dissolved (ug/L)					
Antimony	3	1.11	U	1.11	U
Arsenic	25	1.11	U	1.11	U
Beryllium	3	0.333	U	0.333	U
Cadmium	5	0.556	U	0.556	U
Selenium	10	3.13		**25.7**	
Thallium	~	1.11	U	1.11	U

Table Notes:

[shaded]: Results exceed New York TOGS 111 Ambient Water Quality Standards and all addendum

~: No guidance value.

ug/L: Micrograms per Liter.

U: Not detected at the reported detection limit for the sample.

Table 7 - Soil Vapor Results

36 Frost Street
Brooklyn, New York

SAMPLE LOCATION	NYSDOH-Sub-Slab Vapor Concentrations: Matrix A, B, and C, - No Further Action	NYSDOH-Sub-Slab Vapor Concentrations: Matrix D,E, and F, - No Further Action	SV-01('3)		SV-02('3)		SV-03('3)	
SAMPLING DATE			25F0592-01		25F0592-02		25F0592-03	
LABORATORY SAMPLE ID			6/9/2025 9:05:00 AM		6/9/2025 9:05:00 AM		6/9/2025 9:05:00 AM	
SAMPLE TYPE			Soil Vapor		Soil Vapor		Soil Vapor	
			Result	Q	Result	Q	Result	Q
Volatile Organics in Air by TO-15 (µg/m3)								
1,1,1,2-Tetrachloroethane	~	~	1	U	11	U	12	U
1,1,1-Trichloroethane	100	~	**140**	D	28	D	**500**	D
1,1,2,2-Tetrachloroethane	~	~	1	U	11	U	12	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	~	~	1.1	U	12	U	13	U
1,1,2-Trichloroethane	~	~	21	D	8.7	U	9.4	U
1,1-Dichloroethane	~	~	21	D	57	D	60	D
1,1-Dichloroethylene	6	~	2.6	D	**160**	D	**12**	D
1,2,4-Trichlorobenzene	~	~	55	U	590	U	640	U
1,2,4-Trimethylbenzene	~	60	8.6	D	**140**	D	8.4	U
1,2-Dibromoethane	~	~	1.1	U	12	U	13	U
1,2-Dichlorobenzene	~	~	0.89	U	9.6	U	10	U
1,2-Dichloroethane	~	~	0.6	U	34	D	6.9	U
1,2-Dichloropropane	~	~	0.69	U	7.4	U	7.9	U
1,2-Dichlorotetrafluoroethane	~	~	1	U	11	U	12	U
1,3,5-Trimethylbenzene	~	60	4.7	D	**79**	D	8.4	U
1,3-Butadiene	~	~	0.99	U	11	U	11	U
1,3-Dichlorobenzene	~	~	0.89	U	9.6	U	10	U
1,3-Dichloropropane	~	~	0.69	U	7.4	U	7.9	U
1,4-Dichlorobenzene	~	~	0.89	U	9.6	U	10	U
1,4-Dioxane	~	~	1.1	U	12	U	12	U
2,2,4-Trimethylpentane	~	~	0.35	U	4,200	D	4	U
2-Butanone	~	~	510	D	5.6	D	5.1	U
2-Hexanone	~	~	1.2	U	13	U	14	U
3-Chloropropene	~	~	2.3	U	25	U	27	U
4-Methyl-2-pentanone	~	~	15	D	6.5	U	7	U
Acetone	~	~	1,600	D	30	J	33	J
Acrylonitrile	~	~	4.2	U	45	U	48	U
Benzene	~	60	10	D	**390**	D	11	D
Benzyl chloride	~	~	7.7	U	83	U	89	U
Bromodichloromethane	~	~	1	U	11	U	11	U
Bromoform	~	~	1.5	U	16	U	18	U
Bromomethane	~	~	2.8	D	6.2	U	6.7	U
Carbon disulfide	~	~	15	D	300	D	5.9	D
Carbon tetrachloride	6	~	**17**	D	4	D	**150**	D
Chlorobenzene	~	~	0.68	U	7.3	U	7.9	U
Chloroethane	~	~	2.1	D	4.2	U	4.5	U
Chloroform	~	~	87	D	41	D	350	D
Chloromethane	~	~	9.6	D	3.3	U	3.5	U
cis-1,2-Dichloroethylene	6	~	**55**	D	**710**	D	**630**	D
cis-1,3-Dichloropropylene	~	~	0.67	U	7.2	U	7.8	U
Cyclohexane	~	60	**80**	D	**280**	D	7.1	D
Dibromochloromethane	~	~	1.3	U	14	U	15	U
Dichlorodifluoromethane	~	~	22	D	7.9	U	8.5	U
Ethyl acetate	~	~	19	D	12	U	12	U
Ethyl Benzene	~	~	8.2	D	570	D	7.5	U
Hexachlorobutadiene	~	~	1.6	U	17	U	18	U
Isopropanol	~	~	260	D	24	U	25	U
Methyl Methacrylate	~	~	0.61	U	6.5	U	7	U
Methyl tert-butyl ether (MTBE)	~	~	0.54	U	5.8	U	6.2	U
Methylene chloride	100	~	31	D	**320**	D	36	U
Naphthalene	~	60	7.8	U	84	U	90	U
n-Heptane	~	~	38	D	760	D	7	U
n-Hexane	~	200	55	D	**650**	D	6	U
o-Xylene	~	60	11	D	**170**	D	8.2	D
p- & m- Xylenes	~	200	35	D	**460**	D	25	D
p-Ethyltoluene	~	~	7.5	D	170	D	8.4	U
Propylene	~	~	84	D	410	D	3	U
Styrene	~	~	2.5	D	6.8	D	7.3	U
Tetrachloroethylene	100	~	**2,600**	D	**850**	D	**19,000**	D
Tetrahydrofuran	~	~	0.88	U	9.4	U	10	U
Toluene	~	300	35	D	270	D	7.8	D
trans-1,2-Dichloroethylene	~	~	47	D	160	D	270	D
trans-1,3-Dichloropropylene	~	~	0.67	U	7.2	U	7.8	U
Trichloroethylene	6	~	**3,200**	D	**2,100**	D	**41,000**	D
Trichlorofluoromethane (Freon 11)	~	~	11	D	9	U	9.6	U
Vinyl acetate	~	~	0.52	U	5.6	U	6	U
Vinyl bromide	~	~	0.65	U	7	U	7.5	U
Vinyl Chloride	6	~	0.38	D	**1,400**	D	2.2	U
Xylenes, Total	~	~	45	D	630	D	33	D

TABLE NOTES:

(Blue shading) Analyte exceeds the New York State Department of Health (NYSDOH) Indoor Air Guideline Values (AGV) and Matrix A, B, and C Subslab Vapor "No Further Action" Concentration (May 2017).

(Orange shading) Analyte exceeds the NYSDOH Indoor AGV and Matrix D, E, and F Subslab Vapor "No Further Action" Concentration (February 2024).

U : Not detected at the reported detection limit for the sample.

D: The result is from an analysis that required a dilution.

ug/m^3: micrograms per cubic meter.

-- : No Standards or Guidance Value.

APPENDIX E – FIELD SAMPLING FORMS

SOIL BORING LOG

GZA GeoEnvironmental of New York *Engineers and Scientists* **104 West 29th St., 10th Fl.** **New York, NY 10001**	**PROJECT**	**Boring No.** **Sheet:** **File No.:** **Reviewed By:**
Logged By: **Drilling Co. :** **Foreman**	**Geoprobe Location:** **Ground Surface Elevation (ft.):** **Final Geoprobe Depth (ft.):** **Date : Start Finish**	**Horizontal Datum:** **Vertical Datum:**
Type of Rig: **Rig Model:** **Drilling Method:**	**Sampler Type:** **Sampler O.D. (in.):** **Sampler Length (in.)** **Rock Core Size**	

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

DEPTH (FT)	SAMPLE					Sample Description Modified Burmister Classification	Remark	Depth (ft.)	Stratum Description	Elevation (ft.)
	Macro No.	Macro Depth (ft.)	Pen. (in.)	Rec. (in.)	PID (ppm)					
5										
10										
15										
20										

REMARKS:

Field Screening performed with a photoionization detector (PID) with a 10.5 eV lamp span calibrated to 100 ppm via isobutylene gas.
See Log key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil types.
Actual transition maybe gradual. Water level readings ahave been made at the times and under conditions stated. Fluctuations of groundwater
may occur due to other factors than those present at the times the measurements were made

Boring No.

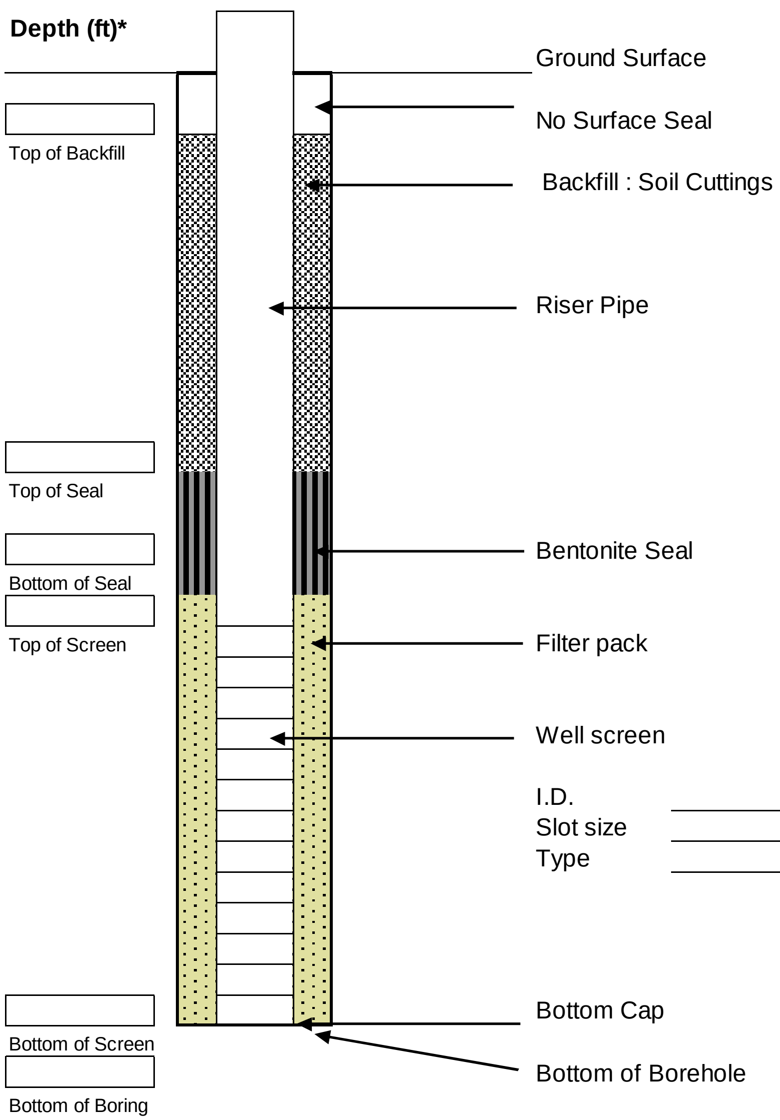
GZA GEOENVIRONMENTAL OF NEW YORK
Engineers and Scientists

Well No.

Project:		Page 1 of 1		
Project No.:	Contractor:	Water Levels		
Surface Elevation:	Driller:	Date	Time	Depth*
Top of PVC Casing Elevation:	GZA Rep:			
Datum:	Date of Completion:			

Temporary Well Installation

Borehole diameter (in.): ___________



I.D. ______________ inches
Slot size ______________ inches
Type ______________

* measurement is relative to the ground surface not the stickup.

WELL PURGE DATA SHEET

WELL ID: MW-

CLIENT:
SITE:
WEATHER:

PROJECT NO:
DATE:
SAMPLER(S):

COLUMN OF WATER IN WELL:
T = Depth to Bottom (ft) - Static Water Level (ft)
= ________ - ________
Water Column (T) = ________ (ft)

GALLONS OF WATER PER WELL VOLUME:
Well Volume = Water Column (T) (ft) x Multiplier
= ________ x ________
Well Volume (V) = ________ (Gallons)

TOTAL VOLUME PURGED:
Design = ________ (gallons)
Actual = ________ [1] (gallons)

well diameter	multiplier
1	0.041
1.5	0.092
2	0.163
4	0.653
6	1.469

PURGE RATE: Variable (mL / min)
PURGE METHOD: Peristaltic Pump, Low Flow Sampling
SCREENED INTERVAL: approximately to ft bgs

WATER QUALITY:

Time	Elapsed Time (Mins)	Purged Volume (gal)	Depth to Water (ft)	pH (SU)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Temp (⁰C)	ORP	Notes
										Start

UNITS:
gal. - gallons
ft. - feet
SU - standard units
ORP - Oxygen Reduction Potential
mS/cm - millisiemens per centimeter
NTU -nephelometric turbidity units
mg/l -milligrams per liter
^{0}C - degrees Celsius
bgs - below ground surface
NA - not applicable

NOTES AND OBSERVATIONS:

1. Purged volume was estimated.

SOIL VAPOR SAMPLE FIELD LOG

PROJECT NAME: ______________________ DATE : ______________________

LOCATION: ______________________ FILE NO.: ______________________

GZA Engineer: __________ Contractor/Lab: __________

Weather: __________ Analytical Method: __________ Depth to Water: __________

Operator: __________ Ground Elevation: __________

Barometric Pressure: __________ PID Calibration: __________ Water Elevation: __________

Sample ID	Canister No.	Regulator No.	Sample Depth (ft)	Vacuum Pressure (in.Hg)		Purge Time			Sample Date	Sample Time		PID Reading (ppm)	Container Type	Surface Cover	Driving Effort	Remark
				Start	End	Purge Start	Purge Stop	Elapsed Time		Start	End					

ABBREVIATIONS:

ft. - feet

in.Hg- Inches of mercury
l./min. - liters per minute
cu. Ft. - cubic feet
ppm - parts per million
NA - not applicable

CONTAINER TYPE	SURFACE COVER	PROBE DRIVING EFFORT	SOIL MOISTURE CONTENT
TB -Tedlar Bag	SO - Soil	E - Easy	D- Dry
SC- Suma Canister	GIL - Grass/Loam	M - Moderate	M- Moderate
ST- Sorbant Tube	Asph - Asphalt	D - Difficult	W - Wet
	Cncrt - Concrete	R - Rellisal	S - Saturated

REMARKS:

APPENDIX F – GREEN AND SUSTAINABILITY REMEDIATION DOCUMENTATION

Known for excellence.
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October 3, 2025
41.0163449.00
36 Frost Street LLC
36 Frost Street
Brooklyn, NY 11211
Block 2736, Lot 20

Green and Sustainable Remediation Evaluation
NYSDEC BCP Site No. __________

Sites remediated under the oversight of the New York State Department of Environmental Conservation (NYSDEC) are required to incorporate the concepts of green remediation into all phases of the cleanup process in accordance with DER-31. Green remediation is defined as *"the practice of considering all environmental effects of remedy implementation and incorporating options to minimize the environmental footprint of cleanup actions."* GZA GeoEnvironmental of New York (GZA) has completed the following evaluation of the remedial activities associated with the *Remedial Investigation Work Plan* (RIWP) for the site located at 36 Frost Street in Brooklyn, New York utilizing the SiteWise™ tool for green and sustainable remediation tracking and information provided by the site owner, 36 Frost Street LLC, and their subcontractors.

BACKGROUND

The Site is located at Block 2736, Lot 20 in Kings County, New York and identified as 36 Frost Street, Brooklyn, New York. 36 Frost Street LLC are preparing an application to enter into the Brownfield Cleanup Program (BCP) with the NYSDEC to investigate and remediate the site for the development of a residential building. The site is approximately 7,487 square feet and is surrounded by primarily residential, commercial, and industrial properties. The site is preparing to undergo a remedial investigation under NYSDEC oversight. GZA has prepared a *Remedial Investigation Work Plan* (RIWP) to be submitted to NYSDEC for the remedial investigation should the property be accepted into the BCP.

The remedial investigation evaluated under the *RIWP* includes the proposed investigation of soil, groundwater, and soil vapor with the inclusion of geophysics survey of the property. Descriptions of the general activities performed under these actions as well as the parameters used for the SiteWise™ evaluation are presented in the following section.

FOOTPRINT ANALYSIS

The remedial investigation will include investigation of the areas of concern (AOCs) identified during a previous Phase II Environmental Site Investigation (ESI) dated July 2, 2025 and a Supplemental Phase II ESI dated September 5, 2025 both performed by GZA. A total of 11 soil borings will be completed to 20 feet below grade with a direct push technology (DPT) drill rig for soil sampling, 5 soil borings will be converted into permanent monitoring wells, and 5 soil borings will be installed to five feet below grade with a DPT drill rig for soil vapor sampling. A geophysical survey of the site using a ground penetrating radar (GPR) will be completed prior to the start of intrusive work. Soil sampling will be completed in 11 of the borings with 2 samples collected from each boring and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, pesticides, herbicides, polychlorinated biphenyls (PCBs), and per- and polyfluoroalkyl substances (PFAS). Groundwater samples will be collected from 5 monitoring wells and analyzed for VOC, SVOCs, metals, pesticides, herbicides, PCBs, and PFAS. Soil vapor samples will be collected from 5 soil vapor points and analyzed for VOCs.

The assumptions utilized in the analysis of the demolition process include the following:

- Soil borings to 20 feet and 5 feet utilizing the DPT drill rig will include 1-hour and 15 minutes of drilling per boring, respectively.
- Soil cuttings from the investigation will be containerized and disposed of at Clean Earth's Carteret Facility in New Jersey approximately 28 miles from the Site.
- Purged groundwater from the investigation will be containerized and treated at a facility within approximately 50 miles of the Site.
- Monitoring wells installed during the investigation will include 10-ft screen intervals with sand filter packs, bentonite seals, and bentonite filled annular space to grade.
- The investigation will be completed by 2 GZA technical staff, two drillers, and one GPR technician.
- The GPR survey will be completed in 1 day while the drilling and sampling will be completed over 5 days.
- Well development will be completed with one submersible pump with one hour of pumping at one gallon per minute.

EVALUATION RESULTS SUMMARY

SiteWise™ breaks down the impacts of project into the following categories:

- Greenhouse gas emissions (metric tons)
- Total energy used (million British thermal units)
- Water consumption (gallons)
- Electricity Usage (megawatt hours)
- Onsite nitrous oxide emissions (metric tons)
- Onsite sulfur oxide emissions (metric tons)
- Onsite particulate matter less than 10 microns (PM10) emissions (metric tons)
- Total nitrous oxide emissions (metric tons)
- Total sulfur oxide emissions (metric tons)
- Total PM10 emissions (metric tons)
- Accident fatality risk
- Accident injury risk

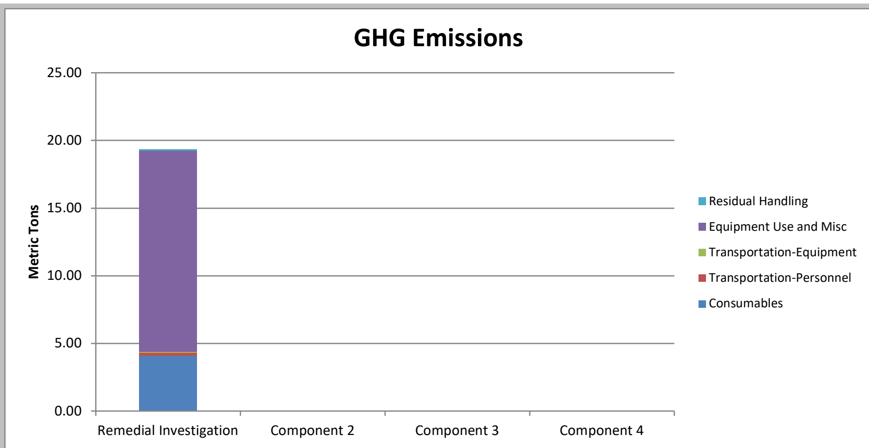
Greenhouse gas emissions during the investigation are estimated to include 19.34 metric tons with a majority of the emissions resulting from equipment use. Total energy usage for the investigation is estimated to be 1,545.42 million British thermal units (MMBTU) with the highest contributions coming from the use of consumable materials and equipment use. Water consumption is estimated to be 120 gallons of water all resulting from the development and sampling of the monitoring wells. The detailed summary of the evaluation, including the comparison of impacts from each category of activity during the investigation, is provided in **Attachment 1**. A climate screening checklist of the investigation is also provided as **Attachment 2**

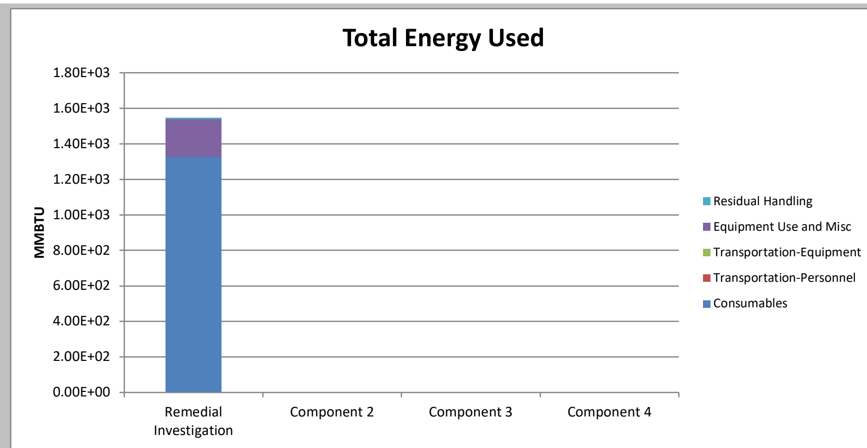
Attachment 1 – SiteWise™ Footprint Analysis

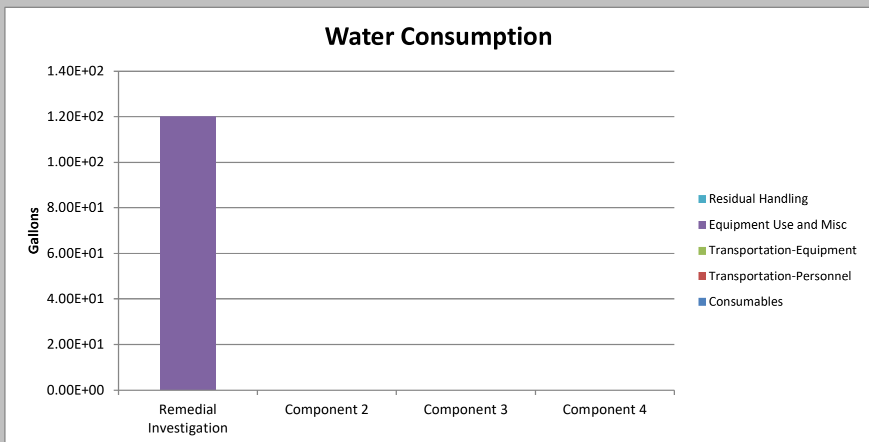
Sustainable Remediation - Environmental Footprint Summary
36 Frost RIWP

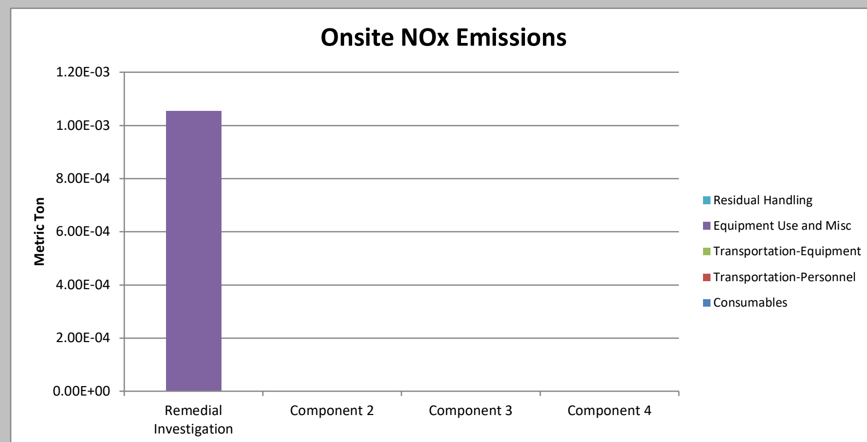
Phase	Activities	GHG Emissions	Total Energy Used	Water Consumption	Electricity Usage	Onsite NOx Emissions	Onsite SOx Emissions	Onsite PM10 Emissions	Total NOx Emissions	Total SOx Emissions	Total PM10 Emissions	Accident Risk Fatality	Accident Risk Injury
		metric ton	MMBTU	gallons	MWH	metric ton	metric ton	metric ton	metric ton	metric ton	metric ton		
Remedial Investigation	Consumables	4.18	1.3E+03	NA	NA	NA	NA	NA	3.9E-03	5.3E-03	6.8E-04	NA	NA
	Transportation-Personnel	0.28	3.5E+00	NA	NA	NA	NA	NA	1.1E-04	2.0E-05	1.6E-05	7.1E-06	5.7E-04
	Transportation-Equipment	0.08	1.1E+00	NA	NA	NA	NA	NA	2.6E-05	1.0E-06	2.1E-06	3.9E-07	3.1E-05
	Equipment Use and Misc	14.73	2.1E+02	1.2E+02	4.6E-05	1.1E-03	1.1E-04	9.5E-05	7.1E-02	5.3E-02	6.0E-03	5.9E-06	2.7E-03
	Residual Handling	0.07	9.9E-01	NA	NA	0.0E+00	0.0E+00	0.0E+00	3.5E-05	7.7E-06	3.8E-05	3.9E-07	3.1E-05
	Sub-Total	19.34	1.55E+03	1.20E+02	4.62E-05	1.05E-03	1.08E-04	9.48E-05	7.54E-02	5.81E-02	6.69E-03	1.37E-05	3.35E-03
Component 2	Consumables	0.00	0.0E+00	NA	NA	NA	NA	NA	0.0E+00	0.0E+00	0.0E+00	NA	NA
	Transportation-Personnel	0.00	0.0E+00	NA	NA	NA	NA	NA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Transportation-Equipment	0.00	0.0E+00	NA	NA	NA	NA	NA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Equipment Use and Misc	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Residual Handling	0.00	0.0E+00	NA	NA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Sub-Total	0.00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Component 3	Consumables	0.00	0.0E+00	NA	NA	NA	NA	NA	0.0E+00	0.0E+00	0.0E+00	NA	NA
	Transportation-Personnel	0.00	0.0E+00	NA	NA	NA	NA	NA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Transportation-Equipment	0.00	0.0E+00	NA	NA	NA	NA	NA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Equipment Use and Misc	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Residual Handling	0.00	0.0E+00	NA	NA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Sub-Total	0.00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Component 4	Consumables	0.00	0.0E+00	NA	NA	NA	NA	NA	0.0E+00	0.0E+00	0.0E+00	NA	NA
	Transportation-Personnel	0.00	0.0E+00	NA	NA	NA	NA	NA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Transportation-Equipment	0.00	0.0E+00	NA	NA	NA	NA	NA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Equipment Use and Misc	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Residual Handling	0.00	0.0E+00	NA	NA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Sub-Total	0.00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total		**1.9E+01**	**1.5E+03**	**1.2E+02**	**4.6E-05**	**1.1E-03**	**1.1E-04**	**9.5E-05**	**7.5E-02**	**5.8E-02**	**6.7E-03**	**1.4E-05**	**3.3E-03**

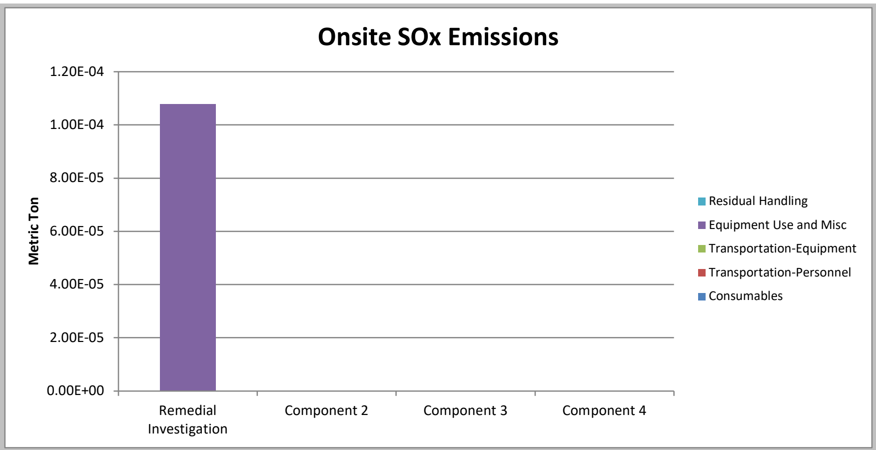
Remedial Alternative Phase	Non-Hazardous Waste Landfill Space	Hazardous Waste Landfill Space	Topsoil Consumption	Costing	Lost Hours - Injury	Percent electricity from renewable sources	Total Cost with Footprint Reduction
	tons	tons	cubic yards	$		%	
Remedial Investigation	2.0E-01	0.0E+00	0.0E+00	0	2.7E-02	24.2%	$0
Component 2	0.0E+00	0.0E+00	0.0E+00	0	0.0E+00	0.0%	
Component 3	0.0E+00	0.0E+00	0.0E+00	0	0.0E+00	0.0%	
Component 4	0.0E+00	0.0E+00	0.0E+00	0	0.0E+00	0.0%	
Total	**2.0E-01**	**0.0E+00**	**0.0E+00**	**$0**	**2.7E-02**	**6.1%**	

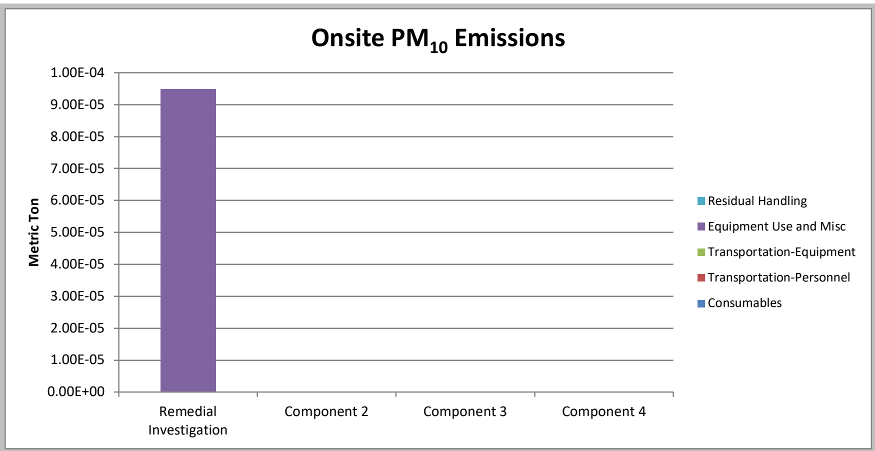

GHG Emissions
Metric Tons
25.00
20.00
15.00
10.00
5.00
0.00
Remedial Investigation
Component 2
Component 3
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

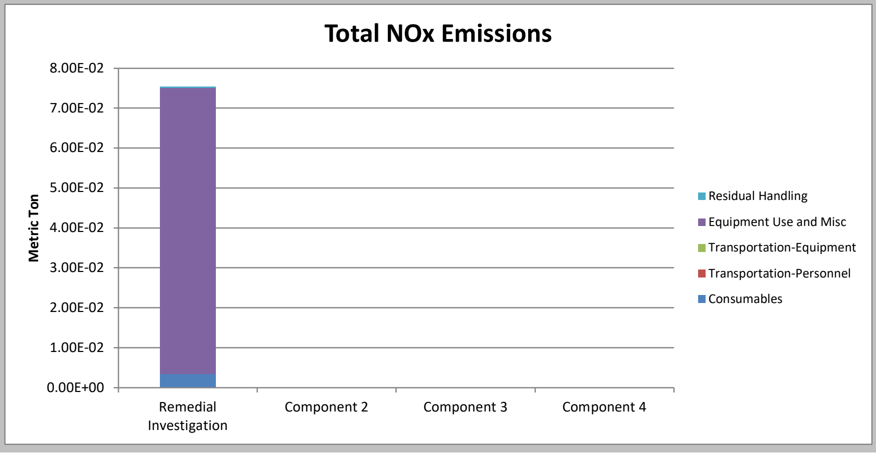

Total Energy Used
MMBTU
1.80E+03
1.60E+03
1.40E+03
1.20E+03
1.00E+03
8.00E+02
6.00E+02
4.00E+02
2.00E+02
0.00E+00
Remedial Investigation
Component 2
Component 3
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

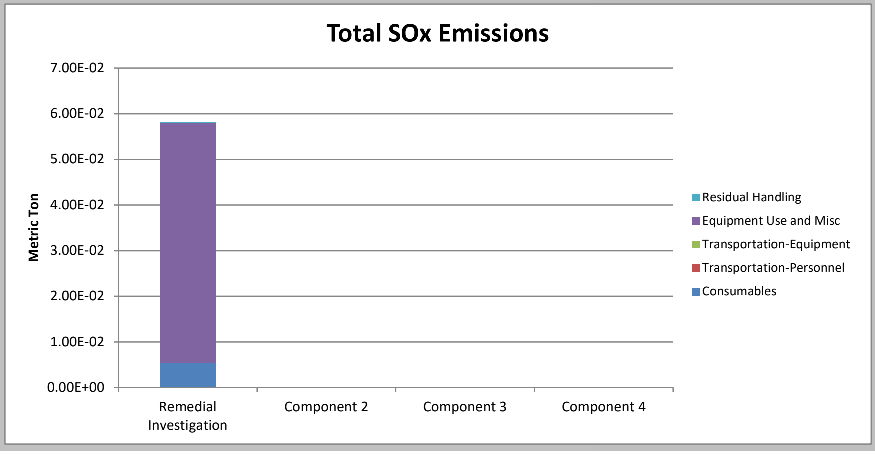

Water Consumption
Gallons
1.40E+02
1.20E+02
1.00E+02
8.00E+01
6.00E+01
4.00E+01
2.00E+01
0.00E+00
Remedial Investigation
Component 2
Component 3
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

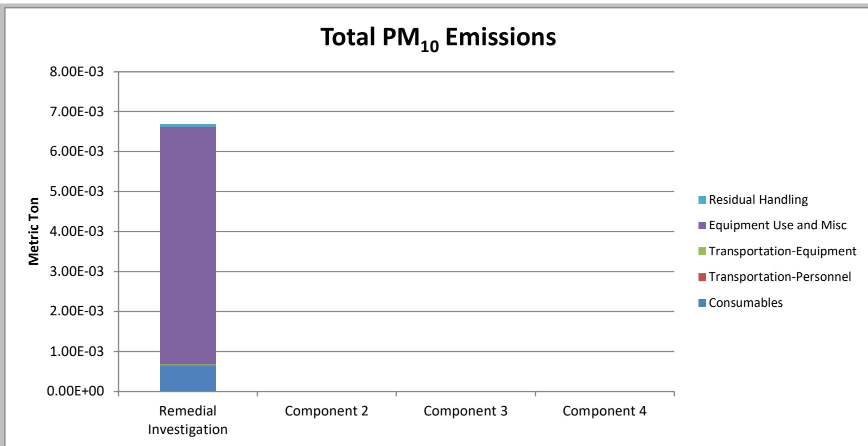

Onsite NOx Emissions
Metric Ton
1.20E-03
1.00E-03
8.00E-04
6.00E-04
4.00E-04
2.00E-04
0.00E+00
Remedial Investigation
Component 2
Component 3
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

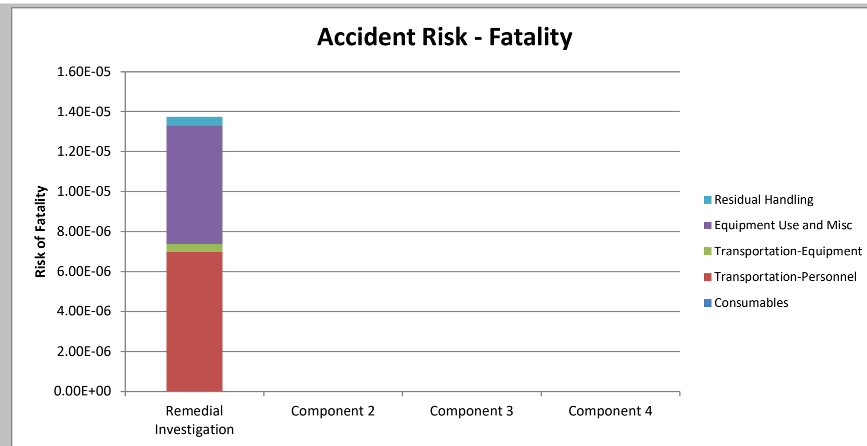

Onsite SOx Emissions
Metric Ton
1.20E-04
1.00E-04
8.00E-05
6.00E-05
4.00E-05
2.00E-05
0.00E+00
Remedial Investigation
Component 2
Component 3
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

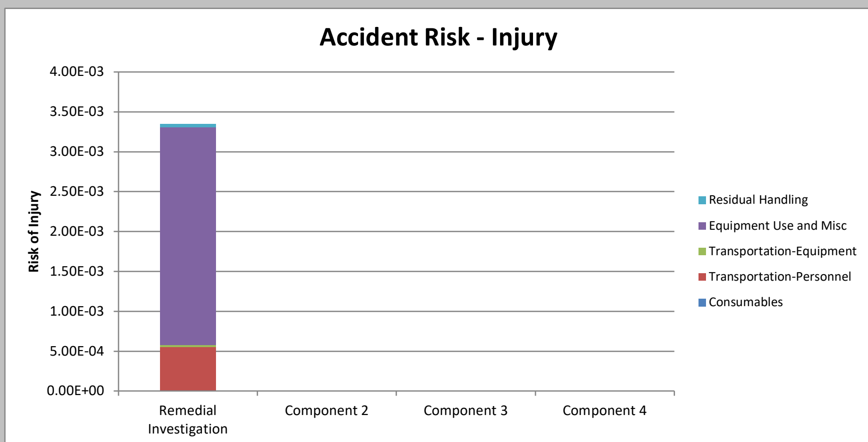

Onsite PM_{10} Emissions
Metric Ton
1.00E-04
9.00E-05
8.00E-05
7.00E-05
6.00E-05
5.00E-05
4.00E-05
3.00E-05
2.00E-05
1.00E-05
0.00E+00
Remedial Investigation
Component 2
Component 3
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

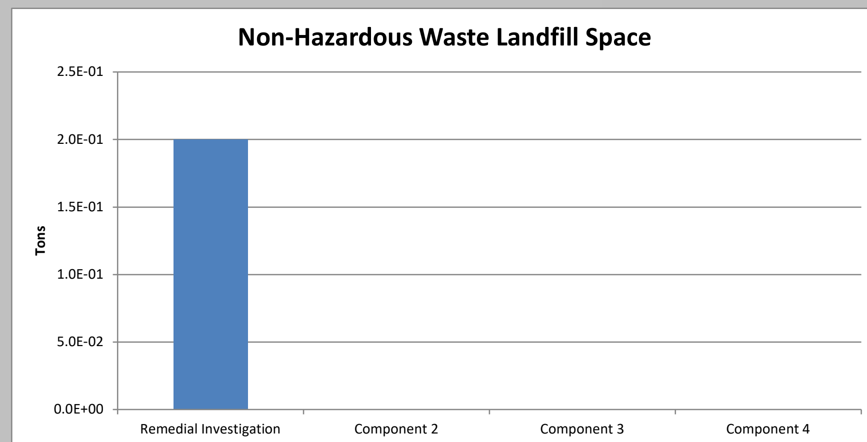

Total NOx Emissions
Metric Ton
8.00E-02
7.00E-02
6.00E-02
5.00E-02
4.00E-02
3.00E-02
2.00E-02
1.00E-02
0.00E+00
Remedial Investigation
Component 2
Component 3
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

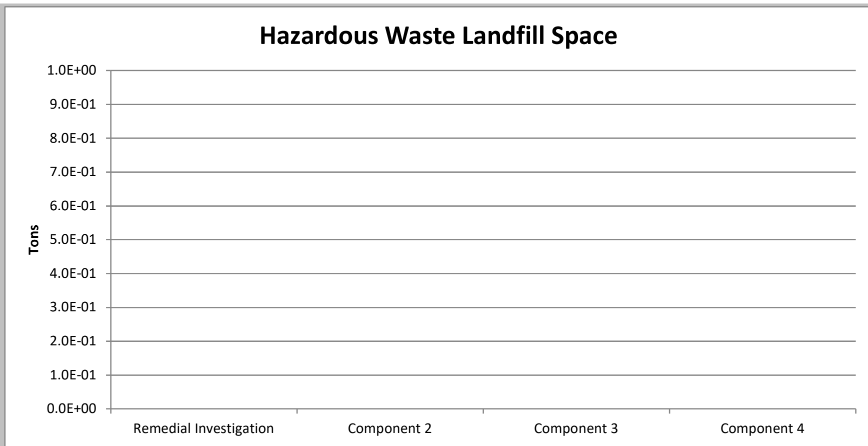

Total SOx Emissions
Metric Ton
7.00E-02
6.00E-02
5.00E-02
4.00E-02
3.00E-02
2.00E-02
1.00E-02
0.00E+00
Remedial Investigation
Component 2
Component 3
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

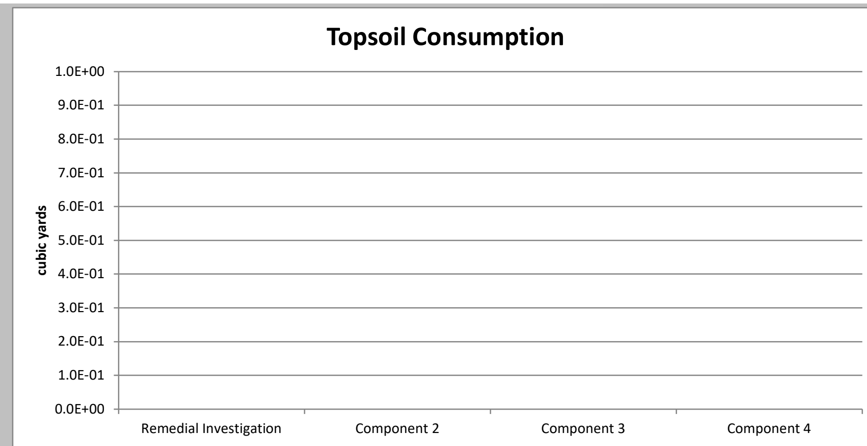

Total PM10 Emissions
Metric Ton
8.00E-03
7.00E-03
6.00E-03
5.00E-03
4.00E-03
3.00E-03
2.00E-03
1.00E-03
0.00E+00
Remedial Investigation
Component 2
Component 3
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

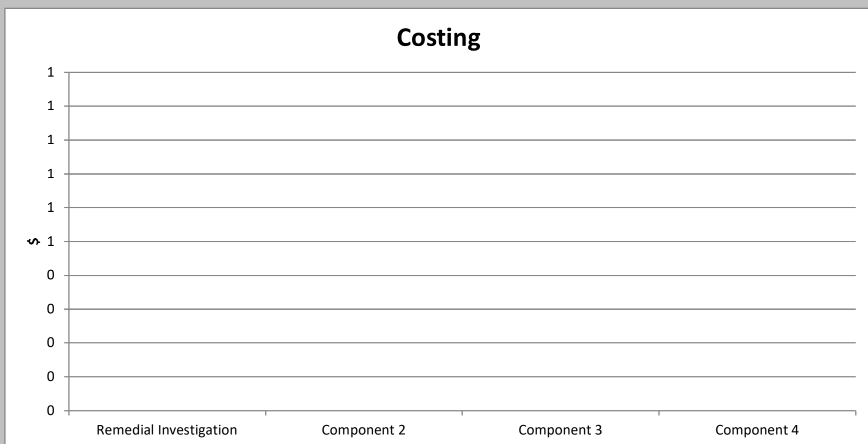

Accident Risk - Fatality
Risk of Fatality
1.60E-05
1.40E-05
1.20E-05
1.00E-05
8.00E-06
6.00E-06
4.00E-06
2.00E-06
0.00E+00
Remedial Investigation
Component 2
Component 3
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables

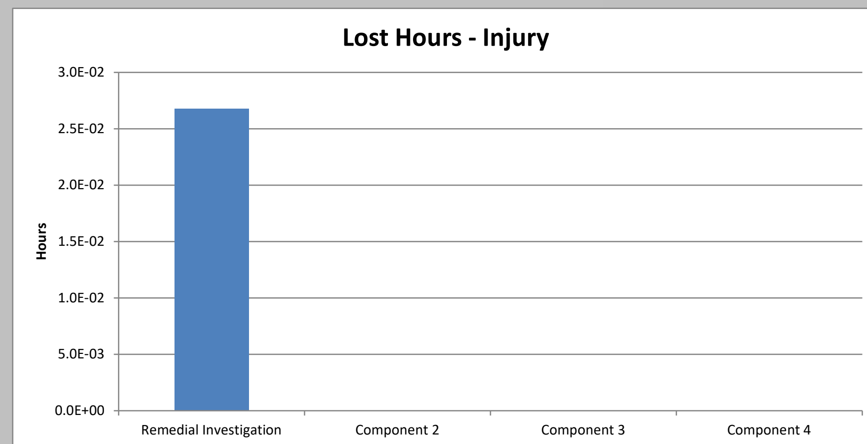

Accident Risk - Injury
Risk of Injury
4.00E-03
3.50E-03
3.00E-03
2.50E-03
2.00E-03
1.50E-03
1.00E-03
5.00E-04
0.00E+00
Remedial Investigation
Component 2
Component 3
Component 4
Residual Handling
Equipment Use and Misc
Transportation-Equipment
Transportation-Personnel
Consumables


Non-Hazardous Waste Landfill Space
Tons
2.5E-01
2.0E-01
1.5E-01
1.0E-01
5.0E-02
0.0E+00
Remedial Investigation
Component 2
Component 3
Component 4


Hazardous Waste Landfill Space
Tons
1.0E+00
9.0E-01
8.0E-01
7.0E-01
6.0E-01
5.0E-01
4.0E-01
3.0E-01
2.0E-01
1.0E-01
0.0E+00
Remedial Investigation
Component 2
Component 3
Component 4


Topsoil Consumption
cubic yards
1.0E+00
9.0E-01
8.0E-01
7.0E-01
6.0E-01
5.0E-01
4.0E-01
3.0E-01
2.0E-01
1.0E-01
0.0E+00
Remedial Investigation
Component 2
Component 3
Component 4


Costing
$
1
1
1
1
1
1
0
0
0
0
0
Remedial Investigation
Component 2
Component 3
Component 4


Lost Hours - Injury
Hours
3.0E-02
2.5E-02
2.0E-02
1.5E-02
1.0E-02
5.0E-03
0.0E+00
Remedial Investigation
Component 2
Component 3
Component 4

Sustainable Remediation Summary - Remedial Investigation

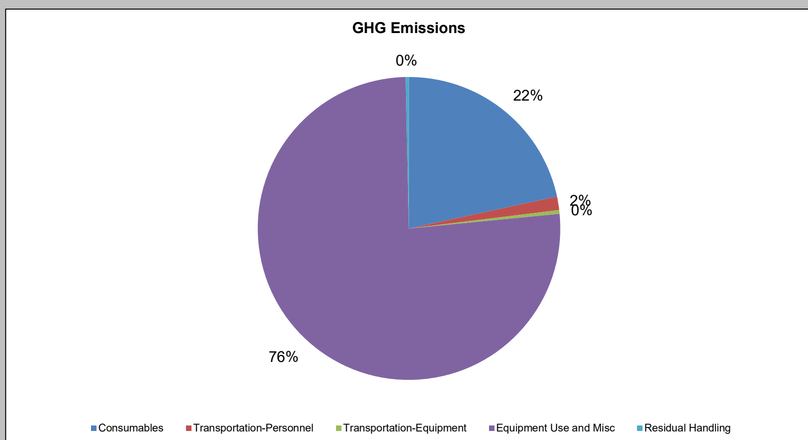
Activities	GHG Emissions	Percent Total	Total Energy Used	Percent Total	Water Consumption	Percent Total	Electricity Usage	Percent Total	Onsite NOx Emissions	Percent Total	Onsite SOx Emissions	Percent Total	Onsite PM10 Emissions	Percent Total	Total NOx Emissions	Percent Total	Total SOx Emissions	Percent Total	Total PM10 Emissions	Percent Total	Accident Risk Fatality	Percent Total	Accident Risk Injury	Percent Total
	metric ton	%	MMBTU	%	gallons	%	MWH	%	metric ton	%	metric ton	%	metric ton	%	metric ton	%	metric ton	%	metric ton	%		%		%
Consumables	4.18	21.6	1.3E+03	86.0	NA	NA	NA	NA	NA	-	NA	-	NA	-	3.9E-03	5.2	5.3E-03	9.2	6.8E-04	10.2	NA	NA	NA	NA
Transportation-Personnel	0.28	1.4	3.5E+00	0.2	NA	NA	NA	NA	NA	-	NA	-	NA	-	1.1E-04	0.1	2.0E-05	0.0	1.6E-05	0.2	7.1E-06	51.4	5.7E-04	17.0
Transportation-Equipment	0.08	0.4	1.1E+00	0.1	NA	NA	NA	NA	NA	-	NA	-	NA	-	2.6E-05	0.0	1.0E-06	0.0	2.1E-06	0.0	3.9E-07	2.8	3.1E-05	0.9
Equipment Use and Misc	14.73	76.2	2.1E+02	13.6	1.2E+02	100.0	4.6E-05	100.0	1.1E-03	100.0	1.1E-04	100.0	9.5E-05	100.0	7.1E-02	94.6	5.3E-02	90.8	6.0E-03	89.0	5.9E-06	42.9	2.7E-03	81.1
Residual Handling	0.07	0.4	9.9E-01	0.1	NA	NA	NA	NA	0.0E+00	-	0.0E+00	-	0.0E+00	-	3.5E-05	0.0	7.7E-06	0.0	3.8E-05	0.6	3.9E-07	2.8	3.1E-05	0.9
Total	19.34	100.0	1.55E+03	100.0	1.20E+02	100.0	4.62E-05	100.0	1.05E-03	100.0	1.08E-04	100.0	9.48E-05	100.0	7.54E-02	100.0	5.81E-02	100.0	6.69E-03	100.0	1.37E-05	100.0	3.35E-03	100.0

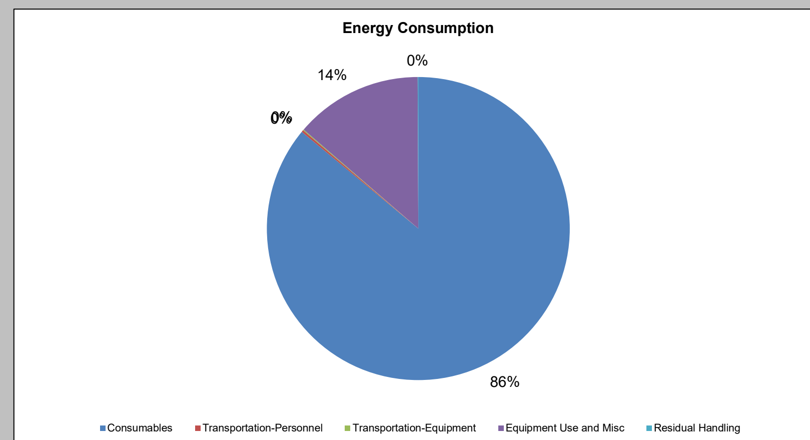
Additional Sustainability Metrics

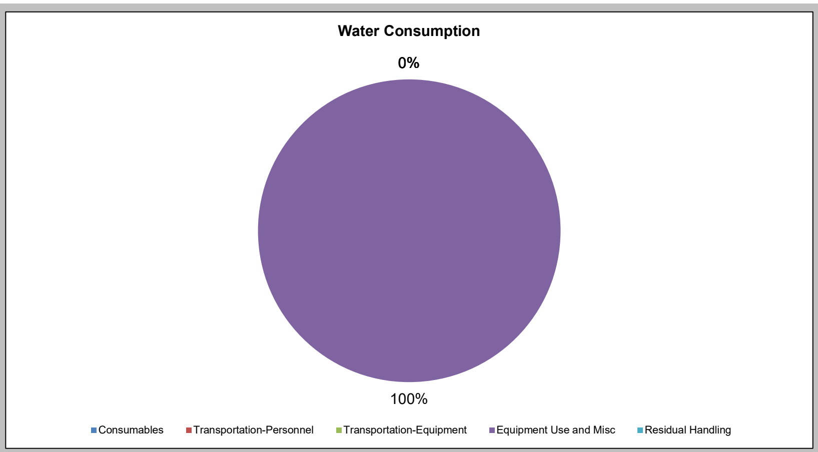
Non-Hazardous Waste Landfill Space (tons)	0.2
Hazardous Waste Landfill Space (tons)	0.0
Topsoil Consumption (yd^3)	0.0
Cost of Phase ($)	0.0
Lost Hours - Injury	0.0

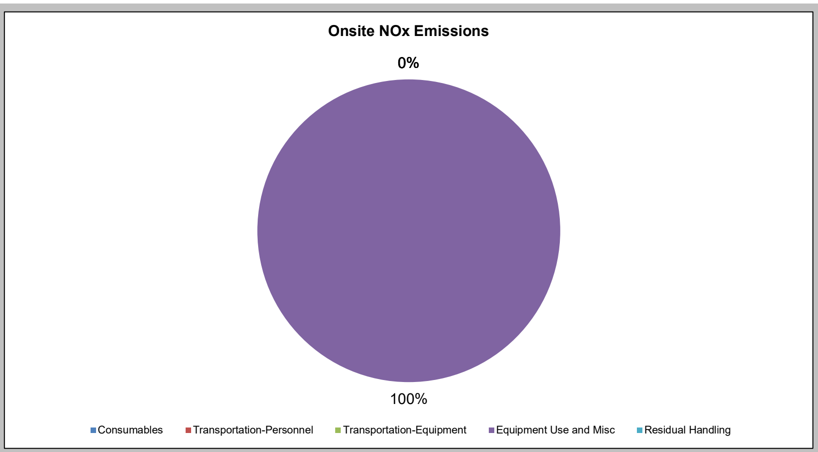
Footprint Reduction

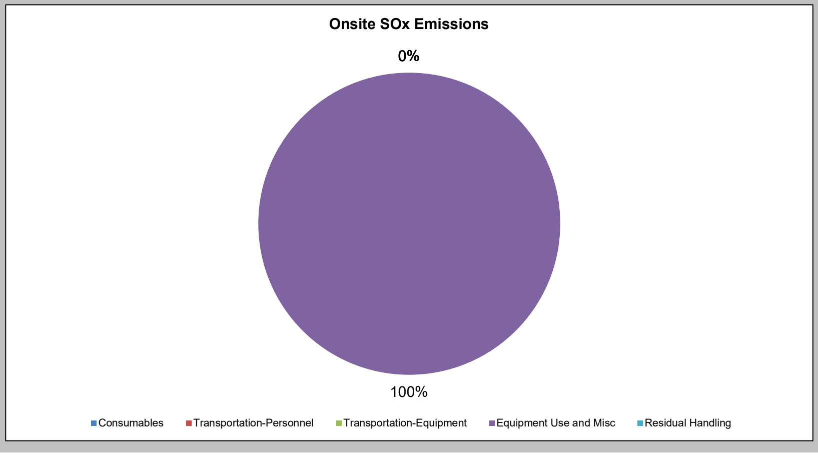
Total electricity replacement (MWh)	0.00E+00
Total electricity replacement (mmBtu)	0.00E+00
Percent electricity from renewable sources (%)	24.2%
Landfill gas reduction (metric ton CO_2 e)	0.00E+00
GHG emissions (metric ton CO2 e)	0.00E+00
NOx emissions (metric ton)	0.00E+00
SOx emissions (metric ton)	0.00E+00
PM10 emissions (metric ton)	0.00E+00

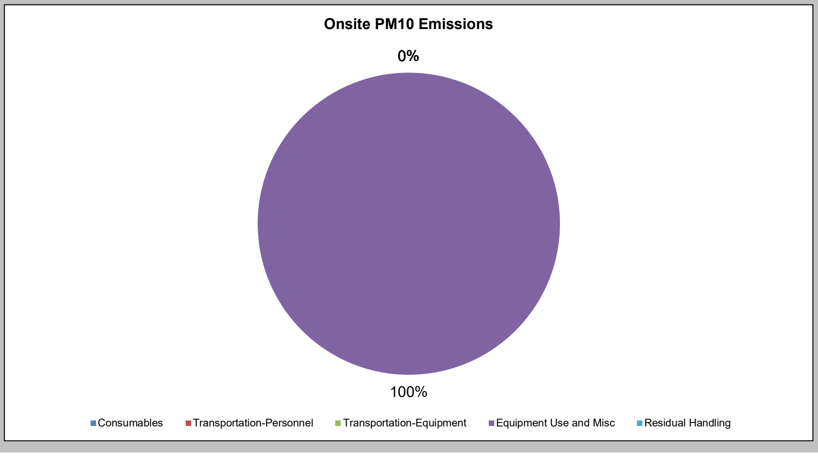


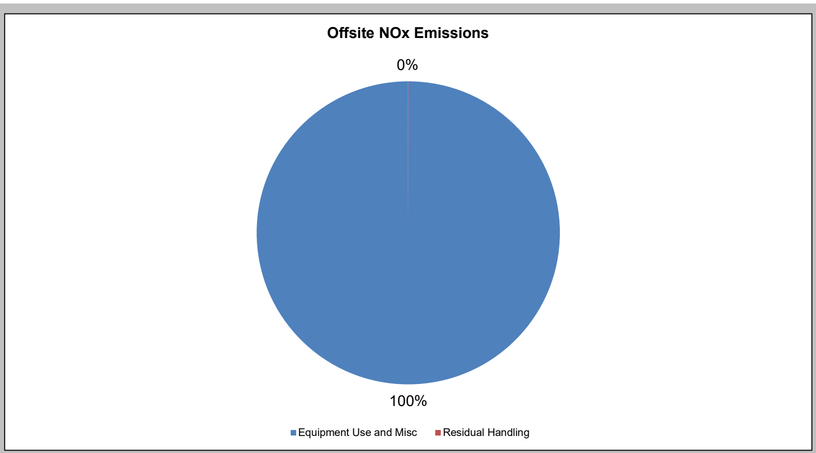


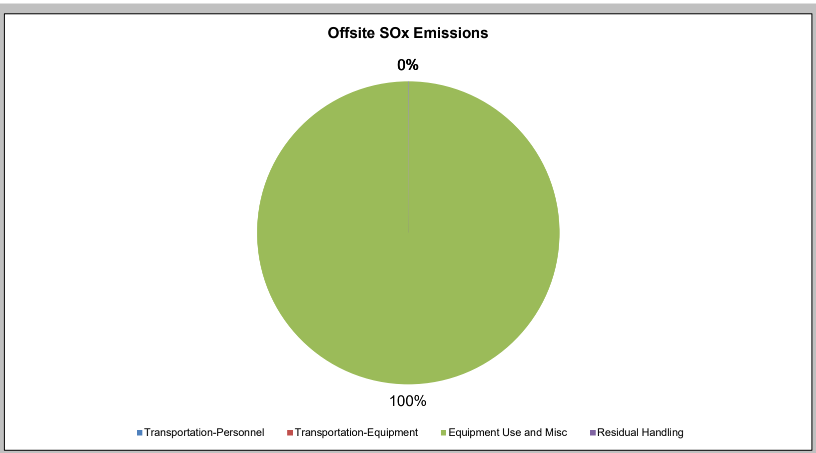

Water Consumption
0%
100%
Consumables
Transportation-Personnel
Transportation-Equipment
Equipment Use and Misc
Residual Handling

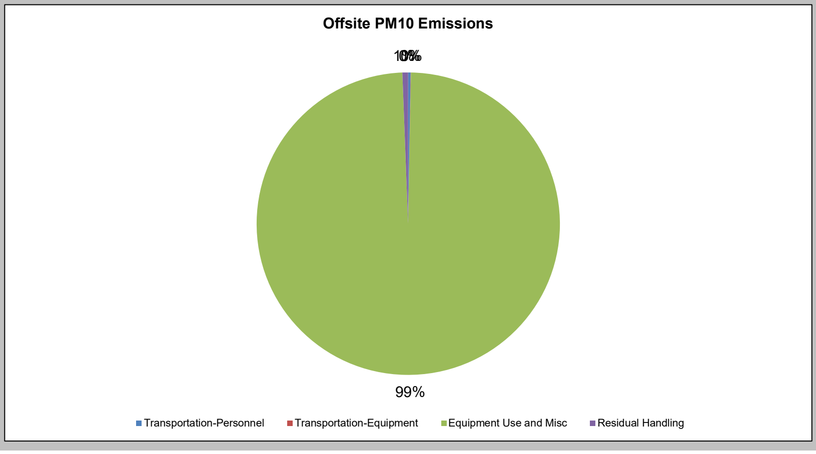

Onsite NOx Emissions
0%
100%
Consumables
Transportation-Personnel
Transportation-Equipment
Equipment Use and Misc
Residual Handling

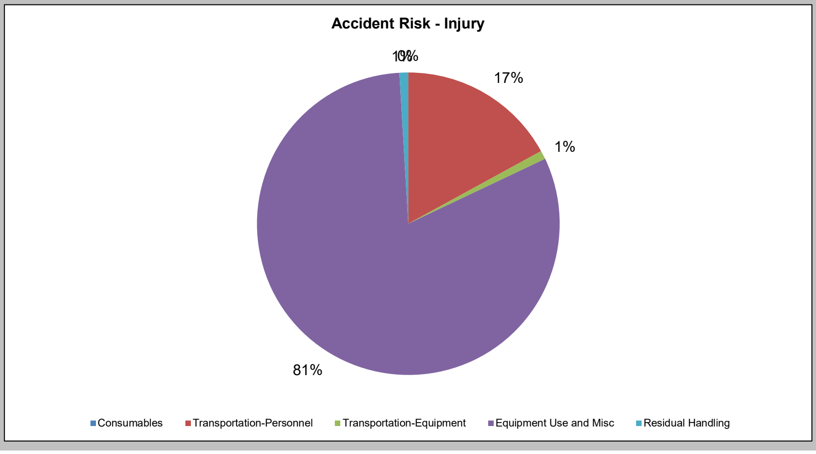

Onsite SOx Emissions
0%
100%
Consumables
Transportation-Personnel
Transportation-Equipment
Equipment Use and Misc
Residual Handling

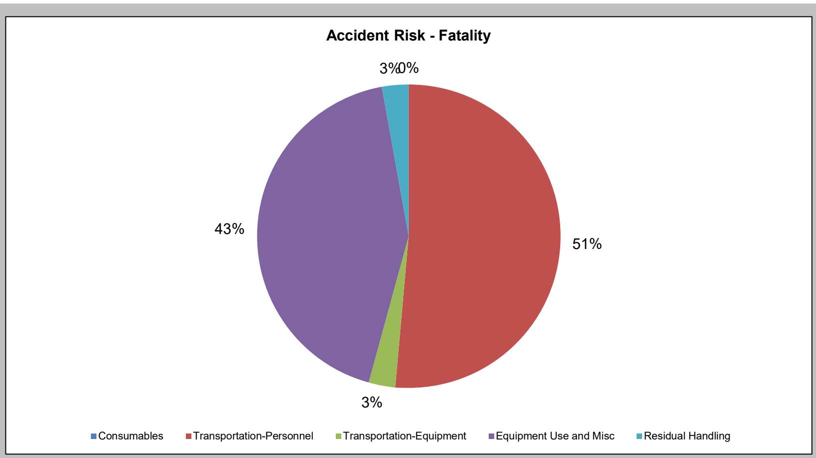

Onsite PM10 Emissions
0%
100%
Consumables
Transportation-Personnel
Transportation-Equipment
Equipment Use and Misc
Residual Handling


Offsite NOx Emissions
0%
100%
Equipment Use and Misc
Residual Handling


Offsite SOx Emissions
0%
100%
Transportation-Personnel
Transportation-Equipment
Equipment Use and Misc
Residual Handling


Offsite PM10 Emissions
99%
Transportation-Personnel
Transportation-Equipment
Equipment Use and Misc
Residual Handling


Accident Risk - Injury
17%
1%
81%
Consumables
Transportation-Personnel
Transportation-Equipment
Equipment Use and Misc
Residual Handling



Accident Risk - Fatality
3%
0%
43%
51%
3%
Consumables
Transportation-Personnel
Transportation-Equipment
Equipment Use and Misc
Residual Handling

Attachment 2 – Climate Screening Checklist

Climate Screening Checklist

Background

- Qualified Environmental Professional: Victoria Whelan, P.G.
- Project Manager: Ron Lombino
- Site Name: 36 Frost Street
- Site Number: TBD
- Site Location:36 Frost Street Brooklyn, NY
- Site Elevation (average above sea level): Approximately 20 feet above sea level (from google earth).

- ClimAID region: Region 4—New York City and Long Island

- Remedial Stage/Site Classification: Remedial Investigation

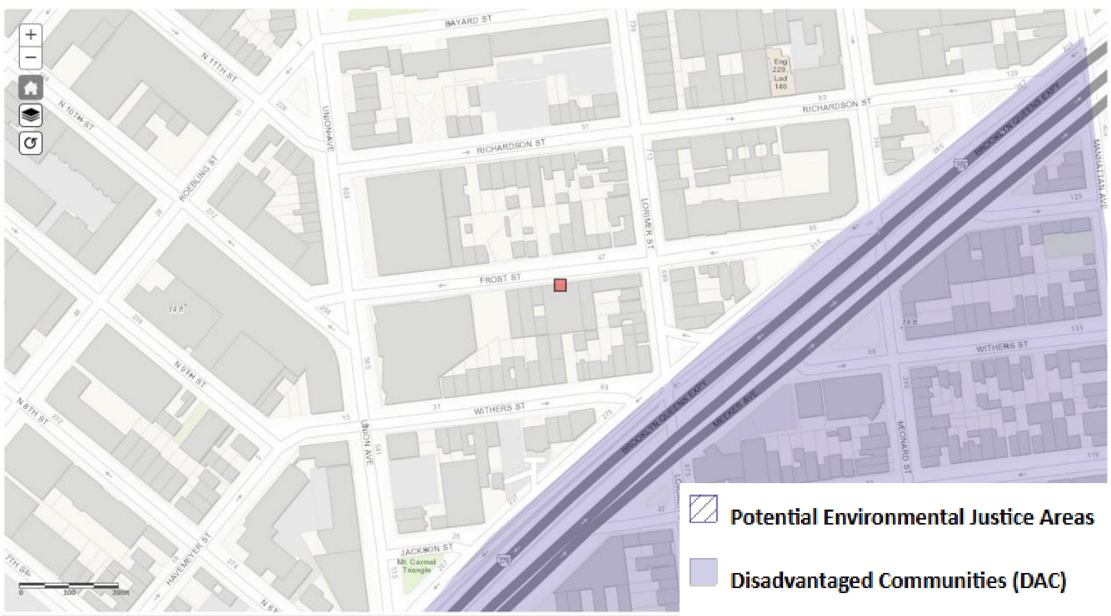
- Contamination -- Media Impacted/Contaminants of Concern: Limit investigations have been performed to characterize soil, groundwater, and soil vapor at the site. Preliminary results indicate chlorinated VOCs (Primarily PCE and TCE) are present in soil, groundwater and soil vapor.

- Proposed/Current Remedy: The proposed investigation will be used to characterize the soil, groundwater, and soil vapor contamination at the Site to be implemented into an adequate remedy.

- What is the predicted timeframe of the remedy? Will components of the remedy still be in place in 10+ years? Soil borings and vapor points will not be left in place after the completion of the remedial investigation. Groundwater monitoring wells will be installed as permanent wells for use throughout the remediation process and will remain in place until at least the start of construction for new development and/or remedy implementation.

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

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 (Put the reference document/model used here) [3]	Potential to Impact Remedy (Y/N)	Is remedy/site already resilient? (Y/N) [4]
Precipitation	Y	Based upon NOAA's Climate Mapping for Resilience & Adaptation (CMRA) Tool the annual rain fall is projected to increase between 4.1 and 5.7 inches by the end of the century.	N	N/A
Temperature (Extreme Heat or Cold Weather Impacts) [2]	Y	Based upon NOAA's CMRA Tool, by the end of the century there will be an estimated increase of between 1,801.1 and 2,434.2 cooling degree days.	N	N/A
Sea Level Rise	Y	Based upon the NOAA's Sea Level Rise Viewer the site is impacted at 10 feet of SLR.	N	N/A

Flooding[5]	Y	Based upon FEMA's Resiliency Analysis Planning Tool, the site is split in half between the 1% and 0.2% annual FEMA flood hazard chance maps.	N	N/A
Storm Surge	Y	Y – NOAA's Storm Surge Risk Maps tool indicates that the site has at least 3 feet of flooding during a Category 2 hurricane and over 9 feet of flooding with a Category 3 hurricane.	N	N/A
Wildfire	N	N/A	N/A	N/A
Drought	N	N/A	N/A	N/A
Storm Severity (could include high winds, lightning, etc.)	N	N - Based upon FEMA's National Risk Index Tool, The Site is in the Nation's 98.5th percentile for lightning risk, 99.9th percentile for strong winds, and 65.8th percentile hail.	N	N/A
Landslides	N	N/A	N/A	N/A

Other Hazards:	Seismic Activity – N/A	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 30 degrees F (NYSERDA ClimAID report), Note: this is important for sites with active remedial systems/sites where the remedy relies on the electrical grid

[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.

[5] For system sites- components (e.g. electrical wiring and panels) should be evaluated to determine if they would need to be raised to avoid flooding.

Required Next Steps (If no further action, provide justification):

No further action is required for the evaluation of the remedial investigation resiliency. Climate related impacts would only impact the scheduling of the field work for the investigation. Monitoring wells will be the only lasting portions of the remedial investigation at the site and are not impacted by the climate impacts evaluated.

APPENDIX G – QEP QUALIFICATIONS

RESUME

Victoria Whelan, PG, QEP

Associate Principal

Education

B.S., Geology, State University of New York at Oswego, 2001-2005; James Cook University 2004-2005

Licenses & Registrations

Registered Professional Geologist – 2017, New York, # 000318

Certified Professional Geologist, New York State

Qualified Environmental Professional, Institute of Professional Environmental Practice

Areas of Specialization

- Geology
- NYCOER VCP
- NYSBCP
- Environmental Assessments
- Environmental Site Investigation and Remediation
- UST Closures/Assessments
- Regulatory Compliance Planning and Permitting

Summary of Experience

Ms. Whelan is a Certified Professional Geologist and Qualified Environmental Professional with nearly 20 years of experience in environmental assessment. She has performed and managed field investigations and remedial activities at numerous sites on Long Island and throughout the Metro New York area. She has skillfully conducted all aspects of environmental investigations and remediation. Her primary focus is to accurately assess, investigate, remediate, and maintain environmental integrity for real estate transactions and the redevelopment of brownfield or similarly environmental impaired properties.

She manages all aspects of projects with the New York State Department of Environmental Conservation (NYSDEC) Brownfield (BCP) and Voluntary Cleanup Program (VCP), the New York City Office of Environmental Remediation (NYC OER), the New York City Department of Environmental Protection (NYCDEP) and the United States Environmental Protection Agency (USEPA).

Relevant Project Experience

NYCOER PROJECTS

Project Manager, Chester Street Brooklyn Supportive Housing Project, Brooklyn, New York. Managed all aspects of environmental project from due diligence investigation services, Phase I Environmental Site Assessment, and Phase II Environmental Site Investigation services to assisting client through NYCOER Voluntary Cleanup Program (VCP). Submitted and received approval for remedial investigation work plan, remedial investigation report, remedial action work plan, and construction health and safety plan, including a community air monitoring program. Managed removal of 12 buried aboveground storage tanks (ASTs). Managed waste characterization study to evaluate various soil types for disposal. Cost effectively utilized the NYC Clean Soil Bank as a disposal site and backfill source. Secured grant funding after receiving Notice of Satisfaction (NOS) for a Track 1 Cleanup.

Environmental Project Manager, Manhattan Avenue, Affordable Housing Project, Brookyn, New York. Member of team that helped Ownership develop a new seven-story residential building on former factory site. Proposed development covered nearly 8,000 square feet of the property, including affordable housing with amenities such as a rear yard, recreation space, and children's play place. Site's contaminants included heavy metals and semi-volatile organic compounds. Hazardous and non-hazardous waste and non-hazardous was removed from the property as part of remediation efforts to address source material. Goal Soil Cleanup Objectives (SCOs) could not be achieved after remediation due to shallow groundwater. A track 4 Cleanup was achieved on this site by installing a composite cover inclusive of a vapor barrier. The project was completed on-time and on budget for the client to receive a NOS.

Project Manager, Bronx Community Development Project, Bronx, New York. Provided environmental services as client purchased, investigated, and remediated site for 81-unit community development, parking area and recreational area. The project is enrolled in NYC OER's VCP. Completed a Phase I ESA, VEA, Phase II ESI, RAWP and RAR.

Victoria Whelan, PG, QEP

Associate Principal

During remediation perimeter air monitoring was performed as per the CAMP. Designed oversaw removal of contaminated soil and installation of chemical vapor barrier during redevelopment.

NYSDEC BROWNFIELD PROJECTS

Principal-in-Charge, Former Auto Wreckers Site, Bronx, New York. Project is in the NYSDEC BCP with a planned Track 1 Cleanup. The site was successfully rezoned, and the proposed project will include 212 affordable housing apartments, 22,000 square feet (sf) of retail space, and parking. As remedial excavation was conducted it was quickly determined that the initial remedial plan would not satisfy the requirements for the project. As PIC, worked with the ownership, architect, accountant and construction team to steer the project towards new remedial goals without impacting project schedule. Remedial elements include a large-scale groundwater treatment system to address petroleum impacted groundwater and excavation of all source material ranging from depths of 2 to 15 feet below grade.

Environmental Project Manager, Confidential Residential Development, Bronx, New York. The 1.5-acre property was enrolled in the NYSDEC Brownfield Cleanup Program. Remedial components included excavation of soil exceeding the Site-specific Track 4 SCOs ranging from 2-22 feet, construction and maintenance of a composite cover system, removal of multiple underground storage tanks (USTs) and injection of Regenox and ORC Advanced (ISCO treatment) into the groundwater. Remediation also involved implementation of a CAMP. The site building was equipped with a vapor barrier and an active sub-slab depressurization system (SSDS). Throughout the process, assisted with design, maintaining a schedule and development of a Site Management Plan (SMP) and Final Engineering Report (FER).

Principal-in-Charge, Clay Street, NYCOER to NYSBCP Site, Brooklyn New York. Project consists of three parcels that share a property boundary and is in an area known to have heavy contamination. As the Principal-in-Charge, guided a team including ownership, developer and architect from the NYCOER VCP to the NYSDEC BCP based on contamination identified during the initial Remedial Investigation. Strategically conducted additional investigation to get multiple parts of the project eligible for the program and to maximize the tax credits available. Development will include a much-needed community facility in the way of a medical center, an indoor children's play center, and residential house.

USEPA PROJECTS

Project Manager, Remediation System, Confidential Client, Hicksville, New York. Managed this USEPA Superfund site for nearly 15 years through the operations and maintenance phase including a long-term groundwater treatment program, off-site soil vapor intrusion evaluations, and a large-scale groundwater sampling program. Contaminants of concern included PCBs and volatile organic compounds (VOCs). The site was complicated by multiple overlapping plumes of groundwater contamination. Collaborated with multiple property owners and their consultants to successfully drive the remediation.

NYS SPILLS PROJECTS

Project Manager, Spill Investigation and Remediation Services, Hempstead, New York. Performed a Phase I Environmental Site Assessment (ESA) that identified a gas station on the Site from 1940 through 1962, until redevelopment in the 1970s as a current commercial building. A subsequent Phase II Environmental Site Investigation (ESI) identified petroleum impacted soils, groundwater, and the presence of light non-aqueous phase liquids (LNAPL). A NYSDEC Spill Case was opened, and a Spill Investigation Work Plan was approved. Managed the spill investigation activities which included a work plan of Vacuum Enhanced Fluid Recovery (VEFR) events to evaluate feasibility of collecting residual petroleum contamination from beneath the Site building using VEFR. As part of long-term remedial plan, Monitored Natural Attenuation (MNA) and biodegradation to assess MNA is viable remedial strategy for the Site after the remediation of the LNAPL.

Certifications/Training

- 40-Hour OSHA HAZWOPER Training and 8-Hour Refreshers
- 10-Hour OSHA Construction Safety Course

Victoria Whelan, PG, QEP

Associate Principal

- First Aid/CPR Training
- LIRR Roadway Worker Training required by 49 CFR Part 214 Subpart C
- ARC Flash Training
- Confined Space Entry

Affiliations/Memberships

- Board Member - New York City Brownfield Partnership (NYCBP) 2022- present
- Committee Chair - Small Business Committee (NYCBP) 2022- present
- Member, New York State Council of Professional Geologists (NYSCPG)
- Member, American Council of Engineering Companies
- Member, Long Island Association of Professional Geologist

Honors & Awards

- Big Apple Brownfield Award - Hour Apartment House III
- Supportive Living Affordable Housing Award - Putnam Court
- Who's Who in Green Award - Atlantic Terrace

GZA GeoEnvironmental, Inc.