REMEDIAL INVESTIGATION/ ALTERNATIVE ANALYSIS REPORT

160-164 EAST 4TH STREET
DUNKIRK, CHAUTAUQUA COUNTY, NEW YORK
NYSDEC SITE NO. C907051

Prepared For:

Regan Development Corporation
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September 2025

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ACRONYMS

AAR	Alternative Analysis Report
ACM	Asbestos Containing Material
ASL	Above Sea Level
ADA	Americans with Disabilities Act
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BE3	Brydges Engineering in Energy and Environment
bgs	Below Ground Surface
C&D	Construction and Demolition
CAMP	Community Air Monitoring Program
COC	Contaminants of Concern
CP	Commissioner Policy
DER	Division of Environmental Remediation
DNAPL	Dense Nonaqueous Phase Liquid
DO	Dissolved Oxygen
DUSR	Data Usability Summary Report
EC	Engineering Control
EE	Environmental Easement
EIFS	Exterior Insulation and Finish System
ELAP	Environmental Laboratory Approval Program
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
EWP	Excavation Work Plan
FEAF	Full Environmental Assessment Form
GPR	Ground Penetrating Radar
GPS	Global Positioning System
GSF	Gross Square Feet
HASP	Health and Safety Plan
HSA	Hollow Stem Auger
IC	Institutional Control
ID	Inside Diameter
$\mu g/m^3$	Micrograms per Cubic Meter
LNAPL	Light Nonaqueous Phase Liquid
NTU	Nephelometric Turbidity Units
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
NYSHCR	New York State Homes and Community Renewal
ORP	Oxidation-Reduction Potential
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PFAS	Per- and Polyfluoroalkyl Substances
PID	Photoionization Detector
ppm	Parts Per Million
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control

QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
SCG	Standards, Criteria, and Guidance
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SVOC	Semi-Volatile Organic Compound
SWPPP	Stormwater Pollution Prevention Plan
TAL	Target Analyte List
TCL	Target Compound List
TENORM	Technologically Enhanced Naturally Occurring Radioactive Material
TIC	Tentatively Identified Compound
TOGS	Technical and Operational Guidance Series
UST	Underground Storage Tank
VOC	Volatile Organic Compound

CERTIFICATION

I, Jason Brydges, certify that I am currently a New York State registered professional engineer as defined in 6 New York Codes, Rules and Regulations (NYCRR) Part 375 and that this Remedial Investigation/Alternative Analysis Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Department of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

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Jason M. Brydges, PE

1.0 INTRODUCTION

Regan Development Corporation has obtained an executed Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) as a Volunteer for the property located at 160-164 East 4th Street in the City of Dunkirk, Chautauqua County, New York (the "Site"). The Site is enrolled in the Brownfield Cleanup Program (BCP) under BCP Site No. C907055 and is approximately 2.15 acres in size. A Site Location Map is provided as **Figure 1**, and the Boundary Survey Map is included as **Figure 2**.

Regan Development Corporation has retained Brydges Engineering in Environment and Energy (BE3) to conduct a Remedial Investigation (RI) and prepare an Alternatives Analysis Report (AAR) for the Site, as required under the BCA. The goal of the project is to remediate the Site to support the redevelopment of multi-family residential units, associated parking areas, and recreational/greenspace amenities.

1.1 SITE BACKGROUND

The Site is 2.15-acres containing a structure that includes two storefronts in the eastern central portion of the Site connected to a larger commercial plaza. Surrounding the structure is an asphalt parking lot in the south and a section of greenspace to the north.

Environmental investigations conducted to date, including a BE3 Phase II Environmental Site Assessment (ESA), indicate the presence of impacted soil and groundwater due to historical site uses and the presence of urban fill. Constituents of concern identified in soil include semi-volatile organic compounds (SVOCs), specifically polycyclic aromatic hydrocarbons (PAHs), and various metals. Groundwater samples from temporary monitoring wells indicated impacts from volatile organic compounds (VOCs) and metals. Historical data also suggests the potential for petroleum, polychlorinated biphenyls (PCBs), and chlorinated solvents.

Historical records including street directories and Sanborn Maps indicate that the Site was mixed use residential/commercial. Sanborn maps indicate that from 1888 to 1964, the subject property contained several residences. The area was redeveloped into commercial buildings dating back to 1985. Historical street directories indicate the Site has been occupied by a Family Dollar store from 1985 to 2020 and a VA clinic from 2010 to 2020.

1.2 CONTEMPLATED USE OF THE SITE

The proposed use of the Site includes development of multi-family apartment units, an associated parking area and recreational/greenspace. It should be noted that the existing building on Site will be removed as part of the new development and the planned remedial track is Track 4 - Restricted Residential Use.

1.3 IDENTIFICATION OF STANDARDS, CRITERIA, AND GUIDANCE

Standards, criteria, and guidance (SCGs) are promulgated requirements ("standards" and "criteria") and non-promulgated guidance ("guidance") that govern activities that may affect the environment and are used by the NYSDEC at various stages in the investigation and remediation of a site. The following are the primary SCGs for this project:

- NYSDEC 6 NYCRR Part 375 Environmental Remediation Programs, December 2006.
- NYSDEC DER-10 Technical Guidance for Site Investigations and Remediation, May

2010.

- NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998.
- NYSDEC Commissioner Policy (CP)-51 Soil Cleanup Guidance, October 2010.
- NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS), April 2023.
- NYSDEC 6 NYCRR 360 Solid Waste Management Facilities General Requirements, August 2020.
- New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion, May 2017 updated February 2024.

2.0 REMEDIAL INVESTIGATION APPROACH

The Remedial Investigation (RI) was conducted in general accordance with the November 2024 *Remedial Investigation Work Plan (RIWP (Revised July 2025), Regan Development Corporation, 166 East 4th Street, City of Dunkirk, Chautauqua County, New York, Site No. C907055*. NYSDEC issued an approval letter for the RIWP on July 31st, 2025.

RI activities generally included the following:

- Subsurface soil borings to evaluate fill thickness and native material
- Installation of shallow and intermediate-depth groundwater monitoring wells
- Vapor point installation
- Soil, groundwater, and soil vapor sampling for chemical analysis

A Qualified Environmental Professional (QEP) from Brydges Engineering in Environment and Energy (BE3) was present on site during all intrusive field work. Prior to any subsurface activities, the underground utility locating service was contacted to mark known utilities. The approximate locations of historic Phase II and RI sampling points are presented on **Figure 3**. GPS coordinates for each sampling location are summarized in **Table 6**. Daily Field Reports (DFRs) documenting work performed, weather conditions, equipment used, and any deviations are provided in Appendix A, with a corresponding photolog and location sketches. Additional site photographs are included in Appendix B.

A Community Air Monitoring Program (CAMP) was implemented in accordance with NYSDOH DER-10 guidance throughout the duration of intrusive RI fieldwork. Real-time monitoring was conducted for particulate matter (dust) and total volatile organic compounds (VOCs). Particulate concentrations downwind of work areas did not exceed 100 micrograms per cubic meter (µg/m³) above background levels for any 15-minute period. VOC concentrations remained below the action level of 5 parts per million (ppm) above background during all monitored periods. Air monitoring results are included in the DFRs in Appendix A.

2.1 RI DEVIATIONS

During the course of the Remedial Investigation, field conditions necessitated deviations from the originally approved July 2025 Remedial Investigation Work Plan (RIWP).

2.1.1 GROUNDWATER INVESTIGATION DEVIATIONS

The approved RIWP included the installation and sampling of 5 overburden monitoring wells across the Site to characterize the underlying hydrologic conditions and identify any deep contamination concerns. However, due to unanticipated subsurface conditions encountered during sampling, RI-MW-1 was dry and unable to be sampled. Since additional efforts did not produce groundwater and all other wells were clean/unimpacted, it is BE3's opinion that additional groundwater sampling in this location is unnecessary.

2.2 SOIL INVESTIGATION

On May 27-29th, August 7th, and 11th 2025, a total of 18 exterior and 2 interior soil borings, (RI-BH-1 through RI-BH-20), and 4 surface samples (SS-1 through SS-4), were completed across the Site to evaluate fill characteristics and identify contamination within shallow subsurface soils. A total of 5 soil samples were also taken from proposed screened intervals of planned RI monitoring wells. The majority of borings were advanced using a track-mounted Geoprobe® 7720DT direct-push drilling rig. Due to access constraints for the interior boring, RI-BH-10, a concrete core drill was used to breach the slab, followed by hand-augering to refusal. Surface samples were completed using a hand shovel. Locations were selected to provide representative site coverage, particularly in areas with a history of potential contaminant use or fill placement. Boring locations were finalized in the field based on site conditions and the presence of potential subsurface features.

Soil collected from Geoprobe® borings was continuously recovered using 5-foot acetate sleeves. Borings were terminated at refusal, with final depths ranging from approximately 10 to 16 feet below ground surface (bgs). Soil collected using the hand auger for RI-BH-10 was continuously recovered using 2-foot acetate sleeves and the boring was terminated at 6 feet bgs due to refusal.

A specific number of soil samples were collected from each boring to accurately characterize the sub surface across the site. A sample summary can be seen below:

Summary of Samples and Sample Rationale

Soil Boring	Number of Samples	Sampling Rationale
RI-BH-1 and RI-BH-2	2	Nature and Extent of Fill Layer
		Characterize Native Soil

RI-BH-3 and RI-BH-4	1	Nature and Extent of Fill Layer
RI-BH-5 through RI-BH-11	2	Nature and Extent of Fill Layer
		Characterize Native Soil
RI-BH-12 through RI-BH-14	1	Nature and Extent of Fill Layer
RI-BH-15	2	Nature and Extent of Fill Layer
		Characterize Native Soil
RI-BH-16	1	Nature and Extent of Fill Layer
RI-BH-17 and RI-BH-18	2	Nature and Extent of Fill Layer
		Characterize Native Soil
RI-BH-19 and RI-BH-20	1	Nature and Extent of Fill Layer
RI-MW-1 through RI-MW-5	1	Characterize Soil Surrounding Well Screens
SS-1 Through SS-4	1	Characterize Near Surface Soils for Potential Health Risks

All recovered soil was visually classified and field screened for volatile organic compounds (VOCs) using a photoionization detector (PID). Screening involved exposing the open core to ambient conditions and recording the maximum PID reading.

Soil samples were placed into laboratory-provided containers, packed in coolers with ice, and submitted under chain-of-custody to Eurofins Environment Testing – Buffalo, a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory.

2.3 GROUNDWATER INVESTIGATION

As part of the Remedial Investigation, 5 overburden monitoring wells were installed to assess groundwater across the site.

2.3.1 WELL CONSTRUCTION

Monitoring wells were constructed at 5 locations between May 28th and May 29th, 2025. Initial drilling was performed using a 4.25-inch diameter hollow stem auger (HSA) advanced to 1 to 2 feet above suspected bedrock. The completed wells (RI-MW-1 through RI-MW-5) were finished to depths of 13 ft, 8 ft, 15 feet, 15 ft and 14.5 feet bgs, respectively. Each well consists of a 2-inch inside diameter (ID), Schedule 40 polyvinyl chloride (PVC) casing with a 5-foot well screen with 0.010-inch slot size. The screened interval was surrounded with clean, porous sand to approximately 1 foot above, followed by a bentonite seal. All wells were completed at grade, fitted with a lockable J-plug, covered with a protective curb box, and labeled for permanent identification.

Drill cuttings and development spoils were containerized in New York State Department of Transportation (NYSDOT) approved drums and labeled for subsequent characterization and disposal in accordance with applicable Resource Conservation and Recovery Act (RCRA) regulations. Well construction logs are provided in Appendix D.

2.3.2 WELL DEVELOPMENT

Monitoring wells RI-MW-2 through RI-MW-5 were developed on May 30th, 2025. Development was conducted using a weighted bailer to remove suspended solids and improve hydraulic connectivity. As noted above, RI-MW-1 was found to be dry and could not be developed. All development water was containerized in NYSDOT-approved drums and labeled according to the well of origin.

No light non-aqueous phase liquid (LNAPL), dense non-aqueous phase liquid (DNAPL), sheen, or notable odors were observed during development. Field parameters—pH, temperature, turbidity, dissolved oxygen (DO), oxidation-reduction potential (ORP), specific conductance, flow rate, and water level—were recorded periodically for stabilization and health and safety monitoring. Visual and olfactory screening and photoionization detector (PID) readings were also conducted.

Final determination regarding the proper disposition of development water (e.g., on-site treatment, off-site disposal, or surface discharge with NYSDEC approval) will be made based on laboratory analytical results. Well development logs are provided in Appendix E.

2.3.3 GROUNDWATER SAMPLING

Groundwater sampling was conducted on June 2nd and 3rd, 2025. Low-flow sampling techniques were employed using a peristaltic pump and dedicated tubing in accordance with NYSDEC-approved procedures.

Field parameters were continuously monitored throughout purging and sampling, consistent with the protocol described in Section 2.3.2. Sampling commenced once stabilization criteria were met and turbidity levels were confirmed to be below 50 Nephelometric Turbidity Units (NTU).

Samples were placed in laboratory-supplied containers, preserved as required, packed in iced coolers, and submitted under chain-of-custody to Eurofins Environment Testing – Buffalo, a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory. Groundwater analytical results are summarized in Table 2, and purge logs are included in Appendix F.

2.4 VAPOR INVESTIGATION

2.4.1 VAPOR POINT INSTALLATION

On May 29th, 2025, 6 vapor points were completed across the Site in unique boreholes to evaluate fill characteristics and identify contamination within shallow subsurface soils. Vapor points were advanced using a track-mounted Geoprobe® 7720DT direct-push drilling rig. Locations were selected to provide representative site coverage, particularly in areas with a history of potential contaminant use or fill placement. Vapor point locations were finalized in the field based on site conditions and the presence of potential subsurface features.

Each vapor point consisted of a ¼-inch outer diameter polyvinyl chloride (PVC) tubing fitted with a 3/8-inch stainless steel mesh screen at the base. The screened interval was surrounded with clean, porous sand to a depth of approximately 2 feet, followed by a bentonite seal to isolate the probe and prevent preferential pathways for vapor migration along the boring annulus. Vapor point construction details are documented in Appendix G.

2.4.2 VAPOR POINT SAMPLING

Soil vapor sampling was conducted after consultation and coordination with the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH). Sampling locations were selected to provide comprehensive spatial coverage across the Site and were biased toward the deeper boring locations to assess worst-case vapor intrusion potential.

Sampling was conducted over a 24-hour period beginning on May 29th, 2025, using 6-liter SUMMA® canisters equipped with calibrated 24-hour regulators. All sampling activities were performed in accordance with the latest NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006 and subsequent amendments).

Canisters were submitted to Eurofins Environment Testing – Burlington, a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory, under proper chain-of-custody protocols. Analytical results are summarized in Table 3.

2.4.3 QUALITY ASSURANCE/ QUALITY CONTROL SAMPLING

Quality assurance and quality control (QA/QC) sampling was performed in accordance with the approved Remedial Investigation Work Plan (RIWP) and the site-specific Quality Assurance Project Plan (QAPP). The QA/QC program was designed to ensure data quality objectives were met for precision, accuracy, representativeness, comparability, and completeness. These data are required to support third-party validation and development of a complete Data Usability Summary Report (DUSR).

The following QA/QC samples were collected:

- A matrix spike/matrix spike duplicate (MS/MSD) pair was collected from soil borings completed for monitoring well RI-MW-1 and RI-MW-5.
- A field duplicate sample was collected from the boring hole completed for RI-MW-3 and RI-MW-4 and labeled RI-MW-3-DUP and RI-MW-4-DUP. Results of these duplicate samples are presented in Table 1.
- During groundwater sampling, an MS/MSD pair and a trip blank were collected and submitted with the sample batch.

Laboratory analytical reports are included in Appendix J. The third-party validated Data Usability Summary Reports (DUSRs) are provided in Appendix K as separate attachments.

3.0 PHYSICAL CHARACTERISICS OF THE AREA

3.1 SURFACE FEATURES

The Site comprises approximately 2.15 acres and is located at 160-164 East 4th Street in the City of Dunkirk, Chautauqua County, New York. The property is identified as Section-Block-Lot (SBL) No. 79.57-2-15.1 and consists of a single commercial parcel.

A single-story commercial building occupies the eastern-central portion of the Site and includes two storefront units that are structurally connected to an adjacent commercial plaza (located off-site). Surrounding the structure is an asphalt-paved parking area to the south and an undeveloped greenspace to the north. The building is currently vacant and shows signs of deterioration. The parking lot exhibits surface cracking and signs of aging, particularly in the southern portion of the Site. Topographically, the Site exhibits moderate elevation change, sloping gradually downward from south to north.

The land use distribution on the Site is summarized in the table below:

Description	Location	Acreage	% of total Site area
Building	Central Eastern	0.28	13
Greenspace	North	0.43	20
Hardscape	Across Site	1.44	67

The Site is zoned for C-2 General Commercial (Community Business) and is located in a mixed-use urban corridor. Adjacent land uses include:

- **North**: Rail lines and residential housing
- **South**: Commercial and residential
- **East**: Adjacent commercial plaza
- **West**: Municipal buildings and light commercial uses

A Site Location Map and a detailed Site Plan are provided in **Figure 1** and **Figure 2**, respectively.

3.2 SUBSURFACE FEATURES

3.2.1 SITE GEOLOGY

Subsurface conditions at the Site were evaluated through two Phase II ESA investigations. In September 2023, a total of 15 soil borings were advanced across the property, with 2 borings converted to temporary groundwater monitoring wells. In April 2024, an additional 12 soil borings were completed, including 1 boring converted to temporary well.

In May and August 2025, during the RI an additional 20 soil borings and 5 monitoring wells were completed. In total, 41 soil samples and 6 groundwater samples were collected for analysis.

The soil borings indicate that the Site is generally underlain by urban fill, consisting of brown to black silty clayey sand containing construction-related debris such as brick fragments and concrete. The depth of the fill ranged from approximately 0 to 7 feet below ground surface (bgs). Beneath the fill, the native material typically consisted of stiff red-brown and gray silty clay or clayey silt.

During advancement of the borings, refusal was encountered at depths of approximately 8 feet to 16 feet bgs, which is interpreted to represent the top of bedrock.

3.2.2 SITE HYDROGEOLOGY

Based on the results of the Remedial Investigation, groundwater at the Site is present at 5.2 to 9.5 ft. Multiple rounds of topographic/elevation data indicates the following groundwater elevations in feet above sea level (ASL) for each well:

Well ID	Elevation (feet ASL)
RI-MW-2	594.35
RI-MW-3	589.3
RI-MW-4	588.9
RI-MW-5	586.75

Groundwater was not encountered in RI-MW-1. Based on these observations, groundwater appears to flow northwest.

3.2 DEMOGRAPHY AND LAND USE

The Site is currently vacant and underutilized, with zoning and surrounding land uses consistent with a mixed-use commercial and residential corridor within the City of Dunkirk. The property is bordered by a combination of residential neighborhoods, commercial establishments, and municipal facilities, reflecting a diverse urban setting.

The proposed future use of the Site involves the redevelopment of the property into a multi-family residential apartment complex, supported through the New York State Brownfield Cleanup Program (BCP). The planned development will include:

- Multi-family apartment units
- An associated off-street parking area

- Recreational and landscaped greenspace

As part of the proposed redevelopment, the existing commercial building on the Site will be demolished. The planned environmental remedy will proceed under Track 4 (Restricted Residential Use) of the BCP, which allows for redevelopment with the application of site cover systems and institutional/engineering controls as needed to manage residual contamination. This redevelopment will provide long-term community benefit by supporting housing development, eliminating a blighted structure, and promoting the productive reuse of historically impacted land.

4.0 LABORATORY ANALYSIS

4.1 SOIL

All soil samples were analyzed for the following:

- Target Compound List (TCL) VOCs + Tentatively Identified Compounds (TICs) – Environmental Protection Agency (EPA) Method 8260
- TCL semi-volatile organic compounds (SVOCs) + TICs – EPA Method 8270
- Target Analyte List (TAL) Metals (Including mercury and total cyanide) – EPA Method 6010/7470/7471
- PCBs – EPA Method 8280
- TCL Pesticides – EPA Method 8081
- 1,4-dioxane – EPA Method 8270SIM
- PFAS – EPA Method 1633

4.2 GROUNDWATER

All groundwater samples were analyzed for the following:

- TCL VOCs and TICs-EPA Method 8260
- TCL SVOCs – EPA Method 8270
- TAL Metals + cyanide-EPA Method 6010/7470/7471
- PCBs – EPA Method 8280;
- Pesticides– EPA Method 8081;
- 1,4-dioxane– EPA Method 8270SIM
- PFAS – EPA Method 1633

4.3 SOIL VAPOR

Soil vapor samples were analyzed for TCL VOCs by EPA Method TO-15.

5.0 DISCUSSION OF RESULTS

5.1 SOIL SAMPLING ANALYTICAL RESULTS

All RI soil sampling results exceeding unrestricted SCOs are listed on **Figure 4** and **Figure 5**. All RI sampling results exceeding restricted residential SCOs are listed on **Figure 6.**

5.1.1 METALS

A multitude of soil samples exceeded various metal SCOs as specified in the tables below.

Unrestricted Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Arsenic	RI-BH-17 8-11’	15.2	13
	RI-BH-18 5-8’	13.9	
	RI-BH-19 3-5’	14.2	
Chromium	RI-BH-1 2-5’	19.4	1
	RI-BH-2 1-4’	17.9	
	RI-BH-3 2-5’	19.5	
	RI-BH-4 1-4’	13.7	
	RI-BH-5 1-5’	14.0	
	RI-BH-5 5-8’	16.1	
	RI-BH-6 1-3’	19.1	
	RI-BH-6 4-7’	20.3	
	RI-BH-7 4-6’	15.4	
	RI-BH-8 1-4’	10.7	
	RI-BH-9 6-9’	17.1	
	RI-BH-11 1-4’	17.0	
	RI-BH-12 1-3’	11.8	
	RI-BH-14 0-3’	20.0	
	RI-BH-15 0-3’	6.0	
	RI-BH-15 7-10’	15.2	
	RI-BH-16 0-3’	21.5	
	RI-BH-17 0-3’	21.5	
	RI-BH-17 0-3’	16.8	
	RI-BH-18 0-3’	21.5	
	RI-BH-18 5-8’	12.6	
	RI-BH-19 3-5’	18.5	
	RI-BH-20 2-4’	15.6	
	RI-MW-1 8-11’	17.7	
	RI-MW-2 4-7’	19.1	
	RI-MW-3 8-11’	17.1	
	RI-MW-3 DUP 8-11’	18.4	
	RI-MW-4 9-12’	15.1	
	RI-MW-4 DUP 9-12’	14.4	
	RI-MW-5 9-12’	14.1	
	SS-2 0.17-0.5’	15.5	
Copper	RI-BH-1 2-5’	56.5	50
	RI-BH-2 1-4’	76.3	
	RI-BH-7 1-4’	62.8	
	RI-BH-16 0-3’	53.7	
	RI-BH-17 0-3’	67.8	
	RI-BH-18 5-8’	51.0	
	RI-BH-19 3-5’	57.3	
	SS-3 0.17-0.5’	109	

Lead	RI-BH-1 2-5’	283	63
	RI-BH-2 1-4’	284	
	RI-BH-6 1-3’	262	
	RI-BH-8 1-4’	96.6	
	RI-BH-10 1-4’	64.3	
	RI-BH-11 1-4’	67.5	
	RI-BH-17 0-3’	293	
	RI-BH-18 0-3’	64.3	
	SS-1 0.17-0.5’	168	
	SS-2 0.17-0.5’	72.4	
	SS-3 0.17-0.5’	101	
	SS-4 0.17-0.5’	157	
Manganese	RI-BH-1 2-5’	1880	1600
Mercury	RI-BH-2 1-4’	0.54	0.18
	RI-BH-6 1-3’	0.42	
	RI-BH-7 1-4’	0.34	
	RI-BH-8 1-4’	0.24	
	RI-BH-9 1-3’	0.41	
	RI-BH-12 1-3’	0.62	
	RI-BH-19 3-5’	0.66	
	SS-1 0.17-0.5’	0.22	
	SS-4 0.17-0.5’	0.25	
Nickel	RI-BH-2 5-8’	35.6	30
	RI-BH-6 4-7’	33.6	
	RI-BH-7 4-6’	40.6	
	RI-BH-8 6-9’	37.8	
	RI-BH-11 6-9’	35.5	
	RI-BH-14 0-3’	35.5	
	RI-BH-15 7-10’	33.6	
	RI-BH-17 8-11’	32.0	
	RI-BH-19 3-5’	39.1	
	RI-MW-1 8-11’	36.8	
	RI-MW-2 4-7’	46.4	
	RI-MW-3 8-11’	42.3	
	RI-MW-3 DUP 8-11’	43.8	
	RI-MW-4 9-12’	32.2	
	SS-1 0.17-0.5’	31.6	
	SS-4 0.17-0.5’	36.7	
Zinc	RI-BH-1 2-5’	149	109
	RI-BH-1 6-9’	147	
	RI-BH-2 1-4’	167	
	RI-BH-3 2-5’	155	
	RI-BH-6 1-3’	127	
	RI-BH-7 1-4’	638	
	RI-BH-9 1-3’	370	
	RI-BH-14 0-3’	213	
	RI-BH-16 0-3’	122	
	RI-BH-17 0-3’	328	

	RI-BH-17 8-11’	158	
	RI-BH-18 0-3’	113	
	RI-BH-19 3-5’	892	
	RI-MW-5 9-12’	158	
	SS-1 0.17-0.5’	156	
	SS-2 0.17-0.5’	132	
	SS-3 0.17-0.5’	155	
	SS-4 0.17-0.5’	153	

Residential Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Barium	RI-BH-4 1-4’	368	350
	RI-BH-10 1-4’	354	
	RI-BH-20 2-4’	364	
Chromium	RI-BH-1 6-9’	29.0	22
	RI-BH-2 5-8’	28.2	
	RI-BH-7 4-6’	23.5	
	RI-BH-8 6-9’	26.4	
	RI-BH-10 1-4’	24.1	
	RI-BH-11 6-9’	28.5	
	RI-BH-13 1-4’	23.3	
	SS-1 0.17-0.5’	26.4	
	SS-3 0.17-0.5’	24.2	
	SS-4 0.17-0.5	28.2	

Restricted Residential Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Lead	RI-BH-9 1-3’	687	400
	RI-BH-16 0-3’	409	
	RI-BH-19 3-5’	454	
Mercury	RI-BH-1 2-5’	1.2	0.81
	RI-BH-18 0-3’	1.0	

Commercial Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Barium	RI-BH-2 5-8’	531	400
	RI-BH-7 1-4’	865	
Copper	RI-BH-9 1-3’	598	270

Industrial Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Arsenic	RI-BH-4 1-4’	41.5	16
	RI-BH-7 1-4’	33.4	
	RI-BH-10 1-4’	19.8	
	RI-BH-20 2-4’	16.4	
	SS-2 0.17-0.5’	17.2	

Lead	RI-BH-7 1-4’	4950	3900

5.1.2 SVOC’s

A multitude of soil samples exceeded various SVOC SCOs as specified in the tables below.

Unrestricted Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Phenol	RI-MW-1 8-11’	1.8	0.33
	RI-MW-2 4-7’	6.3	
	RI-MW-3 8-11’	1.8	
	RI-MW-3 DUP 8-11’	3.9	
	RI-MW-4 9-12’	1.7	
	RI-MW-4 DUP 9-12’	0.76	
	RI-MW-5 9-12’	0.42	

Residential Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Benzo(k)fluoranthene	RI-BH-2 1-4’	1	1
	RI-BH-7 1-4’	2.6	
	SS-1 0.17-0.5’	1.7	
Chrysene	RI-BH-2 1-4’	1.5	1
	SS-1 0.17-0.5’	3.6	
	SS-4 0.17-0.5’	1.4	

Restricted Residential Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Benzo(a)anthracene	RI-BH-7 1-4’	4.3	400
	RI-BH-16 0-3’	409	
	SS-1 0.17-0.5’	2.9	
Benzo(b)fluoranthene	RI-BH-2 1-4’	2	1
	RI-BH-7 1-4’	4.7	
	SS-1 0.17-0.5’	4.9	
	SS-2 0.17-0.5’	1.5	
	SS-4 0.17-0.5’	1.8	
Chrysene	RI-BH-7 1-4’	4.3	3.9
Indeno(1,2,3-cd)pyrene	RI-BH-2 1-4’	0.88	0.5
	RI-BH-7 1-4’	2.3	
	SS-1 0.17-0.5’	2.4	
	SS-4 0.17-0.5’	0.87	

Commercial Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Dibenz(a,h)anthracene	RI-BH-9 1-3’	598	270

Industrial Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Benzo(a)pyrene	RI-BH-2 1-4'	1.3	1.1
	RI-BH-7 1-4'	4.1	
	SS-4 0.17-0.5'	1.1	

5.1.3 *VOC's*

Unrestricted Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Acetone	RI-BH-4 1-4'	0.2	0.05
	RI-BH-5 5-8'	0.26	
	RI-BH-10 1-4'	0.11	
	RI-BH-13 1-4'	0.16	
	RI-BH-17 8-11'	0.08	

5.1.4 Organochlorine Pesticides

Unrestricted Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
4,4'-DDD	RI-BH-4 1-4'	0.0081	0.0033
	RI-BH-7 1-4'	0.019	
	RI-BH-16 0-3'	0.0038	
	RI-BH-19 3-5'	0.0054	
4,4'-DDE	RI-BH-16 0-3'	0.0066	0.0033
	RI-BH-19 3-5'	0.0043	
4,4'-DDT	RI-BH-1 2-5'	0.0037	0.0033
	RI-BH-1 6-9'	0.0036	
	RI-BH-2 1-4'	0.064	
	RI-BH-7 1-4'	0.025	
	RI-BH-10 1-4'	0.012	
	RI-BH-12 1-3'	0.0036	
	RI-BH-13 1-4'	0.069	
	RI-BH-16 0-3'	0.017	
	RI-BH-17 0-3'	0.0042	
	RI-BH-18 0-3'	0.0035	
	RI-BH-19 3-5'	0.0039	
	RI-MW-1 8-11'	0.057	

5.1.5 PCB's

There were no exceedances of PCB's found in any of the soils samples taken.

5.1.6 PFAS

Unrestricted Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Perfluorooctanesulfonic acid (PFOS)	RI-BH-18 0-3'	1.6	0.88

5.2 GROUNDWATER SAMPLE ANALYTICAL RESULTS

All RI groundwater sampling results exceeding TOGS 1.1.1 guidelines are listed on **Figure 7**.

5.2.1 METALS

TOGS Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Iron	RI-MW-2	0.77	0.3
	RI-MW-3	1.3	
	RI-MW-4	0.35	
Magnesium	RI-MW-3	36.6	35
	RI-MW-4	47.8	
	RI-MW-5	43.8	
Manganese	RI-MW-3	0.34	0.3
	RI-MW-4	0.47	
	RI-MW-5	2.6	

5.2.2 SVOC's

There were no exceedances for SVOCs in any of the wells sampled.

5.2.3 VOC's

TOGS Exceedances			
Analyte	**Sample ID**	**Result**	**Standard**
Acetone	RI-MW-5	51	50

5.2.4 ORGANOCHLORINE PESTICIDES

There were no exceedances for organochlorine pesticides in any of the wells sampled.

5.2.5 PCB's

There were no exceedances for PCBs in any of the wells sampled.

5.2.6 PFAS

There were no exceedances for PFAS in any of the wells sampled.

6.0 FATE AND TRANSPORT OF CONTAMINANTS OF CONCERN

The soil, groundwater and soil vapor sample analytical results were incorporated with the physical Site conditions to evaluate the fate and transport of COC in Site media. The mechanisms through which the COC can migrate to other areas or media are briefly outlined below. The potential pathways are evaluated in the context of pre-remedial conditions.

6.1 FUGITIVE DUST

Contaminants present in soil can be released into ambient air due to fugitive dust generation from disturbance of dry friable soils. The Site currently contains one dilapidated building surrounded by asphalt parking and minimal greenspace which limits any fugitive dust generation.

During demolition, redevelopment construction and remedial work, fugitive dust may be generated. A Health and Safety Plan (HASP) along with a CAMP will be prepared, as required, by the RAWP, which will minimize fugitive dust concerns during this time. The fugitive dust migration pathway is not presently a relevant pathway, however, during remediation activities, fugitive dust migration will be more relevant and not be relevant thereafter due to the proposed soil cover system and new development. During construction activities, the contractor will institute dust control measures per the site specific January 2024 Stormwater Management Report (SWMR).

6.2 SURFACE WATER

The potential for impacted soil particle transport with surface water runoff is considered low due to the hardscape and existing vegetative cover over impacted soil across the Site. Although heavy rainfall can cause erosion in greenspace areas, no sensitive receptors are present within close proximity to the Site.

Redevelopment will include new structures, paved areas, and landscaping. The January 2024 SWMR will control storm water during construction and remediation activities. The redevelopment design includes substantial bioretention planters to handle surface water upon completion of redevelopment. Therefore, the movement of impacted soil by surface water runoff is not considered a relevant migration pathway.

6.3 VOLITILIZATION

No VOCs were detected above their SCOs in soil samples from the RI or previous investigations. Groundwater samples collected from on-site wells during the RI indicated that VOCs are not present in groundwater above TOGS 1.1.1 guidance values.

6.4 LEACHING

Leaching refers to contaminants in soil/fill migrating into groundwater due to infiltration of stormwater.

VOCs, SVOCs, PCBs, and pesticides were not detected above TOGS 1.1.1 guidance values in the groundwater samples collected from the 4 productive monitoring wells during the RI. Although the metals Iron, Magnesium, Manganese, and Sodium were detected above TOGS 1.1.1 guidance values, constituents are likely naturally occurring as a result of native minerals

in the subsurface.

VOCs were not detected in the soil samples above any SCOs, however, both SVOCs (primarily PAHs) and metals were detected in the site soils above restricted residential SCOs. PAHs and metals are not very mobile in soils in that they have low solubility with water and tend to adsorb to the soil grains.

6.5 GROUNDWATER TRANSPORT

Based on groundwater elevation data, groundwater on the Site appears to flow northwest. As previously noted in Section 5.4.2 (Contaminants of Concern – Groundwater), there are no contaminants of concern in groundwater. No exceedances of TOGS 1.1.1 guidance values were noted that could not be attributed to natural conditions.

Although sodium, iron, magnesium, and manganese were detected above guidance values, all constituents can be naturally occurring. Natural sources of these metals include weathered rocks and minerals. These conditions were consistently noted throughout the Site.

In addition, the Site and surrounding area are serviced by municipal water. The Site Management Plan (SMP) will also prohibit the use of groundwater for drinking or process use. Therefore, significant potential exposure of local receptors to contaminants in the groundwater is minimal.

6.6 EXPOSURE PATHWAY SUMMARY

Based on the above assessment, the pathways through which COC could reach receptors at significant exposure concentrations are minimal. The more probable pathways of stormwater and fugitive dust will be mitigated using pollution prevention and dust suppression control measures during remedial and construction activities.

7.0 QUALITATIVE EXPOSURE ASSESSMENT

A Qualitative Human Health Exposure Assessment (QHHEA) was completed in general accordance with Appendix 3B of DER-10 to identify potential exposure pathways associated with the COC at the Site. The exposure pathway elements are summarized as follows:

Qualitative Exposure Assessment Summary	
Environmental Media & Exposure Route	**Human Exposure Assessment**
Direct contact with surface soils (and incidental ingestion)	**Current:** People should not come into contact with contaminated surface soils as they are primarily covered by asphalt and vegetative cover.
	Future: People may contact contaminated surface soils during ground-intrusive work.
Direct contact with subsurface soils (and incidental ingestion)	**Current:** There is no current concern for contact with subsurface soils as there is no ground-intrusive work being performed at the Site.
	Future: People may come into contact with subsurface soils during ground-intrusive work.
Ingestion of groundwater	**Current:** Groundwater at the Site does not

	appear impacted. Additionally, contaminated groundwater is not being used for drinking water in the surrounding area as the City of Dunkirk is served by a treated public water supply. There are no know private domestic water supply wells in the area of the Site.
	Future: The planned development will be served by treated municipal water (City of Dunkirk).
Direct contact with groundwater	**Current:** There is no current access to groundwater.
	Future: People may come into contact with groundwater during ground intrusive work. However, groundwater is not thought to be impacted.
Direct contact with surface water or sediment (and incidental ingestion)	**Current:** There are no water bodies on or within proximity of the Site, therefore direct contact with contaminated surface water or sediment is possible.
	Future: No water features capable of providing recreation use or supporting aquatic life are planned at the Site.
Inhalation of air (exposures related to SVI)	**Current:** SVI is not a current concern at the Site.
	Future: SVI concern is not foreseeable. Although not required as a component on the BCP, a sub-slab depressurization system (SSDS) is included in Site plans to mitigate radon.

7.1.1 Contaminant Sources

Metals and PAHs exceeding regulatory standards were consistently observed throughout Site soils. Based on previous investigations, the overburden is almost entirely composed of impacted fill, ranging in depth from 0 to 7 feet bgs.

An elevated concentration of Heptane was noted in one vapor point located within the existing building on Site. The vapor point is currently covered by existing hardscape (i.e. concrete slab). Based on the lack of VOC exceedances in soil and groundwater samples, no point contaminant sources have been identified.

7.1.2 Contaminant Release and Transport Mechanisms

The only release/transport of impacted soils to an exposed population would be through fugitive dust and rain that may result in soil erosion. However, as previously noted, the Site currently contains a large building surrounded by asphalt parking and minimal greenspace which limits any fugitive dust generation along with erodible soils.

7.1.3 Potential Exposure Points

Currently, direct contact exposure to impacted soil is low due to the predominant hardscape and low percentage of soil cover over the Site. Future contact may occur during soil excavation activities.

7.1.4 Routes of Exposure

The only viable current or future routes of exposure would be direct contact or inhalation/ingestion of impacted soils.

7.1.5 On-Site Receptors

The on-site receptor population would be customers and employees of the adjacent commercial plaza and surrounding businesses that may use the site for parking.

Future construction workers may encounter impacted soils during Site work. The entire boundary of the Site will be fenced off during construction and will not be accessible to outside personnel. Future residents should not encounter impacted soils as the entire Site will be covered by hardscape or two feet of clean fill in greenspace areas.

7.1.6 Off-Site Receptors

Although limited, off-site migration of contaminants could potentially impact off-site receptor populations. As noted above in Section 6.1: Fugitive Dust, the fugitive dust migration pathway is not presently a relevant pathway.

During future remedial activities, fugitive dust migration will be more relevant and not be relevant thereafter due to the proposed soil cover system and new development. Should contaminants in impacted surface soil become airborne, off-site receptors could be exposed to the inhalation of particulates. The off-site receptor population includes passersby's, and customers and employees of surrounding businesses.

7.2 ECOLOGICAL EXPOSURE RISKS

The Fish and Wildlife Resources Impact Analysis (FWRIA) Decision Key provided in Appendix 3C of DER-10 was completed during development of the RIWP and is included in **Appendix H**. No FWRIA is required based on the completed decision key process. This determination is based on the following:

- The Site is currently zoned C-2 General Commercial (Community Business) and is located in a mixed-use urban corridor
- The contamination at the Site has very low potential to migrate into or impact any off-site habitat of endangered, threatened, or special concern species or other fish and wildlife resources. There are no critical habitats onsite or nearby. The Full Environmental Assessment Form (FEAF) and Environmental Resource Mapper were consulted to make this determination.

8.0 REMEDIAL ALTERNATIVES ANALYSIS

8.1 REMEDIAL ACTION OBJECTIVES

The final remedial measures for the Site must satisfy Remedial Action Objectives (RAOs), which are site-specific statements that convey the goals for minimizing or eliminating substantial risks to human health and the environment. No RAOs were identified in relation to groundwater. The primary RAOs identified for the Site are the following:

Soil

Public Health Protection RAOs

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

Environmental Protection RAOs

- Prevent migration of contaminants in Site soil that would result in groundwater or surface water contamination.

Soil Vapor

Public Health Protection RAOs

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

8.2 ALTERNATIVES SELECTION FACTORS

In addition to achieving RAOs, NYSDEC's BCP requires an evaluation of remedial alternatives in accordance with 6 NYCRR Part 375-3 and DER-10. This alternative analysis evaluates the remedial options developed for the Site against the following selection factors:

- **Overall Protection of Public Health and the Environment**. This criterion evaluates a remedy's ability to achieve the public health and environmental RAOs through the assessment of existing and potential exposure pathways to be eliminated, reduced, or mitigated through removal, treatment, or ECs/ICs.
- **Compliance with SCGs**. This criterion addresses whether a remedy will meet applicable environmental regulations, standards, and guidance. The SCGs applicable to this site are listed in Section 1.2.
- **Long-Term Effectiveness and Permanence**. This criterion evaluates the long-term effectiveness and permanence of an alternative or remedy after implementation.
- **Reduction of Toxicity, Mobility or Volume with Treatment**. This criterion evaluates the remedy's ability to reduce the toxicity, mobility, or volume of Site contamination through treatment. Preference is given to remedies that permanently and significantly reduce the toxicity, mobility, or volume of the contamination at the Site.
- **Short-Term Effectiveness**. This criterion evaluates the potential short-term impacts to human health and the environment during remediation, including control measures of adverse conditions and their effectiveness (e.g., stormwater controls, dust controls, etc.). The length of time needed to achieve the RAOs and sustainability is also evaluated.
- **Implementability**. This criterion evaluates the technical and administrative feasibility of implementing the remedy including the difficulties associated with construction and monitoring the effectiveness of the remedy. The availability of labor, equipment, and material is evaluated in addition to operational approvals, logistics, permitting, etc.
- **Cost**. This criterion evaluates the overall cost of an alternative.
- **Community Acceptance**. This criterion evaluates the public's comments, concerns, and overall perception of the alternative.

8.3 LAND USE EVALUATION

The Site is located within an urbanized, mixed-use area of the City of Dunkirk, Chautauqua County, New York. Surrounding land uses include residential neighborhoods, public infrastructure, and light commercial operations. The proposed future use of the Site involves redevelopment into multi-family residential housing with associated parking areas and designated recreational or greenspace.

This land use category is appropriate considering the planned Site cover system, potential for on-site exposure, and compatibility with surrounding zoning and infrastructure. No ongoing industrial or agricultural activities are present, and no active groundwater use occurs on-site or nearby. The selected remedy must support this redevelopment scenario while addressing all SCGs related to soil, groundwater, and vapor intrusion.

8.4 SELECTION OF ALTERNATIVES FOR EVALUATION

In accordance with DER-10 and the applicable NYSDEC regulations under 6 NYCRR Part 375, remedial alternatives must be developed and evaluated based on the findings of the Remedial Investigation, intended site use, and the extent of contamination. The primary objective of this section is to identify reasonable and applicable cleanup options that align with the future use of the site and ensure the protection of public health and the environment. Two alternatives have been selected for detailed evaluation.

8.4.1 ALTERNATIVE 1 : TRACK 4: RESTRICTED RESIDENTIAL REMEDIATION

A Track 4 cleanup generally involves removing all Site soils exceeding restricted residential criteria to specified depth and the creation of a cover system to meet Part 375 3.8 and 6.8(b) restricted residential use SCOs. Removal includes all soils above final grade requirements and an additional 2 feet of removal in non-hardscaped areas. The hardscaped areas (i.e., building footprint, parking lot and sidewalks) would be composed of approximately one foot of material which would function as a component of the cover system. All non-hardscaped/greenspace areas would be covered with 2 feet of clean imported fill meeting the provisions of NYSDEC DER-10 Subdivision 5.4(e) Appendix 5 (see **Figure 9**). Details of this alternative include the following:

1. Concrete slabs and other hardscape are to be removed within the BCP boundary to accommodate new development. The top two feet of surface soils beneath the removed slabs/hardscape and in the remaining open areas that are not otherwise to be covered by components of the new development (e.g. buildings, pavement) shall not exceed Restricted Residential SCOs.
2. All soils across the Site above final grade requirements and an additional 2 feet of material in future non-hardscape/greenspace areas will be removed and disposed of at an approved landfill. The estimated total volume of soil requiring removal is 6,300 tons.
3. Approximately 5,200 tons of clean fill will be imported to the Site to provide a 2-foot cover system in greenspace areas.
4. Confirmatory samples will be conducted after the excavation of on-site soils. A figure with proposed sampling locations will be included in the RAWP.
5. During RI sampling, specific borings were identified that did not appear to have Restricted Residential SCO exceedances. The general areas around these borings are delineated on Figure 9. Although unlikely due to the observed urban fill layer found across the site ranging from 0 to 7 feet bgs, soils excavated in this area may be suitable

for reuse. Final determination will be made during excavation by the onsite QEP in accordance with 6 NYCRR Parts 360 and 375.

6. An SVI investigation during the heating season will be completed after the proposed building is complete to assess potential soil vapor intrusion concerns Details of the SVI investigation will be provided in the RAWP.
7. Upon completion of remediation, provisions for managing the Site will be provided through an Environmental Easement (EE) which outlines Institutional Controls (ICs) and Engineering Controls (ECs).
8. Imposition of an IC in the form of an EE for the controlled party includes the following:
    a. The remedial party or site owner must complete and submit a periodic certification of IC/EC in accordance with NYSDEC Part 375-1.8(h)(3).
    b. Allows the use and development of the controlled property for restricted residential, commercial, and industrial uses as defined by Part 375-1.8(g)., although land use is subject to local zoning laws.
    c. Restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH.
    d. Requires compliance with the approved Site Management Plan.
9. An SMP is required that includes the following:
    a. An IC/EC plan that identifies all use restrictions and ECs for the Site and details the steps and media specific requirements necessary to ensure the IC and/or ECs remain in place and effective. The ICs are as discussed above, and the only EC is a soil cover system.
    b. An Excavation Plan which details provisions for management of future excavations in areas of remaining contamination.
    c. Descriptions of the provisions of the EE including any land use or groundwater use restrictions.
    d. Provisions for the management and inspection of the identified ECs.
    e. Maintaining site access controls and NYSDEC notifications.
    f. The steps necessary for the periodic reviews and certifications of the IC/ECs.

Overall Protection of Public Health and the Environment – Alternative 1 is protective of human health and the environment with the removal of two feet of impacted soil from open areas external to the building and backfilling with two feet of clean soil or hardscape. The clean soil and hardscape covered areas will be incorporated into the SMP as an EC for the Site and IC/ECs will be implemented to prevent more restrictive forms of future site use (e.g., unrestricted and residential) and restrict any use of the groundwater at the Site. Under ICs/ECs, the cover system will be inspected, monitored and maintained. The SMP Excavation Work Plan (EWP) will apply to any future disturbance of soils beneath the cover system. The SMP also requires the implementation of an approved HASP for all future work.

Compliance with SCGs – Alternative 1 is a Part 375 Track 4 remedy with some soils exceeding the restricted residential SCOs remaining below an approved cover system.

Long-Term Effectiveness and Permanence – The removal of the open area impacted fill soils to meet restricted residential SCOs and backfilling with clean fill and hardscape meets the RAOs for soil in this area. Although groundwater contamination is not a concern, there will be a restriction on the use of groundwater at the Site. The SMP requires periodic inspection and monitoring of the cover system for the Site to assure its integrity and the SMP EWP will apply to any future disturbance of the remaining impacted soils including the requirement to prepare an approved HASP for all work.

Reduction of Toxicity, Mobility, or Volume with Treatment – The remedial measure will either permanently or significantly reduce the mobility of contamination in the soils at the Site through the cover system. The volume of impacted soil will be reduced at the Site by excavation and offsite disposal of the top two feet of impacted soil across open areas and one foot in areas to be hardscaped.

The SMP will include an EWP to address any impacted soil/fill encountered during future development and/or maintenance activities and include a site-wide Inspection program to assure that the ICs/ECs placed on the Site have not been altered and remain effective. This alternative will not, however, reduce the toxicity of the soil contaminants left in place upon completion of the remedial measure. Therefore, this alternative partially satisfies this criterion.

Short-Term Effectiveness – Although minimal, potential short-term adverse impacts and human exposures may occur during construction (remediation and new development). A RAWP will be implemented prior to remediation which will require the contractor to prepare and implement a site-specific HASP to cover all workers. Periodic inspections of the cover system per the SMP requirements will prevent ingestion/direct contact with contaminated soil and prevent inhalation of contaminants in soil that may remain below the cover system. This alternative is sustainable through the EE and implementation of the SMP.

Implementability – There are no implementation issues related to the proposed remediation or related to the ICs/ECs placed on the Site under this alternative.

Community Acceptance – Community acceptance will be evaluated based on comments to be received from the public in response to fact sheets, public comment periods, and other planned citizen participation activities. Currently, no public comments have been received regarding the BCP activities at the Site.

Cost – The values used in estimating alternatives are order-of-magnitude estimates for comparing alternatives and are not meant to be a specific remedial criterion. The estimated cost for Alternative 1 – Track 4 Restricted Residential Use Alternative is approximately $1.3 million. The associated cost summary is provided in **Appendix I**.

Green Remediation – This alternative will follow a shorter remedial timeline as there will be less excavation and disposal of impacted materials. A shorter remedial timeline implies less total energy use and less emissions. Less excavation and disposal implies reduced waste/landfilling, use of heavy equipment, truck travel, localized noise, vibration and wear and tear on roads. Some additional efforts will be required to import clean fill to compose the required cover system.

8.4.2 ALTERNATIVE 2: TRACK 1: UNRESTRICTED USE REMEDIATION

A Track 1 cleanup involves removal of all Site soils exceeding unrestricted criteria to meet Part 375 3.8 and 6.8(a) unrestricted use SCOs. Based on the RI, all Site soils exceed unrestricted criteria and therefore excavation to bedrock across the entire Site would be required. Details of this alternative include the following:

1. All soils across the entire Site will be removed to approximately 8 feet bgs. The removal of impacted soil will include the removal of all existing building slabs and hardscape areas and backfill all areas with clean soil to meet new development grades. The

approximate volume of soil amounts to 17,000 tons.
2. Clean fill meeting the provisions of NYSDEC DER-10 Subdivision 5.4(e) Appendix 5 will be imported to the Site to meet final grade requirements. The approximate volume of soil/stone amounts to 15,500 tons.

Overall Protection of Public Health and the Environment – This alternative would achieve the corresponding Part 375 SCOs, which are designed to be protective of human health under any reuse scenario.

Compliance with SCGs – This alternative would comply with SCOs, as all non-compliant material would be removed from the Site.

Long-Term Effectiveness and Permanence – This alternative would achieve removal of all contaminant sources and residual impacted soil. No soil exceeding the unrestricted SCOs would remain on the Site. As such, this alternative would provide long-term effectiveness and permanence. Post-remedial monitoring and controls would not be required.

Reduction of Toxicity, Mobility, or Volume with Treatment – This alternative would permanently reduce the toxicity and mobility of Site contamination through the removal of impacted Site soils. Although this is not considered a treatment technology and the volume of contamination would remain the same, removal is very effective in eliminating toxicity and mobility.

Short-Term Effectiveness – The short-term effectiveness of this alternative to the community, workers, and environment during implementation of the unrestricted use alternative would be marginal. The exposure time to community, workers, and the environment from possible fugitive dust or other migration pathways would increase during the excavation, packaging, and offsite disposal of significant quantities of soil and debris. However, within approximately 6 months, the site would be remediated of all soil contamination.

Implementability – Technical implementability of the unrestricted use alternative is high. Demolition, remediation, excavation, and removal activities are associated with standard construction techniques, but impacted soil removal may require excavation below the groundwater table.

Community Acceptance – Community acceptance will be evaluated based on comments to be received from the public in response to fact sheets, public comment periods, and other planned citizen participation activities. Currently, no public comments have been received regarding the Site.

Cost – The cost of implementing a Track 1 Unrestricted Use alternative is estimated at approximately $3.6 million. (Refer to **Appendix I**).

Green Remediation –This alternative will follow a longer remedial timeline as there will be more excavation and disposal of impacted materials. A longer remedial timeline implies more total energy use and more emissions. More excavation and disposal implies additional waste/landfilling, use of heavy equipment, truck travel, localized noise, vibration and wear and tear on roads. This alternative will address the source of contamination more aggressively (i.e., complete removal of impacted materials), which will reduce long-term operation and maintenance of treatment or containment systems (i.e., a cover system).

8.5 RECOMMENDED REMEDIAL ALTERNATIVE

The evaluation of remedial alternatives for the Site considered key selection factors outlined in DER-10, including protection of public health and the environment, compliance with Standards, Criteria, and Guidance (SCGs), long-term effectiveness, short-term impacts, implement ability, and cost. Both Track 1 (Unrestricted Use) and Track 4 (Restricted Residential Use) are protective of human health and the environment; however, Track 1 requires full attainment of the most stringent SCOs and complete contaminant removal, which is not feasible due to widespread exceedances of metals and SVOCs in subsurface soils and the substantial cost and disruption associated with deep excavation and disposal. While Track 1 would eliminate the need for long-term management, Track 4 remains fully protective by employing a compliant site cover system, institutional controls, and a Site Management Plan (SMP), thereby effectively isolating contaminants and mitigating exposure risks. Track 4 also aligns with the intended residential redevelopment and is more readily implementable, with lower short-term construction risks and fewer logistical challenges. Additionally, groundwater exceedances of naturally occurring elements such as sodium, iron, magnesium and manganese do not indicate off-site migration of contaminants of concern, further supporting a Track 4 approach. Therefore, while both alternatives satisfy regulatory requirements, Track 4 is the preferred remedy due to its balance of protectiveness, practicality, cost-effectiveness, and compatibility with proposed site use.

9.0 CONCLUSIONS AND RECOMMENDATIONS

The Remedial Investigation was completed in accordance with the July 2025 NYSDEC-approved RI Work Plan, with minor deviations documented and communicated appropriately. Analytical data confirm the presence of contamination across the Site that exceeds applicable SCGs, including metals and PAHs. Groundwater monitoring identified elevated concentrations of naturally occurring constituents such as sodium, iron, magnesium and manganese. An elevated concentration of Heptane was noted in one vapor point located within the existing building on Site. The vapor point is currently covered by existing hardscape (i.e. concrete slab) and will continue to be covered by hardscape after redevelopment. Although not required as a component on the BCP, an SSDS is included in Site plans with the primary purpose of mitigating radon which will also mitigate potential soil vapor intrusion.

Given the proposed redevelopment of the Site for multi-family residential use with associated green space and parking, and considering the nature and extent of contamination, full unrestricted cleanup under Track 1 is not practical. Instead, Track 4 – Restricted Residential Use with a site cover system, institutional controls, and long-term management – is recommended. This remedial approach meets the objectives of protecting human health and the environment, complies with SCGs, and supports the future use of the property while minimizing unnecessary disturbance and cost.

Tables

TABLE 1 - SOIL SAMPLING RESULTS

Analyte	Sample Identification, Sample Depth and Sample Collection Date														NYSDEC Part 375 Soil Cleanup Objectives (SCOs)				
	RI-BH-1	RI-BH-1	RI-BH-2	RI-BH-2	RI-BH-3	RI-BH-4	RI-BH-5	RI-BH-5	RI-BH-6	RI-BH-6	RI-BH-7	RI-BH-7	RI-BH-8	RI-BH-8					
	2-5'	6-9'	1-4'	5-8'	2-5'	1-4'	1-4'	5-8'	1-3'	4-7'	1-4'	4-6'	1-4'	6-9'	Unrestricted	Residential	Restricted Residential	Commercial	Industrial
	5/27/2025																		
METALS (ppm)																			
Aluminum	16900	24600	12400	21800	13300	8490	14300	12000	18700	13900	11000	11200	6180	22600	NS	NS	NS	NS	NS
Antimony	ND	ND	0.99	ND	0.74	1	ND	ND	ND	1.5	53.8	0.96	ND	0.93	NS	NS	NS	NS	NS
Arsenic	7.6	8.6	9.1	6.6	9.7	**41.5**	11.9	9.3	11	10.7	**33.4**	11.7	7.9	9.1	13	16	16	16	16
Barium	235	224	134	**531**	61.2	**368**	115	76.6	177	117	**865**	56.1	124	132	350	350	400	400	10000
Beryllium	1.1	1	0.91	1.1	1.1	0.88	1.5	0.76	1.3	1	0.73	0.72	0.86	1.1	7.2	14	72	590	2700
Cadmium	0.32	0.56	0.19	0.25	0.33	0.15	0.24	0.36	0.55	0.17	1.3	0.2	ND	0.25	2.5	2.5	4.3	9.3	60
Calcium	2830	4080	4270	42200	23800	6720	26100	2270	22800	270	5460	1140	3370	3590	NS	NS	NS	NS	NS
Chromium	**19.4**	**29**	**17.9**	**28.2**	**19.5**	**13.7**	**14**	**16.1**	**19.1**	**20.3**	**23.5**	**15.4**	**10.7**	**26.4**	1	22	110	400	800
Cobalt	8.9	16.5	6.4	11.5	6.4	4.2	9.4	10.1	9.5	12.9	8.7	21	6.4	29.3	NS	NS	NS	NS	NS
Copper	**56.5**	29.7	**76.3**	24.4	48.6	19.2	42.8	21.6	31.2	42	**62.8**	41.3	30.6	28.4	50	270	270	270	10000
Iron	23300	34300	23700	30900	31400	51800	25400	24900	35200	40300	33600	28800	22300	34200	NS	NS	NS	NS	NS
Lead	**283**	50.5	**284**	13.3	16.9	23.6	40.3	30.1	**262**	18.3	**4950**	37.6	**96.6**	18.3	63	400	400	1000	3900
Magnesium	2680	4200	2370	8480	6280	1740	9010	3150	7350	3750	2520	3380	937	6170	NS	NS	NS	NS	NS
Manganese	194	**1880**	760	299	285	66	405	463	485	125	301	324	80.1	366	1600	2000	2000	10000	10000
Nickel	25.6	26.2	24.7	**35.6**	15.7	12.1	20.8	28	20.4	**33.6**	25.3	**40.6**	19.3	**37.8**	30	140	310	310	10000
Potassium	2470	3880	1610	5060	2550	1100	2240	2300	2100	2910	1910	2440	1150	3390	NS	NS	NS	NS	NS
Selenium	ND	ND	ND	ND	1.2	1.9	1.2	ND	1.3	1.6	2.1	ND	ND	1.3	3.9	36	180	1500	6800
Sodium	314	262	190	231	170	349	259	139	361	133	2000	162	ND	204	NS	NS	NS	NS	NS
Vanadium	27.1	43.1	27.5	38	21.1	21.8	17.9	24.8	30.4	27.2	24.1	17.1	20	36	NS	NS	NS	NS	NS
Zinc	**149**	**147**	**167**	73.4	**155**	17	107	70.9	**127**	44.2	**638**	94.4	54.5	80.6	109	2200	10000	10000	10000
Cyanide, Total	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	27	27	27	27	10000
Mercury	**1.2**	0.15	**0.54**	0.019	0.016	0.082	0.047	0.015	**0.42**	0.028	**0.34**	0.015	**0.24**	0.028	0.18	0.81	0.81	2.8	5.7
ORGANOCHLORINE PESTICIDES (ppm)																			
4,4'-DDD	ND	ND	ND	ND	ND	**0.0081**	ND	ND	ND	ND	**0.019**	ND	0.0027	ND	0.0033	2.6	13	92	180
4,4'-DDE	ND	ND	ND	ND	ND	0.0032	ND	ND	ND	0.00078	ND	ND	0.0027	ND	0.0033	1.8	8.9	62	120
4,4'-DDT	**0.0037**	**0.0036**	**0.064**	ND	0.0028	0.0026	0.0018	ND	ND	ND	**0.025**	ND	0.0042	ND	0.0033	1.7	7.9	47	94
alpha-BHC	ND	ND	ND	ND	ND	ND	0.00075	ND	ND	ND	ND	ND	ND	ND	0.02	0.097	0.48	3.4	6.8
delta-BHC	ND	ND	ND	ND	ND	ND	0.00077	ND	ND	ND	ND	ND	ND	ND	0.04	100	100	500	1000
Endrin	ND	ND	ND	ND	ND	ND	0.0011	ND	ND	ND	ND	ND	ND	ND	0.014	2.2	11	89	410
Endrin ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0022	ND	NS	NS	NS	NS	NS
gamma-BHC (Lindane)	0.0013	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0012	ND	0.1	0.28	1.3	9.2	23
Methoxychlor	0.0038	0.0048	0.067	0.0041	0.0041	ND	ND	ND	0.00098	0.0022	ND	ND	0.0036	ND	NS	NS	NS	NS	NS
trans-Chlordane	ND	ND	ND	ND	ND	0.0025	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
PER- & POLYFLUOROALKYL SUBSTANCES (PFAS) (ppt)																			
Perfluorooctanesulfonic acid (PFOS)	ND	ND	0.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.88	8.8	44	440	440
Perfluorooctanoic acid (PFOA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.66	6.6	33	500	600
POLYCHLORINATED BIPHENYLS (PCBS) (ppm)																			
Total PCBs	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Various	Various	Various	Various	Various
SEMIVOLITALE ORGANIC COMPOUNDS (SVOCS) (ppm)																			
2-Methylnaphthalene	0.073	ND	ND	ND	ND	0.18	ND	ND	ND	ND	0.14	ND	0.38	ND	NS	NS	NS	NS	NS
4-Methylphenol	ND	ND	ND	ND	ND	0.087	ND	ND	ND	ND	0.071	ND	0.076	ND	0.33	34	100	500	1000
Acenaphthene	0.049	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.069	ND	ND	ND	20	100	100	500	1000
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.59	ND	0.1	ND	100	100	100	500	1000
Acetophenone	ND	ND	ND	ND	ND	0.061	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Anthracene	0.087	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2	ND	0.1	ND	100	100	100	500	1000
Benzo[a]anthracene	0.29	ND	0.92	ND	ND	ND	0.08	ND	ND	ND	**4.3**	ND	0.43	ND	1	1	1	5.6	11
Benzo[a]pyrene	0.22	ND	**1.3**	ND	ND	ND	0.12	ND	ND	ND	**4.1**	ND	0.39	ND	1	1	1	1	1.1
Benzo[b]fluoranthene	0.39	ND	**2**	ND	0.046	ND	0.19	ND	ND	ND	**4.7**	ND	0.66	ND	1	1	1	5.6	11
Benzo[g,h,i]perylene	0.15	ND	1.1	ND	ND	ND	0.25	ND	ND	ND	2.5	ND	0.33	ND	100	100	100	500	1000
Benzo[k]fluoranthene	0.21	ND	**1**	ND	ND	ND	0.085	ND	ND	ND	**2.6**	ND	0.23	ND	0.8	1	3.9	56	110
Bis(2-ethylhexyl) phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	ND	NS	NS	NS	NS	NS
Carbazole	0.047	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.13	ND	0.055	ND	NS	NS	NS	NS	NS
Chrysene	0.41	ND	**1.5**	ND	ND	ND	0.13	ND	ND	ND	**4.3**	ND	0.48	ND	1	1	3.9	56	110
Dibenz(a,h)anthracene	0.052	ND	ND	ND	ND	ND	0.039	ND	ND	ND	**0.72**	ND	0.09	ND	0.33	0.33	0.33	0.56	1.1
Dibenzofuran	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.16	ND	0.086	ND	7	14	59	350	1000
Fluoranthene	1.1	ND	2.6	ND	0.11	0.057	0.17	ND	ND	ND	10	ND	1.3	ND	100	100	100	500	1000
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.34	ND	0.069	ND	30	100	100	500	1000
Indeno[1,2,3-cd]pyrene	0.12	ND	**0.88**	ND	ND	ND	0.14	ND	ND	ND	**2.3**	ND	0.27	ND	0.5	0.5	0.5	5.6	11
Naphthalene	0.051	ND	ND	ND	ND	0.11	ND	ND	ND	ND	0.15	ND	0.32	ND	12	100	100	500	1000
Phenanthrene	0.56	ND	0.75	ND	ND	0.089	0.065	ND	ND	0.035	4.2	ND	0.8	ND	100	100	100	500	1000
Phenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.33	100	100	500	1000
Pyrene	0.72	ND	1.8	ND	0.074	0.049	0.15	ND	ND	0.065	7.7	0.042	0.96	ND	100	100	100	500	1000
Total TICs	6.49	52.1	3.3	17.19	45.1	35.1	22.75	9.4	8.17	46.3	80.37	36.42	91.97	4.1	NS	NS	NS	NS	NS
VOLITALE ORGANIC COMPOUNDS (VOCS) (ppm)																			
2-Butanone (MEK)	ND	ND	ND	ND	ND	0.038	0.045	ND	ND	ND	0.0076	ND	0.017	ND	0.12	100	100	500	1000
Acetone	0.013	0.0078	0.036	0.01	ND	**0.2**	**0.26**	0.016	0.03	0.015	0.049	0.0067	0.095	0.0057	0.05	100	100	500	1000
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00068	ND	ND	ND	0.06	2.9	4.8	44	89
Carbon disulfide	ND	ND	ND	ND	ND	ND	0.0088	ND	ND	0.0051	0.006	ND	ND	ND	NS	NS	NS	NS	NS
Chloroform	0.00059	0.00052	0.00047	0.00052	0.00043	ND	0.00045	0.00046	0.00044	ND	ND	0.00041	0.0006	0.00056	0.37	10	49	350	700
Methylcyclohexane	ND	ND	0.0011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Methylene Chloride	0.0073	0.0079	0.0032	0.0074	0.0036	0.0077	0.0039	0.0083	0.0058	ND	ND	0.0051	0.0048	0.004	0.05	51	100	500	1000
Tetrachloroethene	ND	ND	0.009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	5.5	19	150	300
Toluene	0.00064	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00078	ND	ND	ND	0.7	100	100	500	1000

Notes:
1 PFAS limits are guidance values only; theree is still no official SCOs in New York State.
ND Not Detected
NS No Standard
NYSDEC New York State Department of Environmental Conservation
ppm parts per million
ppt parts per trillion
´ feet below ground surface
R result is rejected/unusable

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TABLE 1 - SOIL SAMPLING RESULTS

Analyte	Sample Identification, Sample Depth and Sample Collection Date														NYSDEC Part 375 Soil Cleanup Objectives (SCOs)				
	RI-BH-9 1-3'	RI-BH-10 1-4'	RI-BH-11 1-4'	RI-BH-11 6-9'	RI-BH-12 1-3'	RI-BH-13 1-4'	RI-BH-14 0-3'	RI-BH-15 0-3'	RI-BH-15 7-10'	RI-BH-16 0-3'	RI-BH-17 0-3'	RI-BH-17 8-11'	RI-BH-18 0-3'	RI-BH-18 5-8'	Unrestricted	Residential	Restricted Residential	Commercial	Industrial
	5/28/2025		5/27/2025																
METALS (ppm)																			
Aluminum	12200	11000	11600	23100	16800	9850	16600	4490	11000	13000	14400	12000	17500	9160	NS	NS	NS	NS	NS
Antimony	1.5	0.79	0.8	ND	ND	ND	0.98	ND	0.79	1.2	1.5	0.95	1.4	0.66	NS	NS	NS	NS	NS
Arsenic	7.4	**19.8**	11.5	8.7	3.4	5.5	9.9	5.4	8.9	12.2	12.3	**15.2**	**13.9**	13	13	16	16	16	16
Barium	216	**354**	95.7	162	181	58.4	250	34.3	85.3	205	245	200	92.6	164	350	350	400	400	10000
Beryllium	0.53	1.5	0.8	0.97	3.6	0.42	0.83	0.23	0.55	1.4	0.82	0.58	0.65	0.59	7.2	14	72	590	2700
Cadmium	0.62	0.25	0.26	0.16	0.12	0.14	0.33	ND	0.22	0.33	0.68	1.1	0.24	0.33	2.5	2.5	4.3	9.3	60
Calcium	5670	5600	37400	3020	72300	81300	2330	36100	4730	26000	8300	38400	2210	16400	NS	NS	NS	NS	NS
Chromium	**17.1**	**24.1**	**17**	**28.5**	**11.8**	**23.3**	**20**	**6**	**15.2**	**21.5**	**21.5**	**16.8**	**21.5**	**12.6**	1	22	110	400	800
Cobalt	6	8.8	8.5	10.7	3.6	5.8	12.6	2.6	14.2	8.3	11.8	11.2	8.5	10.9	NS	NS	NS	NS	NS
Copper	**598**	27.5	29.3	24.3	14.9	43.1	34	6.8	42.4	**53.7**	**67.8**	35.6	25.8	**51**	50	270	270	270	10000
Iron	18600	30500	28100	33400	11900	14700	27600	7200	24700	23500	29200	25700	33700	24900	NS	NS	NS	NS	NS
Lead	**687**	**64.3**	**67.5**	12.9	30.3	11.9	25.3	5.2	19.5	**409**	**293**	25.1	**64.3**	23.5	63	400	400	1000	3900
Magnesium	2720	1800	5190	5860	22500	7530	3710	8400	4420	5880	4290	7670	2990	5030	NS	NS	NS	NS	NS
Manganese	278	219	615	309	987	330	136	95.1	247	778	485	397	378	261	1600	2000	2000	10000	10000
Nickel	14.3	22.5	19.8	**35.3**	7	20.9	**35.5**	7.6	**33.6**	22.1	28.8	**32**	20.5	29.7	30	140	310	310	10000
Potassium	2160	1570	1900	4090	1450	1660	3150	812	2210	1990	2460	2990	2690	2120	NS	NS	NS	NS	NS
Selenium	ND	**3.2**	ND	ND	1.2	ND	ND	ND	ND	2.1	1.2	1.1	1.2	ND	3.9	36	180	1500	6800
Silver	ND	ND	ND	ND	0.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	36	180	1500	6800
Sodium	280	417	281	416	645	215	83	98.7	88.9	248	153	160	93.1	105	NS	NS	NS	NS	NS
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Vanadium	26.7	29.2	19.6	39	11.1	19.8	27.4	8.9	17.4	21	25.7	22.1	34.7	16.7	NS	NS	NS	NS	NS
Zinc	**370**	70.1	73.8	79.2	39.3	40.5	**213**	23.5	97	**122**	**328**	**158**	**113**	80.8	109	2200	10000	10000	10000
Cyanide, Total	ND	ND	ND	ND	0.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	27	27	27	27	10000
Mercury	**0.41**	0.12	0.043	0.02	**0.62**	0.017	0.035	0.0065	0.018	0.088	0.099	0.021	**1**	0.018	0.18	0.81	0.81	2.8	5.7
ORGANOCHLORINE PESTICIDES (ppm)																			
4,4'-DDD	ND	ND	ND	ND	0.00077	ND	ND	ND	ND	**0.0038**	ND	ND	ND	ND	0.0033	2.6	13	92	180
4,4'-DDE	ND	ND	0.00074	ND	ND	ND	ND	ND	ND	**0.0066**	0.0013	ND	ND	ND	0.0033	1.8	8.9	62	120
4,4'-DDT	ND	**0.012**	0.0028	ND	**0.0036**	**0.069**	0.003	0.003	ND	**0.017**	**0.0042**	ND	**0.0035**	ND	0.0033	1.7	7.9	47	94
alpha-BHC	0.0059	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.02	0.097	0.48	3.4	6.8
beta-BHC	0.015	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.036	0.072	0.36	3	14
Endosulfan II	ND	ND	ND	ND	0.0012	ND	ND	ND	ND	0.0011	ND	ND	ND	ND	2.4	4.8	24	200	920
Endrin aldehyde	ND	ND	ND	ND	0.0014	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Endrin ketone	0.011	ND	0.0015	ND	ND	ND	0.0017	ND	ND	0.0038	ND	ND	ND	0.0016	NS	NS	NS	NS	NS
gamma-BHC (Lindane)	0.014	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	0.28	1.3	9.2	23
Methoxychlor	0.022	0.012	ND	ND	0.0042	0.1	0.0044	0.0034	0.0035	0.0042	0.0057	ND	0.0036	0.0038	NS	NS	NS	NS	NS
trans-Chlordane	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0014	ND	ND	ND	ND	NS	NS	NS	NS	NS
PER- & POLYFLUOROALKYL SUBSTANCES (PFAS) (ppt)																			
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	0.14	ND	ND	ND	ND	ND	0.11	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Perfluorobutanoic acid (PFBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.15	ND	ND	ND	ND	NS	NS	NS	NS	NS
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.073	ND	NS	NS	NS	NS	NS
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.093	ND	NS	NS	NS	NS	NS
Perfluorohexanesulfonic acid (PFHxS)	ND	ND	ND	ND	ND	ND	ND	0.070	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Perfluorohexanoic acid (PFHxA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.071	ND	ND	0.11	ND	NS	NS	NS	NS	NS
Perfluorooctanesulfonic acid (PFOS)	ND	0.17	ND	ND	ND	ND	ND	**0.77**	ND	**0.34**	ND	ND	**1.6**	ND	0.88	8.8	44	440	440
Perfluorooctanoic acid (PFOA)	ND	0.073	ND	ND	ND	ND	ND	0.088	ND	0.18	ND	ND	**0.51**	ND	0.66	6.6	33	500	600
Perfluoropentanoic acid (PFPeA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.071	ND	ND	0.11	ND	NS	NS	NS	NS	NS
POLYCHLORINATED BIPHENYLS (PCBS) (ppm)																			
Total PCBs	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Various	Various	Various	Various	Various
SEMIVOLTALE ORGANIC COMPOUNDS (SVOCS) (ppm)																			
2-Methylnaphthalene	0.039	ND	0.11	ND	0.039	ND	0.064	0.051	ND	0.13	0.033	ND	0.13	ND	NS	NS	NS	NS	NS
4-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.037	ND	ND	ND	ND	0.33	34	100	500	1000
Acenaphthene	ND	ND	ND	ND	ND	ND	0.085	ND	ND	ND	ND	ND	ND	ND	20	100	100	500	1000
Acenaphthylene	ND	ND	0.044	ND	ND	ND	ND	ND	ND	0.055	ND	ND	0.042	ND	100	100	100	500	1000
Anthracene	ND	ND	0.089	ND	0.046	0.055	0.22	ND	ND	0.065	0.062	0.08	0.063	ND	100	100	100	500	1000
Benzo[a]anthracene	0.11	ND	0.31	ND	0.15	0.14	0.32	ND	ND	0.31	0.15	0.18	0.27	ND	1	1	1	5.6	11
Benzo[a]pyrene	0.092	ND	0.28	ND	0.12	0.13	0.35	ND	ND	0.29	0.15	0.16	0.31	ND	1	1	1	1	1.1
Benzo[b]fluoranthene	0.14	0.096	0.37	ND	0.18	0.15	0.41	ND	ND	0.49	0.2	0.21	0.46	ND	1	1	1	5.6	11
Benzo[g,h,i]perylene	0.069	ND	0.21	ND	0.12	0.12	0.25	ND	ND	0.26	0.12	0.069	0.22	ND	100	100	100	500	1000
Benzo[k]fluoranthene	0.068	ND	0.22	ND	0.089	0.088	0.24	ND	ND	0.15	0.098	0.058	0.22	ND	0.8	1	3.9	56	110
Bis(2-ethylhexyl) phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.11	ND	ND	ND	ND	NS	NS	NS	NS	NS
Caprolactam	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Carbazole	ND	ND	ND	ND	ND	ND	0.083	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Chrysene	0.16	ND	0.41	ND	0.17	0.14	0.38	ND	ND	0.53	0.16	0.21	0.41	ND	1	1	3.9	56	110
Dibenz(a,h)anthracene	ND	ND	0.061	ND	0.046	ND	0.08	ND	ND	0.098	ND	ND	0.091	ND	0.33	0.33	0.33	0.56	1.1
Dibenzofuran	ND	ND	ND	ND	ND	ND	0.067	ND	ND	ND	ND	ND	0.047	ND	7	14	59	350	1000
Fluoranthene	0.24	ND	0.76	ND	0.29	0.34	0.96	ND	ND	0.59	0.37	0.36	0.72	ND	100	100	100	500	1000
Fluorene	ND	ND	ND	ND	ND	ND	0.068	ND	ND	ND	ND	ND	ND	ND	30	100	100	500	1000
Indeno[1,2,3-cd]pyrene	0.058	ND	0.18	ND	0.1	0.089	0.2	ND	ND	0.2	0.087	0.083	0.22	ND	0.5	0.5	0.5	5.6	11
Naphthalene	0.035	ND	ND	ND	ND	ND	ND	ND	ND	0.078	0.14	ND	0.081	ND	12	100	100	500	1000
Phenanthrene	0.19	ND	0.38	ND	0.24	0.24	0.99	0.044	ND	0.43	0.26	0.1	0.43	ND	100	100	100	500	1000
Pyrene	0.19	ND	0.57	ND	0.23	0.28	0.75	ND	ND	0.43	0.27	0.29	0.52	ND	100	100	100	500	1000
Total TICs	18.43	43.8	62.13	57.54	19.59	227.61	22.23	42.71	49.4	26.9	14.33	26.51	9.24	18.85	NS	NS	NS	NS	NS
VOLITALE ORGANIC COMPOUNDS (VOCS)																			
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	0.00049	ND	ND	ND	ND	ND	0.68	100	100	500	1000
2-Butanone (MEK)	ND	0.0072	0.004	ND	ND	0.025	ND	ND	ND	ND	ND	0.015	ND	ND	0.12	100	100	500	1000
Acetone	ND	**0.11**	0.036	0.0091	ND	**0.16**	ND	0.0057	ND	ND	0.013	**0.08**	ND	ND	0.05	100	100	500	1000
Chloroform	0.00053	ND	0.0005	0.00055	0.0004	0.00058	0.00044	0.00052	0.00047	0.0006	0.00054	0.00055	0.00048	0.00059	0.37	10	49	350	700
Cyclohexane	ND	0.0012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Methylene Chloride	ND	ND	0.0044	0.0087	0.0053	0.0074	0.0062	0.0066	0.006	0.0058	0.0068	0.0051	0.0032	0.0047	0.05	51	100	500	1000
Methylenecyclohexane	ND	0.0049	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Total TICs	ND	0.0429	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS

Notes:
1 PFAS limits are guidance values only; theree is still no official SCOs in New York State.
ND Not Detected
NS No Standard
NYSDEC New York State Department of Environmental Conservation
ppm parts per million
ppt parts per trillion
' feet below ground surface
R result is rejected/unusable

BRYDGES ENGINEERING IN ENVIRONMENT AND ENERGY, DPC

TABLE 1 - SOIL SAMPLING RESULTS

Analyte	Sample Identification, Sample Depth and Sample Collection Date							NYSDEC Part 375 Soil Cleanup Objectives (SCOs)				
	RI-MW-1	RI-MW-2	RI-MW-3	RI-MW-3-DUP	RI-MW-4	RI-MW-4-DUP	RI-MW-5	Unrestricted	Residential	Restricted Residential	Commercial	Industrial
	8-11'	4-7'	8-11'	8-11'	9-12'	9-12'	9-12'					
	5/28/2025											
METALS (ppm)												
Aluminum	13400	19100	12000	13400	10800	10500	9890	NS	NS	NS	NS	NS
Antimony	1.1	ND	0.85	1.1	ND	ND	ND	NS	NS	NS	NS	NS
Arsenic	12.2	5.9	12.2	12.6	9.6	7	8.6	13	16	16	16	16
Barium	134	105	56.4	66.6	48.6	130	249	350	350	400	400	10000
Beryllium	1	0.82	0.74	0.82	0.57	0.57	0.5	7.2	14	72	590	2700
Cadmium	0.16	0.25	0.35	0.33	0.31	0.2	0.36	2.5	2.5	4.3	9.3	60
Calcium	10800	1830	3880	3240	31800	43200	26400	NS	NS	NS	NS	NS
Chromium	**17.7**	**19.1**	**17.1**	**18.4**	**15.1**	**14.4**	**14.1**	1	22	110	400	800
Cobalt	16.4	11.2	16.2	17.4	11.9	9.5	10.7	NS	NS	NS	NS	NS
Copper	40.9	34.7	46.9	44.8	39.2	29.7	33.4	50	270	270	270	10000
Iron	29800	21400	31600	31600	25000	21700	23300	NS	NS	NS	NS	NS
Lead	20.6	12.1	23.1	22.2	18	14	16.9	63	400	400	1000	3900
Magnesium	6750	3940	5430	5630	7980	8560	7270	NS	NS	NS	NS	NS
Manganese	308	164	247	255	356	406	333	1600	2000	2000	10000	10000
Nickel	**38.8**	**46.4**	**42.3**	**43.8**	**32.2**	25.1	28.4	30	140	310	310	10000
Potassium	2970	2620	2650	3120	2520	2550	2120	NS	NS	NS	NS	NS
Selenium	1.2	1	1.2	1.1	ND	ND	ND	3.9	36	180	1500	6800
Silver	ND	ND	ND	ND	ND	ND	ND	2	36	180	1500	6800
Sodium	176	120	118	128	168	162	121	NS	NS	NS	NS	NS
Thallium	ND	ND	0.86	1	ND	ND	ND	NS	NS	NS	NS	NS
Vanadium	19.7	24.2	19.7	22.8	19.3	19	15.9	NS	NS	NS	NS	NS
Zinc	42.3	77.4	69.3	67.7	74.6	48.5	**158**	109	2200	10000	10000	10000
Mercury	0.023	0.031	0.016	0.014	0.02	0.02	0.015	0.18	0.81	0.81	2.8	5.7
ORGANOCHLORINE PESTICIDES (ppm)												
4,4'-DDD	ND	0.0017	ND	ND	ND	ND	ND	0.0033	2.6	13	92	180
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	0.0033	1.8	8.9	62	120
4,4'-DDT	**0.057**	0.0032	ND	ND	0.0028	ND	ND	0.0033	1.7	7.9	47	94
Aldrin	ND	ND	ND	ND	ND	ND	ND	0.005	0.019	0.097	0.68	1.4
alpha-BHC	ND	0.0012	0.00081	0.00081	ND	ND	ND	0.02	0.097	0.48	3.4	6.8
beta-BHC	ND	ND	0.00097	ND	ND	ND	ND	0.036	0.072	0.36	3	14
Endrin ketone	0.035	0.0021	0.0011	0.0013	ND	0.012	ND	NS	NS	NS	NS	NS
gamma-BHC (Lindane)	ND	0.001	ND	ND	ND	ND	ND	0.1	0.28	1.3	9.2	23
Methoxychlor	ND	ND	ND	0.0037	0.0031	ND	0.0034	NS	NS	NS	NS	NS
PER- & POLYFLUOROALKYL SUBSTANCES (PFAS) (ppt)												
Perfluorooctanesulfonic acid (PFOS)	ND	ND	ND	0.13	ND	ND	ND	0.88	8.8	44	440	440
Perfluorooctanoic acid (PFOA)	ND	ND	ND	0.083	ND	ND	ND	0.66	6.6	33	500	600
POLYCHLORINATED BIPHENYLS (PCBS) (ppm)												
Total PCBs	ND	ND	ND	ND	ND	ND	ND	Various	Various	Various	Various	Various
SEMIVOLITALE ORGANIC COMPOUNDS (SVOCS) (ppm)												
1,4-Dioxane	ND	0.035	ND	ND	ND	ND	ND	0.1	9.8	13	130	250
Benzaldehyde	0.036	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Dibenzofuran	0.045	ND	ND	ND	ND	ND	ND	7	14	59	350	1000
Naphthalene	0.086	0.064	0.036	0.035	0.067	0.1	ND	12	100	100	500	1000
Pentachlorophenol	0.042	ND	ND	ND	ND	ND	ND	0.8	2.4	6.7	6.7	55
Phenanthrene	5.3	3.5	4.4	6.2	6.3	7.3	1.5	100	100	100	500	1000
Phenol	**1.8**	**6.3**	**1.8**	**3.9**	**1.7**	**0.76**	**0.42**	0.33	100	100	500	1000
Pyrene	1.9	0.81	1.2	0.8	0.6	1.1	0.4	100	100	100	500	1000
Total TICs	37.1	19.8	31.7	23.95	16.68	36.67	13.91	NS	NS	NS	NS	NS
VOLITALE ORGANIC COMPOUNDS (VOCS)												
Acetone	0.008	0.015	0.006	0.01	0.018	0.007	0.011	0.05	100	100	500	1000
Carbon disulfide	0.0035	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Chloroform	ND	0.00052	0.00051	0.00049	0.0005	0.00053	0.00047	0.37	10	49	350	700
cis-1,2-Dichloroethene	0.0012	ND	ND	ND	ND	ND	ND	0.25	59	100	500	1000
Cyclohexane	ND	ND	ND	0.00075	ND	ND	0.00079	NS	NS	NS	NS	NS
Methylcyclohexane	0.012	ND	ND	0.0025	ND	0.0014	0.0013	NS	NS	NS	NS	NS
Methylene Chloride	ND	ND	ND	ND	ND	ND	0.0034	0.05	51	100	500	1000
Toluene	0.0007	ND	ND	ND	ND	ND	0.00054	0.7	100	100	500	1000
Total TICs	0.0985	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Vinyl chloride	0.00077	ND	ND	ND	ND	ND	ND	0.02	0.21	0.9	13	27

Notes:
1 PFAS limits are guidance values only; theree is still no official SCOs in New York State.
ND Not Detected
NS No Standard
NYSDEC New York State Department of Environmental Conservation
ppm parts per million
ppt parts per trillion
' feet below ground surface
R result is rejected/unusable

TABLE 1 - SOIL SAMPLING RESULTS

Analyte	Sample Identification, Sample Depth and Sample Collection Date						NYSDEC Part 375 Soil Cleanup Objectives (SCOs)				
	RI-BH-19	RI-BH-20	SS-1	SS-2	SS-3	SS-4	Unrestricted	Residential	Restricted Residential	Commercial	Industrial
	3-5'	2-4'	0.17-0.5'	0.17-0.5'	0.17-0.5'	0.17-0.5'					
	8/11/2025										
METALS (ppm)											
Aluminum	15900	7200	13600	11300	9130	14200	NS	NS	NS	NS	NS
Antimony	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Arsenic	**14.2**	**16.4**	12	**17.2**	8.3	10.8	13	16	16	16	16
Barium	200	**364**	141	98.8	106	156	350	350	400	400	10000
Beryllium	1.5	1	0.83	0.7	0.69	0.81	7.2	14	72	590	2700
Cadmium	0.85	0.083	0.42	0.34	0.6	0.43	2.5	2.5	4.3	9.3	60
Calcium	7280	3270	9340	8170	108000	6660	NS	NS	NS	NS	NS
Chromium	**18.5**	**15.6**	**26.4**	**15.5**	**24.2**	**28.2**	1	22	110	400	800
Cobalt	12.4	4.7	10.4	9.2	6.5	12.4	NS	NS	NS	NS	NS
Copper	**57.3**	17	44.3	39.5	**109**	39.2	50	270	270	270	10000
Cyanide, Total	ND	0.7	0.5	4.6	2.2	3.8	27	27	27	27	10000
Iron	19700	25300	26200	22600	20100	25400	NS	NS	NS	NS	NS
Lead	**454**	6	**168**	**72.4**	**101**	**157**	63	400	400	1000	3900
Magnesium	1400	657	4770	4190	23800	3800	NS	NS	NS	NS	NS
Manganese	83.7	60.3	490	448	641	345	1600	2000	2000	10000	10000
Mercury	**0.66**	0.17	**0.22**	0.16	0.12	**0.25**	0.18	0.81	0.81	2.8	5.7
Nickel	**39.1**	13.1	**31.6**	28.7	21.3	**36.7**	30	140	310	310	10000
Potassium	1580	874	2600	1810	1720	2740	NS	NS	NS	NS	NS
Selenium	1.4	2.2	1.1	0.94	1.1	1.1	3.9	36	180	1500	6800
Silver	ND	ND	ND	ND	ND	ND	2	36	180	1500	6800
Sodium	149	357	104	83.6	163	118	NS	NS	NS	NS	NS
Thallium	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Vanadium	23.2	18.6	25.5	17.8	19.9	26.2	NS	NS	NS	NS	NS
Zinc	**892**	13.1	**156**	**132**	**155**	**153**	109	2200	10000	10000	10000
ORGANOCHLORINE PESTICIDES (ppm)											
4,4'-DDD	**0.0054**	ND	ND	ND	ND	ND	0.0033	2.6	13	92	180
4,4'-DDE	**0.0043**	ND	ND	ND	ND	ND	0.0033	1.8	8.9	62	120
4,4'-DDT	**0.0039**	ND	ND	ND	0.0028	ND	0.0033	1.7	7.9	47	94
Aldrin	ND	ND	ND	ND	ND	ND	0.005	0.019	0.097	0.68	1.4
alpha-BHC	ND	ND	0.00081	0.00081	ND	ND	0.02	0.097	0.48	3.4	6.8
beta-BHC	ND	ND	0.00097	ND	ND	ND	0.036	0.072	0.36	3	14
cis-Chlordane	ND	ND	ND	ND	ND	ND	0.094	0.91	4.2	24	47
delta-BHC	0.00082	ND	ND	ND	ND	ND	0.04	100	100	500	1000
Dieldrin	ND	ND	ND	ND	ND	ND	0.005	0.039	0.2	1.4	2.8
Endosulfan I	ND	ND	ND	ND	ND	ND	2.4	4.8	24	200	920
Endosulfan II	ND	ND	ND	ND	ND	ND	2.4	4.8	24	200	920
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	2.4	4.8	24	200	920
Endrin	0.0012	0.00081	ND	ND	ND	ND	0.014	2.2	11	89	410
Endrin aldehyde	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Endrin ketone	ND	ND	0.0011	0.0013	ND	0.012	NS	NS	NS	NS	NS
gamma-BHC (Lindane)	ND	ND	ND	ND	ND	ND	0.1	0.28	1.3	9.2	23
Heptachlor	ND	ND	ND	ND	ND	ND	0.042	0.42	2.1	15	29
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
Methoxychlor	0.00094	ND	ND	0.0037	0.0031	ND	NS	NS	NS	NS	NS
Toxaphene	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
trans-Chlordane	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS
PER- & POLYFLUOROALKYL SUBSTANCES (PFAS) (ppt)											
Total PFAS	ND	ND	-		-	-	Various	Various	Various	Various	Various
POLYCHLORINATED BIPHENYLS (PCBS) (ppm)											
Total PCBs	ND	ND	-	-	-	-	Various	Various	Various	Various	Various
SEMIVOLITALE ORGANIC COMPOUNDS (SVOCS) (ppm)											
2-Methylnaphthalene	ND	0.056	ND	ND	0.055	ND	NS	NS	NS	NS	NS
Acenaphthylene	ND	ND	ND	ND	0.037	ND	100	100	100	500	1000
Anthracene	ND	ND	0.46	ND	0.039	ND	100	100	100	500	1000
Benzo[a]anthracene	0.45	0.034	**2.9**	ND	0.28	0.97	1	1	1	5.6	11
Benzo[a]pyrene	0.49	0.039	**3.3**	0.84	0.34	**1.1**	1	1	1	1	1.1
Benzo[b]fluoranthene	0.61	0.06	**4.9**	**1.5**	0.41	**1.8**	1	1	1	5.6	11
Benzo[g,h,i]perylene	0.37	0.033	3.1	0.74	0.33	0.92	100	100	100	500	1000
Benzo[k]fluoranthene	0.26	ND	**1.7**	ND	0.33	0.59	0.8	1	3.9	56	110
Carbazole	ND	ND	0.42	ND	ND	ND	NS	NS	NS	NS	NS
Chrysene	0.53	0.051	**3.6**	ND	0.39	**1.4**	1	1	3.9	56	110
Fluoranthene	1	0.086	7.5	1.7	0.63	2.5	100	100	100	500	1000
Indeno[1,2,3-cd]pyrene	0.25	ND	**2.4**	0.63	0.25	**0.67**	0.5	0.5	0.5	5.6	11
Phenanthrene	0.66	0.057	2.7	0.58	0.19	0.91	100	100	100	500	1000
Pyrene	0.9	0.079	5.7	1.3	0.51	2.1	100	100	100	500	1000
Total TICs	0	0	17.1	17.9	38.12	9.9	NS	NS	NS	NS	NS
VOLITALE ORGANIC COMPOUNDS (VOCS)											
Acetone	0.0099	0.014	0.006	0.01	0.018	0.007	0.05	100	100	500	1000
Chloroform	ND	ND	0.00051	0.00049	0.0005	0.00053	0.37	10	49	350	700
Cyclohexane	ND	ND	ND	0.00075	ND	ND	NS	NS	NS	NS	NS
Methylcyclohexane	ND	ND	ND	0.0025	ND	0.0014	NS	NS	NS	NS	NS

Notes:

1 PFAS limits are guidance values only; theree is still no official SCOs in New York State.
ND Not Detected
NS No Standard
NYSDEC New York State Department of Environmental Conservation
ppm parts per million
ppt parts per trillion
' feet below ground surface
R result is rejected/unusable

TABLE 2 - GROUNDWATER SAMPLING RESULTS

Parameter Tested	Sample Identification and Sample Date					NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1)
	MW-2	MW-3	MW-4	MW-5	Trip Blank	
	4/21/2025			4/23/2025		
METALS (mg/L)						
Aluminum	0.17	0.55	0.16	0.068	-	NS
Antimony	ND	ND	ND	ND	-	0.003
Arsenic	0.0019	0.0015	0.00076	0.0011	-	0.025
Barium	0.079	0.062	0.095	0.15	-	1
Beryllium	ND	ND	ND	ND	-	0.003
Cadmium	ND	ND	ND	ND	-	0.005
Calcium	140	181	218	178	-	NS
Chromium	ND	0.001	ND	ND	-	0.05
Cobalt	0.00063	0.00073	ND	0.0033	-	NS
Copper	ND	ND	ND	0.0017	-	0.2
Cyanide, Total	0.0096	0.0082	0.0083	0.0095	-	0.2
Iron	**0.77**	**1.3**	**0.35**	0.19	-	0.3
Lead	ND	ND	ND	ND	-	0.025
Magnesium	16.3	**36.6**	**47.8**	**43.8**	-	35
Manganese	0.23	**0.34**	**0.47**	**2.6**	-	0.3
Mercury	ND	ND	ND	ND	-	0.0007
Nickel	0.0018	0.0028	0.0019	0.0057	-	0.1
Potassium	13.4	10.6	6.9	18	-	NS
Selenium	0.00068	0.0032	ND	0.00056	-	0.01
Silver	ND	ND	ND	ND	-	0.05
Sodium	**59.8**	**66.2**	**180**	14.5	-	20
Thallium	ND	ND	ND	ND	-	0.0005
Vanadium	ND	ND	ND	ND	-	NS
Zinc	ND	ND	ND	0.0033	-	2
SVOCS (ug/L)						
1,4-Dioxane	ND	ND	ND	0.15	-	**NS**
4-Methylphenol	ND	ND	ND	0.55	-	**NS**
Acetophenone	0.78	ND	ND	1.6	-	**NS**
Di-n-butyl phthalate	0.36	ND	0.39	0.65	-	**50**
Diethyl phthalate	ND	ND	ND	0.41	-	**50**
Total TICs	60.7	44.3	43.4	110.2	-	NS
VOCS (ug/L)						
Acetone	9.7	ND	32	**51**	ND	50
Benzene	ND	ND	ND	0.58	ND	1
Carbon disulfide	ND	ND	ND	0.45	ND	NS
Chloroform	ND	ND	ND	2	ND	7
Cyclohexane	ND	ND	ND	1.7	ND	NS
Methylcyclohexane	1.6	0.32	0.56	1.7	ND	NS
Toluene	ND	ND	ND	0.92	ND	5
PFAS (ng/L)						
Perfluorobutanesulfonic acid (PFBS)	1.1	4.4	0.44	0.46	-	NS
Perfluorobutanoic acid (PFBA)	2.9	4.7	3	1.4	-	NS
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	-	NS
Perfluoroheptanoic acid (PFHpA)	0.96	0.83	ND	ND	-	NS
Perfluorohexanesulfonic acid (PFHxS)	ND	ND	ND	ND	-	NS
Perfluorohexanoic acid (PFHxA)	1.1	3.9	1.1	3.3	-	NS
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	-	NS
Perfluorooctanoic acid (PFOA)	1.8	1.4	ND	1.3	-	6.7
Perfluorooctanesulfonic acid (PFOS)	ND	ND	0.48	ND	-	2.7
Perfluoropentanoic acid (PFPeA)	0.86	4.8	1.3	0.55	-	NS
PCBS (ug/L)						
Total PCBs	ND	ND	ND	ND	-	0.09
ORGANOCHLORINE PESTICIDES (ug/L)						
alpha-BHC	ND	ND	ND	**0.0087**	**-**	NS
Methoxychlor	ND	ND	ND	0.016		35

Notes:

ND Not Detected

NS No Standard

TICs Tentatively Identified Compounds

TABLE 3 - VAPOR SAMPLING RESULTS

Contaminants	Sample Identification, Type of Sample, and Date Analyzed					
	RI-VP-1	RI-VP-2	RI-VP-3	RI-VP-4	RI-VP-5	RI-VP-6
	5/30/2025					
	Volatile Organic Compounds (TO-15)					
1,1,2-Trichlorotrifluoroethane	ND	0.53	ND	0.54	ND	ND
1,2,4-Trimethylbenzene	ND	6.6	ND	8.1	55	19
1,3,5-Trimethylbenzene	ND	0.80	ND	2.1	22	5.3
1,4-Dichlorobenzene	ND	8.5	ND	ND	ND	ND
2,2,4-Trimethylpentane	ND	ND	8.4	1.8	ND	10
4-Ethyltoluene	ND	0.75	ND	2.6	28	6.7
4-Isopropyltoluene	ND	26	ND	0.54	8.1	ND
4-Methyl-2-pentanone (Methyl isobutyl ketone)	ND	3.5	ND	ND	ND	ND
Acetone	16000	180	1700	730	3200	1700
Benzene	ND	0.28	ND	0.47	6.6	ND
Carbon disulfide	24	0.81	12	4.2	170	7.4
Carbon tetrachloride	ND	0.47	ND	0.46	ND	ND
Chlorodifluoromethane	ND	1.7	ND	ND	ND	ND
Chloromethane	ND	1.7	ND	1.7	ND	ND
Cumene	ND	ND	ND	0.88	13	ND
Cyclohexane	ND	0.28	4.3	1.3	530	21
Dichlorodifluoromethane	ND	2.8	ND	2.6	19	ND
Ethylbenzene	ND	0.57	ND	3.2	47	8.5
Isopropyl alcohol	ND	31	ND	10	ND	83
m,p-Xylene	3.0	2.6	ND	8.3	110	22
Methyl Butyl Ketone (2-Hexanone)	ND	6.7	ND	4.3	11	14
Methyl Ethyl Ketone (2-Butanone)	190	37	16	45	61	150
Methyl methacrylate	ND	2.3	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND
n-Butane	59	3.0	13	9.6	250	200
n-Butylbenzene	ND	ND	ND	1.2	5.9	ND
n-Heptane	48	8.4	ND	2.0	12000	37
n-Hexane	44	ND	ND	0.89	250	44
n-Propylbenzene	ND	0.45	ND	2.0	23	5.1
Naphthalene	ND	2.8	ND	ND	ND	ND
o-Xylene	ND	0.89	ND	3.8	49	10
sec-Butylbenzene	ND	ND	ND	0.69	8.0	ND
Tetrachloroethene	ND	ND	ND	0.93	40	3.1
Toluene	ND	2.1	4.6	5.6	78	17
Trichloroethene	ND	ND	2.9	2.7	5.4	ND
Trichlorofluoromethane	ND	1.5	ND	1.4	ND	ND

Notes:

(1) All values are in micrograms per cubic meter (ug/m^3)

ND Not detected

\- Not applicable/no guidance value

Parameter Tested	BE3 166 E 4th Street Phase II - Sample Identification and Sample Date						NYSDEC Soil Cleanup Objectives (SCOs)		
	BH-1 1-2'	BH-2 1-2'	BH-3 1-2.5'	BH-5 1-2'	BH-10 1-2'	BH-12 1-2'	Restricted Residential	Commerical	Industrial
	8/31/2023								
METALS/INORGANICS									
Arsenic	13.3	12.2	11.5	11.5	**16.7**	**17.2**	16	16	16
Barium	137.0	112.0	195.0	264.0	299.0	372.0	400	400	10,000
Beryllium	1.4	0.69	0.70	0.77	0.83	1.60	72	590	2,700
Cadmium	0.4100	0.34	0.94	0.98	0.37	0.18 J	4.3	9.3	60
Chromium	23.6	14.6	21.1	27.3	30.2	21.1	180	1,500	6,800
Copper	33.6	45.6	53.8	54.0	84.8	23.5	270	270	10,000
Lead	115	37	**429.0**	243.0	240	11.7	400	1,000	3,900
Manganese	916 B	403 B	338 B	546 B	148 B	112 B	2,000	10,000	10,000
Mercury	0.38 F1	0.03	0.75	**0.85**	0.24	0.025	0.81	2.8	5.7
Nickel	32.8	41.8	21.1	23.7	26.0	21.6	310	310	10,000
Selenium	ND	ND	ND	2.2 J	1.5 J	9.00	180	1,500	6,800
Silver	ND	ND	ND	ND	ND	ND	180	1,500	6,800
Zinc	149	90.9	361.0	806.0	138.0	20.6	10,000	10,000	10,000
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)									
Acenaphthylene	1.2 J F1	0.26 J	ND	ND	ND	ND	100	500	1,000
Anthracene	1.2 J F1	ND	ND	ND	ND	ND	100	500	1,000
Benzo(a)anthracene	**4.3 F1**	0.7 J	0.6 J	0.890 J	0.094 J	0.380 J	1	5.6	11
Benzo(a)pyrene	**4.8 F1**	0.85 J	0.6 J	**1 J**	0.110 J	ND	1	1	1.1
Benzo(b)fluoranthene	**5.4 F2 F1**	**1 J**	0.670 J	**1.3 J**	0.130 J	ND	1	5.6	11
Benzo(g,h,i)perylene	3.4 F1	0.680 J	0.490 J	0.780 J	0.083 J	ND	100	500	1,000
Benzo(k)fluoranthene	2.7 F1	0.520 J	0.320 J	0.660 J	0.064 J	ND	3.9	56	110
Chrysene	**4.2 F1**	0.860 J	0.560 J	1.1 J	0.130 J	ND	3.9	56	110
Fluoranthene	**110**	1.6 J	1.1 J	1.7 J	0.190 J	0.580 J	100	500	1,000
Indeno(1,2,3-cd)pyrene	**2.9**	**0.570 J**	0.350 J	**0.610 J**	0.070 J	ND	0.5	5.6	11
Phenanthrene	5.7 F1	0.600 J	0.540 J	0.680 J	0.110 J	ND	100	500	1,000
Pyrene	8	1.3 J	0.940 J	1.4 J	0.160 J	ND	100	500	1,000
TENTATIVELY IDENTIFIED COMPOUNDS (TICs)									
TICS	ND	ND	ND	ND	ND	ND	Various	Various	Various
ORGANOCHLORINE PESTICIDES									
4,4-DDD	ND	ND	ND	ND	0.0035 J	0.0085 J	13	92	180
4,4-DDE	ND	ND	0.016 J	ND	0.0021 J	ND	8.9	62	120
4,4-DDT	0.012 J	ND	0.011 J	0.0047 J	ND	ND	7.9	47	94
Endosulfan sulfate	ND	0.011 J F1	ND	ND	ND	ND	24	200	920
Cis-Chlordane	ND	ND	ND	0.013 J	ND	ND	4.2	24	47
Endosulfan II	ND	ND	ND	ND	ND	ND	24	200	920
VOLATILE ORGANIC COMPOUNDS (VOCs)									
2-Butanone (MEK)	ND	ND	ND	0.014 J	0.0053 J	0.0042 J	100	500	1,000
Acetone	ND	ND	ND	0.095	0.041	0.038	100	500	1,000
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	100	500	1,000
Trichloroethene	ND	ND	ND	ND	ND	ND	21	200	400

ND Analyte not detected
- Not Applicable or sample not tested for this analyte
J Estimated Concentration
B Anaalyte detected in method blank
K Result is reported as Benzo(b)fluoranthene
E Results exceeded calibration range
F1/F2 MS or MSD recovery exceeds control limits
T Result is Tentatively Identifies Compound and an estimated value

Analyte detected
Reported concentration greater than or equal to the NYSDEC Industrial SCO
Reported concentration greater than or equal to the NYSDEC Commercial SCO
Reported concentration greater than or equal to the NYSDEC Restricted Residential SCO

TABLE 4
SUMMARY OF SOIL ANLAYTICAL RESULTS
2023

TABLE 4 CONT.
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
2023

Parameter Tested	Sample Identification and Sample Date		NYSDEC TOGS 1.1.1 GA
	MW-1	MW-2	
	8/31/2023		
METALS			
Arsenic	**35**	**31**	25
Barium	**1000**	810	1000
Beryllium	**7.6**	1.7 J	3
Cadmium	ND	ND	5
Chromium, Total	**95**	43	50
Copper	100	96	200
Lead	**78**	**150**	25
Manganese	220	**3000**	300
Mercury	ND	ND	0.7
Nickel	**140**	76	100
Zinc	160	170	2000
TENTATIVELY IDENTIFIED COMPOUNDS (TICS)			
Methylcylohexane	ND	5.5 T J N	-
2-methylbutane	ND	6.7 T J N	-
Pentane	ND	9.9 T J N	-
2-methylpentane	ND	6.8 T J N	-
Methylcylopentane	ND	17 T J N	-
Cylohexane	ND	21 T J N	-
Ispropylcylobutane	ND	8.3 T J N	-
methylcylohexane	ND	37 T J N	-
1,4-dimethylcylohexane	ND	6.8 T J N	-
m&p-xylene	ND	5.4	-
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)			
SVOCs	ND	ND	Various
VOLATILE ORGANIC COMPOUNDS (VOCs)			
Acetone	10	14	50
1,3,5-Trimethylbenzene	ND	1.9	5
1,2,4-Trimethylbenzene	ND	**8.4**	5
Toluene	ND	1.4	5
Xylenes,Total	ND	**8.7**	5
2-Butanone (MEK)	2.1	3 J	50
Ethylbenzene	ND	1.4	5
N-propylbenzene	ND	0.7 J	5
CHLORINATED PESTISIDES			
Pesticides	ND	ND	Various

Notes: All units in microgams per liter (µg/L)
NYSDEC New York State Department of Environmental Conservation
TOGS Technical and Operational Guidance Series
T Result is a Tentatively Identified Compound (TIC) and is an estimated concentration
N Indicates the presumptive evidence of a compound
ND Analyte not detected
9.58 Analyte detected
128 Analyte exceeds NYSDEC TOGS guidance value
J Estimated concentration
- Not applicable or sample not tested for this analyte

TABLE 5
SUMMARY OF SOIL ANALYTICAL RESULTS
2024

Parameter Tested	BE3 Phase II Report April 2024 - Sample Identification, Sample Depth in feet below ground surface (bgs), and Sample Date							NYSDEC Soil Cleanup Objectives (SCOs)		
	BH-1 1-2	BH-2 1-2	BH-3 1-2	BH-4 1-2	BH-5 2-3	BH-6 1-2	BH-7 1-2	Restricted Residential	Commerical	Industrial
	4/1/2024									
METALS/INORGANICS										
Arsenic	11.4	11.2	14.7	**16.5**	9.7	13.8	10.8	16	16	16
Barium	203	175	197	188	190	395	239	400	400	10,000
Beryllium	0.78	0.74	0.96	0.86	1.1	0.84	1	72	590	2,700
Cadmium	0.37	0.6	0.35	0.29	0.6	1.2	0.66	4.3	9.3	60
Chromium	20.1	22.9	20.5	18	17.4	30.2	24.6	180	1500	6800
Copper	47.6	63.7	45.5	119	62	104	66.8	270	270	10000
Lead	123	394	298	**400**	330	**726**	**513**	400	1000	3,900
Manganese	404	354	278.00	407	166	284	377	2000	10000	10000
Mercury	0.083	0.29	0.330	0.56	**1.4**	0.63	0.58	0.81	2.8	5.7
Nickel	36.1	24.1	23.8	26	29.5	31.4	32.5	310	310	10000
Selenium	0.98	1.5	1.0	1.5	1.3	0.95	0.62	180	1500	6,800
Silver	ND	ND	ND	ND	0.51	ND	ND	180	1500	6,800
Zinc	150	236	130.0	146	228	525	238	10000	10000	10,000
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)										
Acenaphthene	0.16	ND	ND	ND	ND	ND	ND	100	500	1,000
Acenaphthylene	0.44	ND	ND	ND	ND	ND	ND	100	500	1,000
Anthracene	1.9	ND	ND	ND	ND	ND	ND	100	500	1,000
Benzo(a)anthracene	**3.6**	0.72	0.024	0.11	0.3	0.54	0.079	1	5.6	11
Benzo(a)pyrene	**3.6**	0.83	ND	0.15	0.36	**1.2**	0.1	1	1	1.1
Benzo(b)fluoranthene	**4.3**	0.99	0.037	0.17	0.38	0.48	0.14	1	5.6	11
Benzo(g,h,i)perylene	2	0.54	0.024	0.12	0.26	0.68	0.058	100	500	1,000
Benzo(k)fluoranthene	1.7	0.37	ND	0.08	0.21	ND	0.043	3.9	56	110
Chrysene	3.8	0.87	ND	0.17	0.33	0.88	0.15	3.9	56	110
Dibenz(a,h)anthracene	**0.54**	ND	ND	0.039	ND	ND	ND	0.33	0.56	1.1
Dibenzofuran	0.98	ND	ND	ND	ND	ND	ND	18	180	290
Fluoranthene	12	1.7	0.048	0.19	0.56	0.39	0.15	100	500	1,000
Fluorene	1.8	ND	ND	ND	ND	ND	ND	100	500	1,000
Indeno(1,2,3-cd)pyrene	**2.1**	**0.51**	ND	0.098	0.22	0.27	0.043	0.5	5.6	11
Naphthalene	1.3	ND	ND	ND	ND	ND	ND	100	500	1,000
Phenanthrene	11	0.62	ND	0.13	0.29	ND	0.11	100	500	1,000
Pyrene	8.2	1.3	0.039	0.16	0.42	0.54	0.12	100	500	1,000
VOLATILE ORGANIC COMPOUNDS (VOCs)										
Acetone	ND	0.18	0.073	0.084	0.066	0.12	0.01	100	500	1,000
2- Butanone (MEK)	ND	0.028	0.0083	0.012	0.0098	0.022	ND	100	500	1,000
Tetrachloroethene	ND	ND	ND	ND	ND	ND	0.0047	19	150	300

ND Analyte not detected
\- Not Applicable or sample not tested for this analyte
J Estimated Concentration
B Anaalyte detected in method blank
K Result is reported as Benzo(b)fluoranthene
E Results exceeded calibration range
T Result is Tentatively Identifies Compound and an estimated value

Reported concentration greater than or equal to the NYSDEC Industrial SCO
Reported concentration greater than or equal to the NYSDEC Commercial SCO
Reported concentration greater than or equal to the NYSDEC Restricted Residential SCO

TABLE 5 CONT.
SUMMARY OF SOIL ANALYTICAL RESULTS
2024

Parameter Tested	BE3 Phase II Report April 2024 - Sample Identification, Sample Depth in feet below ground surface (bgs), and Sample Date					NYSDEC Soil Cleanup Objectives (SCOs)		
	BH-8 1-2	BH-9 1-2	BH-10 1-2	BH-11 1-2	BH-12 1-2	Restricted Residential	Commerical	Industrial
	4/1/2024							
METALS/INORGANICS								
Arsenic	**22**	6	**20.6**	13.6	12.2	16	16	16
Barium	392	76.9	397	380	154	400	400	10,000
Beryllium	1	0.7	0.81	0.74	1.7	72	590	2,700
Cadmium	0.28	0.058	0.75	1.3	0.34	4.3	9.3	60
Chromium	23.6	10	17.9	28.2	25.4	180	1500	6800
Copper	60.7	17	51.7	82.5	50.5	270	270	10000
Lead	**450**	38.2	**743**	**1180**	224	400	1000	3,900
Manganese	93.6	317	366	278	392	2000	10000	10000
Mercury	0.48	0.13	0.450	**0.82**	0.3	0.81	2.8	5.7
Nickel	24	14.4	24.4	27	27.5	310	310	10000
Selenium	1.8	1.2	1.1	1.9	2.1	180	1500	6,800
Zinc	261	47.8	378	672	138	10000	10000	10,000
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)								
Benzo(a)anthracene	0.17	ND	ND	ND	0.18	1	5.6	11
Benzo(a)pyrene	0.2	ND	ND	ND	0.25	1	1	1.1
Benzo(b)fluoranthene	0.24	ND	ND	ND	0.37	1	5.6	11
Benzo(g,h,i)perylene	0.12	ND	ND	ND	0.11	100	500	1,000
Benzo(k)fluoranthene	ND	ND	ND	ND	0.13	3.9	56	110
Chrysene	0.24	ND	ND	ND	0.23	3.9	56	110
Fluoranthene	0.42	ND	0.54	ND	0.45	100	500	1,000
Phenanthrene	0.24	ND	ND	ND	0.14	100	500	1,000
Pyrene	0.29	ND	ND	ND	0.26	100	500	1,000
VOLATILE ORGANIC COMPOUNDS (VOCs)								
1,2,4-Trimethylbenzene	ND	0.039	ND	ND	ND	52	190	380
1,3,5-Trimethylbenzene	ND	0.017	ND	ND	ND	-	-	380
Acetone	0.052	0.052	0.16	0.1	0.091	100	500	1,000
Benzene	ND	0.00046	ND	ND	ND	4.8	44	89
Ethylbenzene	ND	0.00039	ND	ND	ND	41	390	780
Methylene Chloride	0.0037	0.0037	0.0057	ND	ND	100	500	1,000
2- Butanone (MEK)	0.0068	0.0054	0.027	0.018	0.014	100	500	1000
N-Propylbenzene	ND	0.0011	ND	ND	ND	100	500	1000
sec-Butylbenzene	ND	0.0013	ND	ND	ND	100	500	1000
Toluene	ND	0.46	ND	ND	ND	100	500	1000
Xylenes	ND	0.0062	ND	ND	ND	100	500	1000

ND Analyte not detected
- Not Applicable or sample not tested for this analyte
J Estimated Concentration
B Anaalyte detected in method blank
K Result is reported as Benzo(b)fluoranthene
E Results exceeded calibration range
T Result is Tentatively Identifies Compound and an estimated value

Reported concentration greater than or equal to the NYSDEC Industrial SCO
Reported concentration greater than or equal to the NYSDEC Commercial SCO
Reported concentration greater than or equal to the NYSDEC Restricted Residential SCO

TABLE 5 CONT.
SUMMARY OF GROUNDWATER RESULTS
2024

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

Parameter Tested	Sample Identification, Approximate Groundwater Depth Below Top of Casing, and Sample Date MW-2 12' 4/1/2024	NYSDEC TOGS 1.1.1 GA
METALS		
Arsenic	870	25
Barium	1,700	1,000
Beryllium	77	3
Cadmium	9.9	5
Chromium	1700	50
Copper	3,600	200
Manganese	22,700	300
Mercury	5.6	0.7
Nickel	4,400	100
Lead	9,200	25
Selenium	99	10
Silver	ND	50
Zinc	5200	2000
Volatile Organic Compounds (VOCs)		
Acetone	6.5 J	50

Notes: All units in micrograms per liter (µg/L)
NYSDEC New York State Department of Environmental Conservation
TOGS Technical and Operational Guidance Series
500 Analyte exceeds NYSDEC TOGS guidance value

TABLE 5 CONT.
Summary of Vapor/Indoor Air Analytical Results
2024

Contaminants	Type of Sample, Sample Identification, Date Analyzed and Analysis Method			NYSDOH Sub-Slab Vapor Guideline Values (µg/m^3)	NYSDOH Indoor Air Guideline Values	Table C2. EPA 2001 Indoor Air Mean Value	Decision Matrix Guidance Values (Soil Vapor) (µg/m3)
	Sub-slab	Soil Vapor	Outdoor Air				
	SS-1	SG-1	AMB-1				
	4/1/2024						
	Volatile Organic Compounds (TO-15)						
1,1-Dichloroethylene	0.4	ND	ND	-	-	0.5	
1,2,4-Trichlorobenzene	ND	ND	ND	-	-	-	
1,2,4-Trimethylbenzene	2.2	**150**	0.65	-	-	4.8	60
1,2-Dichloroethane	ND	ND	0.15	-	-	-	
1,2-Dichloropropane	ND	ND	ND	-	-	-	
1,3,5-Trimethylbenzene	0.71	ND	ND	-	-	1.6	60
Acetone	ND	ND	64	-	-	54	
Benzene	**11**	ND	3	-	-	4.5	60
Carbon Disulfide	**6.5**	ND	ND	-	-	1.9	
Carbon Tetrachloride	ND	ND	0.49	-	-	0.5	6
Chloromethane	ND	ND	1.1	-	-	2.9	
Cyclohexane	9.9	**1900**	1.5	-	-	-	60
Dichlorodifluoromethane (Freon 12)	2.4	74	2.3	-	-	-	
Ethanol	**290**	ND	360	-	-	89.3	
Ethyl Acetate	7.8	ND	45	-	-	-	
Ethylbenzene	2.3	ND	0.85	-	-	2.8	60
Heptane	**21**	**3300**	2.2	-	-	1.7	200
Hexachlorobutadiene	ND	ND	ND	-	-	-	
Hexane	**39**	**3100**	ND	-	-	6.3	200
Isopropanol	ND	ND	17	-	-	-	
m&p-Xylene	7.7	**140**	2.2	-	-	10.8	200
Methylene Chloride	ND	ND	14	100	60	21.2	100
o-Xylene	2.9	ND	1.1	-	-	3.8	60
Styrene	0.55	ND	16	-	-	1.5	
Tetrachloroethylene	ND	ND	0.66	100	30	6	100
Toluene	20	ND	8.7	-	-	25.1	300
trans-1,2-Dichloroethylene	ND	ND	0.19	-	-	-	
Trichloroethylene	ND	ND	ND	6	2	2.6	6
Trichlorofluoromethane (Freon 11)	ND	ND	1.2	-	-	19.4	
Vinyl Acetate	41	**3900**	5.1	-	-	-	
Vinyl Chloride	ND	ND	ND	60	0.2	0.5	6

Notes: All units in micrograms per liter (µg/m3)

NO FURTHER ACTION: No additional actions are recommended to address human exposures.

IDENTIFY SOURCE(S) AND RESAMPLE OR MITIGATE: It is recommended that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges.

MONITOR: It is recommended that monitoring , including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences.

MITIGATE: Mitigation is recommended to minimize current or potential exposures associated with soil vapor intrusion.

Elevated concentrations detected in the subsurface above above indoor air guidance values (NYSDOH Table C2.)

ND Not detected
0.69 Analyte detected
- Not applicable
J Estimated concentration

Table 6
Boring, Monitoring Well, and Surface Sample GPS Coordinates

Hole ID	Latitude	Longitude
RI-BH-1	42.484256	-79.33045
RI-BH-2	42.484294	-79.33088
RI-BH-3	42.484397	-79.33013
RI-BH-4	42.484467	-79.33088
RI-BH-5	42.484519	-79.33073
RI-BH-6	42.484581	-79.33017
RI-BH-7	42.484633	-79.33042
RI-BH-8	42.484617	-79.33087
RI-BH-9	42.484692	-79.33023
RI-BH-10	42.484919	-79.33044
RI-BH-11	42.484775	-79.33089
RI-BH-12	42.484883	-79.3308
RI-BH-13	42.484808	-79.33064
RI-BH-14	42.484986	-79.33059
RI-BH-15	42.485025	-79.33032
RI-BH-16	42.485158	-79.33034
RI-BH-17	42.485044	-79.33063
RI-BH-18	42.485306	-79.33071
RI-BH-19	42.484378	-79.33058
RI-BH-20	42.484453	-79.33035
SS-1	42.485258	-79.33063
SS-2	42.485306	-79.3304
SS-3	42.485014	-79.33058
SS-4	42.485083	-79.33036
RI-MW-1	42.484197	-79.33079
RI-MW-2	42.484317	-79.33022
RI-MW-3	42.484671	-79.33066
RI-MW-4	42.484981	-79.33081
RI-MW-5	42.485336	-79.33056
RI-VP-1	42.484214	79.330739
RI-VP-2	42.484292	79.330194
RI-VP-3	42.484531	79.330861
RI-VP-4	42.484797	79.330786
RI-VP-5	42.484811	79.330414
RI-VP-6	42.485253	79.330572

Figures

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

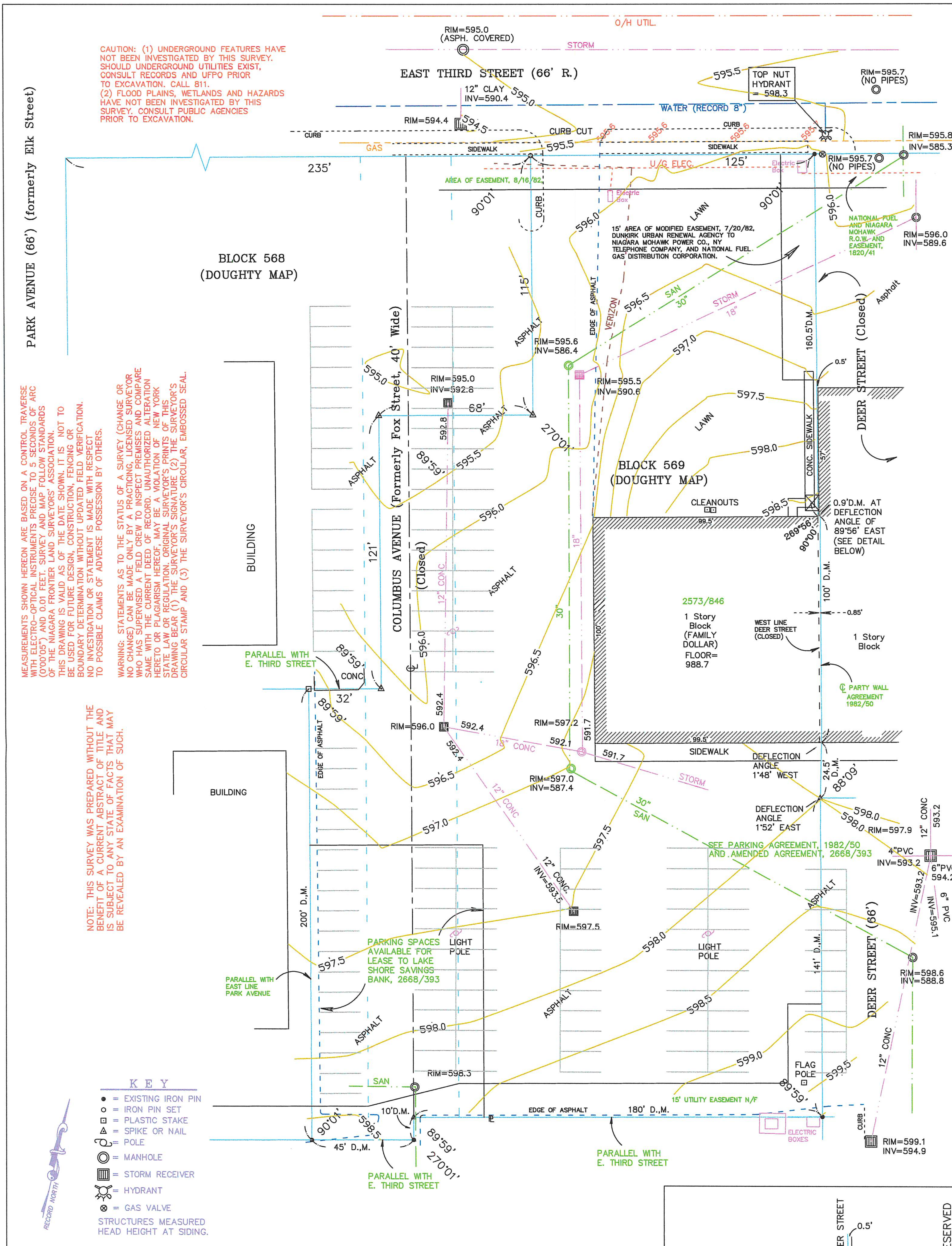
NW N NE
W E
SW S SE

TP, Dunkirk, 2019, 7.5-minute
N, North of Dunkirk, 2019, 7.5-minute

Figure 1 - Site Location Map

SITE NAME: 166 East 4th Street
ADDRESS: 166 East 4th Street
Dunkirk, NY 14048
CLIENT: BE3

N



O/H UTIL.
RIM=595.0
(ASPH. COVERED)
STORM
EAST THIRD STREET (66' R.)
12" CLAY
INV=590.4
595.0
595.5
TOP NUT
HYDRANT
= 598.3
RIM=595.7
(NO PIPES)
WATER (RECORD 8")
RIM=594.4
594.5
CURB
CURB CUT
595.6
595.5
GAS
SIDEWALK
RIM=595.8
INV=585.3
U/G ELEC.
125'
Electric Box
RIM=595.7
(NO PIPES)
235'
AREA OF EASEMENT, 8/16/82
90°01'
CURB
596.0
LAWN
15' AREA OF MODIFIED EASEMENT, 7/20/82, DUNKIRK URBAN RENEWAL AGENCY TO NIAGARA MOHAWK POWER CO., NY TELEPHONE COMPANY, AND NATIONAL FUEL GAS DISTRIBUTION CORPORATION.
NATIONAL FUEL AND NIAGARA MOHAWK R.O.W. AND EASEMENT, 1820/41
RIM=596.0
INV=589.6
CAUTION: (1) UNDERGROUND FEATURES HAVE NOT BEEN INVESTIGATED BY THIS SURVEY. SHOULD UNDERGROUND UTILITIES EXIST, CONSULT RECORDS AND UFPO PRIOR TO EXCAVATION. CALL 811.
(2) FLOOD PLAINS, WETLANDS AND HAZARDS HAVE NOT BEEN INVESTIGATED BY THIS SURVEY. CONSULT PUBLIC AGENCIES PRIOR TO EXCAVATION.
PARK AVENUE (66') (formerly Elk Street)
BLOCK 568
(DOUGHTY MAP)
115'
ASPHALT
RIM=595.6
INV=586.4
EDGE OF ASPHALT
VERIZON
596.5
SAN
30"
STORM
18"
597.0
160.5'D.M.
Asphalt
DEER STREET (Closed)
0.5'
RIM=595.0
INV=592.8
RIM=595.5
INV=590.6
597.5
68'
592.8
270°01'
LAWN
COLUMBUS AVENUE (Formerly Fox Street, 40' Wide)
(Closed)
89°59'
595.5
BLOCK 569
(DOUGHTY MAP)
598.0
CONC. SIDEWALK
57'
CLEANOUTS
598.5
99.5'
0.9'D.M. AT DEFLECTION ANGLE OF 89°56' EAST (SEE DETAIL BELOW)
269°56'
90°00'
MEASUREMENTS SHOWN HEREON ARE BASED ON A CONTROL TRAVERSE WITH ELECTRO-OPTICAL INSTRUMENTS PRECISE TO 5 SECONDS OF ARC (0°00'05") AND 0.01 FEET. SURVEY AND MAP FOLLOW STANDARDS OF THE NIAGARA FRONTIER LAND SURVEYORS' ASSOCIATION.
THIS DRAWING IS VALID AS OF THE DATE SHOWN. IT IS NOT TO BE USED FOR FUTURE DESIGN, CONSTRUCTION, FENCING OR BOUNDARY DETERMINATION WITHOUT UPDATED FIELD VERIFICATION.
NO INVESTIGATION OR STATEMENT IS MADE WITH RESPECT TO POSSIBLE CLAIMS OF ADVERSE POSSESSION BY OTHERS.
WARNING: STATEMENTS AS TO THE STATUS OF A SURVEY (CHANGE OR NO CHANGE) CAN BE MADE ONLY BY A PRACTICING, LICENSED SURVEYOR WHO HAS SUPERVISED A FIELD CREW TO INSPECT PREMISES AND COMPARE SAME WITH THE CURRENT DEED OF RECORD. UNAUTHORIZED ALTERATION HERETO OR PLAGIARISM HEREOF, MAY BE A VIOLATION OF NEW YORK STATE LAW OR REGULATION. ORIGINAL SURVEYOR'S PRINTS OF THIS DRAWING BEAR (1) THE SURVEYOR'S SIGNATURE (2) THE SURVEYOR'S CIRCULAR STAMP AND (3) THE SURVEYOR'S CIRCULAR, EMBOSSED SEAL.
BUILDING
121'
12" CONC
596.0
ASPHALT
2573/846
1 Story
Block
(FAMILY
DOLLAR)
FLOOR=
988.7
100' D.,M.
0.85'
WEST LINE DEER STREET (CLOSED)
1 Story
Block
PARTY WALL AGREEMENT 1982/50
100'
PARALLEL WITH
E. THIRD STREET
CONC
32'
NOTE: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT ABSTRACT OF TITLE AND IS SUBJECT TO ANY STATE OF FACTS THAT MAY BE REVEALED BY AN EXAMINATION OF SUCH.
592.4
RIM=596.0
592.4
RIM=597.2
592.1
591.7
18" CONC
STORM
SIDEWALK
DEFLECTION ANGLE 1°48' WEST
24.5' D.,M.
88°09'
EDGE OF ASPHALT
BUILDING
596.5
RIM=597.0
INV=587.4
30"
SAN
DEFLECTION ANGLE 1°52' EAST
598.0
RIM=597.9
12" CONC
593.2
597.0
12" CONC
SEE PARKING AGREEMENT, 1982/50 AND AMENDED AGREEMENT, 2668/393
4"PVC
INV=593.2
6"PVC
594.2
6" PVC
INV=595.1
INV=593.2
597.5
12" CONC.
INV=593.5
RIM=597.5
ASPHALT
200' D.,M.
PARKING SPACES AVAILABLE FOR LEASE TO LAKE SHORE SAVINGS BANK, 2668/393
LIGHT POLE
LIGHT POLE
DEER STREET (66')
141' D.,M.
RIM=598.6
INV=588.8
PARALLEL WITH EAST LINE PARK AVENUE
598.5
599.0
FLAG POLE
599.5
12" CONC
RIM=598.3
SAN
15' UTILITY EASEMENT N/F
89°59'
EDGE OF ASPHALT
180' D.M.
10'D.M.
90°01'
45' D.,M.
270°01'
ELECTRIC BOXES
CURB
RIM=599.1
INV=594.9
PARALLEL WITH
E. THIRD STREET
KEY
= EXISTING IRON PIN
= IRON PIN SET
= PLASTIC STAKE
= SPIKE OR NAIL
= POLE
= MANHOLE
= STORM RECEIVER
= HYDRANT
= GAS VALVE
STRUCTURES MEASURED HEAD HEIGHT AT SIDING.
RECORD NORTH

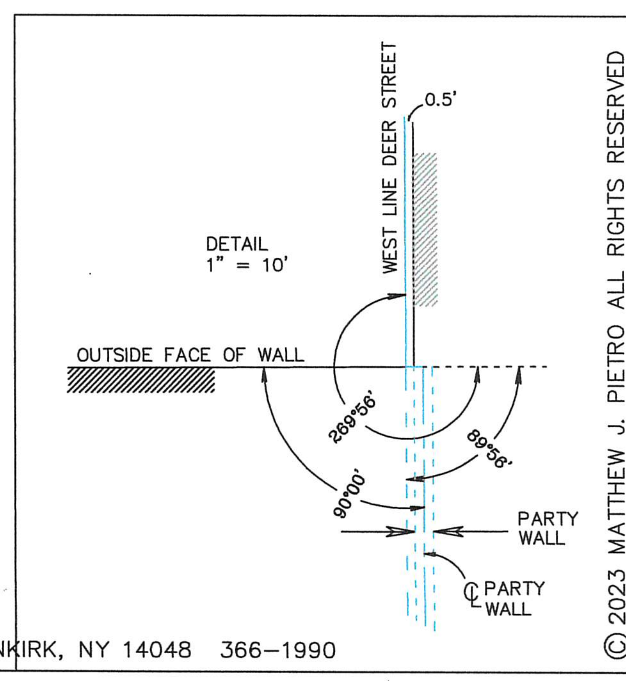


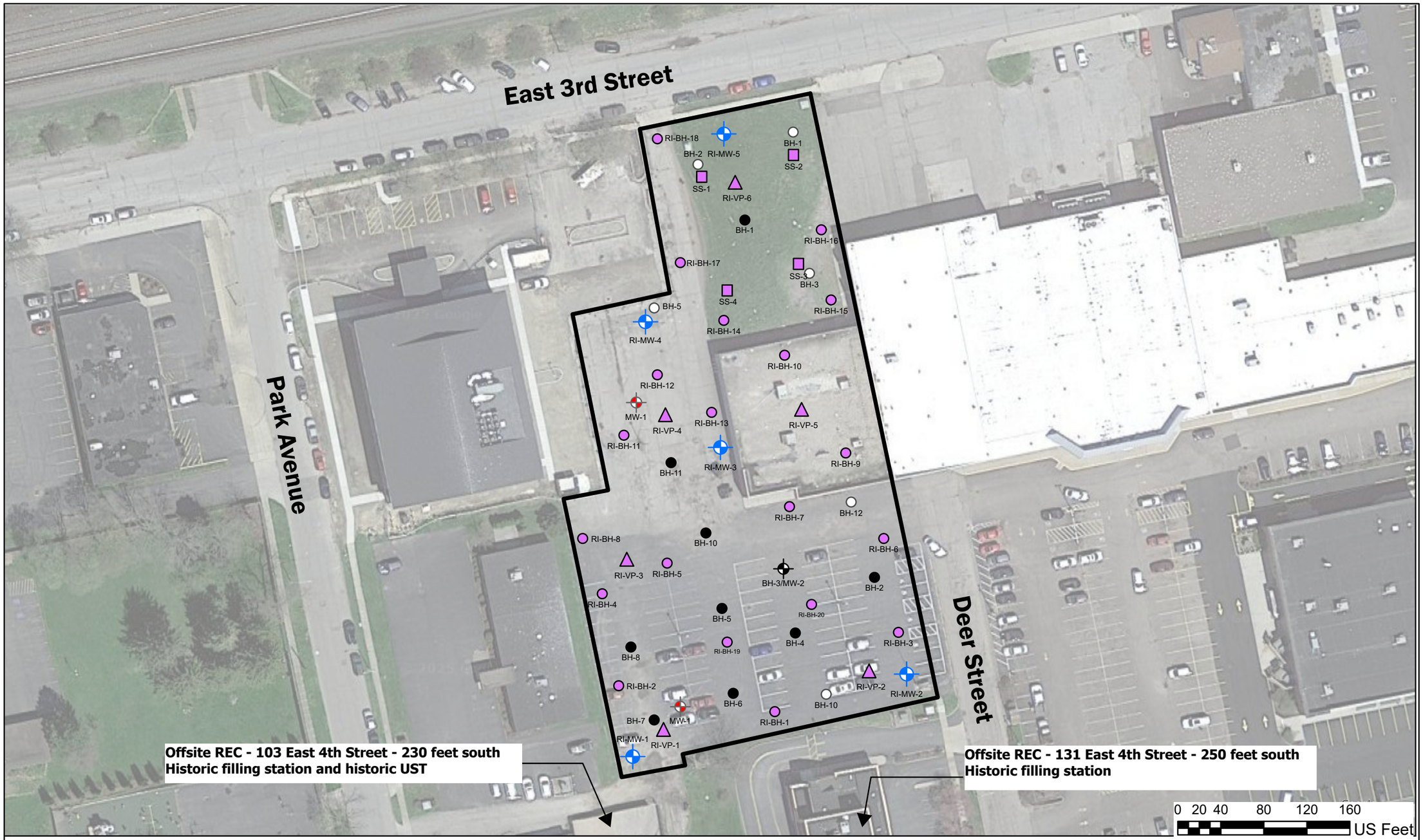
Figure 2 - Site Boundary Survey

STATE OF NEW YORK · MATTHEW J. PIETRO · NO. 050944 · LICENSED LAND SURVEYOR

DRAWING OF
BOUNDARY SURVEY
PROPERTY FOR
REGAN
CITY OF DUNKIRK
CHAUTAUQUA COUNTY NEW YORK
SCALE: 1" = 40' APRIL 14, 2023

LAND SURVEYOR, NYS LIC. NO. 50944 R2

WOODBURY PIETRO SURVEYING — OFFICE OF MATTHEW J. PIETRO, LS 12 E. 5TH STREET DUNKIRK, NY 14048 366—1990



LEGEND

- Property Boundary
- RI Boring Locations (RI-BH-1)
- RI Monitoring Well (RI-MW-1)
- RI Vapor Point (RI-VP-1)
- Previous Phase II ESA Boring Locations (9/21/2023) (BH-1)
- Previous Phase II ESA Boring Locations (4/1/2024) (BH-1)
- Previous Phase II ESA Temporary Well Locations (9/21/2023) (MW-1)
- Previous Phase II ESA Temporary Well/Boring Locations (4/1/2024) (BH-3/MW-2)

NOTES

1. Basemap adopted from Google Maps

BE3
BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

960 Busti Avenue
Buffalo, NY 14213
716.249.6880
jbrydges@be3corp.com

CLIENT: REGAN DEVELOPMENT

FIGURE 3
Previous Sampling & RI Sampling Locations

166 East 4th Street
Dunkirk, NY 14048

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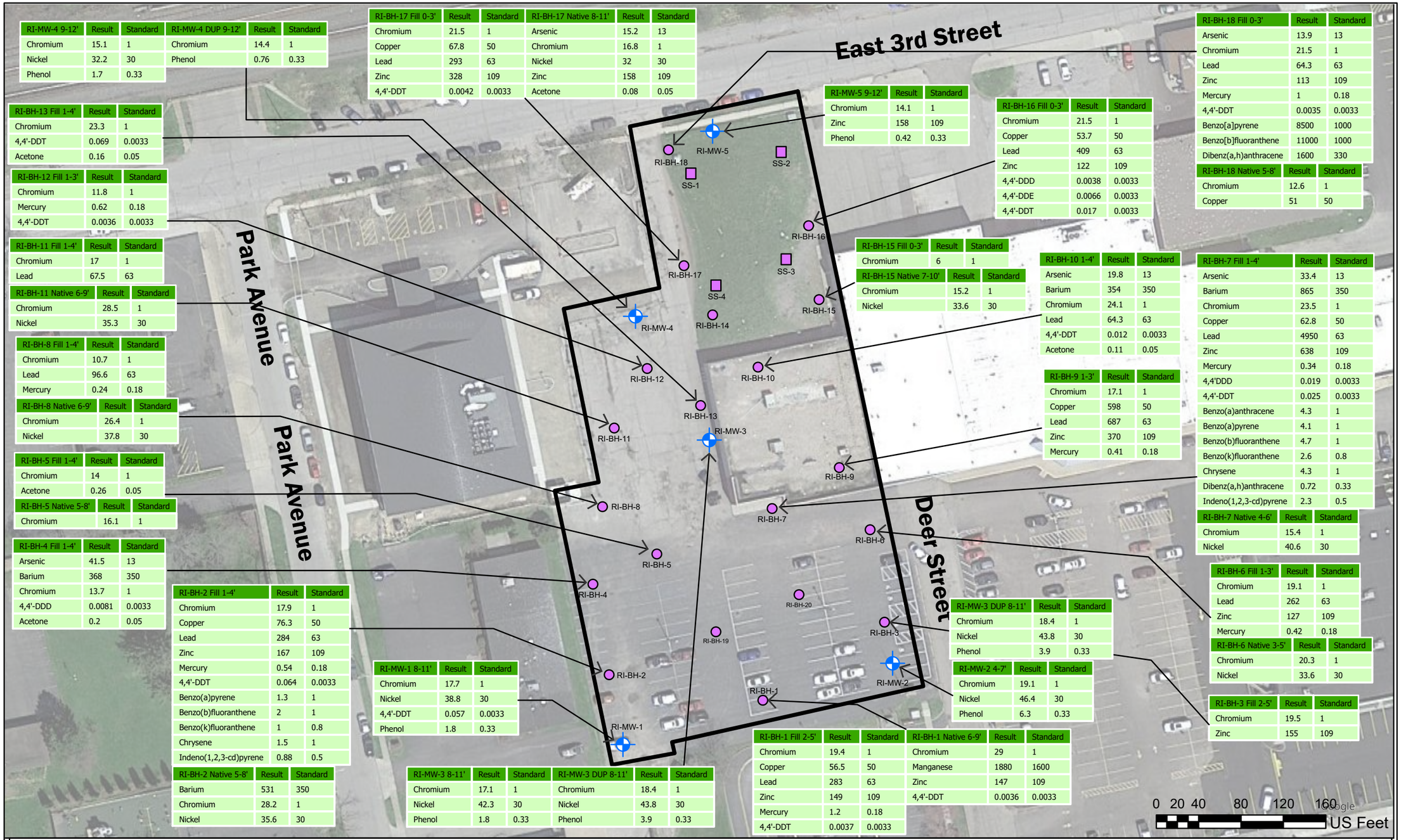
DATE ISSUED:
August 28, 2025
△
△
△

SCALE: 1:1,088



RI-MW-4 9-12'	Result	Standard
Chromium	15.1	1
Nickel	32.2	30
Phenol	1.7	0.33

RI-MW-4 DUP 9-12'	Result	Standard
Chromium	14.4	1
Phenol	0.76	0.33

RI-BH-17 Fill 0-3'	Result	Standard
Chromium	21.5	1
Copper	67.8	50
Lead	293	63
Zinc	328	109
4,4'-DDT	0.0042	0.0033

RI-BH-17 Native 8-11'	Result	Standard
Arsenic	15.2	13
Chromium	16.8	1
Nickel	32	30
Zinc	158	109
Acetone	0.08	0.05

RI-MW-5 9-12'	Result	Standard
Chromium	14.1	1
Zinc	158	109
Phenol	0.42	0.33

RI-BH-16 Fill 0-3'	Result	Standard
Chromium	21.5	1
Copper	53.7	50
Lead	409	63
Zinc	122	109
4,4'-DDD	0.0038	0.0033
4,4'-DDE	0.0066	0.0033
4,4'-DDT	0.017	0.0033

RI-BH-18 Fill 0-3'	Result	Standard
Arsenic	13.9	13
Chromium	21.5	1
Lead	64.3	63
Zinc	113	109
Mercury	1	0.18
4,4'-DDT	0.0035	0.0033
Benzo[a]pyrene	8500	1000
Benzo[b]fluoranthene	11000	1000
Dibenz(a,h)anthracene	1600	330

RI-BH-18 Native 5-8'	Result	Standard
Chromium	12.6	1
Copper	51	50

RI-BH-13 Fill 1-4'	Result	Standard
Chromium	23.3	1
4,4'-DDT	0.069	0.0033
Acetone	0.16	0.05

RI-BH-12 Fill 1-3'	Result	Standard
Chromium	11.8	1
Mercury	0.62	0.18
4,4'-DDT	0.0036	0.0033

RI-BH-11 Fill 1-4'	Result	Standard
Chromium	17	1
Lead	67.5	63

RI-BH-11 Native 6-9'	Result	Standard
Chromium	28.5	1
Nickel	35.3	30

RI-BH-15 Fill 0-3'	Result	Standard
Chromium	6	1

RI-BH-15 Native 7-10'	Result	Standard
Chromium	15.2	1
Nickel	33.6	30

RI-BH-10 1-4'	Result	Standard
Arsenic	19.8	13
Barium	354	350
Chromium	24.1	1
Lead	64.3	63
4,4'-DDT	0.012	0.0033
Acetone	0.11	0.05

RI-BH-9 1-3'	Result	Standard
Chromium	17.1	1
Copper	598	50
Lead	687	63
Zinc	370	109
Mercury	0.41	0.18

RI-BH-7 Fill 1-4'	Result	Standard
Arsenic	33.4	13
Barium	865	350
Chromium	23.5	1
Copper	62.8	50
Lead	4950	63
Zinc	638	109
Mercury	0.34	0.18
4,4'DDD	0.019	0.0033
4,4'-DDT	0.025	0.0033
Benzo(a)anthracene	4.3	1
Benzo(a)pyrene	4.1	1
Benzo(b)fluoranthene	4.7	1
Benzo(k)fluoranthene	2.6	0.8
Chrysene	4.3	1
Dibenz(a,h)anthracene	0.72	0.33
Indeno(1,2,3-cd)pyrene	2.3	0.5

RI-BH-7 Native 4-6'	Result	Standard
Chromium	15.4	1
Nickel	40.6	30

RI-BH-8 Fill 1-4'	Result	Standard
Chromium	10.7	1
Lead	96.6	63
Mercury	0.24	0.18

RI-BH-8 Native 6-9'	Result	Standard
Chromium	26.4	1
Nickel	37.8	30

RI-BH-5 Fill 1-4'	Result	Standard
Chromium	14	1
Acetone	0.26	0.05

RI-BH-5 Native 5-8'	Result	Standard
Chromium	16.1	1

RI-BH-4 Fill 1-4'	Result	Standard
Arsenic	41.5	13
Barium	368	350
Chromium	13.7	1
4,4'-DDD	0.0081	0.0033
Acetone	0.2	0.05

RI-BH-2 Fill 1-4'	Result	Standard
Chromium	17.9	1
Copper	76.3	50
Lead	284	63
Zinc	167	109
Mercury	0.54	0.18
4,4'-DDT	0.064	0.0033
Benzo(a)pyrene	1.3	1
Benzo(b)fluoranthene	2	1
Benzo(k)fluoranthene	1	0.8
Chrysene	1.5	1
Indeno(1,2,3-cd)pyrene	0.88	0.5

RI-BH-2 Native 5-8'	Result	Standard
Barium	531	350
Chromium	28.2	1
Nickel	35.6	30

RI-MW-1 8-11'	Result	Standard
Chromium	17.7	1
Nickel	38.8	30
4,4'-DDT	0.057	0.0033
Phenol	1.8	0.33

RI-MW-3 8-11'	Result	Standard
Chromium	17.1	1
Nickel	42.3	30
Phenol	1.8	0.33

RI-MW-3 DUP 8-11'	Result	Standard
Chromium	18.4	1
Nickel	43.8	30
Phenol	3.9	0.33

RI-MW-2 4-7'	Result	Standard
Chromium	19.1	1
Nickel	46.4	30
Phenol	6.3	0.33

RI-BH-1 Fill 2-5'	Result	Standard
Chromium	19.4	1
Copper	56.5	50
Lead	283	63
Zinc	149	109
Mercury	1.2	0.18
4,4'-DDT	0.0037	0.0033

RI-BH-1 Native 6-9'	Result	Standard
Chromium	29	1
Manganese	1880	1600
Zinc	147	109
4,4'-DDT	0.0036	0.0033

RI-BH-6 Fill 1-3'	Result	Standard
Chromium	19.1	1
Lead	262	63
Zinc	127	109
Mercury	0.42	0.18

RI-BH-6 Native 3-5'	Result	Standard
Chromium	20.3	1
Nickel	33.6	30

RI-BH-3 Fill 2-5'	Result	Standard
Chromium	19.5	1
Zinc	155	109

LEGEND

- Property Boundary
- RI Monitoring Well (RI-MW-1)
- RI Boring Locations (RI-BH-1)
- RI Surface Sample Location

NOTES

1. Basemap adopted from Google Maps
2. All units are in ppm

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

960 Busti Avenue
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CLIENT: REGAN DEVELOPMENT

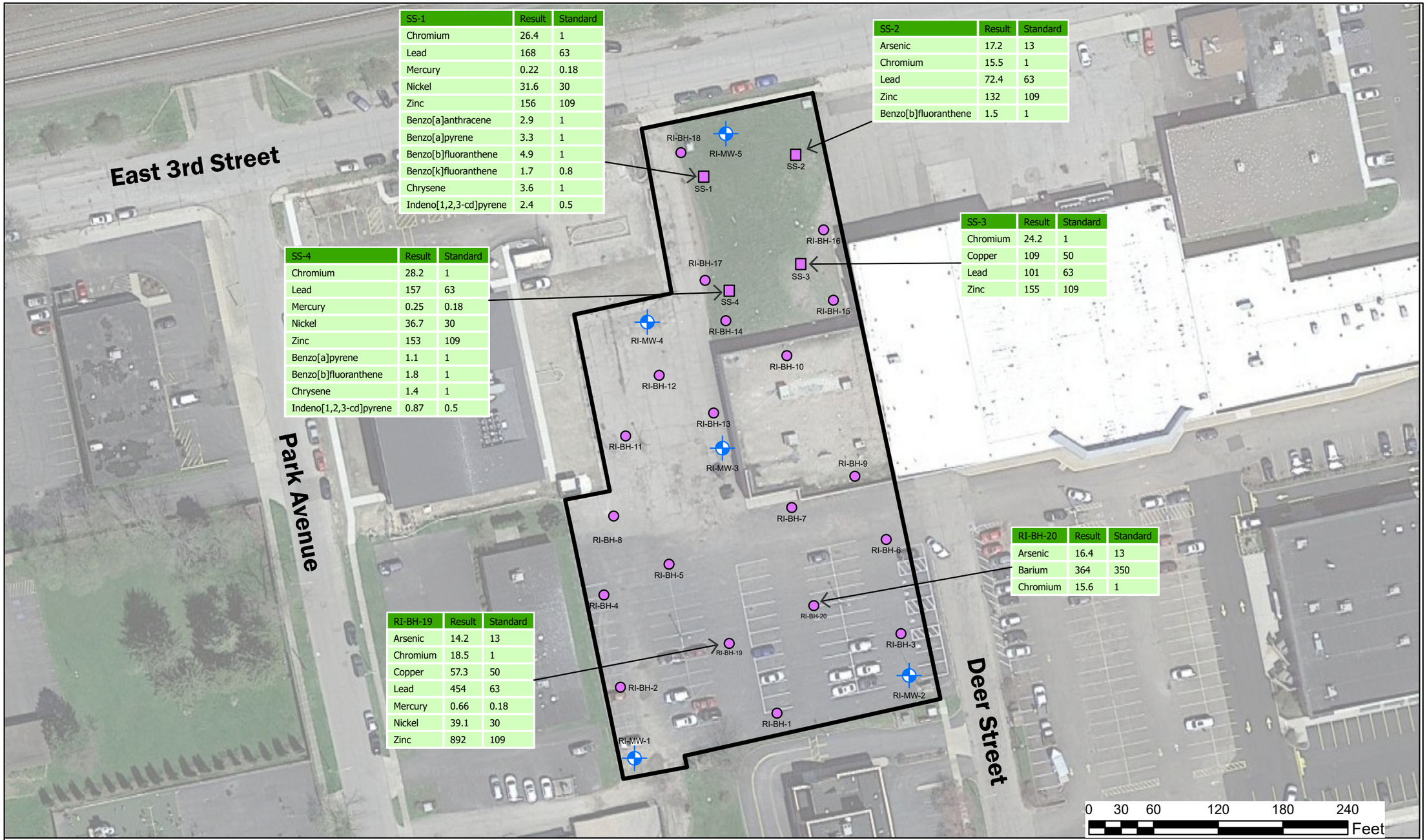
FIGURE 4
RI Unrestricted Exceedances
May 2025

166 East 4th Street
Dunkirk, NY 14048

N W E S

DATE ISSUED:
June 12, 2025

SCALE: 1:1,088



SS-1	Result	Standard
Chromium	26.4	1
Lead	168	63
Mercury	0.22	0.18
Nickel	31.6	30
Zinc	156	109
Benzo[a]anthracene	2.9	1
Benzo[a]pyrene	3.3	1
Benzo[b]fluoranthene	4.9	1
Benzo[k]fluoranthene	1.7	0.8
Chrysene	3.6	1
Indeno[1,2,3-cd]pyrene	2.4	0.5

SS-2	Result	Standard
Arsenic	17.2	13
Chromium	15.5	1
Lead	72.4	63
Zinc	132	109
Benzo[b]fluoranthene	1.5	1

SS-3	Result	Standard
Chromium	24.2	1
Copper	109	50
Lead	101	63
Zinc	155	109

SS-4	Result	Standard
Chromium	28.2	1
Lead	157	63
Mercury	0.25	0.18
Nickel	36.7	30
Zinc	153	109
Benzo[a]pyrene	1.1	1
Benzo[b]fluoranthene	1.8	1
Chrysene	1.4	1
Indeno[1,2,3-cd]pyrene	0.87	0.5

RI-BH-20	Result	Standard
Arsenic	16.4	13
Barium	364	350
Chromium	15.6	1

RI-BH-19	Result	Standard
Arsenic	14.2	13
Chromium	18.5	1
Copper	57.3	50
Lead	454	63
Mercury	0.66	0.18
Nickel	39.1	30
Zinc	892	109

LEGEND

- Property Boundary
- RI Boring Locations (RI-BH-1)
- RI Monitoring Well (RI-MW-1)
- RI Vapor Point (RI-VP-1)
- RI Surface Sample Location

NOTES

1. Basemap adopted from Google Maps
2. All units are in ppm

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CLIENT: REGAN DEVELOPMENT

FIGURE 5
RI Unrestricted Soil Exceedances
August 2025

166 East 4th Street
Dunkirk, NY 14048

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W E
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DATE ISSUED:
September 2, 2025
△
△
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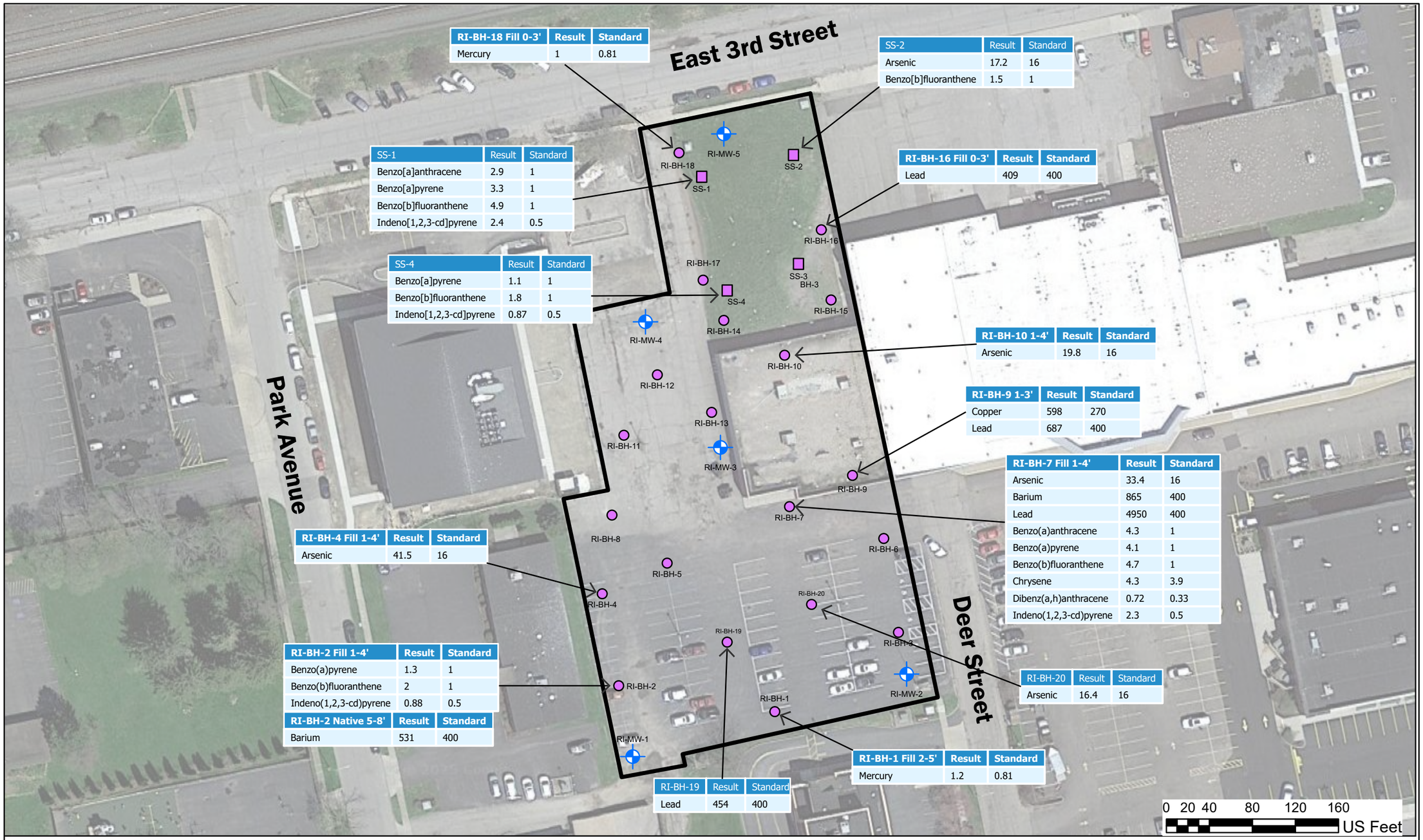
SCALE: 1:1,088



LEGEND

- Property Boundary
- RI Boring Locations (RI-BH-1)
- RI Monitoring Well (RI-MW-1)
- RI Surface Sample Location

NOTES

1. Basemap adopted from Google Maps
2. All units are in ppm

BRYDGES ENGINEERING
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Buffalo, NY 14213
716.249.6880
jbrydges@be3corp.com

CLIENT: REGAN DEVELOPMENT

FIGURE 6
RI Restricted Residential Soil Exceedances (May & August 2025)

166 East 4th Street
Dunkirk, NY 14048

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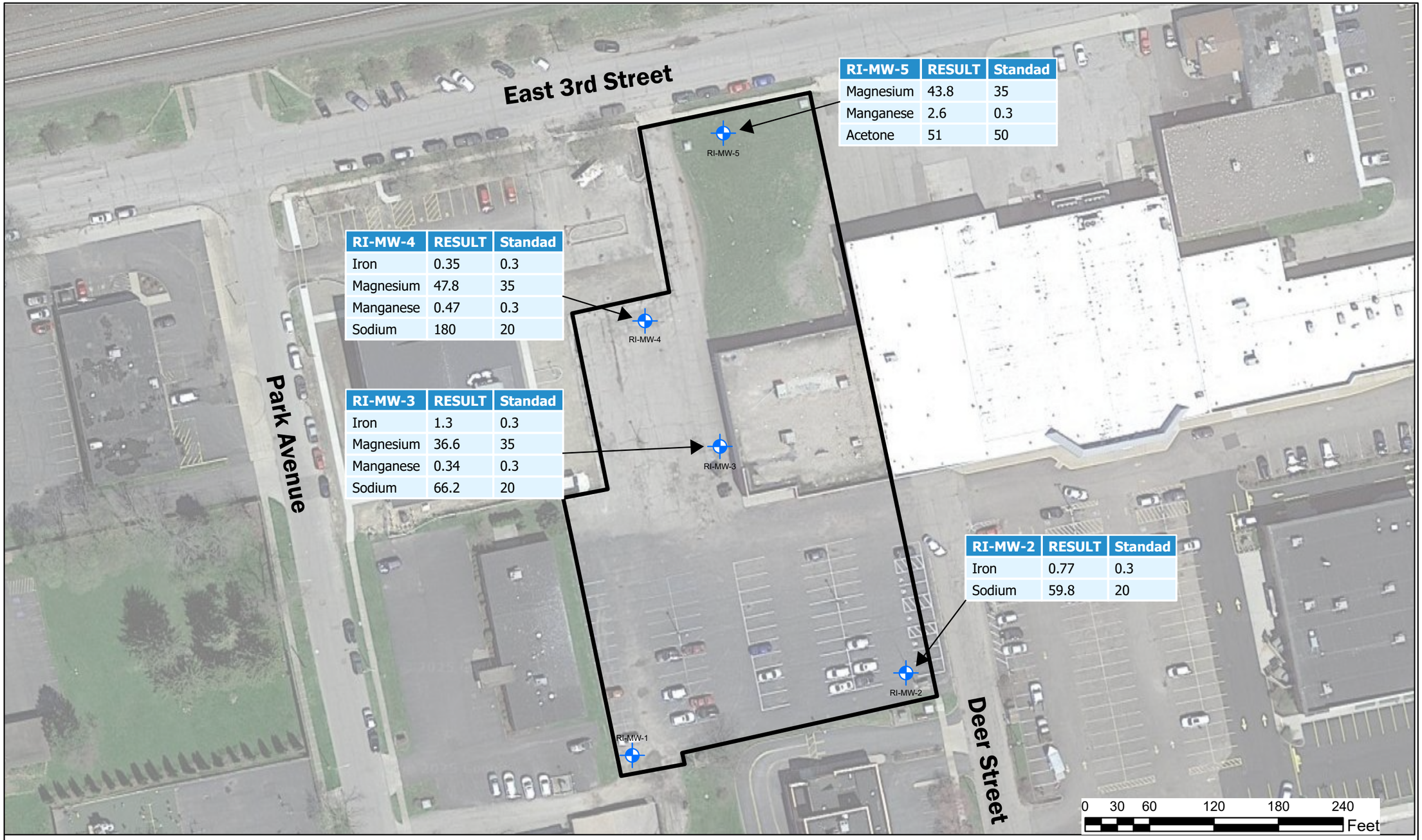
DATE ISSUED:
September 2, 2025

SCALE: 1:1,088



RI-MW-5	RESULT	Standad
Magnesium	43.8	35
Manganese	2.6	0.3
Acetone	51	50

RI-MW-4	RESULT	Standad
Iron	0.35	0.3
Magnesium	47.8	35
Manganese	0.47	0.3
Sodium	180	20

RI-MW-3	RESULT	Standad
Iron	1.3	0.3
Magnesium	36.6	35
Manganese	0.34	0.3
Sodium	66.2	20

RI-MW-2	RESULT	Standad
Iron	0.77	0.3
Sodium	59.8	20

LEGEND

——Property Boundary

RI Monitoring Well
RI-MW-1

NOTES

1. Basemap adopted from Google Maps

2. All units are in ug/L

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

960 Busti Avenue
Buffalo, NY 14213
716.249.6880
jbrydges@be3corp.com

CLIENT: REGAN DEVELOPMENT

FIGURE 7
RI Groundwater Exceedances

166 East 4th Street
Dunkirk, NY 14048

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DATE ISSUED:
September 2, 2025
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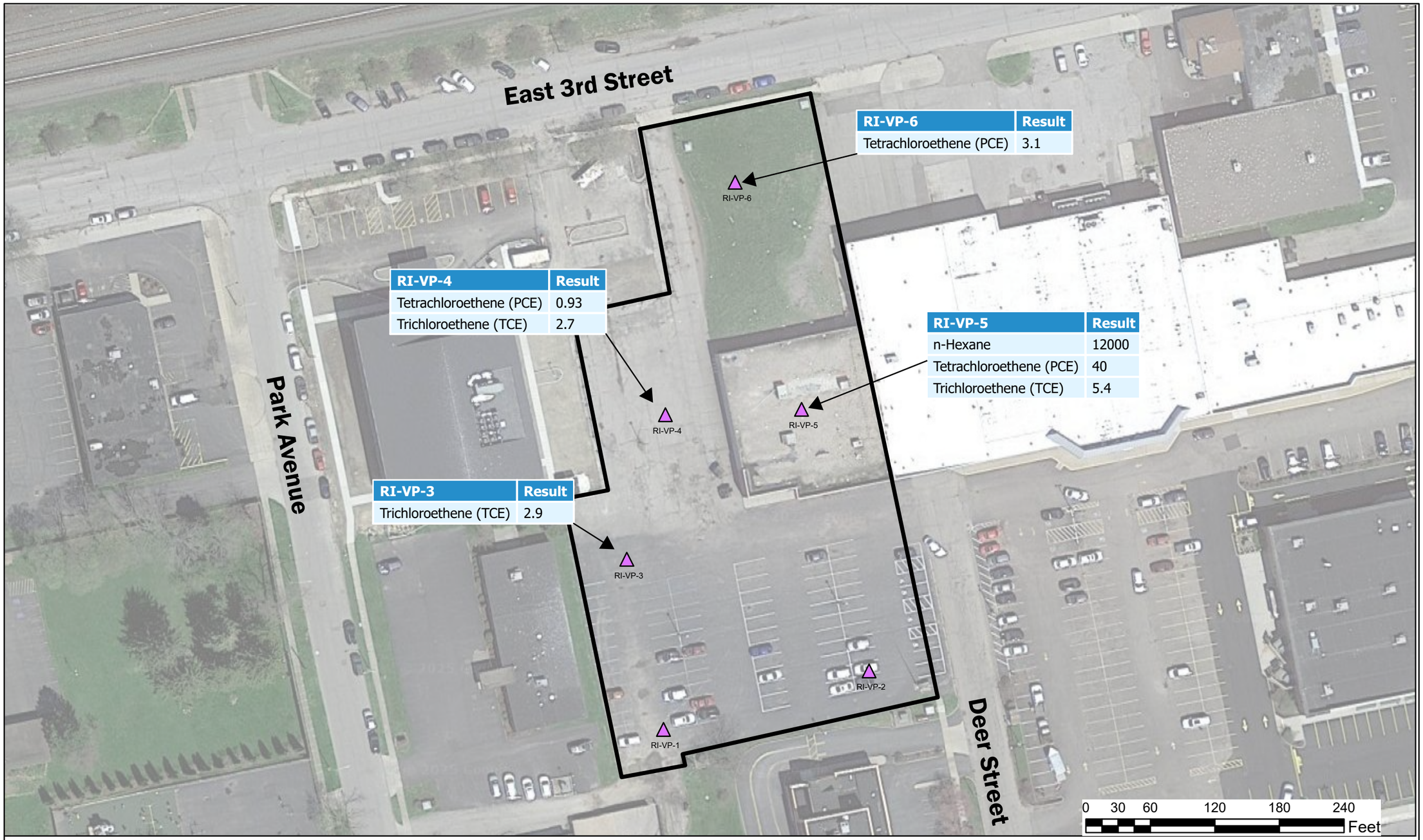
SCALE: 1:1,088



RI-VP-6	Result
Tetrachloroethene (PCE)	3.1

RI-VP-4	Result
Tetrachloroethene (PCE)	0.93
Trichloroethene (TCE)	2.7

RI-VP-5	Result
n-Hexane	12000
Tetrachloroethene (PCE)	40
Trichloroethene (TCE)	5.4

RI-VP-3	Result
Trichloroethene (TCE)	2.9

LEGEND

——Property Boundary

RI-VP-1 RI Vapor Point

NOTES

1. Basemap adopted from Google Maps

2. All results are in ug/m3

BE3
BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

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Buffalo, NY 14213
716.249.6880
jbrydges@be3corp.com

CLIENT: REGAN DEVELOPMENT

FIGURE 8
RI Vapor Results

166 East 4th Street
Dunkirk, NY 14048

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DATE ISSUED:
September 2, 2025
△
△
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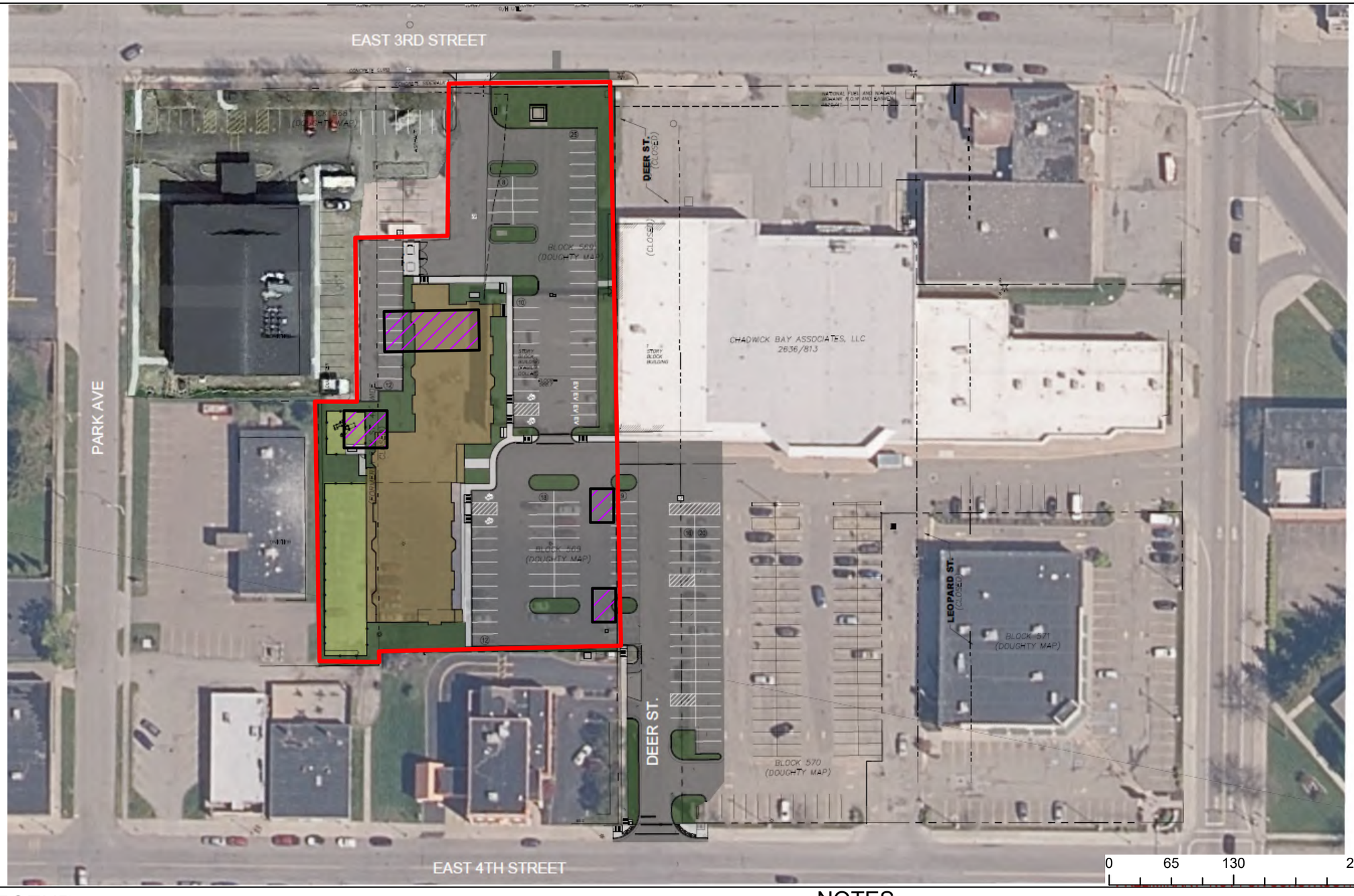
SCALE: 1:1,088



LEGEND

- Property Boundary
- Asphalt (Hardscape)
- Building Footprint (Hardscape)
- Recreational Space (Greenspace)
- Greenspace
- Potential Areas for Reuse

NOTES

1.) Greenspace Remedial Approach
-Remove approximately 2 feet of hardscape and/or underlying soils.
-Replace with 2 +/- feet of clean soils.
2.) Hardscape Remedial Approach
-Soils beneath the areas of proposed new development buildings and hardscape shall be cut/filled to the depth of new building foundations/slabs or hardscape to meet new development grades. Approximate average cuts and fills are as follows: Asphalt= -1.0 ft, Slabs= +1.75 ft, Foundations= -5 ft.
-Replace with building foundations or hardscape.
3.) Soil cover must meet a minimum of 2 feet of clean soil or hardscape meeting NYSDEC restricted residential criteria.

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

960 Busti Avenue
Buffalo, NY 14213
716.249.6880
jbrydges@be3corp.com

CLIENT: REGAN DEVELOPMENT

FIGURE 9
Alternative 1
Track 4 – Restricted Residential SCOs
166 East 4th Street
Dunkirk, NY 14048

N W E S

DATE ISSUED:
September 17, 2025
△
△
△

SCALE: 1:1,275

Appendices

Appendix A

Daily Field Reports

960 Busti Ave.
Buffalo, New York 14213

DAILY FIELD REPORT

Date:	Tuesday, May 27, 2025
Site Name:	4th Street, Dunkirk
Location:	166 E 4th St Dunkirk NY 14080
Contractor/Sub-Contractor:	Sessler Environmental
Weather Conditions:	Mostly Cloudy 57 ˚F ESE 6 MPH

Description of Work Performed:

8:00	Arrived on site and met with Chris (Sessler Environmental).
8:10	Set up upwind downwind air monitors.
8:40	Began completing vapor points at VP-1 location and traversed in clockwise direction.
10:00	Started borings at BH-3 and continued in clockwise direction.
12:30	Started lunch
13:00	Resume at BH-12
17:30	Finished bore holes for day at BH-6
	Samples delivered to laboratory.
End of Day	Completed VP-1 through 4 and VP-6 and BH-1 through Bh-8 and BH-11 through BH-18

Problems/Observations:	
Health and Safety Concerns:	None.
Contractor Work Force:	1 driller, 1 helper
Contractor Equipment	Geoprobe (Model 7720DT)
Attachments : Photolog, Air Quality Data, Work Location Map	
Inspectors Name	Travis Numan

960 Busti Ave.
Buffalo, New York 14213

PHOTO LOG

Date:	Tuesday, May 27, 2025
Site Name:	4th Street, Dunkirk

1. RI-VP-1 location, facing E.

2. RI-VP-2 location, facing SE.

3. RI-BH- location, facing S.

4. RI-BH- location, facing W.

960 Busti Ave.
Buffalo, New York 14213

PHOTO LOG

Date:	Tuesday, May 27, 2025
Site Name:	4th Street, Dunkirk

5. RI-BH-7 location, facing SSE.

6. RI-BH-5 location, facing NE.

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

960 Busti Ave.
Buffalo, New York 14213

COMMUNITY AIR MONITORING PROGRAM DATA

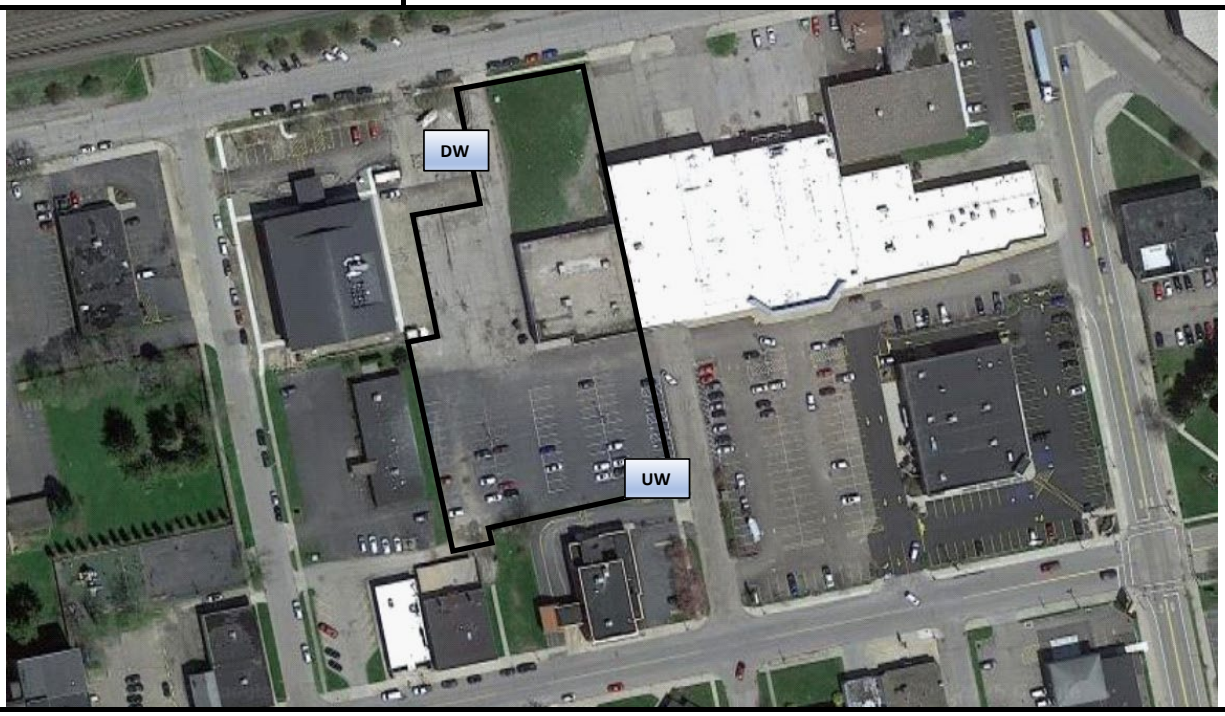
Date:	Tuesday, May 27, 2025				
Site Name:	4th Street, Dunkirk				
Upwind Data		Downwind Data			Delta
Time	PM 10 - 15 min AVG (µg/m³)	Time	PM 10 - 15 min AVG (µg/m³)	VOC	PM 10 - 15m AVG (µg/m³)
5/27/2025 8:30	5.1	5/27/2025 8:30	4.5	0	-0.6
5/27/2025 8:45	4.4	5/27/2025 8:45	3.3	0	-1.1
5/27/2025 9:00	3.6	5/27/2025 9:00	4.7	0	1.1
5/27/2025 9:15	4.3	5/27/2025 9:15	5.8	0	1.5
5/27/2025 9:30	2.5	5/27/2025 9:30	5.3	0	2.8
5/27/2025 9:45	19.3	5/27/2025 9:45	6.3	0	-13
5/27/2025 10:00	3.3	5/27/2025 10:00	3.6	0	0.3
5/27/2025 10:15	4.8	5/27/2025 10:15	6.1	0	1.3
5/27/2025 10:30	3.8	5/27/2025 10:30	5.2	0	1.4
5/27/2025 10:45	2.9	5/27/2025 10:45	6.1	0	3.2
5/27/2025 11:00	3	5/27/2025 11:00	5	0	2
5/27/2025 11:15	5.8	5/27/2025 11:15	3.8	0	-2
5/27/2025 11:30	2.8	5/27/2025 11:30	2.5	0	-0.3
5/27/2025 11:45	2.4	5/27/2025 11:45	2.2	0	-0.2
5/27/2025 12:00	3.2	5/27/2025 12:00	2.6	0	-0.6
5/27/2025 12:15	6.2	5/27/2025 12:15	3.3	0	-2.9
5/27/2025 12:30	2.5	5/27/2025 12:30	3.5	0	1
5/27/2025 12:45	3.7	5/27/2025 12:45	3.5	0	-0.2
5/27/2025 13:00	1.9	5/27/2025 13:00	3	0	1.1
5/27/2025 13:15	1.5	5/27/2025 13:15	2.6	0	1.1
5/27/2025 13:30	1.3	5/27/2025 13:30	2.7	0	1.4
5/27/2025 13:45	2.3	5/27/2025 13:45	4	0	1.7
5/27/2025 14:00	5	5/27/2025 14:00	3.2	0	-1.8
5/27/2025 14:15	4.2	5/27/2025 14:15	3.8	0	-0.4
5/27/2025 14:30	2.8	5/27/2025 14:30	3.1	0	0.3
5/27/2025 14:45	5.9	5/27/2025 14:45	3.3	0	-2.6
5/27/2025 15:00	4.6	5/27/2025 15:00	5.9	0	1.3
5/27/2025 15:15	4	5/27/2025 15:15	4.3	0	0.3
5/27/2025 15:30	3.6	5/27/2025 15:30	4.2	0	0.6
5/27/2025 15:45	3.5	5/27/2025 15:45	4.7	0	1.2
5/27/2025 16:00	9.4	5/27/2025 16:00	3.2	0	-6.2
5/27/2025 16:15	3.3	5/27/2025 16:15	3.3	0	0

Particulate Threshold PM 10 15minute average = 100µg/m³ above background

960 Busti Ave.
Buffalo, New York 14213

WORK LOCATION MAP

Date:	Tuesday, May 27, 2025
Site Name:	4th Street, Dunkirk



Legend	
UW	Upwind Air Monitor Location
DW	Downtown Air Monitor Location
	BCP Site Boundary

960 Busti Ave.
Buffalo, New York 14213

DAILY FIELD REPORT

Date:	Wednesday, May 28, 2025
Site Name:	4th Street, Dunkirk
Location:	166 E 4th St Dunkirk NY 14080
Contractor/Sub-Contractor:	Sessler Environmental
Weather Conditions:	Heavy Rain 57 ˚F SE 11 MPH

Description of Work Performed:

8:00	Arrived on site and met with Chris (Sessler Environmental).
9:00	Start indoor VP-5
9:20	BH7, BH-9, and BH-10
11:30	Start drilling wells
17:00	Clean up
	Samples delivered to laboratory.
	No air monitors deployed due to precipitation

Problems/Observations:	RI DEVIATION:
Health and Safety Concerns:	None.
Contractor Work Force:	1 driller, 1 helper
Contractor Equipment	Geoprobe (Model 7720DT)
Attachments : Photolog, Work Location Map	
Inspectors Name	Travis Numan

960 Busti Ave.
Buffalo, New York 14213

PHOTO LOG

Date:	Wednesday, May 28, 2025
Site Name:	4th Street, Dunkirk

1. RI-MW-3 location, facing north.

2. RI-MW-4 location, facing east.

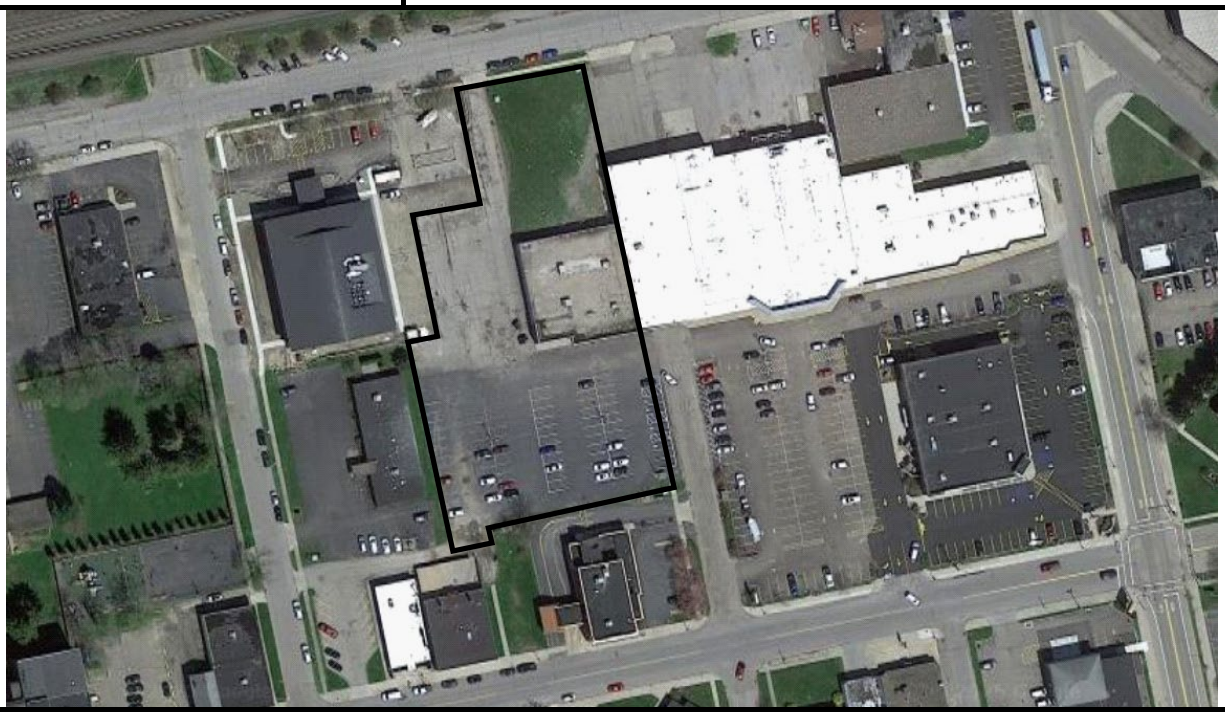
3. RI-MW-5 location, facing north.

4. RI-MW-1 location, facing east.

960 Busti Ave.
Buffalo, New York 14213

WORK LOCATION MAP

Date:	Wednesday, May 28, 2025
Site Name:	4th Street, Dunkirk



Legend	
	BCP Site Boundary

960 Busti Ave.
Buffalo, New York 14213

DAILY FIELD REPORT

Date:	Thursday, May 29, 2025
Site Name:	4th Street, Dunkirk
Location:	166 E 4th St Dunkirk NY 14080
Contractor/Sub-Contractor:	Sessler Environmental
Weather Conditions:	Mostly Cloudy 60 ˚F ESE 9 MPH

Description of Work Performed:

Arrived on site and met with Chris (Sessler Environmental)

Set upwind and downwind air monitors

Set all 6 vapor canisters for pickup 24 hours later on 5/30.

Installed all overburden GW monitoring wells.

2x2 ft concrete curboxes poured for each well.

All wells flush mounted.

Open boreholes from investigation were backfilled with clean sand and patched with asphalt

Equipment was packed up and prepared for mobilization to 2nd and Washington.

Problems/Observations:	RI DEVIATION:
Health and Safety Concerns:	None.
Contractor Work Force:	1 driller, 1 helper
Contractor Equipment	Geoprobe (Model 7720DT)
Attachments : Photolog, Work Location Map	
Inspectors Name	Travis Numan

960 Busti Ave.
Buffalo, New York 14213

COMMUNITY AIR MONITORING PROGRAM DATA

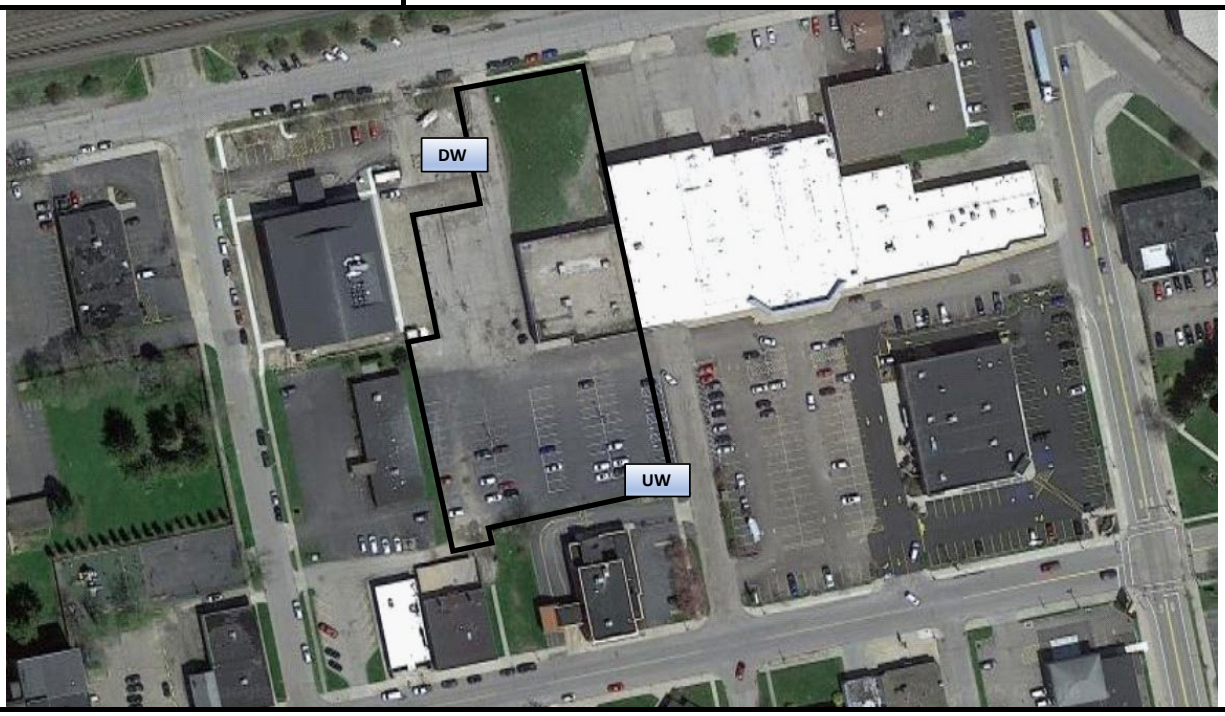
Date:	Thursday, May 29, 2025				
Site Name:	4th Street, Dunkirk				
Upwind Data		Downwind Data			Delta
Time	PM 10 - 15 min AVG (µg/m³)	Time	PM 10 - 15 min AVG (µg/m³)	VOC	PM 10 - 15m AVG (µg/m³)
5/29/2025 8:30	1.8	5/29/2025 8:30	7.8	0	6
5/29/2025 8:45	2.1	5/29/2025 8:45	8.6	0	6.5
5/29/2025 9:00	1.9	5/29/2025 9:00	6.8	0	4.9
5/29/2025 9:15	1.5	5/29/2025 9:15	6.4	0	4.9
5/29/2025 9:30	1.7	5/29/2025 9:30	5.6	0	3.9
5/29/2025 9:45	2.1	5/29/2025 9:45	4.5	0	2.4
5/29/2025 10:00	1.7	5/29/2025 10:00	4.3	0	2.6
5/29/2025 10:15	1.9	5/29/2025 10:15	5.2	0	3.3
5/29/2025 10:30	2.3	5/29/2025 10:30	4.5	0	2.2
5/29/2025 10:45	2.2	5/29/2025 10:45	5.4	0	3.2
5/29/2025 11:00	3	5/29/2025 11:00	4.7	0	1.7
5/29/2025 11:15	2.4	5/29/2025 11:15	4.4	0	2
5/29/2025 11:30	1.9	5/29/2025 11:30	3.8	0	1.9
5/29/2025 11:45	1.4	5/29/2025 11:45	3.7	0	2.3
5/29/2025 12:00	1.7	5/29/2025 12:00	4.2	0	2.5
5/29/2025 12:15	2.1	5/29/2025 12:15	4.1	0	2
5/29/2025 12:30	2.1	5/29/2025 12:30	4.8	0	2.7
5/29/2025 12:45	2.8	5/29/2025 12:45	5.4	0	2.6
5/29/2025 13:00	2.8	5/29/2025 13:00	6.3	0	3.5
5/29/2025 13:15	3.2	5/29/2025 13:15	6.3	0	3.1
5/29/2025 13:30	2.6	5/29/2025 13:30	5.9	0	3.3
5/29/2025 13:45	2	5/29/2025 13:45	8.7	0	6.7
5/29/2025 14:00	2	5/29/2025 14:00	3.8	0	1.8
5/29/2025 14:15	2	5/29/2025 14:15	3.3	0	1.3
5/29/2025 14:30	2.1	5/29/2025 14:30	4.8	0	2.7
5/29/2025 14:45	1.7	5/29/2025 14:45	11.3	0	9.6
5/29/2025 15:00	1	5/29/2025 15:00	2.5	0	1.5
5/29/2025 15:15	1.5	5/29/2025 15:15	3	0	1.5
5/29/2025 15:30	2.6	5/29/2025 15:30	3.5	0	0.9
5/29/2025 15:45	2.4	5/29/2025 15:45	5	0	2.6
5/29/2025 16:00	4.6	5/29/2025 16:00	8	0	3.4
5/29/2025 16:15	4	5/29/2025 16:15	9.5	0	5.5
5/29/2025 16:30	4	5/29/2025 16:30	8.3	0	4.3

Particulate Threshold PM 10 15minute average = 100µg/m³ above background

960 Busti Ave.
Buffalo, New York 14213

WORK LOCATION MAP

Date:	Thursday, May 29, 2025
Site Name:	4th Street, Dunkirk



Legend	
UW	Upwind Air Monitor Location
DW	Downtown Air Monitor Location
	BCP Site Boundary

960 Busti Ave.
Buffalo, New York 14213

DAILY FIELD REPORT

Date:	Friday, May 30, 2025
Site Name:	4th Street, Dunkirk
Location:	166 E 4th St Dunkirk NY 14080
Contractor/Sub-Contractor:	BE3
Weather Conditions:	Sunny 65 ˚F WSW 4 MPH

Description of Work Performed:

Arrived on site at 8am. Sessler began to mobilize to 2nd and Washington.

Collected and logged all vapor canisters after checking final PSI. Canisters will be shipped to lab at end of day.

Bailed and developed all wells. All development water stored in 55-gallon drums.

Corresponding development logs with water quality readings were filled out for each well.
End of day spent packing up equipment.

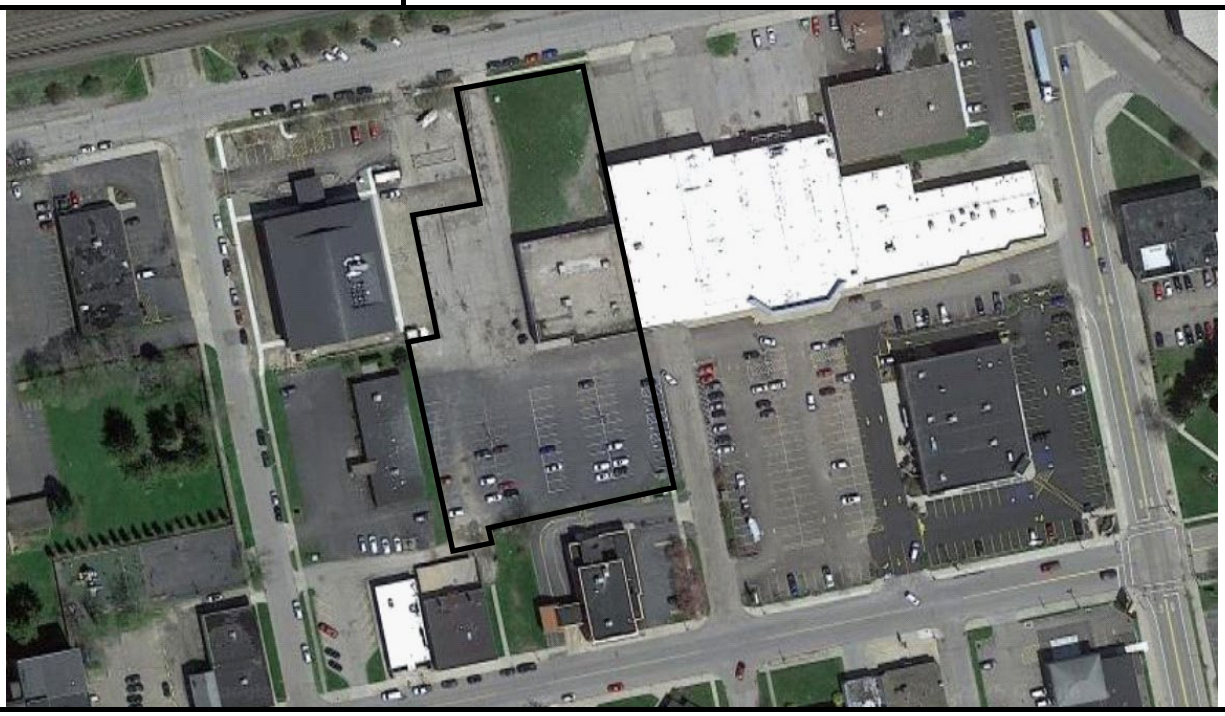
No air monitors deployed due to lack of ground disturbing activities.

Problems/Observations:	RI DEVIATION:
Health and Safety Concerns:	None.
Contractor Work Force:	1 driller, 1 helper
Contractor Equipment	N/a
Attachments : Work Location Map	
Inspectors Name	Travis Numan

960 Busti Ave.
Buffalo, New York 14213

WORK LOCATION MAP

Date:	Thursday, May 29, 2025
Site Name:	4th Street, Dunkirk



Legend	
	BCP Site Boundary

960 Busti Ave.
Buffalo, New York 14213

DAILY FIELD REPORT

Date:	Thursday, August 7, 2025
Site Name:	4th Street, Dunkirk
Location:	166 E 4th St Dunkirk NY 14048
Contractor/Sub-Contractor:	BE3
Weather Conditions:	Hazy 80 ˚F N 8 MPH

Description of Work Performed:

Arrived on site at 1:00 pm.

Began collecting surface samples starting with SS-4 and continuing in a counter clockwise direction.

Samples stored in coolers on ice immediately after collection.

Brought samples off to the lab at the end of the day.
CAMP not deployed due to very minor soil disturbance.

Problems/Observations:	RI DEVIATION:
Health and Safety Concerns:	None.
Contractor Work Force:	N/a
Contractor Equipment	Shovel
Attachments : Work Location Map	
Inspectors Name	Paul Staub

960 Busti Ave.
Buffalo, New York 14213

WORK LOCATION MAP

Date:	Thursday, August 7, 2025
Site Name:	4th Street, Dunkirk

Legend	
	Surface Sample Location
	BCP Site Boundary

960 Busti Ave.
Buffalo, New York 14213

DAILY FIELD REPORT

Date:	Monday, August 11, 2025
Site Name:	4th Street, Dunkirk
Location:	166 E 4th St Dunkirk NY 14048
Contractor/Sub-Contractor:	Empire Exploration and Geology
Weather Conditions:	Sunny 80 ˚F N 10 MPH

Description of Work Performed:

Arrived on site at 8:00 am.

Began completing two geoprobe borings in the southern parking lot.

Started with RI-BH-20 and ended with RI-BH-19.

Samples were labeled and stored in coolers.
Began mobilization to 2nd and Washington BCP site.

Samples brought to lab at the end of the day.

Problems/Observations:	RI DEVIATION:
Health and Safety Concerns:	None.
Contractor Work Force:	2 drillers.
Contractor Equipment	Geoprobe
Attachments : Work Location Map	
Inspectors Name	Paul Staub

960 Busti Ave.
Buffalo, New York 14213

WORK LOCATION MAP

Date:	Monday, August 11, 2025
Site Name:	4th Street, Dunkirk

Legend	
●	Approximate Boring Location
▭	BCP Site Boundary

Appendix B

Site Photographs

1. RI-VP-1

2. RI-VP-2

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

3. RI-VP-3

4. RI-VP-4

5. RI-VP-6

6. RI-BH-3 Cores

7. RI-BH-1 Cores

8. RI-BH-2 Cores

9. RI-BH-4 Cores

10. RI-BH-5 Cores

11. RI-BH-8 Cores

12. RI-BH-13

13. RI-BH-12 Cores

14. RI-BH-14 Cores

15. RI-BH-15 Cores

16. RI-BH-16 Cores

17. RI-BH-18 Cores

18. RI-BH-17 Cores

19. RI-BH-7 Cores

20. RI-BH-10 Cores

21. RI-BH-9 Cores

22. RI-MW-3

23. RI-MW-3 Cores

24. RI-MW-4

25. RI-MW-4 Cores

26. RI-MW-5

27. RI-MW-5 Cores

28. RI-MW-1

Appendix C

Boring Logs

PROJECT:

166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-1

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1				
2	RI-BH-1 Fill	0	FILL; black clayey silt with trace debris	
3				
4				
5				
6	RI-BH-1 Native	0	NATIVE; grey brown clay, medium soft	native @ 6'
7				
8				
9				refusal @ 9'
10				
11				
12				
13				
14				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-2

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1	RI-BH-2 Fill	0	FILL; black loose silty sand, trace wood chips	
4				native @ 4'
5	RI-BH-2 Native	0	NATIVE; grey brown clay, stiff	
12		0	NATIVE; grey brown clay, wet	
14				refusal @ 14'

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-3

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0		0	Asphalt	
1				
2	RI-BH-3 Fill	0	FILL; brown loose clayey silt, some brick	
3				
4				
5		0	NATIVE; grey brown clay, trace native rocks	native @ 5'
6				
7				
8				refusal @ 8'
9				
10				
11				
12				
13				
14				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-4

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1	RI-BH-4 Fill	0	FILL; black sandy silt, trace gray rocks	
4				native @ 4'
7		0	NATIVE; grey reddish brown clay, very stiff	
10				refusal @ 10'

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-5

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1	RI-BH-5 Fill	0	FILL; grey black loose clayey silt	
4				native @ 4'
5	RI-BH-5 Native	0	NATIVE; grey reddish brown clay, stiff	
10				refusal @ 10'
14				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-6

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1	RI-BH-6 Fill	0	FILL; brown silty clay, stiff, trace debris	
3				native @ 3'
4		0	NATIVE; grey reddish brown clay, stiff	
5				
6			NATIVE; shale	
7				refusal @ 7'
8				
9				
10				
11				
12				
13				
14				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-7

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1	RI-BH-7 Fill	0	FILL; grey black loose clayey silt	
4	RI-BH-7 Native	0	NATIVE; grey reddish brown clay, stiff	native @ 4'
6		0	NATIVE; grey brown clay, wet	
10				refusal @ 10'
14				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-8

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1	RI-BH-8 Fill	0	FILL; light brown to black sandy clay	
5				native @ 5'
6	RI-BH-8 Native	0	NATIVE; grey brown clay, stiff	
10		0	NATIVE; grey brown clay, wet	
13				refusal @ 13'
14				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-9

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Hand Auger

LOGGED BY: PS

DATE STARTED: 5/28/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Concrete	
1	RI-BH-9 Fill	0	FILL; black loose sand	
2				
3				native @ 3'
4				
5				
6		0	NATIVE; grey brown clay	
7				
8				
9			NATIVE; shale	
10				refusal @ 10'
11				
12				
13				
14				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-10

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/28/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Concrete	
1	RI-BH-10 Fill	1	FILL; black loose sand	
5		0	NATIVE; grey brown clay, stiff	native @ 5'
6				refusal @ 6'
14				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-11

DRILLING CONTRACTOR: Sessler Environmental Services

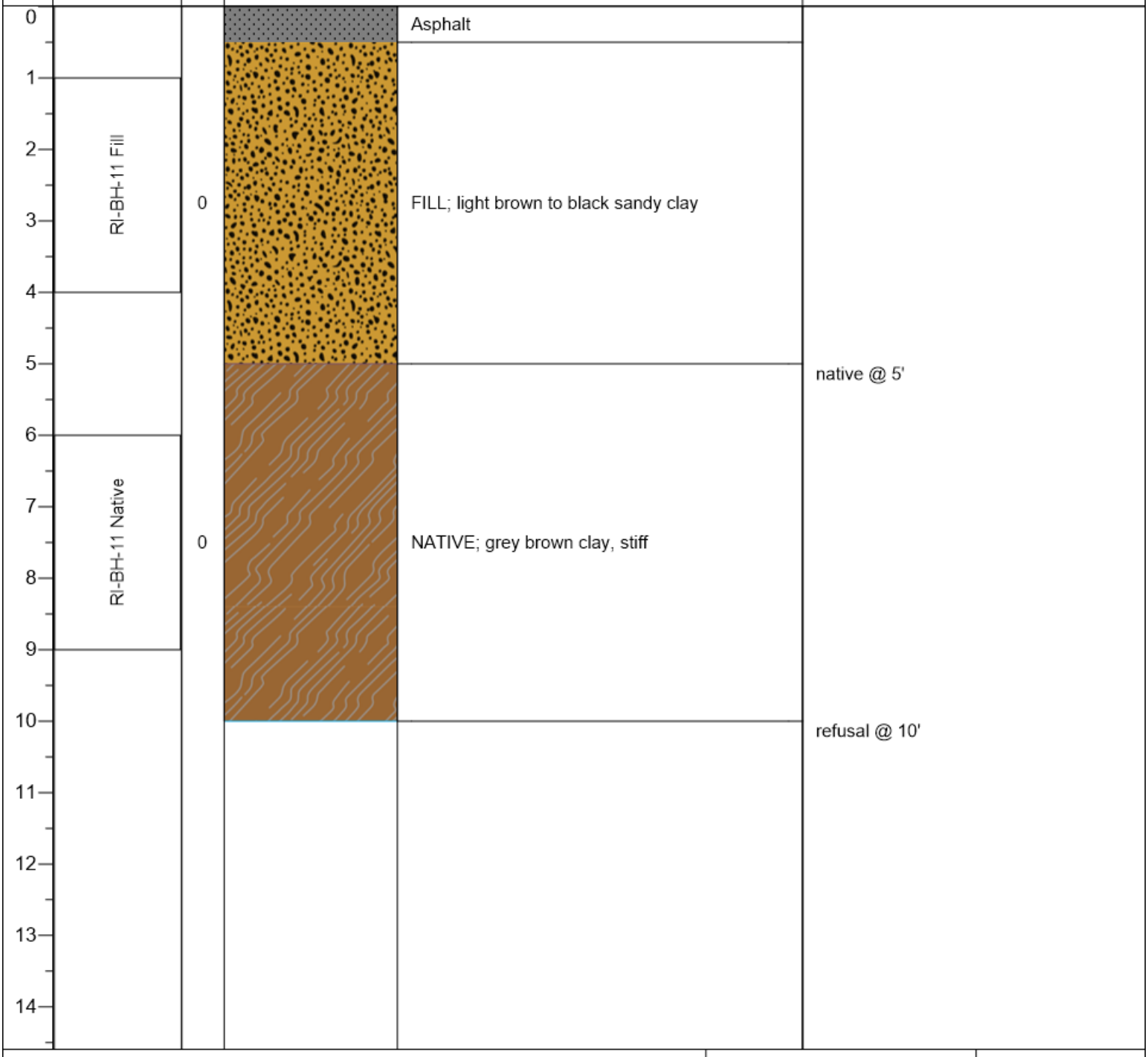
DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC



PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-12

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1	RI-BH-12 Fill	0	FILL; brown silty clay, trace gravel	
2				
3				native @ 3'
4	RI-BH-12 Native			
5				
6		0	NATIVE; grey brown clay, stiff	
7				
8				
9				
10				refusal @ 10
11				
12				
13				
14				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-13

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1	RI-BH-13 Fill	0	FILL; black sandy silt, trace gray rocks	
6		0	NATIVE; grey brown clay, very stiff	native @ 6'
13				refusal @ 13'
14				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-14

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0–3	RI-BH-14 Fill	0	FILL; brown silty clay, trace wood, coal	
3–5				native @ 4'
5–12		0	NATIVE; dark brown clay, stiff	
12				refusal @ 12'

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-15

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0–7	RI-BH-15 Fill	0	FILL; black sandy silt, trace rocks, organics	
7–10	RI-BH-15 Native	0	NATIVE; grey brown clay, stiff	native @ 7'
10				refusal @ 10'

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-16

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0–3	RI-BH-16 Fill	0	FILL; grey black loose clayey silt	
4–8		0	NATIVE; dark brown clay, stiff	native @ 4'
8–14		0	NATIVE; grey brown clay, wet	

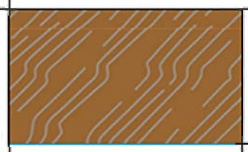
DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
15				
16				refusal @ 16'
17				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-17

DRILLING CONTRACTOR: Sessler Environmental Services

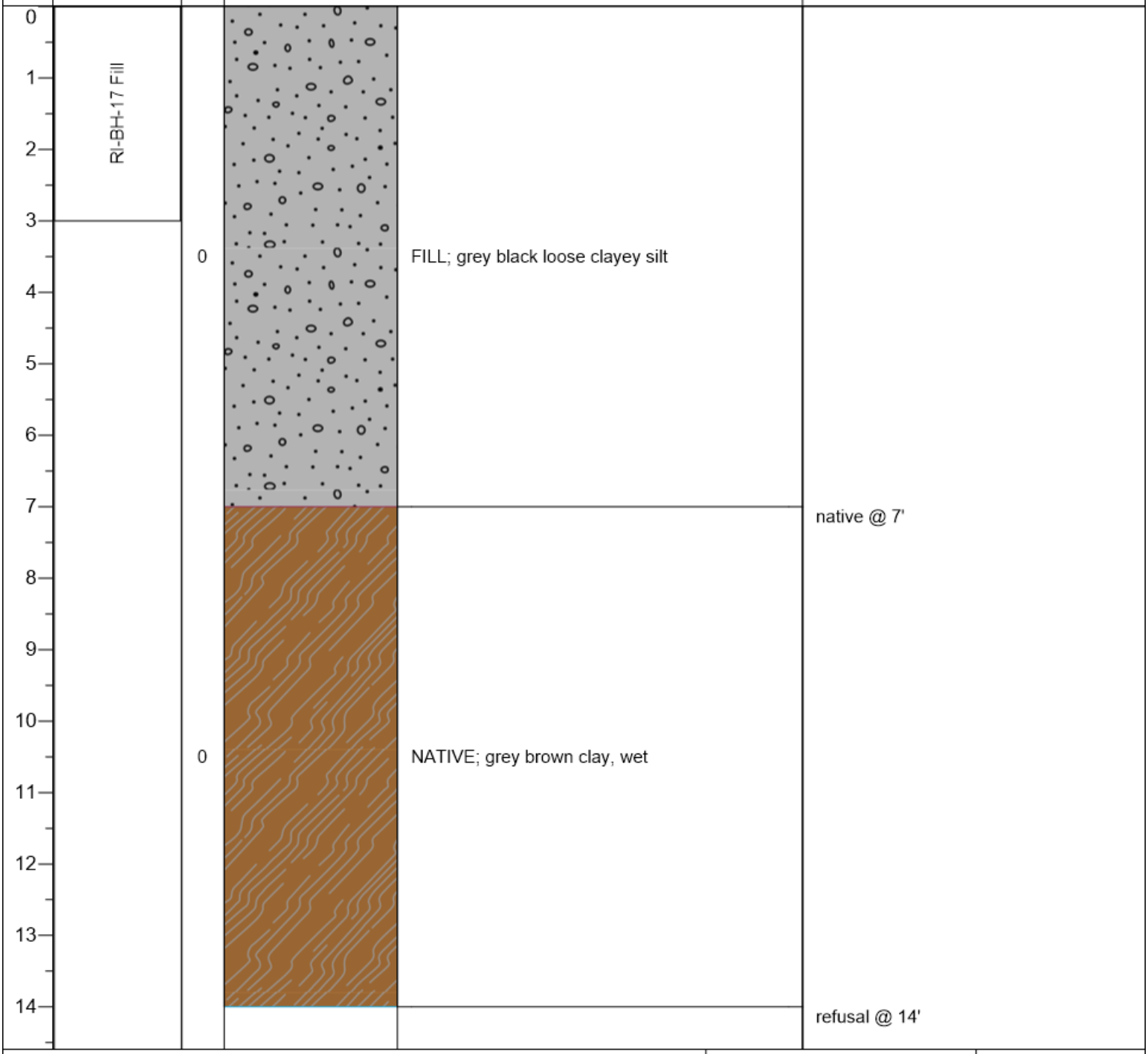
DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC



PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-18

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/27/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0–4	RI-BH-18 Fill	0	FILL; black clayey silt	
4				native @ 4'
4–10	RI-BH-18 Native	0	NATIVE; grey brown clay, stiff	
10				refusal @ 10'

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-19

DRILLING CONTRACTOR: Empire Exploration and Geology

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7220DT

LOGGED BY: PS

DATE STARTED: 8/11/2025

BRYDGES ENGINEERING IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1				
2				
3	RI-BH-19	0	FILL; black sandy silt, some ash	
4				
5				
6				native @ 6'
7				
8		0	NATIVE; grey brown clay, stiff	
9				
10				
11				
12				
13				
14				
15				
16				
17				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-BH-20

DRILLING CONTRACTOR: Empire Exploration and Geology

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7220DT

LOGGED BY: PS

DATE STARTED: 8/11/2025

BRYDGES ENGINEERING IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1				
2	RI-BH-20	0	FILL; black loose sand, some ash	
3				
4				
5				native @ 5'
6				
7		0	NATIVE; grey brown clay, trace rocks, stiff	
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-MW-1

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/28/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1		0	FILL; light brown to black sandy clay	
2				
3				native @ 3'
4		0	NATIVE; grey brown clay, stiff	
5				
6				
7				
8	RI-MW-1 + MS/MSD			
9		0	NATIVE; grey brown clay, wet	
10				collected MS/MSD
11				
12				
13				refusal @ 13'
14				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-MW-2

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/28/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1		0	FILL; black loose sand	
2				
3				native @ 3'
4	RI-MW-2			
5		0	NATIVE; grey brown clay, stiff	
6				
7			NATIVE; shale	
8				refusal @ 8'
9				
10				
11				
12				
13				
14				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-MW-3

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/28/2025

BRYDGES ENGINEERING IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1		0	FILL; light brown to black sandy clay	
2				
3				
4				
5				native @ 5', collected dup
6			NATIVE; grey brown clay, wet	
7				
8	RI-MW-3 + DUP			
9		0		
10				
11				
12				
13			NATIVE; shale	
14				refusal @ 14'

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-MW-4

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/28/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0			Asphalt	
1		0	FILL; brown silty clay	
2				
3				native @ 3'
4				
5				
6				
7				
8		0	NATIVE; grey reddish brown clay, stiff	
9				
10	RI-MW-4 + DUP			
11				
12				
13				collected dup
14				

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/28/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
15			NATIVE; shale	refusal @ 15'
16				
17				

PROJECT:
166 East 4th Street Remedial Investigation

BORING LOG

BORING LOCATION: RI-MW-5

DRILLING CONTRACTOR: Sessler Environmental Services

DRILLING METHOD: Direct Push

EXCAVATION EQUIPMENT: Geoprobe Model 7720DT

LOGGED BY: PS

DATE STARTED: 5/28/2025

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

DEPTH (feet)	Sample	PID Reading	DESCRIPTION	REMARKS
0–5		0	FILL; grey black loose clayey silt	
5–8		0	NATIVE; grey brown clay, stiff	native @ 5'
8–12	RI-MW-5 + MS/MSD	0	NATIVE; grey brown clay, wet	collected MS/MSD

Appendix D

Monitoring Well Construction Logs

DRILLING SUMMARY

Geologist/Technician: Paul Staub

Drilling Company: Sessler

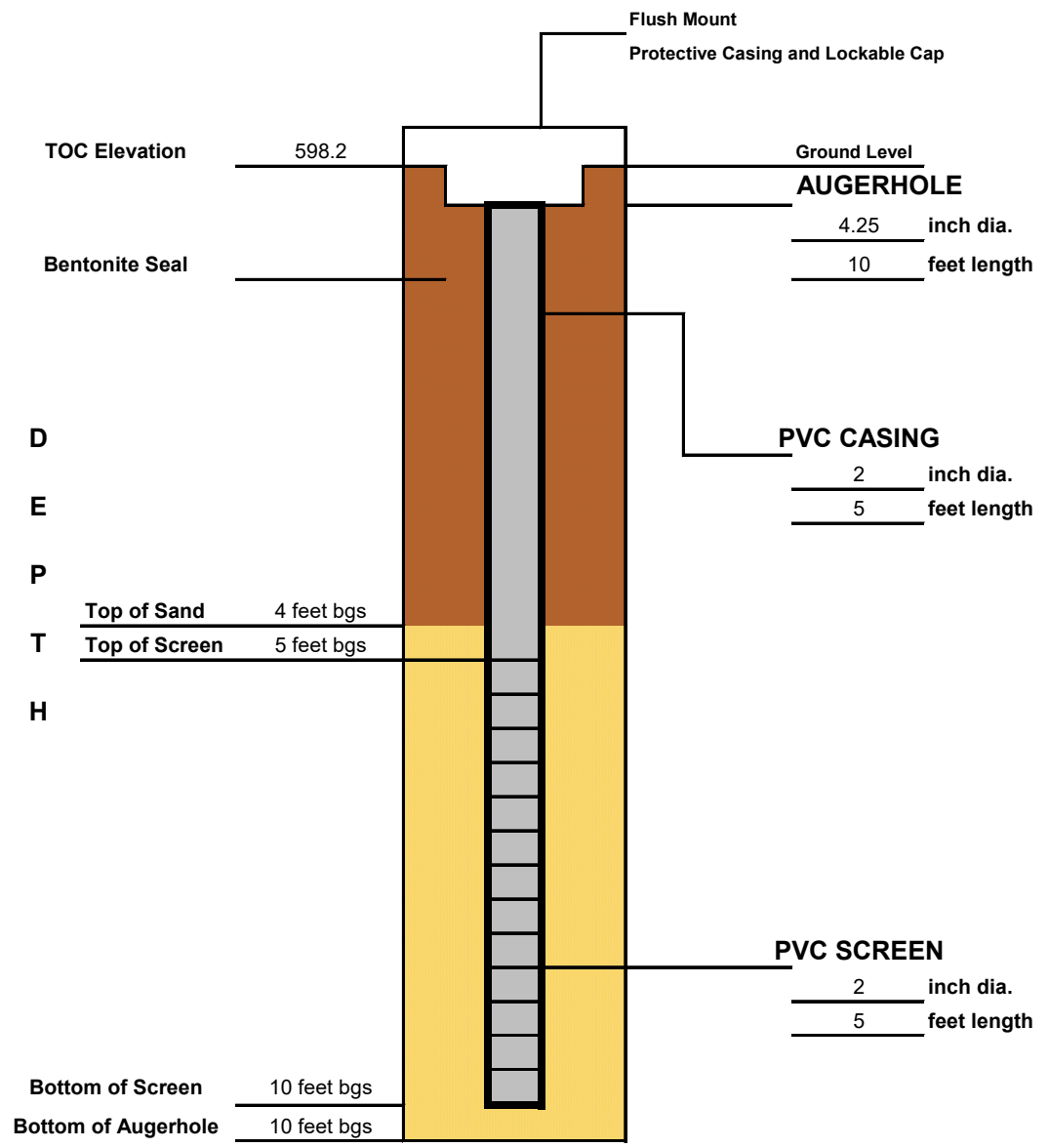
Driller: Chris

Rig Make/Model: 6011DT Rotary Drill

Date: 5/29/2025

GEOLOGIC LOG

Depth(ft.)	Description
	See RI-MW-1 Soil Boring



WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel grade box	**Type:** 2" PVC	**Type:** #0 Sand **Setting:** 4 to 10 feet bgs
Monitor: N/A	**Slot Size:** .010"	***SEAL MATERIAL***
	Setting: 5 to 10 feet bgs	**Type:** Bentonite Chips **Setting:** 0 to 4 feet bgs

COMMENTS:

Well installed approximately 3' above suspected bedrock/refusal.

LEGEND

- Bentonite Seal
- Silica Sandpack
- PVC Casing
- PVC Screen

Client: Regan	**Location:** 166 E 4th Street, Dunkirk NY	**Project No.: C907051**
BE3 BRYDGES ENGINEERING IN ENVIRONMENT AND ENERGY, DPC	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: RI-MW-1**

DRILLING SUMMARY

Geologist/Technician: Paul Staub

Drilling Company: Sessler

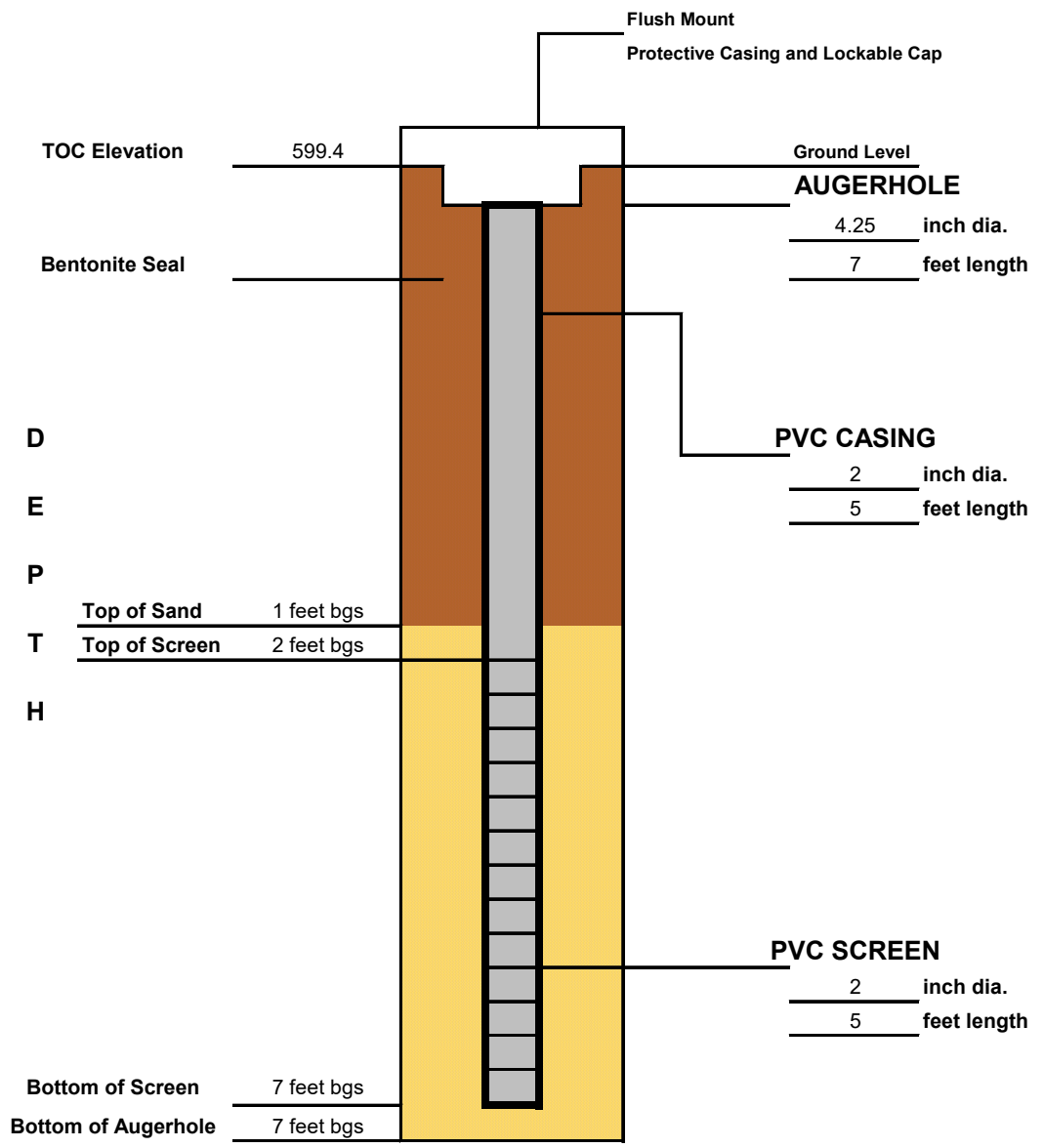
Driller: Chris

Rig Make/Model: 6011DT Rotary Drill

Date: 5/29/2025

GEOLOGIC LOG

Depth(ft.)	Description
	See RI-MW-2 Soil Boring



WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel grade box	**Type:** 2" PVC	**Type:** #0 Sand
	Slot Size: .010"	**Setting:** 1 to 7 feet bgs
Monitor: N/A	**Setting:** 2 to 7 feet bgs	***SEAL MATERIAL***
		Type: Bentonite Chips
		Setting: 0 to 1 feet bgs

COMMENTS:

Well installed approximately 1' above suspected bedrock/refusal.

LEGEND

- Bentonite Seal
- Silica Sandpack
- PVC Casing
- PVC Screen

Client: Regan	**Location:** 166 E 4th Street, Dunkirk NY	**Project No.: C907051**
BE3 BRYDGES ENGINEERING IN ENVIRONMENT AND ENERGY, DPC	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: RI-MW-2**

DRILLING SUMMARY

Geologist/Technician: Paul Staub

Drilling Company: Sessler

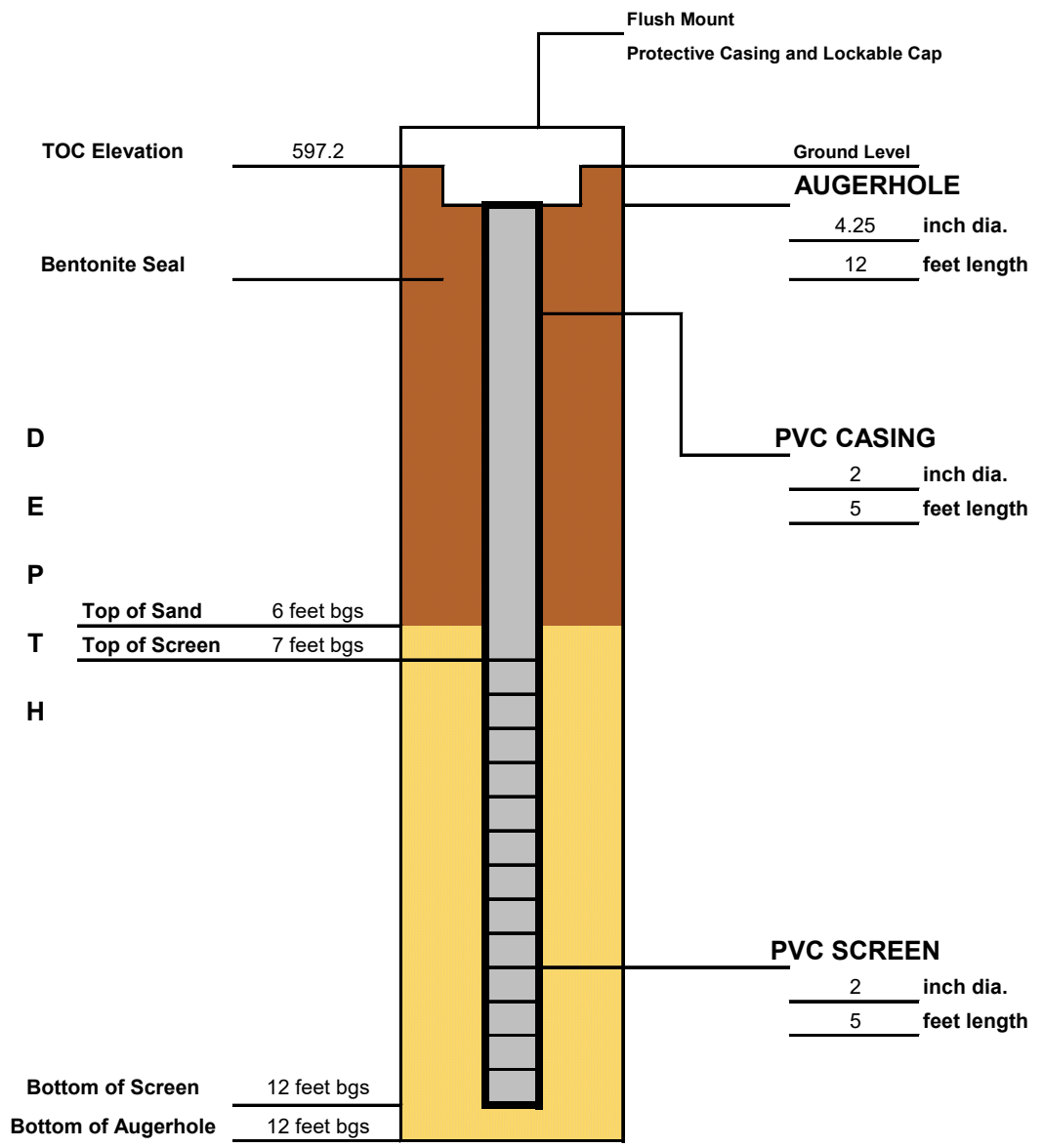
Driller: Chris

Rig Make/Model: 6011DT Rotary Drill

Date: 5/29/2025

GEOLOGIC LOG

Depth(ft.)	Description
	See RI-MW-3 Soil Boring



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: Steel grade box	**Type:** 2" PVC	**Type:** #0 Sand
	Slot Size: .010"	**Setting:** 6 to 12 feet bgs
Monitor: N/A	**Setting:** 7 to 12 feet bgs	***SEAL MATERIAL***
		Type: Bentonite Chips
		Setting: 0 to 6 feet bgs

COMMENTS:

Well installed approximately 2' above suspected bedrock/refusal.

LEGEND

- Bentonite Seal
- Silica Sandpack
- PVC Casing
- PVC Screen

Client: Regan	**Location:** 166 E 4th Street, Dunkirk NY	**Project No.: C907051**
BE3 BRYDGES ENGINEERING IN ENVIRONMENT AND ENERGY, DPC	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: RI-MW-3**

DRILLING SUMMARY

Geologist/Technician: Paul Staub

Drilling Company: Sessler

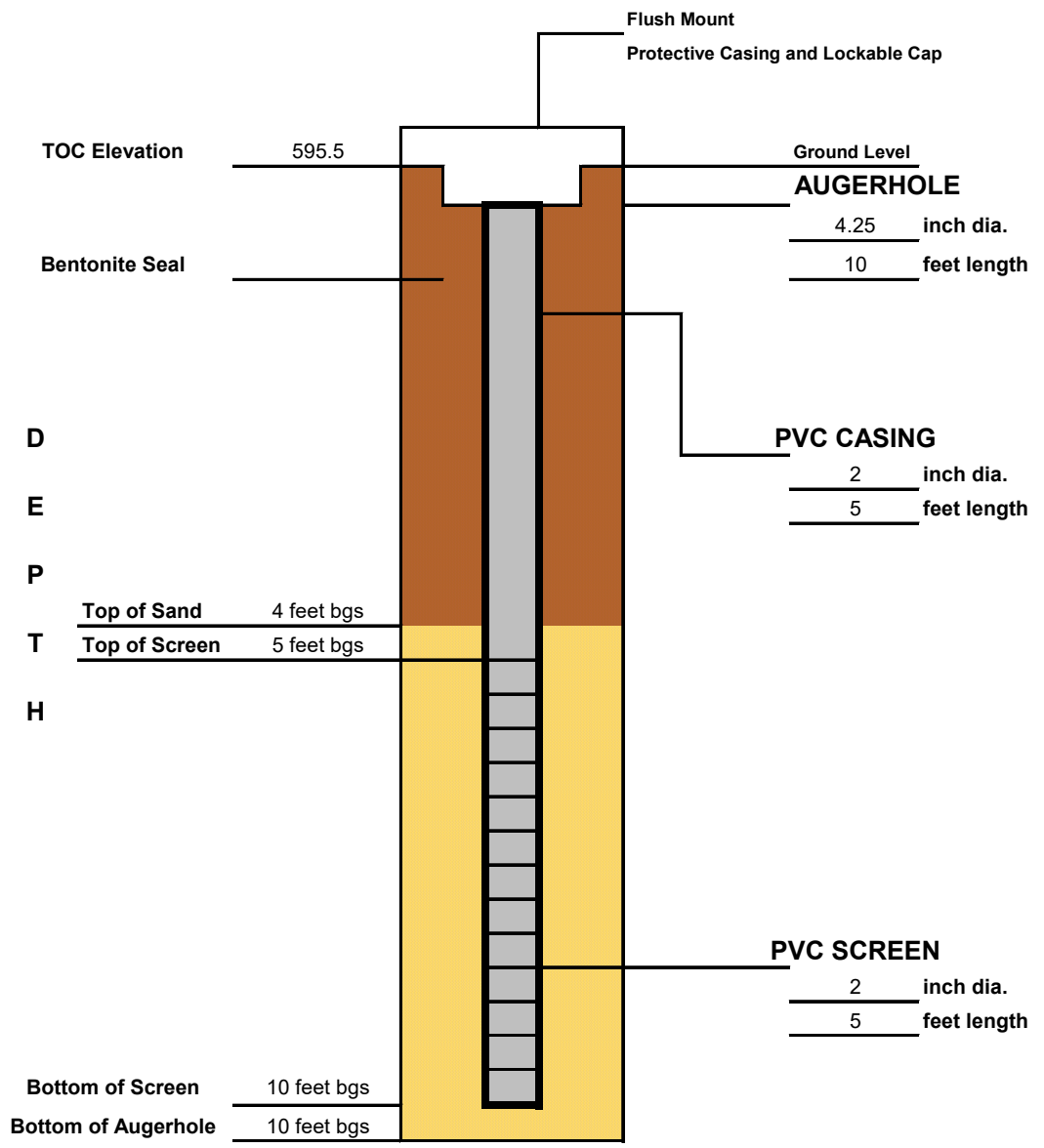
Driller: Chris

Rig Make/Model: 6011DT Rotary Drill

Date: 5/29/2025

GEOLOGIC LOG

Depth(ft.)	Description
	See RI-MW-4 Soil Boring



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: Steel grade box	**Type:** 2" PVC	**Type:** #0 Sand
	Slot Size: .010"	**Setting:** 4 to 10 feet bgs
Monitor: N/A	**Setting:** 5 to 10 feet bgs	***SEAL MATERIAL***
		Type: Bentonite Chips
		Setting: 0 to 4 feet bgs

COMMENTS:

Well installed approximately 5' above suspected bedrock/refusal.

LEGEND

- Bentonite Seal
- Silica Sandpack
- PVC Casing
- PVC Screen

Client: Regan	**Location:** 166 E 4th Street, Dunkirk NY	**Project No.: C907051**
BE3 BRYDGES ENGINEERING IN ENVIRONMENT AND ENERGY, DPC	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: RI-MW-4**

DRILLING SUMMARY

Geologist/Technician: Paul Staub

Drilling Company: Sessler

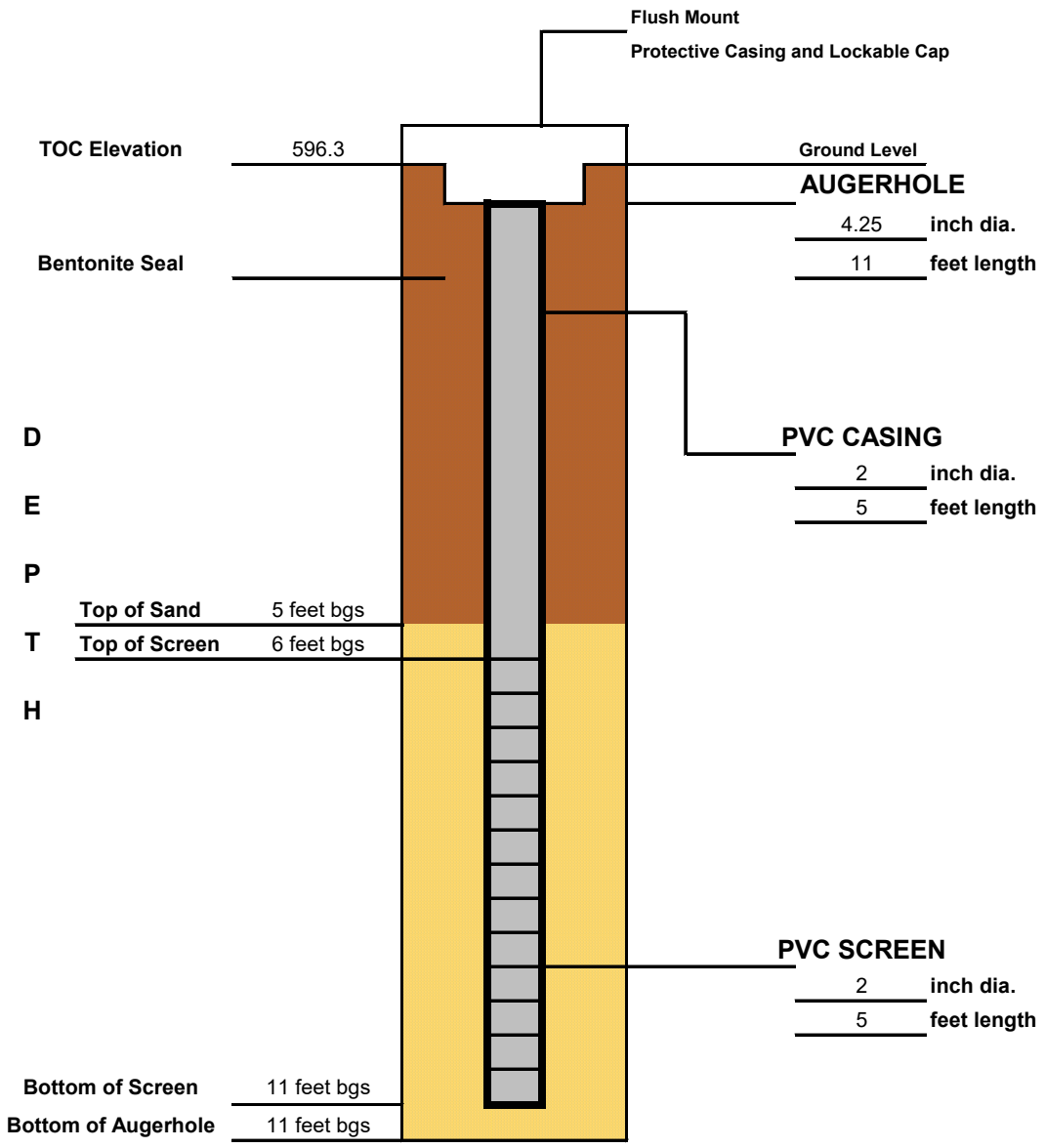
Driller: Chris

Rig Make/Model: 6011DT Rotary Drill

Date: 5/29/2025

GEOLOGIC LOG

Depth(ft.)	Description
	See RI-MW-5 Soil Boring



WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel grade box	**Type:** 2" PVC	**Type:** #0 Sand
	Slot Size: .010"	**Setting:** 5 to 11 feet bgs
Monitor: N/A	**Setting:** 6 to 11 feet bgs	***SEAL MATERIAL***
		Type: Bentonite Chips
		Setting: 0 to 5 feet bgs

COMMENTS:

Well installed approximately 4' above suspected bedrock/refusal.

LEGEND

- Bentonite Seal
- Silica Sandpack
- PVC Casing
- PVC Screen

Client: Regan	**Location:** 166 E 4th Street, Dunkirk NY	**Project No.: C907051**
BE3 BRYDGES ENGINEERING IN ENVIRONMENT AND ENERGY, DPC	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: RI-MW-5**

Appendix E

Well Development Logs

WELL DEVELOPMENT LOG

PROJECT TITLE: 4th Street Dunkirk WELL NO.: RI-MW-2

PROJECT NO.: 8237

STAFF: Travis Numan

DATE(S): 5/30/2025

DEVELOPMENT METHOD: Weighted bailers

			WELL ID.	VOL. (GAL/FT)
1. DEPTH TO WELL BOTTOM (FT. BTOR)	=	7.0	1"	0.04
2. WATER LEVEL BELOW TOP OF RISER (FT. BTOR)	=	4.9	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	2.1	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GALLONS)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.36	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 3	=	1.07	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	3.00	8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	1	2	3								
pH	7.06	6.92	6.90								
TEMPERATURE (°C)	18.1	17.5	17.3								
SPEC. COND. (mS/cm)	1260	1177	1159								
ORP (mV)	245	244.2	239								
DISSOLVED OXYGEN (mg/l)	3.91	4.1	4.26								
TURBIDITY (NTU)	890	142	157								
DEPTH TO WATER (btor)	4.7	5.1	5.1								
TIME	10:30a	10:45a	11:00a								

COMMENTS:

WELL DEVELOPMENT LOG

PROJECT TITLE: 4th Street Dunkirk WELL NO.: RI-MW-3

PROJECT NO.: 8237

STAFF: Travis Numan

DATE(S): 5/30/2025

DEVELOPMENT METHOD: Weighted bailers

			WELL ID.	VOL. (GAL/FT)
1. DEPTH TO WELL BOTTOM (FT. BTOR)	=	12.0	1"	0.04
2. WATER LEVEL BELOW TOP OF RISER (FT. BTOR)	=	7.7	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	4.3	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GALLONS)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.73	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 3	=	2.19	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	3.50	8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	1	2.5	3.5								
pH	7.09	7.19	7.09								
TEMPERATURE (°C)	16	15.3	15.5								
SPEC. COND. (mS/cm)	1542	1573	1598								
ORP (mV)	222	204.3	146.9								
DISSOLVED OXYGEN (mg/l)	8.31	8.24	6.97								
TURBIDITY (NTU)	266	232	236								
DEPTH TO WATER (btor)	7.8	7.85	7.88								
TIME	11:15a	11:30a	11:45a								

COMMENTS:

WELL DEVELOPMENT LOG

PROJECT TITLE: 4th Street Dunkirk WELL NO.: RI-MW-4

PROJECT NO.: 8237

STAFF: Travis Numan

DATE(S): 5/30/2025

DEVELOPMENT METHOD: Weighted bailers

			WELL ID.	VOL. (GAL/FT)
1. DEPTH TO WELL BOTTOM (FT. BTOR)	=	10.0	1"	0.04
2. WATER LEVEL BELOW TOP OF RISER (FT. BTOR)	=	6.4	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	3.6	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GALLONS)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.61	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 3	=	1.84	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	2.50	8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0.5	1.5	2.5								
pH	7.16	7.1	7.11								
TEMPERATURE (°C)	17.2	14.8	14.5								
SPEC. COND. (mS/cm)	1648	1884	1930								
ORP (mV)	240.3	235.4	231								
DISSOLVED OXYGEN (mg/l)	5.73	6.44	5.49								
TURBIDITY (NTU)	137	84	70								
DEPTH TO WATER (btor)	6.48	6.53	6.5								
TIME	12:00p	12:35p	12:55p								

COMMENTS:

WELL DEVELOPMENT LOG

PROJECT TITLE: 4th Street Dunkirk WELL NO.: RI-MW-5

PROJECT NO.: 8237

STAFF: Travis Numan

DATE(S): 5/30/2025

DEVELOPMENT METHOD: Weighted bailers

			WELL ID.	VOL. (GAL/FT)
1. DEPTH TO WELL BOTTOM (FT. BTOR)	=	11.0	1"	0.04
2. WATER LEVEL BELOW TOP OF RISER (FT. BTOR)	=	9.3	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	1.7	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GALLONS)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.29	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 3	=	0.87	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	2.50	8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	0.5	1.5	2.5								
pH	7.06	7.01	6.99								
TEMPERATURE (°C)	14.6	13.5	13.3								
SPEC. COND. (mS/cm)	1348	1340	1342								
ORP (mV)	254.2	242	230								
DISSOLVED OXYGEN (mg/l)	9.14	9.53	9.68								
TURBIDITY (NTU)	275	98.9	87.5								
DEPTH TO WATER (btor)	9.41	9.53	9.6								
TIME	1:00p	1:25p	1:45p								

COMMENTS:

Appendix F

Purge Logs

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 160-164 E 4th Street RI Site: 160-164 E 4th Street, Dunkirk NY Well I.D.: RI-MW-2

Date: 6/2/2025 Sampling Personnel: Jim Hull Company: BE3 Corp

Purging/Sampling Device: Peristaltic Pump Tubing Type: HDPE + Silicone Pump/Tubing Inlet Location: Middle of Screen

Measuring Point: TOR Marking Initial Depth to Water: 5.00 Depth to Well Bottom: 7.00 Well Diameter: 2 in Screen Length: 5'

Casing Type: PVC Volume in 1 Well Casing (gallons): 0.3 Estimated Purge Volume (gallons): 2.0

Sample ID: RI-MW-2 Sample Time: 1:00pm QA/QC:

Sample Parameters: Part 375 VOCs & TICs, SVOC & TICs, Metals, Pesticides, PCBs ,PFA's, 1-4 Dioxane, Total Cyanide

PURGE PARAMETERS

TIME	pH	TEMP (ºC)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
12:20pm	7.48	15.9	1126	10.46	19.69	211		5.00
12:30pm	8.01	16.0	813	10.02	20.01	171		
12:40pm	7.86	16.0	937	10.16	19.87	209		
12:50pm	7.2	15.8	907	9.95	23.41	197		
1:00pm	7.33	15.9	928	10.01	22.30	206		
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 160-164 E 4th Street RI Site: 160-164 E 4th Street, Dunkirk NY Well I.D.: RI-MW-3

Date: 6/3/2025 Sampling Personnel: Jim Hull Company: BE3 Corp

Purging/Sampling Device: Peristaltic Pump Tubing Type: HDPE + Silicone Pump/Tubing Inlet Location: Middle of Screen

Measuring Point: TOR Marking Initial Depth to Water: 7.60 Depth to Well Bottom: 12.00 Well Diameter: 2 in Screen Length: 5'

Casing Type: PVC Volume in 1 Well Casing (gallons): 0.7 Estimated Purge Volume (gallons): 2.5

Sample ID: RI-MW-3 Sample Time: 10:00am QA/QC:

Sample Parameters: Part 375 VOCs & TICs, SVOC & TICs, Metals, Pesticides, PCBs ,PFA's, 1-4 Dioxane, Total Cyanide

PURGE PARAMETERS

TIME	pH	TEMP (ºC)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
9:15am	7.34	16.0	1360	10.09	14.99	141.1		7.60
9:30am	7.56	15.8	1107	10.16	15.73	149.3		
9:40am	7.22	15.9	1180	10.65	14.68	129.7		
9:55am	7.91	15.9	1201	10.01	14.27	137.7		
10:00am	8.03	16.1	1163	10.15	15.02	142.9		
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 160-164 E 4th Street RI Site: 160-164 E 4th Street, Dunkirk NY Well I.D.: RI-MW-4

Date: 6/3/2025 Sampling Personnel: Jim Hull Company: BE3 Corp

Purging/ Sampling Device:	Peristaltic Pump			Tubing Type:	HDPE + Silicone		Pump/Tubing Inlet Location:	Middle of Screen	
Measuring Point:	TOR Marking	Initial Depth to Water:	6.40	Depth to Well Bottom:	10.00	Well Diameter:	2 in	Screen Length:	5'
Casing Type:	PVC			Volume in 1 Well Casing (gallons):	0.6		Estimated Purge Volume (gallons):	3.2	

Sample ID: RI-MW-4 Sample Time: 8:30am QA/QC:

Sample Parameters: Part 375 VOCs & TICs, SVOC & TICs, Metals, Pesticides, PCBs ,PFA's, 1-4 Dioxane, Total Cyanide

PURGE PARAMETERS

TIME	pH	TEMP (ºC)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
7:45am	9.04	15.4	3132	10.72	26.07	46.4		6.40
8:00am	7.92	17.1	1661	10.40	15.19	25.1		
8:10am	8.34	16.5	1571	10.44	19.87	38.7		
8:20am	9.12	16.4	1280	10.81	27.31	29.3		
8:30am	9.03	16.2	1304	10.36	22.89	22.0		
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 160-164 E 4th Street RI Site: 160-164 E 4th Street, Dunkirk NY Well I.D.: RI-MW-5

Date: 6/2/2025 Sampling Personnel: Jim Hull Company: BE3 Corp

Purging/ Sampling Device:	Peristaltic Pump			Tubing Type:	HDPE + Silicone		Pump/Tubing Inlet Location:	Middle of Screen	
Measuring Point:	TOR Marking	Initial Depth to Water:	9.25	Depth to Well Bottom:	11.00	Well Diameter:	2 in	Screen Length:	5'
Casing Type:	PVC			Volume in 1 Well Casing (gallons):	0.3		Estimated Purge Volume (gallons):	1.5	

Sample ID: RI-MW-5 Sample Time: 1:30-1:50pm QA/QC: MS/MSD

Sample Parameters: Part 375 VOCs & TICs, SVOC & TICs, Metals, Pesticides, PCBs ,PFA's, 1-4 Dioxane, Total Cyanide

PURGE PARAMETERS

TIME	pH	TEMP (ºC)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1:10pm	8.08	14.9	2916	10.34	21.43	78.8		9.25
1:15pm	9.36	15.2	3142	10.72	26.64	10.2		
1:20pm	9.12	15.4	2631	10.01	29.31	132.2		
1:25pm	9.73	15.3	2294	10.73	19.04	1260.0		
1:30pm	9.67	15.2	2283	9.89	23.20	1253.0		
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

Appendix G

Vapor Point Construction Logs

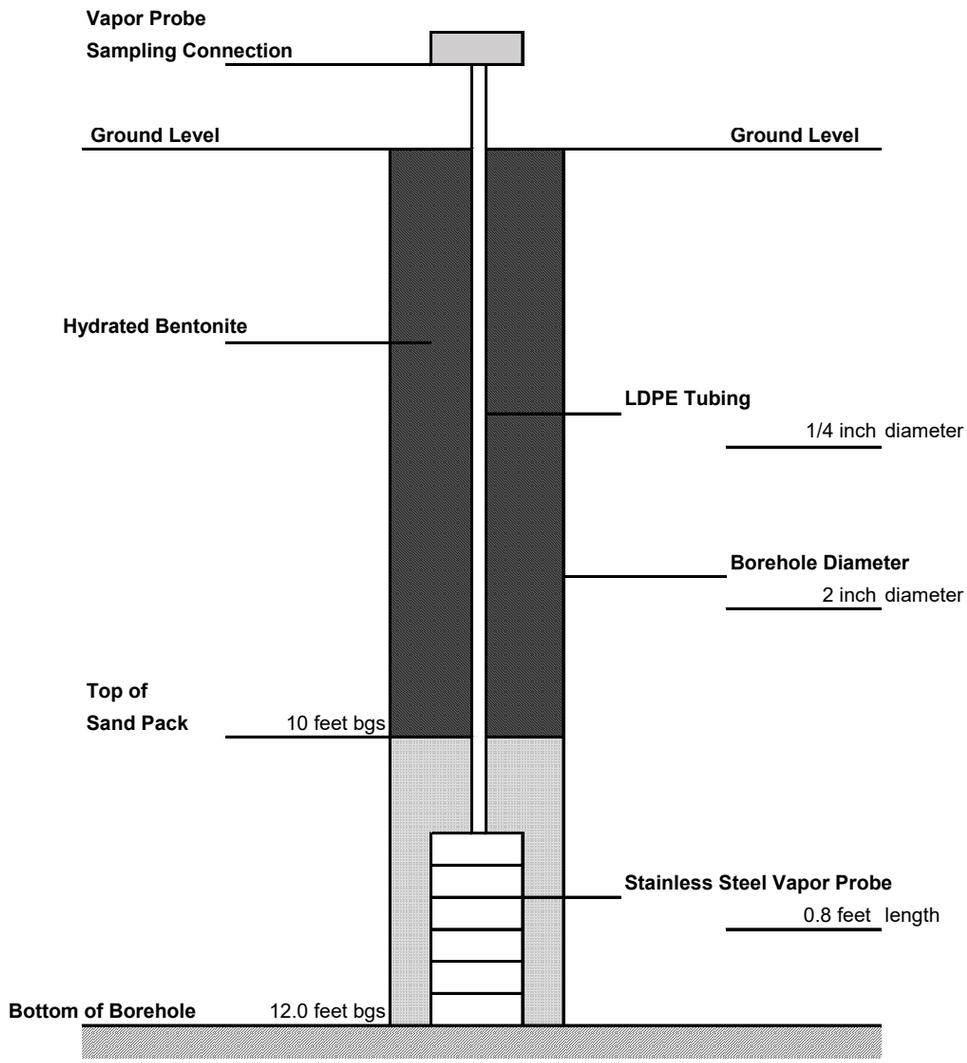
DRILLING SUMMARY

Geologist:	Paul Staub
Contractor:	Sessler
Operator:	Chris
Model:	6011DT Geoprobe
Date:	5/27/2025

GEOLOGIC LOG

Depth(ft.)	Description
	N/A

DEPTH



PROBE DESIGN

CASING MATERIAL	SEAL MATERIAL	FILTER MATERIAL
Surface: N/A	**Type:** Bentonite Chips	**Type:** #0 Sand
	Setting: 0 to 10 feet bgs	**Setting:** 10 to 12 feet bgs

COMMENTS:

LEGEND

- Bentonite Chip Seal
- Sand Pack

Client: Regan	**Location:** 166 E 4th Street	**Project No.** C907051
BRYDGES ENGINEERING	**SOIL VAPOR PROBE CONSTRUCTION DETAILS**	**Probe Number: RI-VP-1**

Q:/Exchange/Montroy/Vapor Probe COnstruction Log/RI-VP-1 6/3/2025 2:06 PM

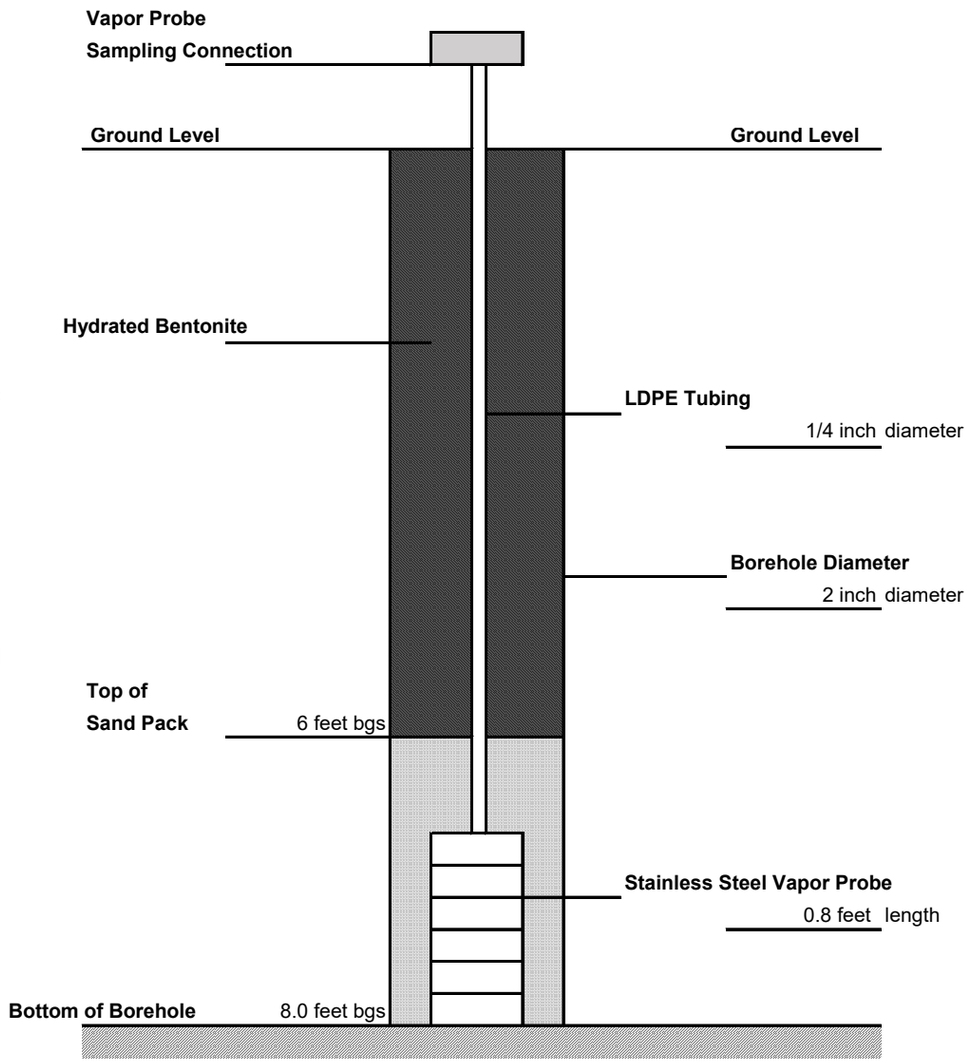
DRILLING SUMMARY

Geologist:	Paul Staub
Contractor:	Sessler
Operator:	Chris
Model:	6011DT Geoprobe
Date:	5/27/2025

GEOLOGIC LOG

Depth(ft.)	Description
	N/A

DEPTH



PROBE DESIGN

CASING MATERIAL	SEAL MATERIAL	FILTER MATERIAL
Surface: N/A	**Type:** Bentonite Chips	**Type:** #0 Sand
	Setting: 0 to 6 feet bgs	**Setting:** 6 to 8 feet bgs

COMMENTS:

LEGEND

- Bentonite Chip Seal
- Sand Pack

Client: Regan	**Location:** 166 E 4th Street	**Project No.** C907051
BRYDGES ENGINEERING	**SOIL VAPOR PROBE CONSTRUCTION DETAILS**	**Probe Number: RI-VP-2**

Q:/Exchange/Montroy/Vapor Probe COnstruction Log/RI-VP-2 8/3/2025 2:00 PM

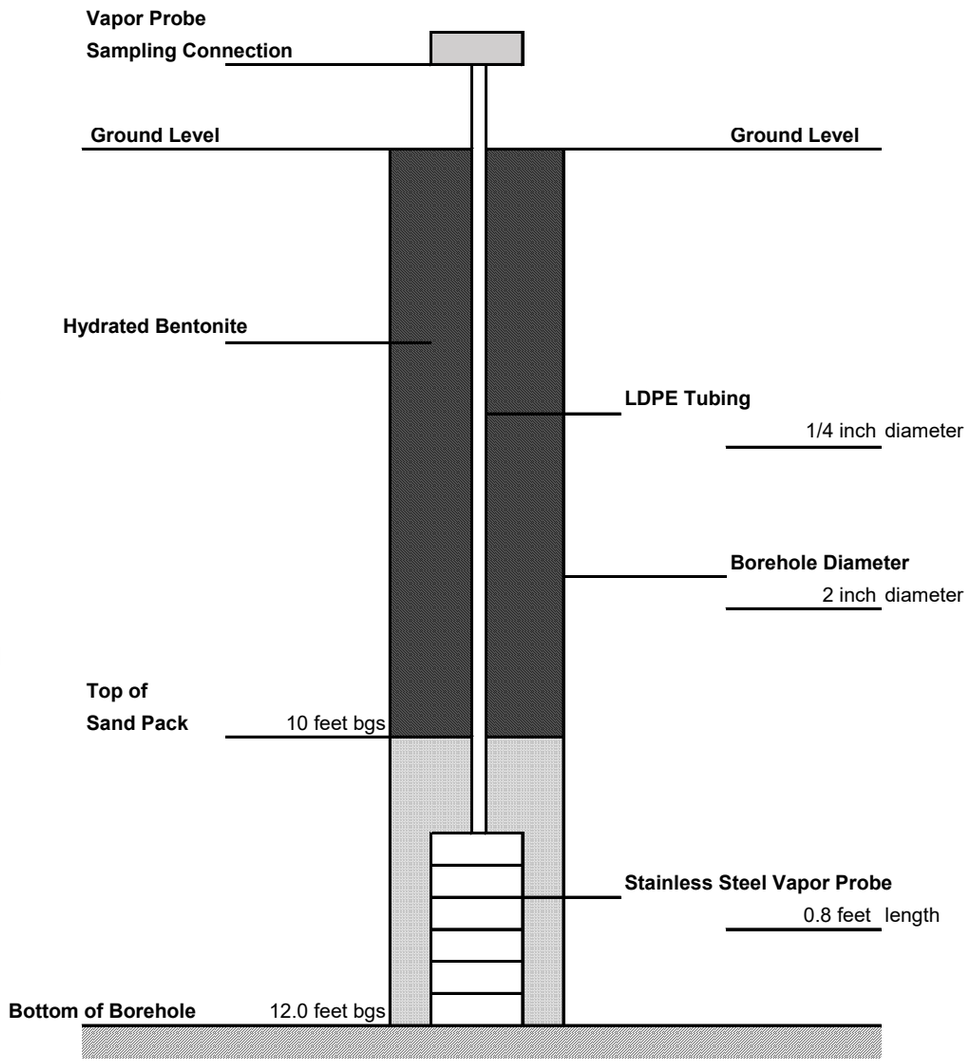
DRILLING SUMMARY

Geologist:	Paul Staub
Contractor:	Sessler
Operator:	Chris
Model:	6011DT Geoprobe
Date:	5/27/2025

GEOLOGIC LOG

Depth(ft.)	Description
	N/A

DEPTH



PROBE DESIGN

CASING MATERIAL	SEAL MATERIAL	FILTER MATERIAL
Surface: N/A	**Type:** Bentonite Chips	**Type:** #0 Sand
	Setting: 0 to 10 feet bgs	**Setting:** 10 to 12 feet bgs

COMMENTS:

LEGEND

- Bentonite Chip Seal
- Sand Pack

Client: Regan	**Location:** 166 E 4th Street	**Project No.** C907051
BRYDGES ENGINEERING	**SOIL VAPOR PROBE CONSTRUCTION DETAILS**	**Probe Number: RI-VP-3**

Q:/Exchange/Montroy/Vapor Probe COnstruction Log/RI-VP-3 6/3/2025 2:06 PM

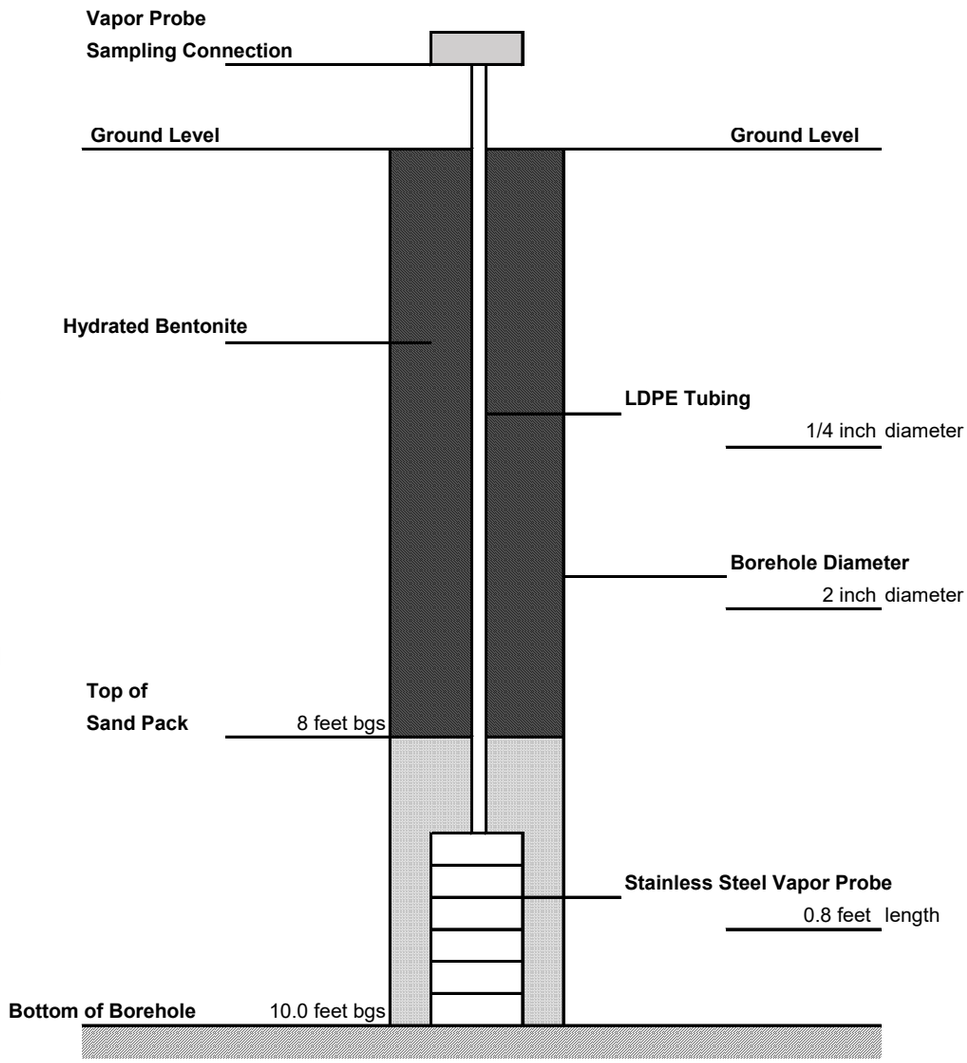
DRILLING SUMMARY

Geologist:	Paul Staub
Contractor:	Sessler
Operator:	Chris
Model:	6011DT Geoprobe
Date:	5/27/2025

GEOLOGIC LOG

Depth(ft.)	Description
	N/A

DEPTH



PROBE DESIGN

CASING MATERIAL	SEAL MATERIAL	FILTER MATERIAL
Surface: N/A	**Type:** Bentonite Chips	**Type:** #0 Sand
	Setting: 0 to 8 feet bgs	**Setting:** 8 to 10 feet bgs

COMMENTS:

LEGEND

- Bentonite Chip Seal
- Sand Pack

Client: Regan	**Location:** 166 E 4th Street	**Project No.** C907051
BRYDGES ENGINEERING	**SOIL VAPOR PROBE CONSTRUCTION DETAILS**	**Probe Number: RI-VP-4**

Q:/Exchange/Montroy/Vapor Probe COnstruction Log/RI-VP-4 8/3/2025 2:00 PM

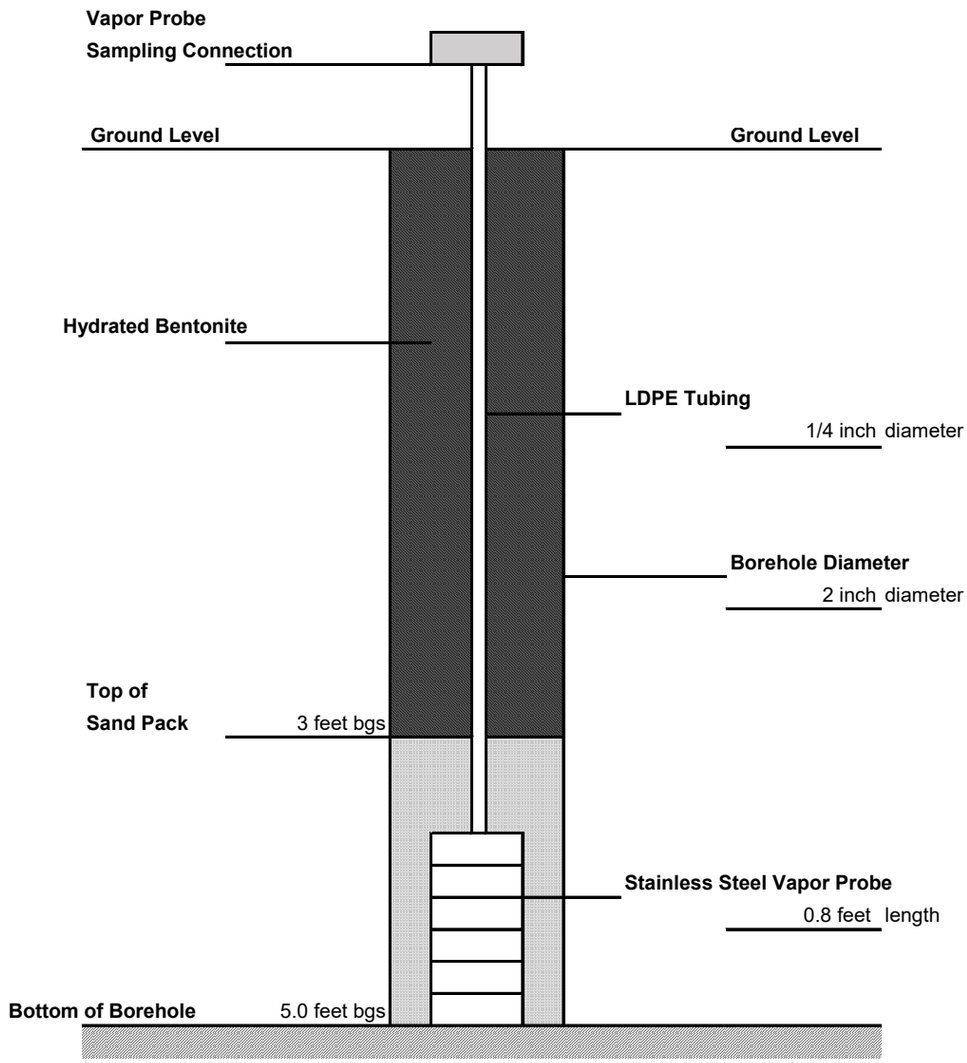
DRILLING SUMMARY

Geologist:	Paul Staub
Contractor:	Sessler
Operator:	Chris
Model:	6011DT Geoprobe
Date:	5/27/2025

GEOLOGIC LOG

Depth(ft.)	Description
	N/A

DEPTH



PROBE DESIGN

CASING MATERIAL	SEAL MATERIAL	FILTER MATERIAL
Surface: N/A	**Type:** Bentonite Chips	**Type:** #0 Sand
	Setting: 0 to 3 feet bgs	**Setting:** 3 to 5 feet bgs

COMMENTS:

LEGEND

- Bentonite Chip Seal
- Sand Pack

Client: Regan	**Location:** 166 E 4th Street	**Project No.** C907051
BRYDGES ENGINEERING	**SOIL VAPOR PROBE CONSTRUCTION DETAILS**	**Probe Number: RI-VP-5**

Q:/Exchange/Montroy/Vapor Probe COnstruction Log/RI-VP-5 6/3/2025 2:00 PM

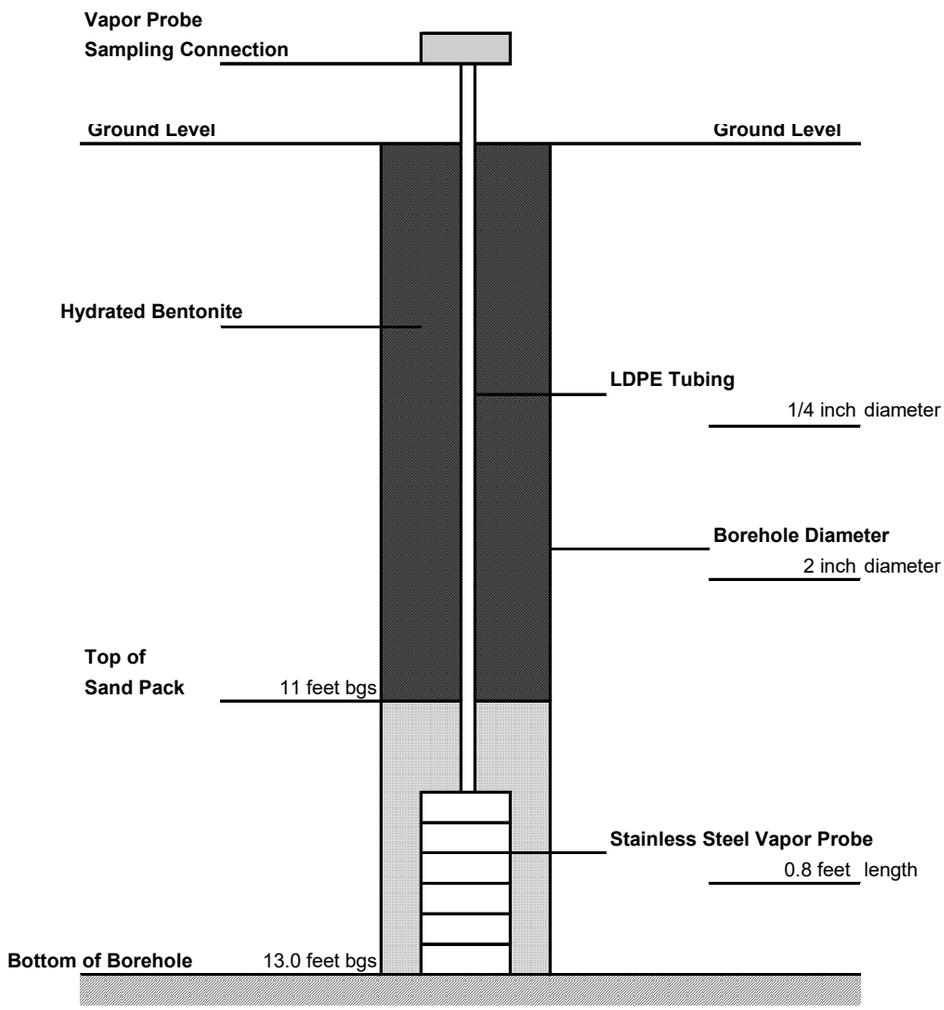
DRILLING SUMMARY

Geologist:	Paul Staub
Contractor:	Sessler
Operator:	Chris
Model:	6011DT Geoprobe
Date:	5/27/2025

GEOLOGIC LOG

Depth(ft.)	Description
	N/A

DEPTH



PROBE DESIGN

CASING MATERIAL	SEAL MATERIAL	FILTER MATERIAL
Surface: N/A	**Type:** Bentonite Chips	**Type:** #0 Sand
	Setting: 0 to 11 feet bgs	**Setting:** 11 to 13 feet bgs

COMMENTS:

LEGEND

- Bentonite Chip Seal
- Sand Pack

Client: Regan	**Location:** 166 E 4th Street	**Project No.** C907051
BE3 BRYDGES ENGINEERING IN ENVIRONMENT AND ENERGY, DPC	**SOIL VAPOR PROBE CONSTRUCTION DETAILS**	**Probe Number: RI-VP-6**

Appendix H

DER-10 – Appendix 3C Decision Key

BRYDGES ENGINEERING
IN ENVIRONMENT AND ENERGY, DPC

Appendix 3C Fish and Wildlife Resources Impact Analysis Decision Key	If YES Go to:	If NO Go to:
1. Is the site or area of concern a discharge or spill event?	13	2
2. Is the site or area of concern a point source of contamination to the groundwater which will be prevented from discharging to surface water? Soil contamination is not widespread, or if widespread, is confined under buildings and paved areas.	13	3
3. Is the site and all adjacent property a developed area with buildings, paved surfaces and little or no vegetation?	4	9
4. Does the site contain habitat of an endangered, threatened or special concern species?	Section 3.10.1	5
5. Has the contamination gone off-site?	6	14
6. Is there any discharge or erosion of contamination to surface water or the potential for discharge or erosion of contamination?	7	14
7. Are the site contaminants PCBs, pesticides or other persistent, bioaccumulable substances?	Section 3.10.1	8
8. Does contamination exist at concentrations that could exceed ecological impact SCGs or be toxic to aquatic life if discharged to surface water?	Section 3.10.1	14
9. Does the site or any adjacent or downgradient property contain any of the following resources? i. Any endangered, threatened or special concern species or rare plants or their habitat ii. Any DEC designated significant habitats or rare NYS Ecological Communities iii. Tidal or freshwater wetlands iv. Stream, creek or river v. Pond, lake, lagoon vi. Drainage ditch or channel vii. Other surface water feature viii. Other marine or freshwater habitat ix. Forest x. Grassland or grassy field xi. Parkland or woodland xii. Shrubby area xiii. Urban wildlife habitat xiv. Other terrestrial habitat	11	10
10. Is the lack of resources due to the contamination?	3.10.1	14
11. Is the contamination a localized source which has not migrated and will not migrate from the source to impact any on-site or off-site resources?	14	12
12. Does the site have widespread surface soil contamination that is not confined under and around buildings or paved areas?	Section 3.10.1	12
13. Does the contamination at the site or area of concern have the potential to migrate to, erode into or otherwise impact any on-site or off-site habitat of endangered, threatened or special concern species or other fish and wildlife resource? (See #9 for list of potential resources. Contact DEC for information regarding endangered species.)	Section 3.10.1	14
14. No Fish and Wildlife Resources Impact Analysis needed.		

Appendix I

Alternative Cost Estimates

160-164 E 4th STREET
REMEDIAL ALTERNATIVE COST ESTIMATES

Assumptions:

1) - Conversion factor of cubic yards of soil/stone to tons is 1.5.
2) - Quantity of 1 implies the cost is a lump sum.

ALTERNATIVE 1 - REMEDIATE TO TRACK 4 - RESTRICTED RESIDENTIAL			
Item	**Unit Cost**	**Quantity**	**Total**
Mobilization/Demobilization	$10,000.00	1	$10,000.00
Building Demolition and Abatement	$110,000.00	1	$110,000.00
Waste Transport	$27.00	6300	$170,100.00
Clean Backfill	$11.00	5200	$57,200.00
Disposal	$210,000.00	1	$210,000.00
Excavation Crew	$150,000.00	1	$150,000.00
Engineering Oversight	$100,000.00	1	$100,000.00
Total			$807,300.00
Contingency (10%)			$80,730.00
Estimated Capital Total Cost			**$888,030.00**

ALTERNATIVE 2 - REMEDIATE TO TRACK 1 - UNRESTRICTED			
Item	**Unit Cost**	**Quantity**	**Total**
Mobilization/Demobilization	$10,000.00	1	$10,000.00
Building Demolition and Abatement	$100,000.00	1	$100,000.00
Waste Transport	$27.00	17000	$459,000.00
Clean Backfill	$11.00	15500	$170,500.00
Disposal	$425,000.00	1	$425,000.00
Excavation Crew	$200,000.00	1	$200,000.00
Engineering Oversight	$100,000.00	1	$100,000.00
Total			$1,464,500.00
Contingency (10%)			$146,450.00
Estimated Capital Total Cost			**$1,610,950.00**