31 TONAWANDA STREET SITE
AND
150 TONAWANDA STREET/FORMER CSX VACANT RAIL PROPERTY

ERIE COUNTY, NEW YORK

FINAL ENGINEERING REPORT

NYSDEC Site Number: C915299

Prepared for:

31Tonawanda Street, LLC
148 Middlesex Road
Buffalo, NY 14216

Prepared by:

BE3CORP
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December 2020

CERTIFICATIONS

I, Jason M. Brydges, is currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Action Work Plan was implemented and that all construction activities were completed in substantial conformance with the Department-approved Remedial Action Work Plan.

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

I certify that all use restrictions, Institutional Controls, Engineering Controls, and/or any operation and maintenance requirements applicable to the Site are contained in an environmental easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 7 1-3603, have been notified that such easement has been recorded.

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

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

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

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Jason M. Brydges of, BE3 Corp, 960 Busti Avenue, Suite B-150, Buffalo, New York 14213 am certifying as Owner's Designated Site Representative for the site.

NYS Professional Engineer # | Date | Signature

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LIST OF ACRONYMS

BCP	Brownfield Cleanup Program
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulation
CPP	Community Participation Plan
DER	Division of Environmental Remediation
DUSRs	Data Usability Summary Reports
EC	Engineering Control
EE	Environmental Easement
EPA	Environmental Protection Agency
FER	Final Engineering Report
GCM	Gross Contaminated Material
HASP	Health and Safety Plan
IC	Institutional Control
mg/m3	Milligrams per meter cubed
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
OSHA	Occupational Safety and Health Administration
PID	Photoionization Detector
PPM	Part Per Million
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SSDS	Sub-slab Depressurization System
SVI	Soil Vapor Intrusion
SWPPP	Stormwater Pollution Prevention Plan
TWA	Time Weighted Average
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

FINAL ENGINEERING REPORT

1.0 BACKGROUND AND SITE DESCRIPTION

31 Tonawanda Street, LLC entered into a Brownfield Cleanup Program (BCP) with the New York State Department of Environmental Conservation (NYSDEC) in November 1, 2017 to investigate and remediate a 1.86-acre property (31 Tonawanda Street) and a 0.90-acre property (150 Tonawanda Street) located in Buffalo, New York.

The properties were remediated to Track 4 Restricted Residential use. The current plans consist of renovating the 31 Tonawanda property building for use as self-storage with a small portion of the building used for steel fabrication and one-two studio-type residential units are also planned. The 150 Tonawanda property will be redeveloped into self-storage units.

The site (31 and 150 Tonawanda) is located in the County of Erie, New York and 31 Tonawanda is identified as Parcel No.: 88.58-1-1 and 150 Tonawanda is identified as Parcel No: 88.42-2-4.21 on the Erie County Tax Map.

The parcel boundaries and topography are shown on the survey maps provided in Appendix A

An electronic copy of this FER with all supporting documentation is included as **Appendix B.**

2.0 SUMMARY OF SITE REMEDY

2.1 REMEDIAL ACTION OBJECTIVES

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) were identified for this site.

<u>Groundwater</u>

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

2.2 DESCRIPTION OF SELECTED REMEDY

The site was remediated in accordance with the remedy selected by the NYSDEC Decision Document dated May 2020.

The remedial action began in July 2020 and was completed in November 2020.

The factors considered during the selection of the remedy are those listed in 6 NYCRR 375-1.8. The elements of the selected remedy, as shown in the **Decision Document- Figure 7 (150 Tonawanda) and Figure 8 (31 Tonawanda)**, are as follows:

1. **Remedial Design** A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve efficiency as an element of construction.

31 Tonawanda Street Property:

2. Excavation: Excavation and off-site disposal of all soils that exceed the restricted residential SCOs to 1-foot depth in areas where asphalt paving and concrete will be installed, and 2-foot depth in areas where a clean soil cover will be installed. In addition, petroleum impacted soils (hot spot) in an area approximately 20 feet long by 20 feet wide by 9 feet deep will be excavated and transported off-site for disposal. All sediment found in building trenches and drains will also be removed and properly disposed off-site.

3. Backfill: Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation and establish the design grades at the site. Any excavated material from the installation of buried utilities will be disposed of off-site at an approved facility and backfilled with clean stone and/or other approved material as set forth in 6 NYCRR Part 375-6.7(d).

4. In-Situ Groundwater Treatment: In-situ enhanced bioremediation will be employed to treat chlorinated VOCs in overburden groundwater at the southeast corner of the property including beneath the crawl space of the on-site building. The biological breakdown of contaminants through anaerobic reductive dichlorination will be enhanced by the injection of a soluble organic carbon substrate containing zero valent iron or other similar product. The method and depth of injection will be determined during the remedial design.

5. Vapor Mitigation: Any on-site buildings will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the on-site building from soil and/or groundwater. The layout and specific components of these systems will be determined during the remedial design.

Remedial Elements Common to Both the 31 and 150 Tonawanda Street Properties:

6. Cover System: A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of exposed surface soil exceeds the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components will include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

7. Institutional Controls: Imposition of an institutional control in the form of an Environmental Easement for the controlled property that:

(a) Requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
(b) Allows the use and development of the controlled property for restricted residential, commercial or industrial use 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; and

(d) Requires compliance with the Department approved Site Management Plan.

8. **Site Management Plan:** A Site Management plan is required, which includes the following:

(a) An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and engineering controls remain in place and effective:

- Institutional Controls: The Environmental Easement discussed in Paragraph 7 above; and
- Engineering Controls: The site cover system discussed in Paragraph 6 above, and the sub- slab depressurization systems discussed in Paragraph 5 above.

This plan includes, but may not be limited to:

- An Excavation Plan that details the provisions for management of future excavations in areas of remaining contamination;
- Descriptions of the provisions of the Environmental Easement including any land use and groundwater use restrictions;
- A provision for evaluating the potential for soil vapor intrusion prior to occupancy of any future buildings constructed on the site, including the provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- Provisions for the management and inspection of the identified engineering controls;
- Maintaining site access controls and Department notification; and
- The steps necessary for periodic reviews and certification of the institutional and engineering controls.

(b) A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- Monitoring of soil vapor, indoor air and/or sub-slab pressure testing to assess the performance and effectiveness of the sub-slab depressurization systems, and groundwater monitoring to assess the effectiveness of in-situ groundwater treatment.

Enhancements to the sub-slab depressurization systems and additional groundwater injections will be completed as necessary;

- A schedule of monitoring and frequency of submittals to the Department;
- Monitoring for vapor intrusion for any future buildings constructed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

3.0 INTERIM REMEDIAL MEASURES, OPERABLE UNITS AND REMEDIAL CONTRACTS

3.1 GROUNDWATER TREATMENT

3.1.1 Introduction

An IRM was conducted to support the implementation of a groundwater treatment remedial action at the 31 Tonawanda Street building. The IRM included in-situ groundwater treatment through installation of injection points exterior to and along the 31 Tonawanda Street southeast building wall as well as within the building crawl space area. The remedial investigation indicated that the overburden groundwater in these areas were highly impacted with chlorinated solvents. Anaerobic Bio-Chem and zero valent iron (ABC+) by REDOX Tech, LLC, an effective method for the mineralization (degradation) of chlorinated solvents, was introduced to the groundwater through the injection points. **Figure 1 in Appendix H** shows the as-built location plan of the injection points and applicable monitoring well.

The installation of the injection points and injection of the treatment product occurred during February and March 2020.

3.1.2 INJECTION PROCEDURE

The following represents the procedural steps that were used to complete the in-situ treatment of elevated chlorinated solvents in the subsurface at 31 Tonawanda Street, Buffalo, New York. The process used an anaerobic BioChem and Zero Valent Iron (ABC+) solution to remediate chlorinated alkene compounds in the soil/groundwater interface and in groundwater.

Planning-Mobilization

BE3 (engineer and client rep), REDOX (Bio-Chem firm) and Nature’s Way (driller-installer) mobilized to the property and identified/marked locations where injections would occur. The selected locations will be based on the attached figure of injection points and actual field conditions. If additional pre-injection groundwater analysis for specific baseline parameters is necessary, it will be completed at this time.

Complete Injection Point Installation and Bio-Chem Injections to Complete the Reactive Barrier

Exterior Injection Points: the injection of the ABC+ was performed through 1.5-inch injection rods that were advanced into the subsurface using a Geoprobe® direct push unit. A total of twenty-nine (29) injection points, spaced approximately 5 feet apart in a hexagonal or zigzag grid pattern, were used for the treatment area along the exterior southeast wall (crawl space section) of the building at 31 Tonawanda Street. The subsurface receive approximately 11,000 pounds of ABC+ (50% zero valent iron) to treat the contamination along the bank separating the building from the Creek.

Mixed at approximately 16 wt% solution, this resulted in 6,960 gallons of solution. Each injection point received approximately 240 gallons divided up between depth intervals 8, 10, 12, 14, 16, 18, 20, and 22 feet below the ground surface. As the points were installed downward, 30 gallons was applied to each of these 8 depth intervals.

Interior Injection Points: Injection of ABC+ was performed through 1.5-inch injection rods that were penetrated into the subsurface with a Geoprobe®. A total of 21 injection points (spaced 15 to 20 feet apart) were needed for the treatment area. At four (4) locations drilling hit refusal at shallow locations and no injections occurred. The subsurface receive approximately 27,000 pounds of ABC+ (50 percent zero valent iron) to treat the contamination in the source area. Mixed at approximately 20 wt% solution, this resulted in 12,920 gallons of solution. Each injection point received approximately 680 gallons, divided up between depth intervals 8, 11, 14, 17, and 20 feet below the ground surface below the floor. As the points were installed downward, 136 gallons was applied to each of these 5 depth intervals. A PVC future inject well was placed in the boring after the initial injection to allow for the option of future follow-up injections. The PVC does not have any screen and will simply be an access point for future injections, as necessary. The PCV injection port will therefore be large enough to accommodate the future injections.

Post Injection Monitoring

The ultimate measure of success is destruction of the target contaminants. Groundwater samples were collected from monitoring well MW-3 in a little over 2 months after completion of injections on May 22, 2020 and again in September 15, 2020 and analyzed for the following parameters:

- VOCs
- pH,
- ORP,
- DO,
- dissolved iron (field filtered and measure total iron),
- total organic carbon (TOC) and;
- sulfate.

The following will measure effectiveness:

- DO and ORP should drop as a measure of influence.
- The pH should increase because the corrosion of iron produces hydroxide.
- The iron will dissolve into groundwater because of an increase in solid phase iron and as a result of zero valent iron going to soluble ferrous iron.
- The TOC will increase because of the carbon substrate component of ABC+.\
- The sulfate drops below about 20 to 25 ppm in order to get complete destruction of the chlorinated solvents. Above that, the sulfate reducing bacteria will outcompete the dehalogenating bacteria.

The results of the two rounds of post injection GW sampling of MW-3 are provided in **IRM – Groundwater Injection Treatment Monitoring Well Sample Results - Table 1** along with the initial sampling round prior to injection**.** It appears that after first round of post injection sampling (5/22/20) attenuation of chlorinated solvents was occurring. The second round of sampling (9/15/20) continued to observe the breakdown of solvents after the bio-remedial injections (refer to **Table 1** as noted above). The data appear to be typical of a site with DNAPL after treatment with anaerobic bio-chem and zero valent iron (ABC+) by Redox Tech, LLC. There has been a large initial drop from the zero valent iron and the level of the parent product (TCA) has stabilized. However, there is continued bioremediation as evidenced by the continued increase in chloroethane. Chloroethane is being formed from the biodegradation of dichloroethane. There is still a significant amount of Total Organic Carbon (TOC) which will continue to feed the bioremediation (dichlorination) processes.

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

Remedial activities completed at the Site were conducted in accordance with the NYSDEC-approved Remedial Action Work Plan (RAWP) for the 31 Tonawanda Street (October 2019). All deviations from the RAWP are noted below.

4.1 GOVERNING DOCUMENTS

4.1.1 Site Specific Health & Safety Plan (HASP)

All remedial work performed under this Remedial Action was in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA.

The Health and Safety Plan (HASP) was complied with for all remedial and invasive work performed at the Site.

4.1.2 Quality Assurance Project Plan (QAPP)

The QAPP was included as Appendix C of the Remedial Action Work Plan (RAWP) approved by the NYSDEC. The QAPP describes the specific policies, objectives, organization, functional activities and quality assurance/ quality control activities designed to achieve the project data quality objective.

4.1.3 Storm-Water Pollution Prevention Plan (SWPPP)

The erosion and sediment controls for all remedial construction were performed in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control and the requirements of the RAWP. No site-specific Storm Water Pollution Prevention Plan was required for this project.

4.1.4 Community Air Monitoring Plan (CAMP)

The purpose of air monitoring for potential airborne contaminants is to verify that protection levels are suitable. Monitoring were performed for dust/particulates and volatile organic compounds during excavation activities. Daily background and calibration readings were recorded prior to the start of field activities. All monitoring equipment used during this remediation was maintained and calibrated and records of calibration and maintenance will be kept in accordance with 29 CFR 1910.120(b)4(11)E.

Particulate Monitoring

Real-time air monitoring readings were obtained from upwind and downwind locations in accordance with DER-10 for community air-monitoring. Daily field reports were completed that document activities performed, equipment and manpower onsite, screening and monitoring results, general Site conditions, and weather conditions.

Air Monitoring for Worker Protection

Real time air monitoring was conducted whenever site soils were disturbed during sampling, excavation, grading, etc. A real time personal aerosol monitor (i.e., TSI Side-Pak AM5 10 Personal Aerosol monitor or equivalent) was used. This monitor is a laser photometer that measures data as both real-time aerosol mass-concentration and 8-hour time weighted average (TWA). The monitor was used to measure real-time concentrations in milligrams per meter cubed (mg/m^3). Action levels were based on potential exposure to calcium carbonate and were as follows:

- 15 mg/m^3 total dust
- 5 mg/m^3 respirable fraction for nuisance dusts

Dust suppression techniques were not required since action levels were not exceeded.

Total VOC Monitoring

Monitoring of VOCs was conducted using a photo-ionization detector (PID). If a sustained reading of 5 ppm above background occurs, then work would be halted, and personnel will evacuate the work area. Sustained action levels did not occur on this project that required work to be halted.

4.1.5 Contractors Site Operations Plans (SOPs)

The Remediation Engineer reviewed all plans and submittals for this remedial project (i.e., those listed above plus contractor and subcontractor submittals) and confirmed that they were in compliance with the RAWP. All remedial documents were submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

4.1.6 Community Participation Plan

All aspects of the Community Participation Plan presented as Appendix B in the RAWP were adhered to for this project.

4.2 REMEDIAL PROGRAM ELEMENTS

4.2.1 Contractors and Consultant

Remedial Contractor – Gauthier Black Top, Inc.
SSDS - Envirosafe Inspections & Consulting
Groundwater Treatment System - BE3/ReDox
Certifying Engineer – Jason Brydges (BE3)

4.2.2 Site Preparation

- Mobilization – July 2020
- Erosion, sedimentation controls and perimeter fencing – July 2020
- Utility marker layout – layout conducted during the RI and no active utilities extend into the site.

4.2.3 General Site Controls

- Site security – The entire site was enclosed with security fencing.
- Job site record keeping – As per the RAWP, BE3 site inspector completed daily inspection reports and monitored and collected air monitoring data.
- Erosion and sedimentation controls – Compost filter sox rolls were installed around site perimeter and work areas
- Stockpile methods – Imported clean fill and stone periodically stockpiled on site by dump truck unloading on cleared area. Soils excavated from the site in most cases where stockpiled on plastic prior to transporting to the landfill.

4.2.4 Nuisance controls

- Truck wash not required. Very little tracking of soil onto off-site roadways. No extensive dry period during the remediation to generate extensive dust.
- Odor control – no odor concerns
- Truck routing – No truck routing problems
- Responding to complaints – No public complaints received.

4.2.5 CAMP results

VOC (PID) and particulate monitoring equipment were utilized as called for in the RAWP CAMP. Fugitive dust migration was visually assessed by BE3's field inspector during all work activities. On only a few occasions was the downwind PM-10 particulate level of the downwind units slightly greater than 100 micrograms per cubic meter (mcg/m^3) than background (upwind perimeter) for a 15-minute period. Minimum airborne dust was observed leaving the work area during these times.

VOC (PID) monitoring was undertaken through the remediation utilizing a handheld PID at the remediation work face and a downwind tripod mounted PID. Minor exceedances of VOC requirements occurred at the working face on a few occasions but quickly dissipated upon further excavation.

Copies of all field data sheets relating to the CAMP are provided with the Daily Reports in **Appendix D**.

4.2.6 Reporting

All daily field reports are included in **Appendix D** Progress photos taken during remediation are provided with the Daily Reports.

4.3 CONTAMINATED MATERIALS REMOVAL

Section 2.2 Item 2 above describes the areas excavated under the remedial design and the RAWP. It should be noted that excavation for new development (buried utilities to the building, roadways/parking, etc.) took place concurrently with remediation activities. In many cases the removal of impacted material areas coincided with removal requirements for new development. All material excavated was either stockpiled per the RAWP and DEC requirements prior to transport or transported directly to the approved landfill.

A Track 4 cleanup was implemented based on the site-specific intended land use as indicated in Figure 7 (150) and Figure 8 (31). A minimum of 1 foot of impacted soil was removed from all designed paved areas (roadways/parking/new buildings) and 2 feet removed from all designated greenspace areas and replaced with clean fill/topsoil.

4.3.1 Contaminated Soil Removed

150 Tonawanda

No impacted soil was removed and disposed of offsite. Existing concrete slabs were broken up and hauled off site for recycling at Swift River Associates and Triad Recycling. Disposal manifests are provided in **Appendix G.** Approximately 570 tons of material was sent for recycling (290 tons from 150 & 280 tons from 31).

31 Tonawanda

The petroleum impacted soil hot spot area at the RI boring BH-05 was excavated and petroleum related impacted soils were encountered at an approximate depth of 2 to 4 feet below grade. The non-petroleum impacted soils were removed and stockpiled separately and used for backfill once the impacted soils were removed. The petroleum impacted soil layer varied in depth and covered a much larger area than anticipated (see **Figure 9)**. Approximately 267 tons of petroleum impacted soil were removed and disposed off-site at the Republic Niagara Falls Landfill. Waste disposal manifests are provided in **Appendix G.** Excavation stopped at the clay confining layer which separated the excavation bottom from the groundwater level (2+/-feet). the RI MW-5 well was intercepted by the excavation and, with NYSDEC approval, was decommissioned in accordance with NYSDEC protocols. There were no overt petroleum odors coming from the well during decommissioning. Laterally, excavation stopped to the west when a large concrete footer was intercepted that ran the length of the excavation. A trench excavated on the other side of this footer did not visually look impacted nor have elevated PID readings. To the east the excavation stopped within two feet of the creek bank. Excavation further south than shown on the figure was limited by the creek bank and western concrete wall that extended at an angle towards the creek.

Confirmation samples were collected from side walls and the bottom and are discussed in Section 4.4.

4.4 REMEDIAL PERFORMANCE/DOCUMENTATION SAMPLING

Impacted material exceeding Restricted Residential SCOs was removed from the area at 31 Tonawanda discussed in Section 4.3. Confirmation samples were collected from bottom and sidewalls of the hotspot excavation area behind the 31 Tonawanda building to assess what impacted material may remain that does not meet Restricted Residential SCOs. Restrictions on Excavation limits are discussed in Section 4.3. With the approval of the NYSDEC only VOCs and SVOCs were analyzed for in the confirmation samples.

Confirmation sample analytical results are provided on **Table 1 – As-Built Confirmation Soil Sample Results.** All data was validated and Data Usability Summary Reports (DUSRs) prepared by Environmental Data Usability (EDU) of Dansville, New York. All DUSRs and analytical data are provided in **Appendix E.**

Impacted soils exceeding Restricted Residential SCOs remain in some areas below the 2 feet of excavation and cover in green space areas and the 1 foot of excavation and hardscape cover areas. Any impacted material remaining will be managed under the Site Management Plan (SMP).

4.5 IMPORTED BACKFILL

Imported backfill with quantities from each source are shown below.

Berner Farms – Bio-soil Fill – 156 cy (150 Tonawanda)

Gauthier's Yard - Topsoil – 36 tons (150 Tonawanda)
120 tons (31 Tonawanda)
Total 156 tons

Marrano – Clean Soil Fill – 20 tons (150 Tonawanda)
300 tons (31 Tonawanda)
Total 320 tons

New Enterprise Stone- Stone fill – 3,062 tons (150 Tonawanda)
1,096 tons (31 Tonawanda)
Total 4,158 Tons

Chemical analytical results tables for backfill (soils), in comparison to allowable levels, are provided in **Appendix C**. Site locations where backfill was used at the site are shown **Figure 10** (150 Tonawanda) and **Figure 11** (31 Tonawanda).

NYSDEC Request to Import or Reuse Fill/Soil Forms were provided and approved by NYSDEC per DER-10 Section 5.4(e) for each of the backfill providers listed above and are provided in **Appendix C**.

4.6 CONTAMINATION REMAINING AT THE SITE

The remaining contamination at the 150 site is primarily metals and PAHs and at the 31 site metals, PAHs and VOCs. Any contamination remaining at the site is located beneath the demarcation layer placed below the 2 feet of clean fill in all greenspace areas and 1 foot at new hardscape areas. **Table 1** shows the remaining analyte concentrations that exceed NYSDEC SCOs.

Figure 10 summarizes the results of all soil samples remaining at the 150 Tonawanda site after completion of Remedial Action that exceed Restricted Residential SCOs.

Figure 11 summarizes the results of all soil samples remaining at the 31 Tonawanda site after completion of the remedial action that exceed Restricted Residential SCOs.

Since contaminated soil [and groundwater/soil vapor 31 Tonawanda only] remains beneath the 150/31 Tonawanda sites after completion of the Remedial Action, Institutional and Engineering Controls are required to protect human health and the environment. These Engineering and Institutional Controls (ECs/ICs) are described in the following sections. Long-term management of these EC/ICs and residual contamination will be performed under the Site Management Plan (SMP) approved by the NYSDEC.

4.7 SOIL & HARDSCAPE COVER [or CAP] SYSTEM

4.7.1 Soil & Hardscape Cover 150 & 31 Tonawanda properties

Exposure to remaining contamination in soil/fill at the site is prevented by a soil and/or hardscape cover system placed over the site. This cover system is comprised of either a minimum of 24 inches of clean soil or minimum of 12 inches of asphalt pavement, concrete-covered sidewalks, and concrete building slabs. **Figure 10** (150 Tonawanda) and **Figure 11** (31 Tonawanda) show the location of each cover type built at the Site. An Excavation Work Plan, which outlines the procedures required in the event the cover system and/or underlying residual contamination are disturbed, is provided in Appendix B of the SMP.

4.7.2 Stream Bank Revitalization and Restoration – 31 Tonawanda Property

Appendix J provides a detailed description of the revitalization/restoration of the stream bank along the western edge of Scajaquada Creek at the 31 Tonawanda Street property. The area affected is roughly 1,300 sf and is located from West Street south along the creek bank about 65 feet. **Figure 9** shows the location of the restoration area with more detail figures are provided in **Appendix J**.

4.8 OTHER ENGINEERING CONTROLS

Besides the cover system discussed in section 4.7 the only other engineering control is the SSDS installed during the re-developed of the site building at 31 Tonawanda. A SSDS was installed during the re-development of the existing site building in accordance with the NYSDOH Soil Vapor Intrusion Guidance and included the following installation:

Basement: Due to the water table and silty clay soils, a raised floor depressurization system was installed by installed Radon Guard ventilation panels over the existing concrete floor. A 15-mil poly membrane was placed over the panels and sealed airtight. Approximately 4 inches of new concrete was poured over the membrane and finished. After the concrete floor cured, it was determined that adequate negative pressure was obtained from a single point extraction system drawing air from under the Radon Guard ventilation panels.

High Bay Area: On the north side of the high bay area a three-point SSDS was installed using the existing concrete floor drainage troughs. The concrete in the troughs was jack hammered out, filled with perforated PVC piping, and encased in washed stone. A total of two Festa Force fans were connected to the sub-slab piping.

Crawlspace Area: A 15-mil poly membrane was installed of the existing wood floor and was sealed airtight. Approximately 6 inches of new concrete was poured over the membrane and finished. The entire crawlspace beneath the wood floor was placed under negative pressure with a single point 6-inch SSDS powered with a Feta Furry fan.

On October 28th, 2020, post mitigation vacuum results were measured and documented (See **Appendix I** Figure – SSDS Post Mitigation Vacuum Readings). Based on those results, the systems as described will provide acceptable removal of any sub-slab contaminants and will result in acceptable future test results for indoor air. As-built construction drawings of the system are provided in **Appendix I**.

Procedures for operating and maintaining the SSDS are documented in the Operation and Maintenance Plan.

A soil vapor intrusion evaluation will be required for any new future buildings constructed on the 31 Tonawanda Street site.

4.9 INSTITUTIONAL CONTROLS

The site remedy requires that an environmental easement [or deed restriction] be placed on the property to (1) implement, maintain and monitor the Engineering Controls; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the site to Restricted Residential, Commercial or Industrial uses only.

The environmental easement for the site was executed by the Department on August 18, 2020 and filed with the Erie County Clerk on September 8, 2020. The County Recording Identifier number for this filing is TT2020002670. A copy of the easement and proof of filing is provided in **Appendix A.**

4.10 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN

There were no deviations from the Remedial Action Work Plan

REMEDIAL INVESTIGATION TABLES

TABLE 1

150 TONAWANDA STREET - RI SOIL BORING SAMPLE ANALYTICAL RESULTS SUMMARY

Contaminants	Sample Identification					Date Sampled: 8/15/18				PART 375 Soil Cleanup Objectives		
	BH-1 (6-7')	BH-2 (0 -1') Surface	BH-2 (8 -10') Native	BH-3 (4 - 6')	BH-4 (0 -1') Surface	BH-4 (2.8 -4') Native	BH-5 (2 - 4')	BH-6 (0-1') Surface	BH-6 (5.5 -8') Native	Unrestricted Use	Residential	Restricted Residential
METALS												
Arsenic	8.17	4.23	5.18	6.92	**15.10**	3.38	3.96 J	6.37	3.51	13	16	16
Barium	116	96.8	119.0	107.0	82.3	129.0	64.2	68.9	94.6	350	350	400
Beryllium	0.877	0.703	0.840	0.990	0.670	1.090	0.580	0.580	0.960	7.2	14	72
Cadmium	0.361	0.541	0.401	0.960	1.11	0.380	0.54 J	0.670	0.380	2.5	2.5	4.3
Chromium	20.6	15.8	20.9	**33.9**	14.5	25.9	24.7 J	11.2	23.9	30	36	180
Copper	28.3	22.9	21.0	**96.5**	**141.0**	18.7	**54.2 J**	30.3	19.1	50	270	270
Lead	36.6	27.7	12.0	**119.0**	**271.0**	12.5	23.1 J	**134.0**	8.2	63	400	400
Manganese	325	197	395	479	477	329	1560 J	680	366	1600	2,000	2,000
Total Mercury	0.042	**0.36**	0.03	0.13	**0.24**	0.04	0.05	**0.32**	0.02	0.18	0.81	0.81
Nickel	21.4	17.3	22.3	27.3	21.7	27.3	20 J	9.42	23.4	30	140	310
Selenium	ND	ND	ND	ND	1.1	ND	ND	ND	ND	3.9	36	180
Silver	0.487	0.84	1.26	1.79	**2.98**	1.69	1.98	1.09	1.37	2	36	180
Tot Cyanide	ND	ND	ND	ND	ND	ND	ND	ND	ND	27	27	27
Zinc	**115**	78.7	61.3	**144**	**199**	73.1 J	71.3	**128**	60.1	109	2200	10,000
PCBs												
PCB-1254	ND	ND	ND	ND	ND	ND	ND	**0.14 J**	ND	0.1	1	1
PCB-1260	0.021 J	0.04 J	ND	0.04 J	ND	ND	ND	ND	ND	0.1	1	1
PESTICIDES												
4,4-DDT	**0.005**	ND	ND	ND	ND	ND	ND	**0.032**	ND	0.0033	1.7	7.9
4,4-DDE	ND	**0.005 J**	ND	ND	ND	ND	ND	0.009 J	ND	0.0033	1.8	8.9
4,4-DDD	ND	ND	ND	ND	ND	ND	ND	**0.01 J**	ND	0.0033	2.6	13
beta-BHC	ND	ND	ND	ND	ND	ND	ND	0.007 J	ND	0.036	0.072	0.36
Delta-BHC	ND	ND	ND	ND	0.004	ND	ND	0.004	ND	0.04	100	100
Endosulfan Sulfate	0.002 J	0.003 J	ND	0.005 J	ND	ND	ND	0.007 J	ND	2.4	4.8	24
Endrin	0.004 J	ND	ND	0.004 J	ND	ND	ND	0.01 J	ND	0.014	2.2	11
Endrin Ketone	0.004	ND	ND	ND	0.008 J	ND	ND	0.014	ND	NA	NA	NA
Dieldrin	ND	0.002 J	ND	ND	ND	ND	ND	**0.009 J**	ND	0.005	0.039	0.2
Aldin	ND	ND	ND	ND	ND	ND	ND	**0.01 J**	ND	0.005	0.019	0.097
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.042	0.42	2.1
SEMIVOLATILE ORGANIC COMPOUNDS												
Acenaphthene	0.311 J	0.4	ND	0.177 J	0.93	ND	ND	0.36	ND	20	100	100
Acenapthylene	ND	ND	ND	ND	ND	ND	ND	0.32	ND	100	100	100
Anthracene	0.389	1.22	ND	0.566	0.67	ND	ND	0.97	ND	100	100	100
Benz(a)anthracene	**1.140**	**4.02**	0.185 J	**1.16**	**1.3**	ND	0.393	**2.56**	ND	1	1	1
Benzo(a)pyrene	0.981	**3.89**	ND	0.89	**1.03**	ND	0.355	**2.08**	ND	1	1	1
Benzo(b)fluoranthene	**1.170**	**4.36**	ND	0.865	**1.38**	ND	**1.08**	**2.26**	ND	1	1	1
Benzo(g,h,i)perylene	0.732	2.93	ND	0.589	0.708	ND	0.73	1.34	ND	100	100	100
Benzo(k)fluoranthene	0.735	**2.28**	ND	0.779	**1.01**	ND	0.321	**1.4**	ND	0.8	1	3.9
Chrysene	**1.240**	4.32	0.216 J	**1.19**	**1.45**	ND	0.773	**2.56**	ND	1	1	3.9
Dibenz(a,h)anthracene	0.209 J	**0.61**	ND	0.202 J	0.266 J	ND	0.255 J	**0.36**	ND	0.33	0.33	0.33
Fluoranthene	2.34	9.02	0.303	2.48	1.76	ND	0.642	5.85	ND	100	100	100
Fluorene	ND	0.38	ND	0.25 J	ND	ND	ND	0.326	ND	30	100	100
Naphthalene	0.281 J	0.18	ND	0.182 J	1.19	ND	ND	0.34	ND	12	100	100
Indeno(1,2,3-cd)pyrene	**0.705**	**2.73**	ND	**0.601**	**0.736**	ND	**0.715**	**1.35**	ND	0.5	0.5	0.5
Phenanthrene	1.440	4.79	0.42	1.94	1.23	ND	0.247 J	3.92	ND	100	100	100
Pyrene	1.890	7.61	0.33 J	1.97	1.52	ND	0.499	5.02	ND	100	100	100
TICs	21 J	20.2 J	ND	5.0 J	28.9 J	4.1 J	4.7 J	19.7 J	ND	NA	NA	NA
Volatile Organic Compounds												
Acetone	ND	NA	ND	0.013 J	NA	0.04	ND	NA	ND	0.05	100	100
cis-1,2-Dichloroethene	0.004 J	NA	ND	ND	NA	ND	ND	NA	ND	0.25	59	100
m,p-Xylene	0.005 J	NA	ND	ND	NA	ND	ND	NA	ND	0.26	100	100
Toluene	0.006 J	NA	ND	ND	NA	ND	ND	NA	ND	0.7	100	100
TICs	ND	NA	ND	ND	NA	ND	ND	NA	ND	NA	NA	NA

ND - Non-Detect NA - Not Applicable All Data is Validated J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

(red) >/= to Residential/Restricted-Residential SCO and Unrestricted Use SCO All values in ppm

(green) >Unrestricted Use SCO but <Residential/Restricted-Residential SCO

(blue) >Unrestricted Use & Residential SCO but <Restricted-Residential SCO

TABLE 2
31 TONAWANDA STREET - RI SOIL BORING SAMPLE ANALYTICAL RESULTS SUMMARY

Contaminants	Sample Identification Date Sampled: 8/16/18										PART 375 Soil Cleanup Objectives		
	BH-1 (0-3')	BH-1 (13.5 -15')	BH-2 (19- 20') Native	BH-3S (12 -13.5')	BH-4 (0 -1') Surface	BH-4 (11.5 - 12')	BH-5 (0-2') Surface	BH-5 (4 - 6')	BD-6 (0 - 2') Surface	BH-6 (4 - 6')	Unrestricted Use	Residential	Restricted Residential
METALS													
Arsenic	3.9	4.21	1.33	6.61	7.18	11.5	7.45	4.16	6.01	8.96	13	16	16
Barium	20.8	74.2	26.4	102	158	93.9	180	61.8	88.6	269	350	350	400
Beryllium	0.058	0.52	0.138	0.544	0.556	0.59	0.499	0.134	0.476	0.394	7.2	14	72
Cadmium	0.509	0.68	0.361	0.997	1.18	0.72	1.23	1.61	0.805	**2.55**	2.5	2.5	4.3
Chromium	9.9	16	6.5	21.6	17.9	13.9	18.2	7.14	18.4	28.1	30	36	180
Copper	**121**	28.2	14	**150**	**66.8**	29.8	**102**	**141**	**34.4**	**1480**	50	270	270
Lead	59.5	**68.3**	7.19	**120**	**249**	46.3	**309**	**190**	**134**	**346**	63	400	400
Manganese	198	221	306	238	624	213	516	246	438	175	1600	2,000	2,000
Total Mercury	0.08	**0.46**	0.01	**0.56**	**0.69**	**0.38**	**0.43**	**0.21**	0.13 J	**1.34**	0.18	0.81	0.81
Nickel	6.94	20.3	8.08	19.2	15.7	40.9	16.3	9.83	14.1	16.3	30	140	310
Selenium	0.337	0.731	0.411	1.22	1.12	0.746	0.888	0.697	0.576 J	1.16	3.9	36	180
Silver	0.168	0.266	ND	0.628	0.395	ND	0.546	0.171	0.21 J	0.58	2	36	180
Zinc	**119**	85.9	83.5	**219**	**248**	**950**	**286**	**1180**	**155**	**1350**	109	2200	10,000
Cyanide	0.0004 J	ND	ND	ND	ND	0.71 J	ND	0.001 J	ND	ND	27	27	27
PCBs													
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	1	1
PCB-1260	0.035 J	ND	ND	ND	ND	ND	ND	0.068 J	ND	ND	0.1	1	1
PESTICIDES													
4,4-DDT	**0.033 J**	ND	ND	ND	ND	ND	ND	**0.006**	**0.005**	0.003 J	0.0033	1.7	7.9
4,4-DDE	ND	ND	ND	ND	ND	ND	ND	ND	**0.004 J**	ND	0.0033	1.8	8.9
4,4-DDD	ND	ND	ND	0.005 J	ND	ND	ND	**0.005 J**	**0.004 J**	ND	0.0033	2.6	13
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.002 J	0.02	0.097	0.48
beta-BHC	**0.24**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.036	0.072	0.36
Endosulfan 11	ND	ND	ND	ND	ND	ND	ND	0.004 J	ND	ND	2.4	4.8	24
Endosulfan Sulfate	0.076 J	ND	ND	ND	ND	ND	0.002 J	ND	ND	0.007 J	2.4	4.8	24
Endrin	**0.019 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.014	2.2	11
Endrin Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Dieldrin	**0.112 J**	ND	ND	ND	ND	ND	**0.005 J**	0.002 J	ND	ND	0.005	0.039	0.2
SEMIVOLATILE ORGANIC COMPOUNDS													
Acenaphthene	1.2 J	ND	0.438	1.46 J	1.23	ND	ND	ND	ND	ND	20	100	100
Acenapthylene	ND	ND	0.31	0.595 J	0.398 J	ND	ND	ND	ND	ND	100	100	100
Anthracene	2.25	0.73 J	ND	1.76 J	2.8	ND	0.303 J	0.229 J	ND	ND	100	100	100
Benz(a)anthracene	**7.17**	**1.45 J**	ND	**2.58 J**	**5.7**	ND	**1.08**	0.756 J	0.588	0.28 J	1	1	1
Benzo(a)pyrene	**6.37**	0.908 J	ND	**1.68 J**	**4.87**	ND	0.997	0.669 J	0.541	0.24 J	1	1	1
Benzo(b)fluoranthene	**6.76**	0.663 J	ND	**1.14 J**	**5.02**	ND	**1.04**	0.656 J	0.627	0.35 J	1	1	1
Benzo(g,h,i)perylene	4.25	0.354 J	ND	0.908 J	2.98	ND	0.682	0.536 J	0.384	0.22 J	100	100	100
Benzo(k)fluoranthene	**5.41**	0.762 J	ND	**1.02 J**	3.03	ND	0.702	0.482 J	0.399	0.22 J	0.8	1	3.9
Chrysene	**8.83**	**1.3 J**	ND	**2.88 J**	**5.93**	0.27 J	**1.18**	0.841 J	0.689	0.409 J	1	1	3.9
Dibenz(a,h)anthracene	**1.56 J**	ND	ND	ND	**1.06**	ND	0.246 J	ND	ND	ND	0.33	0.33	0.33
Fluoranthene	18.8	2.29 J	ND	4.36 J	13.5	0.478	2.32	1.45 J	1.2	0.498 J	100	100	100
Fluorene	1.06 J	0.283 J	0.23 J	1.14 J	1.18	ND	ND	0.35 J	ND	ND	30	100	100
Indeno(1,2,3-cd)pyrene	**4.89**	0.458 J	ND	**0.829 J**	**3.51**	ND	**0.765**	**0.507 J**	0.423	0.21 J	0.5	0.5	0.5
Naphthalene	0.88 J	ND	2.7	0.701 J	0.44 J	0.38 J	ND	**46 J**	ND	0.212 J	12	100	100
Phenanthrene	15.1	1.4 J	0.58	5.11 J	10.6	0.587	1.19	1.4 J	0.56	0.58	100	100	100
Pyrene	16	2 J	ND	7.75 J	11.4	0.427 J	1.99	1.3 J	1.0	0.49	100	100	100
TICs	33.4 J	18.5 J	4 J	47.1 J	26.4 J	24.6 J	3 J	178 J	8.8 J	48 J	NA	NA	NA
VOLATILE ORGANIC COMPOUNDS													
Acetone	ND	ND	ND	**0.25 J**	NA	**0.062**	NA	ND	NA	**0.38 J**	0.05	100	100
Toluene	ND	ND	ND	0.015	NA	ND	NA	**8.06**	NA	0.219 J	0.7	100	100
1,1,1-Trichloroethane	0.007	ND	ND	ND	NA	ND	NA	ND	NA	0.101 J	0.68	100	100
1,1-Dichloroethane	ND	ND	ND	ND	NA	ND	NA	ND	NA	0.192 J	0.27	19	26
1,1-Dichloroethene	ND	ND	ND	ND	NA	ND	NA	ND	NA	0.007 J	0.33	100	100
1,2-Dichloroethane	ND	ND	ND	ND	NA	ND	NA	ND	NA	0.014	0.02	2.3	3.1
Benzene	ND	ND	**0.082 J**	ND	NA	ND	NA	ND	NA	0.007 J	0.06	2.9	4.8
cis-1,2-Dichloroethene	0.004 J	**152.0**	**0.36**	0.004 J	NA	ND	NA	ND	NA	**0.417 J**	0.25	59	100
Ethylbenzene	ND	ND	0.18	0.005 J	NA	ND	NA	**168**	NA	0.051 J	1	30	41
m,p-Xylene	ND	ND	ND	0.017 J	NA	0.005 J	NA	**595**	NA	0.172 J	0.26	100	100
Methylene chloride	ND	ND	ND	0.018 J	NA	ND	NA	ND	NA	0.02 J	0.05	51	100
n-Propylbenzene	ND	ND	ND	ND	NA	ND	NA	**11.5**	NA	0.01 J	3.9	100	100
sec-Butylbenzene	ND	ND	ND	ND	NA	ND	NA	8.5	NA	0.007 J	11	100	100
Tetrachloroethene	ND	ND	ND	ND	NA	ND	NA	ND	NA	0.019 J	1.3	5.5	19
Trichloroethene	0.206	ND	ND	ND	NA	ND	NA	ND	NA	0.16 J	0.47	10	21
trans-1,2-Dichloroethene	ND	**2.3 J**	ND	ND	NA	ND	NA	ND	NA	ND	0.19	100	100
Vinyl chloride	ND	**30.7**	0.2	ND	NA	ND	NA	ND	NA	**0.086 J**	0.02	0.21	0.9
1,2,4-Trimethylbenzene	ND	ND	ND	0.008 J	NA	ND	NA	**91.4**	NA	0.097 J	3.6	47	52
1,3,5- Trimethylbenzene	ND	ND	ND	0.006 J	NA	ND	NA	**44.3**	NA	0.041 J	8.4	47	52
TICs	0.09 J	ND	0.35 J	1.16 J	NA	6.91 J	NA	1790 J	NA	18.1 J	NA	NA	NA

ND - Non-Detect NA - Not Applicable All Data is Validated J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

(red) >/= to Residential/Restricted-Residential SCO and Unrestricted Use SCO All values in ppm

(green) >Unrestricted Use SCO but <Residential/Restricted-Residential SCO

(light blue) >Unrestricted Use & Residential SCO but <Restricted-Residential SCO

Table 3
31 Tonawanda Street Building
Sub Slab Vapor Ambient Air Analytical Results
EPA Air Method Toxic Organics -15 (TO-15)

	Sample Identification												NYSDOH Minimum Action Levels[a]	
Sample Date	**8/21/18**	**8/21/18**	**8/21/18**	**8/21/18**	**8/21/18**	**8/21/18**	**8/21/18**	**8/21/18**	**8/21/18**	**8/21/18**	**8/21/18**	**8/21/18**	**Sub Slab Vapor Concentration**	**Indoor Air Concentration**
TO-15 Contaminants	**IA-01 Indoor**	**SS-01 Sub Slab**	**IA-02 Indoor**	**SS-02 Sub Slab**	**SS-03 Sub Slab**	**IA-03 Indoor**	**SS-06 Sub Slab**	**IA-04 Indoor**	**SS-04 Sub Slab**	**SS-05 Sub Slab**	**IA-05 (1) Indoor**	**OA-01 Outdoor**		
VOLATILE ORGANIC COMPOUNDS[b]														
1,1,1-Trichloroethane	2.8	78 J	9.2	350 J	290 J	5	68 J	34	59	16	1700	ND	100	3
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	8.2	ND	2.9	ND	6	0.2
1,2,4-Trimethylbenzene	1.4	9.9 J	2.4	9.3 J	8.6 J	1.4	2.5 J	1.4	5.5 J	4.7 J	7.3 J	0.69		
1,3,5-Trimethylbenzene	ND	3.4	0.88	3.3 J	3 J	0.59	0.79 J	ND	2.7 J	2.1 J	3.4 J	ND		
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
2,2,4-Trimethylpentane	0.61	0.79	1.4	1.8	3.5 J	1.7	1.4	0.89	0.51	1.7	0.51	ND		
4-Ethyltoluene	ND	2.5 J	ND	2.4 J	2.2 J	ND	ND	ND	1.4 J	1.1 J	1.8 J	ND		
Acetone	19	910	17	1200 J	140 J	12	140	17	170	49	77	20		
Benzene	1.6	4.8 J	2.3	4.6 J	ND	1.7	2 J	0.93	4.6	1.6	0.99	0.54		
Carbon disulfide	ND	17	ND	18 J	31 J	ND	2.7	ND	27	1.3	ND	ND		
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6	0.2
Chloroethane	ND	ND	ND	ND	ND	0.68	0.34	0.7	7.7	ND	0.63	ND		
Chloroform	ND	1.3	ND	1.8 J	1.9 J	ND	ND	ND	2.4	ND	1.4	ND		
Chloromethane	0.89	0.35	0.81	0.54 J	0.62 J	ND	0.6	ND	1.7	ND	2.1	0.66		
cis-1,2-Dichloroethene	ND	ND	ND	0.79 J	ND	ND	0.71	ND	0.75	ND	5.5	ND	6	0.2
Cyclohexane	0.62	280	0.79	390 J	560 J	0.45	65	ND	68	9.6	1.4	ND		
Ethyl acetate	0.43	7.4	ND	5.3 J	11 J	ND	2.5	ND	3.9	1.5	5	ND		
Ethylbenzene	0.91	11 J	2.3	7.9 J	8.2 J	1.7	2.3 J	0.78	1.1 J	1.3 J	0.82 J	ND		
Freon 11	9.6	4.5	4.3	3.5 J	2.4 J	2.3	1.6	1.8	2	2.2	1.7	1.1		
Freon 113	ND	ND	ND	ND	J	ND	ND	ND	ND	ND	ND	ND		
Freon 12	1.9	2	2.1	2.4 J	J	2.3	2	2	ND	1.8	1.9	1.9		
Heptane	1.3	72 J	2	39 J	J	1.8	7.4 J	1.3	23	4.7 J	3.6 J	0.57		
Hexane	5	89	6.6	150 J	510	3.7	19	2.2	41	16	2.5	0.7		
Isopropyl alcohol	19	51 J	6.1	650 J	J	2.7	16 J	3.1	19	13 J	25 J	6.6		
m&p-Xylene	3	22 J	8.4	17 J	J	6.5	5.3 J	2.7	2.7 J	4 J	1.9 J	0.61		
Methyl Ethyl Ketone	2.4	69	2.9	110 J	J	1.9	14	1.4	10	3.1	6.4	1.1		
Methylene chloride	ND	3.5	0.63	2.6 J	J	ND	1.3	0.69	3.4	1.6	4.7	ND	100	3
o-Xylene	1.3	7.6 J	2.6	5.8 J	J	2	1.9 J	1.1	1.1 J	1.4 J	0.91 J	ND		
Tetrachloroethylene	ND	2500 J	ND	2900 J	2100 J	ND	390 J	ND	3.9 J	2.1 J	1 J	ND	100	3
Toluene	57	430 J	38	640 J	790 J	15	63 J	7.9	59 J	24 J	21 J	3.2		
Trichloroethene	49	150 J	9	620 J	650 J	4.4	40 J	20	81	83	230	1.3	6	0.2
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6	0.2

Results and Action levels are presented in micrograms per meters cubed (ug/m^3). All data has been validated

N/A - Not Applicable ND - Non-detect (1) - Sample from Sub Floor Crawlspace

J - Analyte positively identified; the associated numerical value is approximate concentration of the analyte in the sample.

[a]New York State Department of Health (NYSDOH), Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006 and subsequent updates (select matrix coumpounds).

[b]Compounds with detected concentrations

NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, May 2017 Decision Matrices Notes:

NO FURTHER ACTION:

Given that the compound was not detected in the indoor air sample and that the concentration detected in the sub -slab vapor sample is not expected to significantly affect indoor air quality, no additional actions are needed to address human exposures

IDENTIFY SOURCE(S) AND RESAMPLE OR MITIGATE:

The concentration detected in the indoor air sample is likely due to indoor and/or outdoor sources rather than soil vapor int rusion given the concentration detected in the sub-slab vapor sample.
Therefore, steps should be taken to identify potential source(s) and to reduce exposures accordingly (e.g., by keeping containers capped or by storing VOC-containing products in places where people do not spend much time, such as a garage or shed).
Resampling may be recommended to demonstrate the effectiveness of actions taken to reduce exposures.

MONITOR:

Monitoring, including sub-slab vapor, basement air, lowest occupied living space air, and outdoor air sampling, is needed to determine whether concen trations in the indoor air or sub-slab vapor have changed.
Monitoring may also be needed to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed.
The type and frequency of monitoring is determined on a site-specific and building-specific basis, taking into account applicable environmental data and building operating conditions.
Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

MITIGATE:

Mitigation is needed to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system, and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions.

TABLE 4
150 TONAWANDA STREET - RI GW SAMPLE ANALYTICAL RESULTS SUMMARY

Contaminants	Sample Identification Date Sampled: 9/21/18				NYSDEC
	MW-1	MW-2	MW-3	MW-4	TOGS 1.1.1. GA (1)
METALS					
Arsenic	ND	ND	ND	ND	25
Barium	ND	ND	ND	ND	1000
Beryllium	ND	ND	ND	ND	3
Chromium	ND	ND	ND	ND	50
Copper	15 J	14.4 J	18 J	20 J	200
Cyanide	ND	ND	ND	ND	200
Manganese	196	**405**	258	**1400**	300
Nickel	ND	ND	ND	60	100
Total Mercury	ND	ND	ND	ND	0.7
Zinc	ND	ND	72	100	2000
Selenium	ND	ND	ND	ND	10
PCBs					
PCB 1254	ND	ND	0.065 J	ND	0.09
PCB-1260	ND	ND	**0.134 J**	ND	0.09
PESTICIDES					
Aldrin	ND	ND	ND	0.127 J	ND
alpha-BHC	ND	ND	ND	0.111	NA
beta-BHC	ND	ND	ND	ND	NA
Endrin	0.11 J	ND	ND	0.172	ND
Heptachlor	ND	**0.065**	ND	**0.141 J**	0.04
Heptachlor Epoxide	**0.178 J**	ND	ND	**0.11 J**	0.03
trans-Chlordane	0.056 J	ND	ND	ND	NA
SEMIVOLATILE ORGANIC COMPOUNDS					
SVOCs	ND	ND	ND	ND	NA
Volatile Organic Compounds					
Acetone	ND	ND	ND	0.006	50
Carbon disulfide	ND	1.44 J	ND	0.003	NA
TICs	ND	ND	ND	ND	NA
Field Parameters					
Turbidity (NTU)	1.0	6.4	18	19	NA
pH	6.97	6.71	6.84	6.2	NA
Dissolved Oxygen	1.98	0	1.32	0	NA
Temp (degrees C)	19.79	17.08	17.93	15.8	NA
Conductivity	2.11	2.23	3.03	4.15	NA

All values in ppb

N/A - Not Applicable ND - Non-detect All Data is Validated

(1) - TOGs 1.1.1 GA - Technical and Operational Guidance Series (1.1.1) Source of Drinking Water (Groundwater)

Exceeds TOGs Guidance Value

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

TABLE 5
31 TONAWANDA STREET - RI GW SAMPLE ANALYTICAL RESULTS SUMMARY

Contaminants	Sample Identification Date Sampled: 9/24/18					NYSDEC
	MW-1	MW-2	MW-3	MW-4	MW-5	TOGS 1.1.1. GA (1)
METALS						
Arsenic	ND	ND	ND	ND	0.02	25
Barium	0.05 J	ND	0.26	0.11	0.06 J	1000
Beryllium	ND	ND	ND	ND	ND	3
Chromium	ND	5.0 J	ND	ND	ND	50
Copper	ND	20.2	ND	0.01	0.01 J	200
Cyanide	ND	ND	ND	ND	ND	200
Lead	ND	6.2 J	ND	ND	ND	25
Manganese	7.23	**547**	0.62	0.65 J	1.15	300
Nickel	ND	ND	ND	ND	ND	100
Total Mercury	ND	ND	ND	ND	ND	0.7
Zinc	0.05 J	38.9 J	ND	0.97	ND	2000
Selenium	ND	ND	ND	ND	ND	10
PCBs						
PCB 1254	ND	ND	ND	ND	ND	0.09
PCB-1260	**1.81 J**	**1.22 J**	ND	ND	ND	0.09
PESTICIDES						
Aldrin	0.057 J	ND	ND	ND	0.12	ND
alpha-BHC	ND	ND	ND	ND	0.08 J	NA
beta-BHC	ND	ND	ND	ND	ND	NA
Dieldrin	ND	ND	ND	ND	**0.07 J**	0.004
Endrin	ND	ND	ND	ND	0.13 J	ND
Heptachlor	ND	ND	**0.104 J**	ND	**0.1 J**	0.04
Heptachlor Epoxide	ND	ND	ND	ND	**0.16 J**	0.03
trans-Chlordane	ND	ND	ND	ND	0.06 J	NA
SEMIVOLATILE ORGANIC COMPOUNDS						
Bis (2-ethylhexyl) phthalate	ND	ND	**49.2**	ND	ND	5
Volatile Organic Compounds						
Acetone	12.9 J	5.13 J	ND	5.94 J	17.5	50
1,1,1-Trichloroethane	ND	1.21 J	**188000 J**	ND	ND	5
1,1-Dichloroethane	ND	ND	**75700**	1.63 J	3.52	5
1,1-Dichloroethene	ND	ND	**2510 J**	ND	ND	5
cis-1,2-Dichloroethene	ND	2.1 J	**37500**	**5.26**	ND	5
1,2,4-Trimethylbenzene	ND	ND	ND	ND	3.03	5
1,3,5-Trimethylbenzene	ND	ND	ND	ND	1.15 J	5
1,4-Dioxane	ND	ND	ND	ND	**49.4**	0.35
Trichloroethene	ND	ND	ND	4.32	1.69 J	5
Vinyl chloride	ND	ND	**5080**	1.69 J	ND	2
Carbon disulfide	ND	3.45	ND	ND	ND	NA
TICs	ND	ND	ND	ND	518 J	NA
Field Parameters						
Turbidity (NTU)	69.4	10.2	2.3	13.2	17.3	NA
pH	6.81	6.95	6.28	6.98	6.64	NA
Dissolved Oxygen	0	0	0	0	0	NA
Temp (degrees C)	15.82	14.74	15.93	17.87	16.71	NA
Conductivity	3.65	8.44	1.47	1.12	2.75	NA

All values in ppb

N/A - Not Applicable ND - Non-detect All Data is Validated

(1) - TOGs 1.1.1 GA - Technical and Operational Guidance Series (1.1.1) Source of Drinking Water (Groundwater)

[red shading] Exceeds TOGs Guidance Value

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

TABLE 6

31 & 150 TONAWANDA STREET RI LOCATION COORDINATES

Sample Identification	Coordinates-North American Datum 1983	
	Latitude	Longitude
31 Tonawanda Street		
Boreholes		
BH-1	42.929383	-78.896700
BH-2	42.929648	-78.896400
BH-3S	42.929923	-78.896318
BH-4	42.929965	-78.896430
BH-5	42.930092	-78.896391
BH-6	42.90263	-78.896511
Monitoring Wells		
31-MW-1	42.92959	-78.897213
31-MW-2	42.930289	-78.897175
31-MW-3	42.929547	-78.896614
31-MW-4	42.929864	-78.896386
31-MW-5	42.930298	-78.896305
150 Tonawanda Street		
Boreholes		
BH-1	42.933921	-78.897152
BH-2	42.934071	-78.897179
BH-3	42.934444	-78.897249
BH-4	42.934609	-78.897098
BH-5	42.934881	-78.897130
BH-6	42.934936	-78.896852
Monitoring Wells		
MW-1	42.933637	-78.897264
MW-2	42.934554	-78.896965
MW-3	42.934764	-78.897198
MW-4	42.933755	-78.897162

TABLE 7
150 TONAWANDA - PFAS AND 1,4 DIOXANE IN GROUNDWATER ANALYTICAL RESULTS SUMMARY

Sample Number	MW-1	MW-3	MW-4	NYSDEC
Sample Date	9/21/2018	9/21/2018	9/21/2018	Guideline
1,4 Dioxane by 8270D				
1,4 Dioxane	ND	ND	ND	**0.35**
Perfluorinated Alkyl Acids by Isotope Dilution EPA 537				
Perfluorobutanoic Acid (PFBA)	0.0079	ND	ND	
Perfluoropentanoic Acid (PFPeA)	ND	ND	ND	
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ND	
Perfluorohexanoic Acid (PFHxA)	ND	ND	ND	
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ND	
Perfluorohexanesulfonic Acid (PFHxS)	0.00	ND	ND	
Perfluorooctanoic Acid (PFOA)	0.0010	0.0007	0.0020	
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.003	0.0015	0.0020	
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ND	
Perfluorononanoic Acid (PFNA)	0.0009	0.0002	0.0009	
Perfluorooctanesulfonic Acid (PFOS)	0.0004	ND	ND	
Perfluorodecanoic Acid (PFDA)	ND	ND	ND	
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ND	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ND	
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ND	
Perfluorooctanesulfonamide (FOSA)	ND	ND	ND	
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ND	
Totals	0.0140	0.0024	0.0049	**0.07**

All Values in ppb All data are validated

Exceeds NYSDEC Guidance Value

N/A - Not Applicable ND - Non-detect

TABLE 8
31 TONAWANDA - PFAS AND 1,4 DIOXANE IN GROUNDWATER ANALYTICAL RESULTS SUMMARY

Sample Number	MW-2	MW-3	MW-4	NYSDEC
Sample Date	9/24/2018	9/24/2018	9/24/2018	Guideline
1,4 Dioxane by 8270D				
1,4 Dioxane	ND	**5020**	**9.78**	0.35
Perfluorinated Alkyl Acids by Isotope Dilution EPA 537				
Perfluorobutanoic Acid (PFBA)	ND	0.013	0.0152	
Perfluoropentanoic Acid (PFPeA)	ND	0.030	0.0326	
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	0.003	
Perfluorohexanoic Acid (PFHxA)	ND	0.015	0.0212	
Perfluoroheptanoic Acid (PFHpA)	ND	0.008	0.0143	
Perfluorohexanesulfonic Acid (PFHxS)	ND	0.005	0.009	
Perfluorooctanoic Acid (PFOA)	0.0014	0.0148	0.0192	
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.007	0.0070	0.0062	
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	0.00135	
Perfluorononanoic Acid (PFNA)	0.0007	0.0017	0.0050	
Perfluorooctanesulfonic Acid (PFOS)	0.0003	0.010	0.0313	
Perfluorodecanoic Acid (PFDA)	ND	ND	0.00135	
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ND	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ND	
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ND	
Perfluorooctanesulfonamide (FOSA)	ND	ND	ND	
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ND	
Totals	0.0093	**0.1037**	**0.1597**	0.07

All Values in ppb All data are validated

Exceeds NYSDEC Guidance Value

N/A - Not Applicable ND - Non-detect

TABLE 9

31 & 150 TONAWANDA STREET SITE - GROUNDWATER ELEVATIONS

Well Number	T of C Elevation (ft) (1)	Water Level	Groundwater
			Elevation
31 Tonawanda		9/24/2018	
MW - 1	580.66	7.8	572.86
MW - 2	581.89	5.2	576.69
MW - 3	578.96	6.3	572.66
MW - 4	580.6	8.1	572.5
MW - 5	583.14	13.3	569.84
150 Tonawanda		9/21/2018	
MW - 1	594.62	6.7	587.92
MW - 2	594.65	7.4	587.25
MW - 3	596.57	9.3	587.27
		11/6/2018	
MW - 4	595.65	5.5	590.15

(1) - Elevations are referenced to Datum NAVD 88

TABLE 10
31 TONAWANDA STREET - CRAWL SPACE SOIL BORING SAMPLE ANALYTICAL RESULTS SUMMARY

Contaminants	Sample Identification					Date Sampled: 2/4/19					PART 375 Soil Cleanup Objectives		
	SBH-1 (2-4')	SBH-1 (8')	SBH-1 (16')	SBH-3 (10 -11')	SBH-4 (8')	SBH-4 (10')	SBH-4 (12')	SBH-5 (4')	SBH-5 (8')	SBH-5 (12')	Unrestricted Use	Residential	Restricted Residential
VOLATILE ORGANIC COMPOUNDS													
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	100	100
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.7	100	100
1,1,1-Trichloroethane	ND	0.075	ND	0.29	**37 J**	ND	ND	0.18	**4.23**	**667**	0.68	100	100
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND			0.27	19	26
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	0.079 J	**17.9**	0.33	100	100
1,2-Dichloroethane	ND	ND	ND	**0.075**	ND	ND	ND	**0.035 J**	**1.79**	**246**	0.02	2.3	3.1
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.06	2.9	4.8
cis-1,2-Dichloroethene	ND	ND	0.012	**0.46**	**35.4 J**	**1970**	**1.29**	ND	**1.47**	**221**	0.25	59	100
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	30	41
m,p-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.26	100	100
Methylene chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	51	100
n-Propylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.9	100	100
sec-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	100	100
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	5.5	19
Trichloroethene	**3.26**	**2.56**	0.009	**3.89**	**1660**	**7340**	**0.72**	**3.65**	**11.5**	**474**	0.47	10	21
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	0.03	ND	**0.19**	**7.12**	0.19	100	100
Vinyl chloride	ND	ND	**0.039**	ND	ND	ND	**0.034**	ND	ND	**4.02 J**	0.02	0.21	0.9
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.6	47	52
1,3,5- Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.4	47	52

ND - Non-Detect NA - Not Applicable All Data is Validated J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

(red) >/= to Residential/Restricted-Residential SCO and Unrestricted Use SCO All values in ppm

(green) >Unrestricted Use SCO but <Residential/Restricted-Residential SCO

(light blue) >Unrestricted Use & Residential SCO but <Restricted-Residential SCO

PHASE II ESA TABLES

TABLE 1 - 120 (150) TONAWANDA STREET (CSX) - PHASE 2 ESA SOIL SAMPLE ANALTICAL RESULTS SUMMARY								
Sampling Program	**PEI - Phase 2 ESA SOIL TEST PIT SAMPLING PROGRAM**							
Sample Number	**TP1 SS1**	**TP2 S1**	**TP4 SS2**	**TP5 S2**	**TP7 S3**	**TP7 SS3**	**NYSDEC**	**NYSDEC**
Sample Date	**1/4/2016**	**1/4/2016**	**1/4/2016**	**1/4/2016**	**1/4/2016**	**1/4/2016**	**PART 375**	**PART 375**
Sample depth (bgs)	**2-3 Ft**	**2"**	**5-6 Ft**	**2"**	**2"**	**5-6 Ft**	**Restrict Res**	**Commercial**
Compounds	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**(a)**	**(b)**
Metals								
Mercury	0.47	0.48	0.083	0.238	0.553	0.109	1	2.8
Aluminum	7570	9010	7100	6530	9080	5510	NA	NA
Arsenic	**69 (a)(b)**	**18.1 (a)(b)**	**24.9 (a)(b)**	4.7	5.9	**21.1 (a)(b)**	16	16
Barium	132.0	137	76.6	86.7	190	141	400	400
Beryllium	0.60	0.43	0.41	ND	ND	0.51	72	590
Cadmium	2.23	0.99	0.89	0.93	1.16	1.29	4.3	9.3
Chromium	27.7	42.9	15.4	16.2	74.8	27	180	1500
Cyanide	0.4	0.17	0.33	0.38	0.23	0.3	27	27
Calcium	23600	27200	52100	54500	36000	19500	NA	NA
Copper	181	51.3	55.2	47.2	**339 (a)(b)**	94.5	270	270
Lead	347	**500 (a)**	157	210	**639 (a)**	205	400	1000
Manganese	676	367	362	282	501	747	2000	10000
Nickel	42.4	38.4	15.4	20.4	43	22.7	310	310
Selenium	3.6	ND	ND	ND	ND	2.1	180	1500
Silver	ND	ND	ND	ND	ND	ND	180	1500
Zinc	595	307	227	184	450	575	10000	10000
PCBS								
Aroclor 1260	0.18	ND	0.43	0.59	0.84	ND	1	1
Pesticides								
4,4-DDT	0.027	0.062	0.033	0.058	ND	ND	7.9	47.0
4,4-DDE	ND	0.074	ND	0.034	ND	ND	8.9	62.0
Dieldrin	ND	ND	ND	0.059	ND	ND	0.2	1.40
VOCs								
1,2,4-Trimethylbenzene	0.015	NA	ND	NA	NA	ND	52	190
1,3,5-Trimethylbenzene	0.009	NA	ND	NA	NA	ND	52	190
Acetone	0.093	NA	0.012	NA	NA	ND	100	500
SVOCs								
Acenaphthene	4.8	ND	ND	ND	ND	ND	100	500
Acenaphthylene	2.1	ND	3.5	ND	ND	ND	100	500
Anthracene	4.5	Nd	3.3	ND	0.82	1.8	100	500
Benzo(a)anthracene	**5.9 (a)(b)**	0.44	**10 (a)(b)**	**4.1 (a)**	**1.8 (a)**	**2.5 (a)**	1	5.6
Benzo (a) pyrene	**5.1 (a)(b)**	0.59	**9.7 (a)(b)**	**4.1 (a)(b)**	**1.5 (a)(b)**	**2.0 (a)(b)**	1	1
Benzo(b)fluoranthene	**8.1 (a)(b)**	0.73	**15 (a)(b)**	**5.8 (a)(b)**	**2.4 (a)**	**3 (a)**	1	5.6
Benzo (g,h,i) perylene	3.8	ND	4.1	2.4	0.7	0.79	100	500
Benzo (k) fluoranthene	2.9	ND	**5.5 (a)**	2	0.78	1.1	3.9	56
Chrysene	**6.5 (a)**	0.45	**11 (a)**	**3.9 (a)**	1.8	2.4	3.9	56
Fluoranthene	13	0.66	20	8.6	3.6	5	100	500
Fluorene	5.7	ND	ND	ND	ND	0.8	100	500
Indeno (1,2,3-cd) pyrene	**4.6 (a)**	0.44	**5.4 (a)**	**2.5 (a)**	**0.77 (a)**	**0.96 (a)**	0.5	5.6
Naphthalene	14	ND	4.4	ND	ND	0.53	100	500
Phenanthrene	14	ND	8.6	3.5	3	5.2	100	500
Pyrene	11	0.6	16	7.5	3.1	4.1	100	500

ND - Non-Detect   NA - Not Available or Not analyzed for

Shaded Value - Exceeds Part 375 SCOs

TABLE 1 - 31 TONAWANDA STREET - PHASE 2 ESA SOIL SAMPLE ANALTICAL RESULTS SUMMARY							
Sampling Program	**PEI - Phase 2 ESA SOIL BORING SAMPLING PROGRAM**						
Sample Number	**BH 5**	**BH 5-3N**	**BH 7**	**BH 8**	**NYSDEC**	**NYSDEC**	**NYSDEC**
Sample Date	**4/11/2014**	**9/9/2014**	**4/11/2014**	**4/11/2014**	**PART 375**	**PART 375**	**PART 375**
Sample depth (bgs)	**9' - 12'**	**11' - 12'**	**9' - 12'**	**5' - 8'**	**Residential**	**Restrict Res**	**Commercial**
Compounds	**ppm**	**ppm**	**ppm**	**ppm**	**(a)**	**(b)**	**(c)**
Metals							
Mercury	**1.2**	NA	0.51	0.04	0.81	1	2.8
Arsenic	12.10	NA	11.5	8.5	16	16	16
Barium	340.0	NA	137	34.4	350	400	400
Beryllium	ND	NA	0.84	ND	14	72	590
Cadmium	2.40	NA	ND	0.94	2.5	4.3	9.3
Chromium	28.5	NA	28.8	**202 (a)(b)**	36	180	1500
Copper	**911 (a)(b)(c)**	NA	**747 (a)(b)(c)**	**9550 (a)(b)(c)**	270	270	270
Lead	**876 (a)(b)**	NA	263	130	400	400	1000
Manganese	200	NA	502	**7780 (a)(b)**	2000	2000	10000
Nickel	20.9	NA	36.3	14.3	140	310	310
Selenium	ND	NA	ND	5.8	36	180	1500
Silver	ND	NA	ND	ND	36	180	1500
Zinc	1410	NA	202	518	2200	10000	10000
PCBS							
PCBS	ND	NA	ND	ND	1	1	1
Pesticides							
4,4-DDT	0,009	NA	ND	ND	1.7	N	47.0
4,4 DDD	0.005	NA	ND	ND	2.6	13	92.0
4,4-DDE	0.01	NA	ND	ND	1.8	8.9	62.0
Endrin Aldehyde	0.021	NA	ND	ND	N/A	N/A	N/A
alpha-BHC	0.009	NA	ND	ND	0.097	0.48	3.4
beta BHC	0.009	NA	ND	ND	0.072	0.36	3
delta BHC	0.021	NA	ND	ND	100	100	500
Endosulfan I	0.005	NA	ND	ND	4.8	24	200
Endosulfan Ii	0.009	NA	ND	ND	4.8	24	200
Endosulfan Sulfate	0.01	NA	ND	ND	4.8	24	200
Endrin	0.007	NA	ND	ND	2.2	11	89.00
Endrin Ketone	0.011	NA	ND	ND	N/A	N/A	N/A
cis-Chlordane	0.014	NA	ND	ND	N/A	N/A	N/A
Dieldrin	0.011	NA	ND	ND	0.039	0.2	1.40
gamma-BHC	0.013	NA	ND	ND	0.28	1.3	9.20
Heptachlor	0.026	NA	ND	ND	0.42	2.1	15.00
Heptachlor-Chlordane	0.009	NA	ND	ND	N/A	N/A	N/A
VOCs							
cis-1,2-Dichloroethene	**880 (a(b)(c)**	0.026	ND	0.023	59	100	500
1,1,2,2-Tetrachloroethane	ND	0.041	ND	ND	NA	NA	NA
1,1,2-Trichloroethane	ND	0.037	ND	ND	NA	NA	NA
1,2,4-Trimethylbenzene	ND	0.048	ND	ND	47	52	190
1,3,5-Trimethylbenzene	ND	0.041	ND	ND	47	52	190
1,4-dioxane	ND	1.08	ND	ND	9.8	13	130
2-Butanone	ND	0.1	ND	ND	NA	NA	NA
Acetone	ND	0.4	ND	ND	100	100	500
Isopropylbenzene	ND	0.014	ND	ND	NA	NA	NA
m,p-Xylene	ND	0.026	ND	ND	100	100	500
Methylcyclohexane	ND	0.022	ND	ND	NA	NA	NA
Naphthalene	ND	0.098	ND	ND	100	100	500
n-Butylbenzene	ND	0.035	ND	ND	NA	NA	NA
o-Xylene	ND	0.03	ND	ND	100	100	500
Trichloroethene	**6960 (a)(b)(c)**	0.17	ND	0.17	10	21	200
SVOCs							
Acenaphthene	6.2	39.2	ND	ND	100	100	500
Acenaphthylene	ND	12.8	ND	ND	100	100	500
Anthracene	ND	60.7	ND	ND	100	100	500
Benzo(a)anthracene	**6.02 (a)(b)(c)**	**48.9 (a)(b)(c)**	ND	ND	1	1	5.6
Benzo (a) pyrene	ND	**47.4 (a)(b)(c)**	ND	ND	1	1	1
Benzo(b)fluoranthene	**5.7 (a)(b)(c)**	**24.2 (a)(b)(c)**	ND	ND	1	1	5.6
Benzo (g,h,i) perylene	ND	19.5	ND	ND	100	100	500
Benzo (k) fluoranthene	ND	**25.3 (a)(b)**	ND	ND	1	3.9	56
Chrysene	**7.74 (a)(b)**	**53.2 (a)(b)**	ND	ND	1	3.9	56
Fluoranthene	11	83.1	ND	0.45	100	100	500
Fluorene	ND	36	ND	ND	100	100	500
Indeno (1,2,3-cd) pyrene	ND	**16.6 (a)(b)(c)**	ND	ND	0.5	0.5	5.6
Phenanthrene	17.1	**142 (a)(b)**	ND	0.34	100	100	500
Pyrene	15	**137 (a)(b)**	ND	0.36	100	100	500

ND - Non-Detect NA - Not Available or Not analyzed for

Shaded Value - Exceeds Part 375 SCOs

TABLE 2 - 31 TONAWANDA STREET - FLOOR BORING SAMPLES - ANALTICAL RESULTS SUMMARY REV 3-19-15

Sampling Program	PEI - PHASE 2 ESA SOIL BORING SAMPLING PROGRAM					
Sample/Boring Number	**C-1**	**C-3**	**C-4**	**NYSDEC**	**NYSDEC**	**NYSDEC**
Sample Date	**3/5/2015**	**3/5/2015**	**3/5/2015**	**PART 375**	**PART 375**	**PART 375**
Sample depth (bgs)	**8' - 12'**	**6' - 8'**	**6' - 8'**	**Residential**	**Restrict Res**	**Commercial**
Compounds	**ppm**	**ppm**	**ppm**	**(a)**	**(b)**	**(c)**
VOCs						
cis-1,2-Dichloroethene	**72.8 (a)**	1.5	0.6	59	100	500
1,1-Dichloroethane	**31.5 (a)(b)**	0.3	0.9	19	26	240
1,1-Dichloroethene	17.7	ND	ND	100	100	500
1,1,1 -Trichloroethane	**670 (a)(b)(c)**	4.3	8	100	100	500
Tetrachloroethene	**ND**	0.3	ND	5.5	19	150
Trichloroethene	**15.1 (a)**	**1630 (a)(b)(c)**	**244 (a)(b)(c)**	10	21	200

ND - Non-Detect NA - Not Available or Not analyzed for
Shaded Value - Exceeds Part 375 SCOs

AS-BUILT CONFIRMATION SOIL SAMPLE RESULTS

TABLE 1
31 TONAWANDA SITE - HOT SPOT EXCAVATION AREA - CONFIRMATION SAMPLE RESULTS

Contaminants	Sample Identification & Depth							Date Sampled: 8/26/20							PART 375 Restricted Residential
	NES (3.5')	NWS (3')	NS (3')	NB 7')	NMB (10')	EMS (5')	WMS (5')	SB (6')	SEW (3')	SWW (3')	SMB (8')	SMWW (4')	SW (3')	SMEW (4')	
SEMIVOLATILE ORGANIC COMPOUNDS															
Acenaphthene	ND	ND	ND	ND	ND	ND	0.66	ND	ND	ND	0.39	ND	ND	ND	100
Acenapthylene	ND	ND	ND	ND	ND	ND	ND	ND	0.3	0.17	ND	ND	ND	1.19	100
Anthracene	0.2	ND	ND	0.64	0.4	ND	1.35	ND	0.6	ND	0.87	ND	0.34	1.59	100
Benz(a)anthracene	0.62	0.52	0.23	**2.12**	0.76	ND	**2.65**	0.28	**1.41**	0.63	**1.45**	0.21	0.94	**2.5**	1
Benzo(a)pyrene	0.61	0.53	0.29	**2.05**	0.71	ND	**2.32**	0.23	**1.82**	0.56	**1.26**	0.22	**1.07**	**6.2**	1
Benzo(b)fluoranthene	0.54	0.49	0.36	**2.45**	0.77	0.23	**2.29**	0.37	**2.35**	0.79	**1.05**	0.24	**1.32**	**7.7**	1
Benzo(g,h,i)perylene	0.41	0.36	0.28	1.24	0.72	ND	1.29	ND	1.6	0.5	0.7	ND	0.89	6.14	100
Benzo(k)fluoranthene	0.53	0.44	0.31	1.07	0.62	ND	1.61	ND	1.37	0.58	1.03	ND	0.81	**4.5**	3.9
Chrysene	0.63	0.54	0.33	2.15	0.84	ND	2.48	0.33	1.58	0.72	1.39	0.24	1.06	3.57	3.9
Dibenz(a,h)anthracene	ND	ND	ND	**0.45**	ND	ND	**0.52**	ND	**0.52**	ND	0.26	ND	0.28	**1.81**	0.33
Fluoranthene	1.32	1.07	0.63	4.28	1.54	0.19	6.27	0.67	2.78	1.29	3.37	0.42	1.88	3.91	100
Fluorene	ND	ND	ND	0.35	ND	ND	0.62	ND	0.19	ND	0.47	ND	ND	ND	100
Indeno(1,2,3-cd)pyrene	ND	ND	ND	**1.21**	**0.58**	ND	**1.32**	ND	**1.59**	0.46	**0.67**	ND	**0.83**	**5.59**	0.5
m-Cresol	ND	ND	ND	ND	ND	ND	ND	ND	0.6	ND	ND	ND	ND	ND	100
Naphthalene	ND	ND	ND	ND	0.63	ND	0.45	0.19	0.57	0.25	0.4	0.17	0.26	3.36	100
Phenanthrene	0.92	0.62	0.46	2.43	1.08	0.24	5,2	0.39	1.59	0.66	2.81	0.36	1.08	1.64	100
Pyrene	1.12	0.93	0.53	3.53	1.27	0.27	4.82	0.54	2.28	1.07	2.76	0.38	1.64	4.12	100
VOLATILE ORGANIC COMPOUNDS															
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.004	ND	ND	ND	ND	ND	ND	ND	ND	100
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.003	ND	ND	ND	ND	ND	ND	ND	ND	26
cis-1,2-Dichloroethene	ND	ND	0.004	0.008	0.013	0.039	ND	2.04	ND	4.28	ND	ND	14.2	**164**	100
Ethylbenzene	ND	ND	ND	0.01	0.008	0.006	ND	0.26	4.17	8.55	ND	3.81	1.57	**366**	41
m,p-Xylene	0.007	0.009	0.003	0.048	0.011	0.005	0.31	4.11	**154**	65.7	0.47	17.7	11.8	**2340**	100
Methylene chloride	ND	ND	0.007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100
n-Propylbenzene	ND	ND	ND	ND	0.004	0.003	0.74	ND	ND	1.03	0.31	1.35	ND	20.4	100
n-Butylbenzene	ND	ND	ND	ND	0.023	0.013	1.9	ND	ND	0.89	1.08	2.6	0.32	ND	100
sec-Butylbenzene	ND	ND	ND	ND	0.007	0.005	1.14	ND	ND	ND	0.42	1.26	ND	ND	100
Tetrachloroethene	0.008	ND	ND	ND	0.005	0.013	ND	ND	ND	ND	ND	ND	ND	ND	19
Trichloroethene	0.003	ND	0.082	0.029	0.035	0.17	ND	1.35	0.47	4.58	0.29	ND	14.9	ND	21
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.43	ND	0.9
1,2,4-Trimethylbenzene	ND	ND	ND	0.004	0.01	ND	1.98	ND	2.04	2.51	3.58	18.1	0.66	**299**	52
1,3,5- Trimethylbenzene	ND	ND	ND	0.008	0.16	0.006	0.22	0.32	2.04	2.05	1.34	3.61	0.54	**131**	52

ND - Non-Detect NA - Not Applicable All values in ppm

[red box] >/= to Restricted-Residential SCO

See As-Built Figure 9 for sample loactions

NES: North East Side
NWS: North West Side
NS: North Side
NB: North Bottom
NMB: North Middle Bottom
EMS: East Middle Side
WMS: West Middle Side
SB: South Bottom
SEW: South East Wall
SWW: South West Wall
SMB: South Middle Bottom
SMWW: South Middle West Wall
SW: South Wall
SMEW: South Middle East Wall

IRM – GROUNDWATER INJECTION TREATMENT MONITORING WELL SAMPLING RESULTS

TABLE 1
31 TONAWANDA STREET - MW-3 GW SAMPLE ANALYTICAL RESULTS SUMMARY

Contaminants	Sample Identification			NYSDEC TOGS 1.1.1. GA (1)
	MW-3	MW-3 (2)	MW-3 (3)	
Sample Date	9/24/2018	5/22/2020	9/15/2020	
METALS				
Dissolved Iron (mg/L)	NA	254	887	NA
Volatile Organic Compounds				
1,1,1-Trichloroethane	**188000 J**	**20500**	**26500**	5
1,1-Dichloroethane	**75700**	**30500**	**26100**	5
1,1-Dichloroethene	**2510 J**	**495**	**630**	5
Chloroethane	ND	**2090**	**21900**	5
cis-1,2-Dichloroethene	**37500**	**24300**	**28200**	5
trans-1,2-Dichloroethene	ND	ND	**284 J**	5
Trichloroethene	ND	**594**	**1290**	5
Vinyl chloride	**5980**	**5080**	**3770**	2
FIELD PARAMETERS				
Turbidity (NTU)	2.3	190	137	NA
pH	6.28	6.67	6.92	NA
Dissolved Oxygen (mg/L)	0	5.24	2.73	NA
Temp (degrees C)	15.93	22.1	16.1	NA
Conductivity (mS/cm)	1.47	1.12	4.28	NA
TOC (mg/L)	NA	2400	1700	NA
ORP (mV)	NA	-58	-48	NA
Sulfate (mg/L)	NA	1.9	11	NA

All values in ppb except where noted

N/A - Not Applicable ND - Non-detect

(1) - TOGs 1.1.1 GA - Technical and Operational Guidance Series (1.1.1) Source of Drinking Water (Groundwater)

(2) - MW-3 sampled 5/22/2020 post injection treatment

(3) - MW-3 sampled 9/15/2020 post injection treatment

[red box] Exceeds TOGs Guidance Value

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

REMEDIAL INVESTIGATION FIGURES

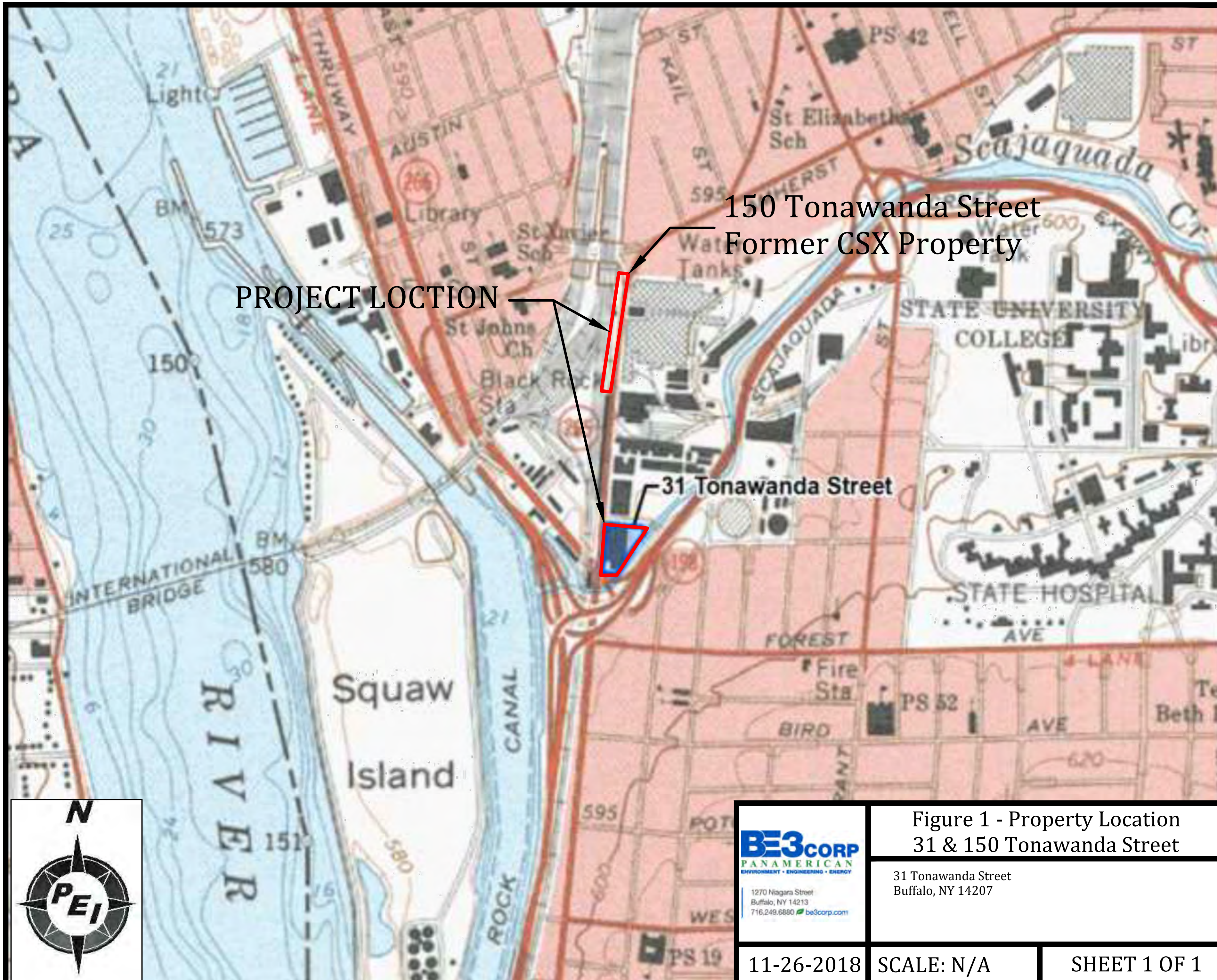

Figure 1 - Property Location
31 & 150 Tonawanda Street

31 Tonawanda Street
Buffalo, NY 14207

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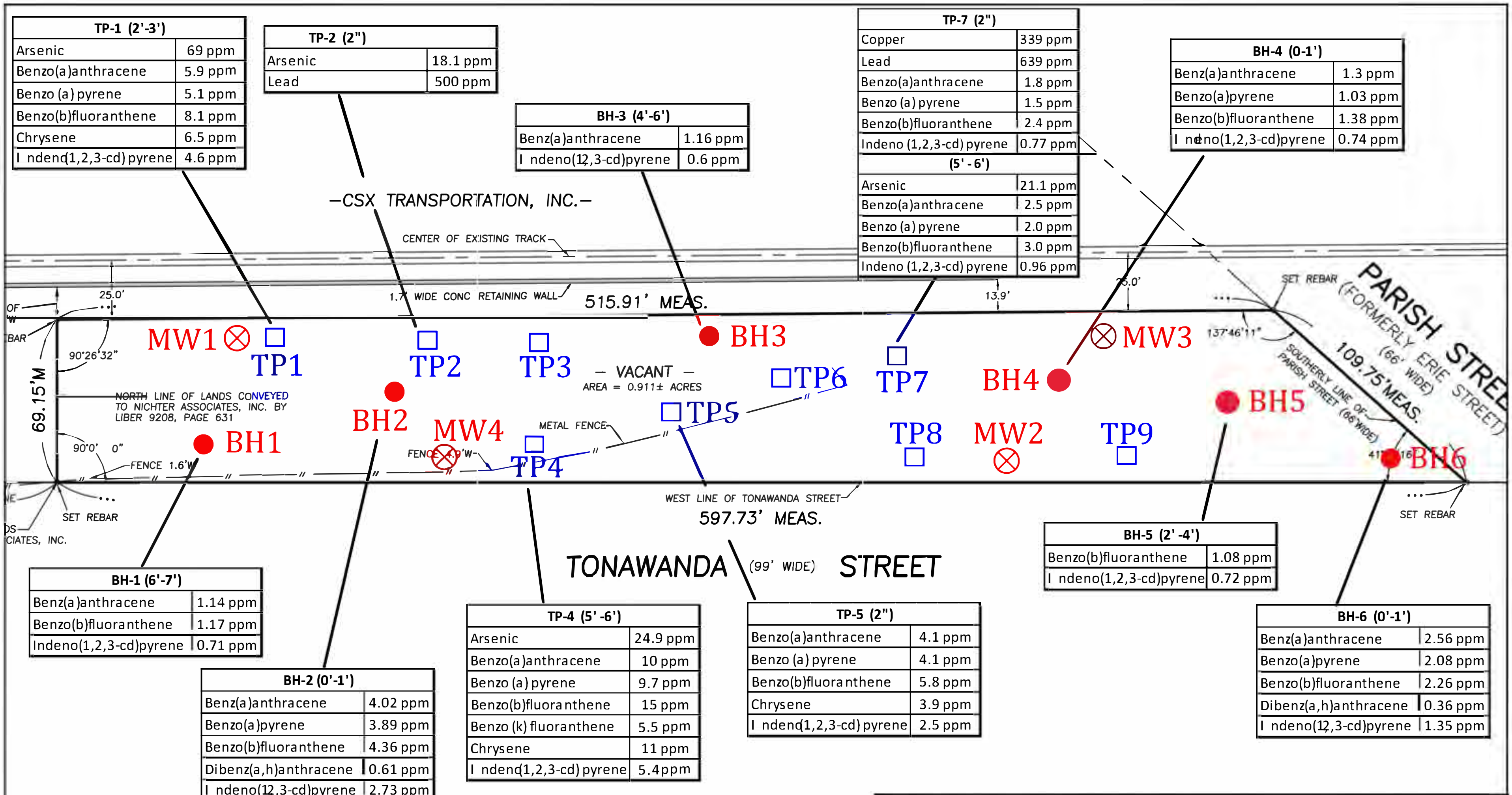
11-26-2018 | SCALE: N/A | SHEET 1 OF 1



TP-1 (2'-3')	
Arsenic	69 ppm
Benzo(a)anthracene	5.9 ppm
Benzo (a) pyrene	5.1 ppm
Benzo(b)fluoranthene	8.1 ppm
Chrysene	6.5 ppm
Indeno(1,2,3-cd) pyrene	4.6 ppm

TP-2 (2")	
Arsenic	18.1 ppm
Lead	500 ppm

BH-3 (4'-6')	
Benz(a)anthracene	1.16 ppm
Indeno(1,2,3-cd)pyrene	0.6 ppm

TP-7 (2")	
Copper	339 ppm
Lead	639 ppm
Benzo(a)anthracene	1.8 ppm
Benzo (a) pyrene	1.5 ppm
Benzo(b)fluoranthene	2.4 ppm
Indeno (1,2,3-cd) pyrene	0.77 ppm
(5'-6')	
Arsenic	21.1 ppm
Benzo(a)anthracene	2.5 ppm
Benzo (a) pyrene	2.0 ppm
Benzo(b)fluoranthene	3.0 ppm
Indeno (1,2,3-cd) pyrene	0.96 ppm

BH-4 (0-1')	
Benz(a)anthracene	1.3 ppm
Benzo(a)pyrene	1.03 ppm
Benzo(b)fluoranthene	1.38 ppm
Indeno(1,2,3-cd)pyrene	0.74 ppm

BH-1 (6'-7')	
Benz(a)anthracene	1.14 ppm
Benzo(b)fluoranthene	1.17 ppm
Indeno(1,2,3-cd)pyrene	0.71 ppm

BH-2 (0'-1')	
Benz(a)anthracene	4.02 ppm
Benzo(a)pyrene	3.89 ppm
Benzo(b)fluoranthene	4.36 ppm
Dibenz(a,h)anthracene	0.61 ppm
Indeno(1,2,3-cd)pyrene	2.73 ppm

TP-4 (5'-6')	
Arsenic	24.9 ppm
Benzo(a)anthracene	10 ppm
Benzo (a) pyrene	9.7 ppm
Benzo(b)fluoranthene	15 ppm
Benzo (k) fluoranthene	5.5 ppm
Chrysene	11 ppm
Indeno(1,2,3-cd) pyrene	5.4ppm

TP-5 (2")	
Benzo(a)anthracene	4.1 ppm
Benzo (a) pyrene	4.1 ppm
Benzo(b)fluoranthene	5.8 ppm
Chrysene	3.9 ppm
Indeno(1,2,3-cd) pyrene	2.5 ppm

BH-5 (2'-4')	
Benzo(b)fluoranthene	1.08 ppm
Indeno(1,2,3-cd)pyrene	0.72 ppm

BH-6 (0'-1')	
Benz(a)anthracene	2.56 ppm
Benzo(a)pyrene	2.08 ppm
Benzo(b)fluoranthene	2.26 ppm
Dibenz(a,h)anthracene	0.36 ppm
Indeno(1,2,3-cd)pyrene	1.35 ppm

NOTES:
—Compound levels are all presented in ppm
—All compound levels shown exceed Restricted Residential SCO's

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DATE: 8/5/2013 — SHEET: 1 OF 1 — DWN BY: MJC
JOB NO.: 3675 — SCALE: 1" = 40' — CHK'D BY: RF

LEGEND

- □ TP1 - PH2 ESA 1/16 TEST PITS
- ● BH1 - RI SOIL BORINGS
- ⊗ MW1 - RI MONITORING WELLS

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Figure 2 - 150 Tonawanda St Soil Analytical Results

150 Tonawanda Street
Buffalo, NY 14207

10-29-2018 — SCALE: N/A

C-3 (6'-8')	
Trichloroethene	1630 ppm

C-4 (6'-8')	
Trichloroethene	244 ppm

C-1 (8'-12')	
1,1-Dichloroethane	31.5 ppm
1,1,1 -Trichloroethane	670 ppm

BH-1 (0-3')	
Benzo(a)pyrene	6.37 ppm
Benzo(k)fluoranthene	5.41 ppm
Benzo(b)fluoranthene	6.76 ppm
Benzo(k)fluoranthene	5.41 ppm
Chrysene	8.83 ppm
Dibenz(a,h)anthracene	1.56 ppm
Indeno(1,2,3-cd)pyrene	4.89 ppm
(13.5' 15')	
Benz(a)anthracene	1.45 ppm
cis-1,2-Dichloroethene	152 ppm
Vinyl chloride	30.7 ppm

BH-5 (9'-12')	
Copper	911 ppm
cis-1,2-Dichloroethene	880 ppm
Benzo(b)fluoranthene	5.7 ppm
Chrysene	7.74 ppm
Trichloroethene	6960 ppm

BH 5-3N (11'-12')	
Benzo(a)anthracene	48.9 ppm
Benzo (a) pyrene	47.4 ppm
Benzo(b)fluoranthene	24.2 ppm
Benzo (k) fluoranthene	25.3 ppm
Chrysene	53.2 ppm
Indeno (1,2,3-cd) pyrene	16.6 ppm
Phenanthrene	142 ppm
Pyrene	137 ppm

BH-3S (12'-13.5')	
Benz(a)anthracene	2.58 ppm
Benzo(a)pyrene	1.68 ppm
Benzo(b)fluoranthene	1.14 ppm
Indeno(1,2,3-cd)pyrene	0.83 ppm

BH-4 (0-1')	
Benz(a)anthracene	5.7 ppm
Benzo(a)pyrene	4.87 ppm
Benzo(b)fluoranthene	5.02 ppm
Chrysene	5.93 ppm
Dibenz(a,h)anthracene	1.06 ppm
Indeno(1,2,3-cd)pyrene	3.51 ppm

BH 7 ((9'-12')	
Copper	747 ppm

BH-8 ((5'-8')	
Chromium	202 ppm
Copper	9550 ppm
Manganese	7780 ppm

BH-5 (0-2')	
Benz(a)anthracene	1.08 ppm
Benzo(b)fluoranthene	1.04 ppm
Indeno(1,2,3-cd)pyrene	0.77 ppm
(4'-6')	
Indeno(1,2,3-cd)pyrene	0.51 ppm
Ethylbenzene	168 ppm
m,p-Xylene	595 ppm
1,2,4-Trimethylbenzene	91.4

BH-6 (4' -6')	
Copper	1480 ppm
Total Mercury	1.34 ppm

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Figure 3:
31 Tonawanda St Soil
Analytical Results

31 Tonawanda Street
Buffalo, NY 14207

11-15-2018 | SCALE: N/A

NOTES:
–Compound levels are all presented in ppm
–All compound levels shown exceed Restricted Residential SCO's

SBH-3 GW	
1,1,1 - Trichloroethene	51.1 ppb
1,1 Dichloroethene	42 ppb
cis-1,2 Dichloroethene	369 ppb
Trichloroethene	194 ppb
Vinylchloride	147 ppb

SBH-4 (8')	
Trichloroethene	1660 ppm
SBH-4 (10')	
cis-1,2 Dichloroethene	1970 ppm
Trichloroethene	7340 ppm

C-3 (6'-8')	
Trichloroethene	1630 ppm

C-4 (6'-8')	
Trichloroethene	224 ppm

C-1 (8'-12')	
1,1 Dichloroethene	31.5 ppm
1,1,1 - Trichloroethene	670 ppm

31-MW-3	
1,1,1 - Trichloroethane	667 ppm
1,1 Dichloroethane	246 ppm
cis-1,2 Dichloroethene	221 ppm
Trichloroethene	474 ppm
Vinylchloride	4.02 ppm

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Figure 3A: 2019 Crawlspace Investigation & GWT

31 Tonawanda Street
Buffalo, NY 14207

08-06-2019 | SCALE: N/A | SHEET 1 OF 1

NOTE:

1) SBH-3 GW SAMPLE RESULTS SHOWN ON FIGURE 6

2) ALL SOIL COMPOUND LEVELS SHOWN EXCEED PART 375 RESTRICTED RESIDENTIAL VALUES

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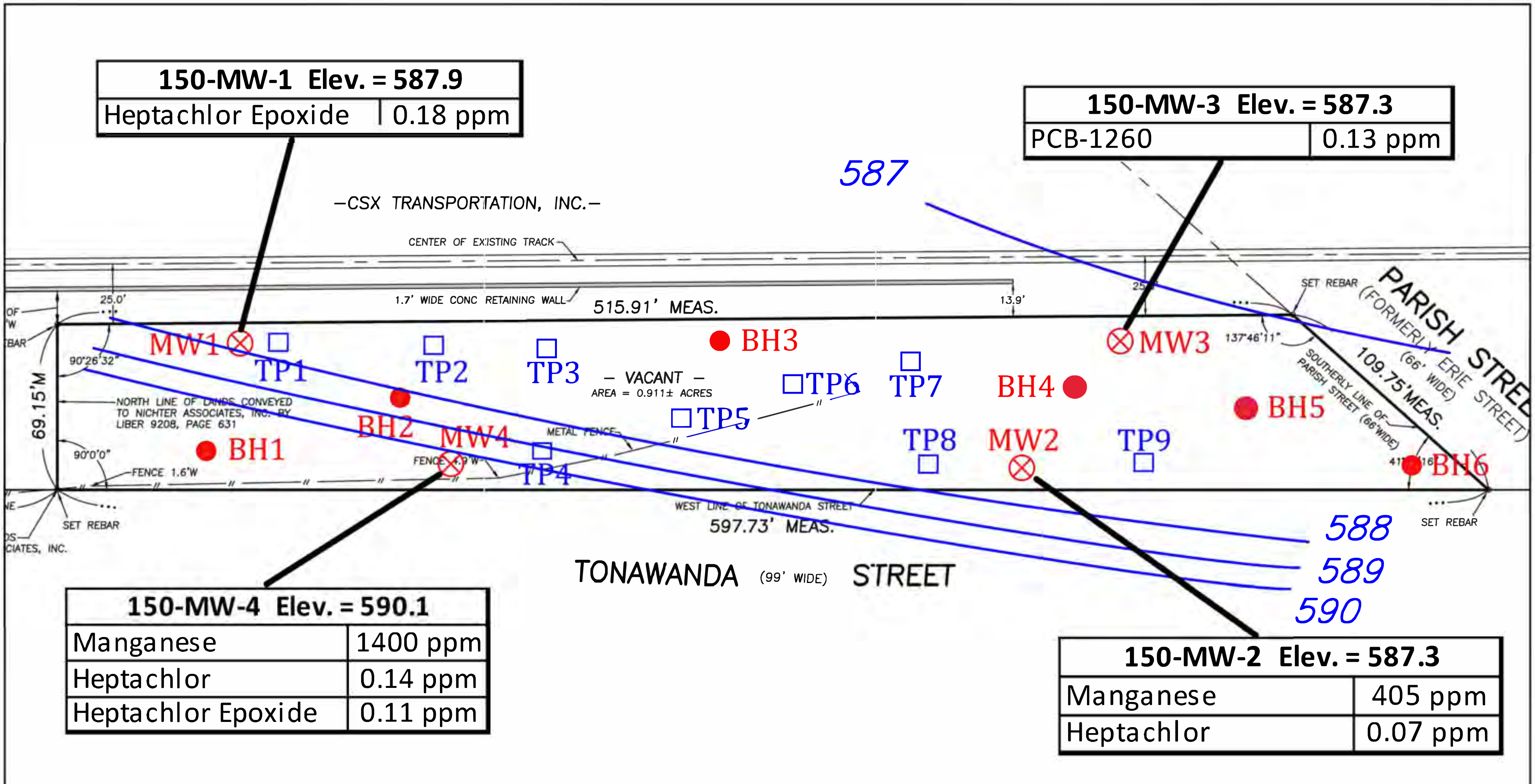
Figure 4
Vapor Intrusion Sample Results

31 Tonawanda Street
Buffalo, NY 14207

11-26-2018 SCALE: N/A

NOTES:
-Compound levels are all presented in ug/m^3
-All compound levels shown require action based on NYSDOH Guidance for Evaluating Soil Vapor Intrusion Decision Matrices May 2017



150-MW-1 Elev. = 587.9	
Heptachlor Epoxide	0.18 ppm

150-MW-3 Elev. = 587.3	
PCB-1260	0.13 ppm

150-MW-4 Elev. = 590.1	
Manganese	1400 ppm
Heptachlor	0.14 ppm
Heptachlor Epoxide	0.11 ppm

150-MW-2 Elev. = 587.3	
Manganese	405 ppm
Heptachlor	0.07 ppm

NOTES:
—All compound levels shown exceed TOGs GA Guidance Values

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LEGEND

- GROUNDWATER CONTOURS
- □ TP1 - PH2 ESA 1/16 TEST PITS
- ● BH1 - RI SOIL BORINGS
- ⊗ MW1 - RI MONITORING WELLS

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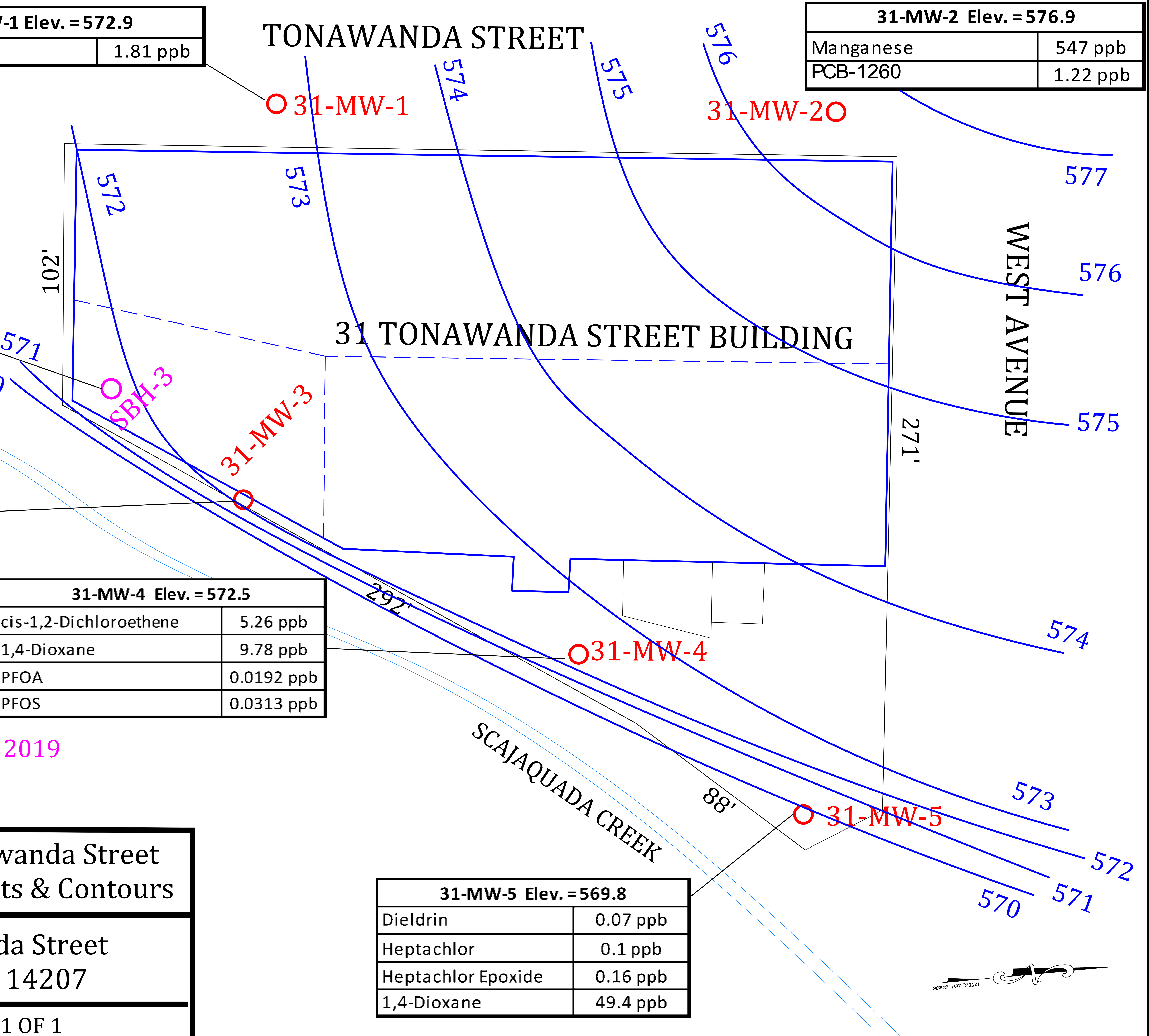
Figure 5 - 150 Tonawanda Street
Groundwater Results & Contours

150 Tonawanda Street
Buffalo, NY 14207

11-09-2018

SCALE: N/A

Notes:
–All compund levels shown exceed TOGS GA Guidance Values or NYSDEC emergent chemical guidance values



31-MW-1 Elev. = 572.9	
PCB-1260	1.81 ppb

31-MW-2 Elev. = 576.9	
Manganese	547 ppb
PCB-1260	1.22 ppb

SBH-3 GW	
1,1,1-Trichloroethane	51.1 ppb
1,1-Dichloroethane	42 ppb
cis-1,2-Dichloroethene	369 ppb
Trichloroethene	194 ppb
Vinyl chloride	147 ppb

31-MW-3 Elev. = 572.1	
1,1,1-Trichloroethane	188800 ppb
1,1-Dichloroethane	75700 ppb
1,1-Dichloroethene	2510 ppb
cis-1,2-Dichloroethene	37500 ppb
Vinyl chloride	5080 ppb
1,4-Dioxane	5020ppb
PFOA	0.0148ppb
PFOS	0.01 ppb

31-MW-4 Elev. = 572.5	
cis-1,2-Dichloroethene	5.26 ppb
1,4-Dioxane	9.78 ppb
PFOA	0.0192 ppb
PFOS	0.0313 ppb

31-MW-5 Elev. = 569.8	
Dieldrin	0.07 ppb
Heptachlor	0.1 ppb
Heptachlor Epoxide	0.16 ppb
1,4-Dioxane	49.4 ppb

LEGEND

RI PROGRAM:

○ GW SAMPLE FROM SBH-3 - FEB 2019

○ MONITORING WELLS MW-1

∿ GROUNDWATER CONTOURS

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Figure 6: 31 Tonawanda Street Groundwater Results & Contours

31 Tonawanda Street
Buffalo, NY 14207

08-06-2019	SCALE: N/A	SHEET 1 OF 1

LEGEND

- SITE BOUNDARY
- HARDSCAPE - REMOVE TOP 1' OF SOIL AND REPLACE w/ HARDSCAPE (4" ASPHALT OVER 8" CLEAN STONE)
- LANDSCAPE - REMOVE TOP 2' OF SOIL AND REPLACE w/ 2' CLEAN FILL

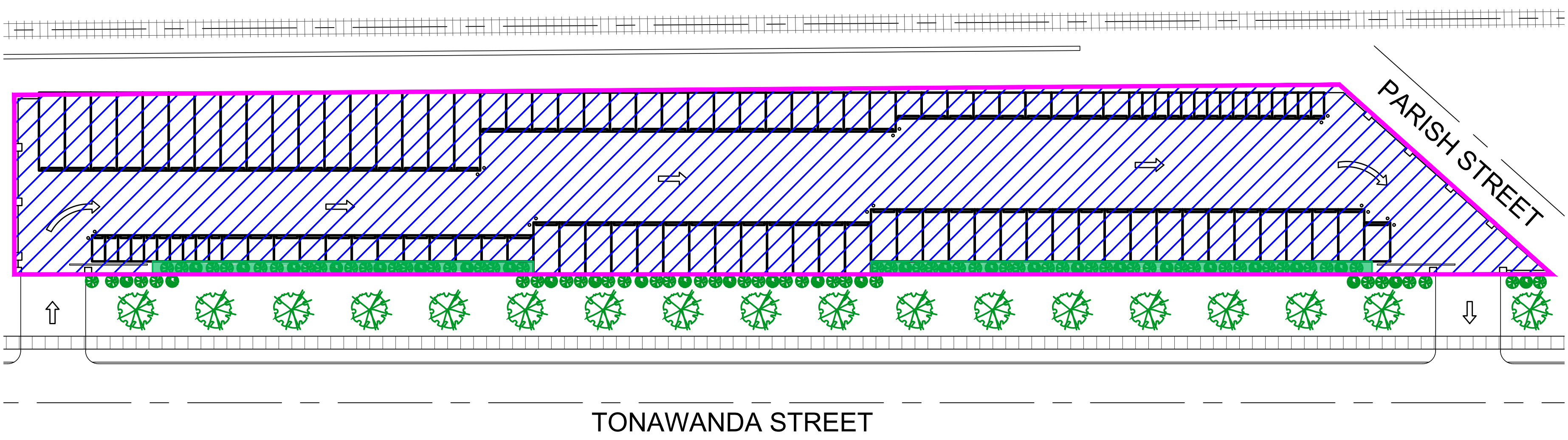

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Figure 7 Alternative 1	
Exterior Self Storage 150 Tonawanda Street Buffalo, New York	
10-15-2019	SCALE: N/A / SHEET 1 OF 1

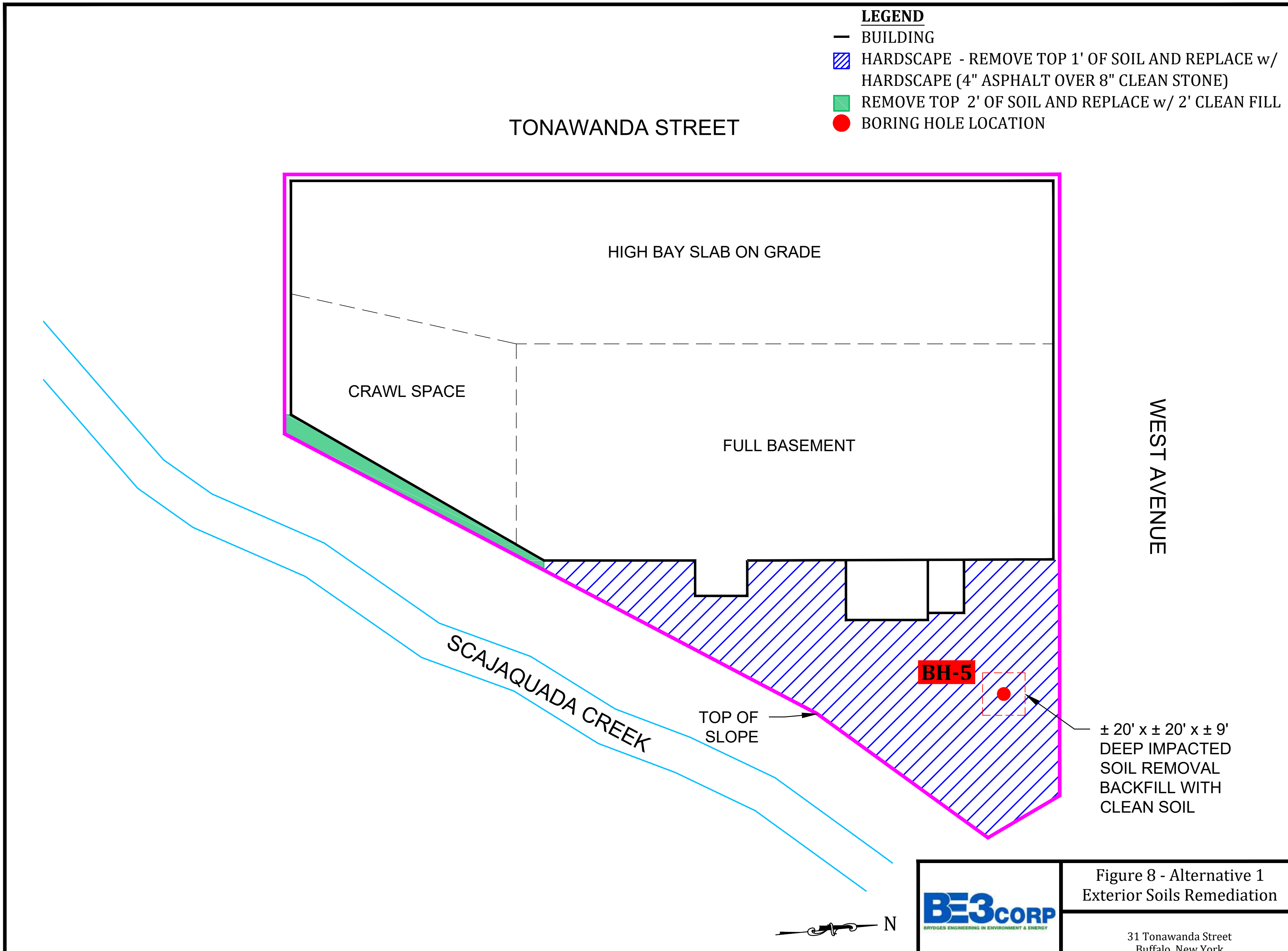

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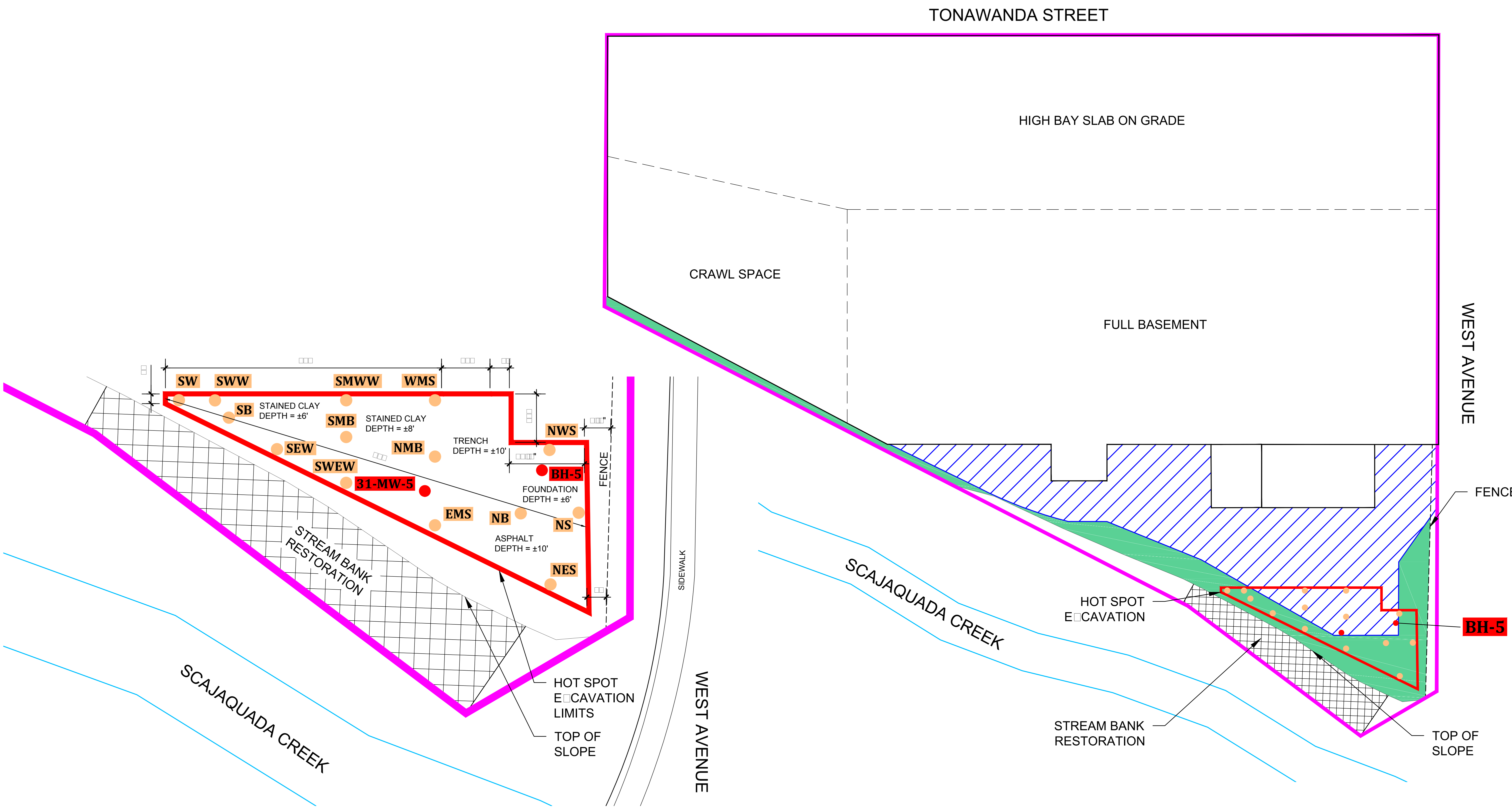
Figure 8 - Alternative 1
Exterior Soils Remediation

31 Tonawanda Street
Buffalo, New York

10-15-2019	SCALE: N/A	SHEET 1 OF 1

AS-BUILT FIGURES



HOT SPOT E□CAVATION

LEGEND

- SITE BOUNDARY
- BUILDING
- HARDSCAPE - REMOVE TOP 1' OF SOIL AND REPLACE w/ HARDSCAPE (4" ASPHALT OVER 8" CLEAN STONE), EXCEPT AT HOT SPOT EXCAVATION (SEE ENLARGED AREA)
- REMOVE TOP 2' OF SOIL AND REPLACE w/ 2' CLEAN FILL
- BH-# BORING HOLE LOCATION
- SWW CONFIRMATION SAMPLE LOCATION

N

Note: See FER Appendix J for details of stream bank restoration

BE3CORP	Figure 9 - 31 Tonawanda Hot Spot Impacted Soil Excavation 31 Tonawanda Street Buffalo, New York	Revisions
09-22-2020	SCALE: N/A	SHEET 1 OF 1

TP-1 (2'-3')	
Arsenic	69 ppm
Benz(a)anthracene	5.9 ppm
Benzo(a)pyrene	5.1 ppm
Benzo(b)fluoranthene	8.1 ppm
Chrysene	6.5 ppm
Indeno(1,2,3-cd)pyrene	4.6 ppm

BH-3 (4'-6')	
Benz(a)anthracene	1.16 ppm
Indeno(1,2,3-cd)pyrene	0.6 ppm

TP-7 (5'-6')	
Arsenic	21.1 ppm
Benz(a)anthracene	2.5 ppm
Benzo(a)pyrene	2.0 ppm
Benzo(b)fluoranthene	3.0 ppm
Indeno(1,2,3-cd)pyrene	0.96 ppm

BH-4 (0'-1')	
Benz(a)anthracene	1.3 ppm
Benzo(a)pyrene	1.03 ppm
Benzo(b)fluoranthene	1.38 ppm
Indeno(1,2,3-cd)pyrene	0.74 ppm

LEGEND

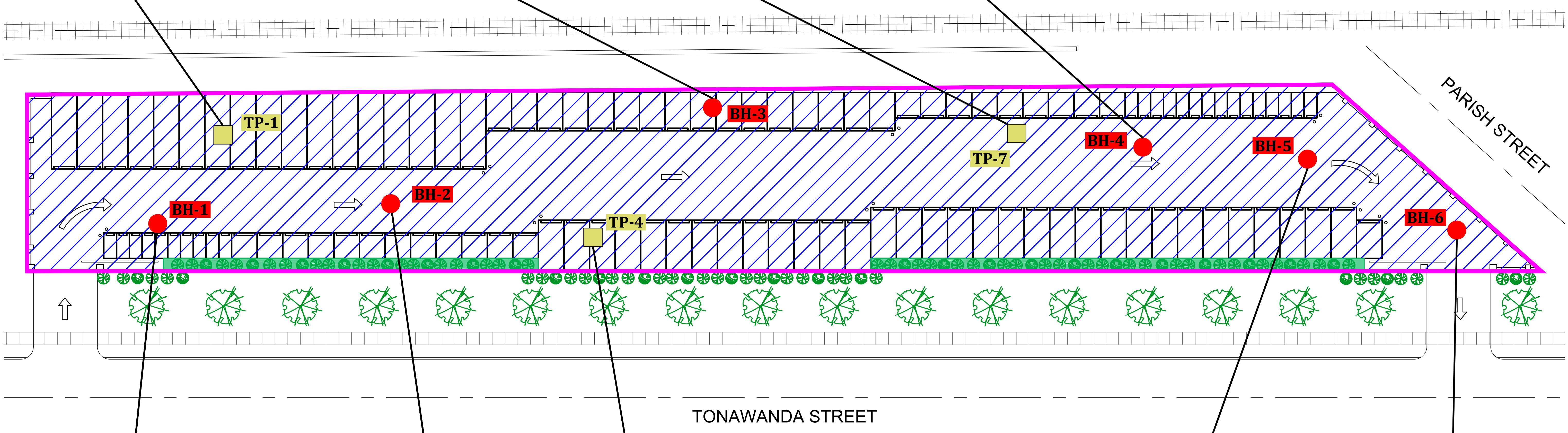
SITE BOUNDARY

HARDSCAPE - REMOVE TOP 1' OF SOIL AND REPLACE w/ HARDSCAPE (4" ASPHALT OVER 8" CLEAN STONE)

LANDSCAPE - REMOVE TOP 2' OF SOIL AND REPLACE w/ 2' CLEAN FILL

BH-# RI SOIL BORINGS

TP-# PH2 ESA 1/16 TEST PITS



BH-1 (6'-7')	
Benz(a)anthracene	1.14 ppm
Benzo(b)fluoranthene	1.17 ppm
Indeno(1,2,3-cd)pyrene	0.71 ppm

BH-2 (0'-1')	
Benz(a)anthracene	4.02 ppm
Benzo(a)pyrene	3.89 ppm
Benzo(b)fluoranthene	4.36 ppm
Dibenz(a,h)anthracene	0.61 ppm
Indeno(1,2,3-cd)pyrene	2.73 ppm

TP-4 (5'-6')	
Arsenic	24.9 ppm
Benz(a)anthracene	10 ppm
Benzo(a)pyrene	9.7 ppm
Benzo(b)fluoranthene	15 ppm
Benzo(k)fluoranthene	5.5 ppm
Chrysene	11 ppm
Indeno(1,2,3-cd)pyrene	5.4 ppm

BH-5 (2'-4')	
Benzo(b)fluoranthene	1.08 ppm
Indeno(1,2,3-cd)pyrene	0.72 ppm

BH-6 (0'-1')	
Benz(a)anthracene	2.56 ppm
Benzo(a)pyrene	2.08 ppm
Benzo(b)fluoranthene	2.26 ppm
Dibenz(a,h)anthracene	0.36 ppm
Indeno(1,2,3-cd)pyrene	1.35 ppm

N

Notes:
-Compound levels are all presented in ppm.
-All compound levels shown exceed Restricted Residential SCOs.

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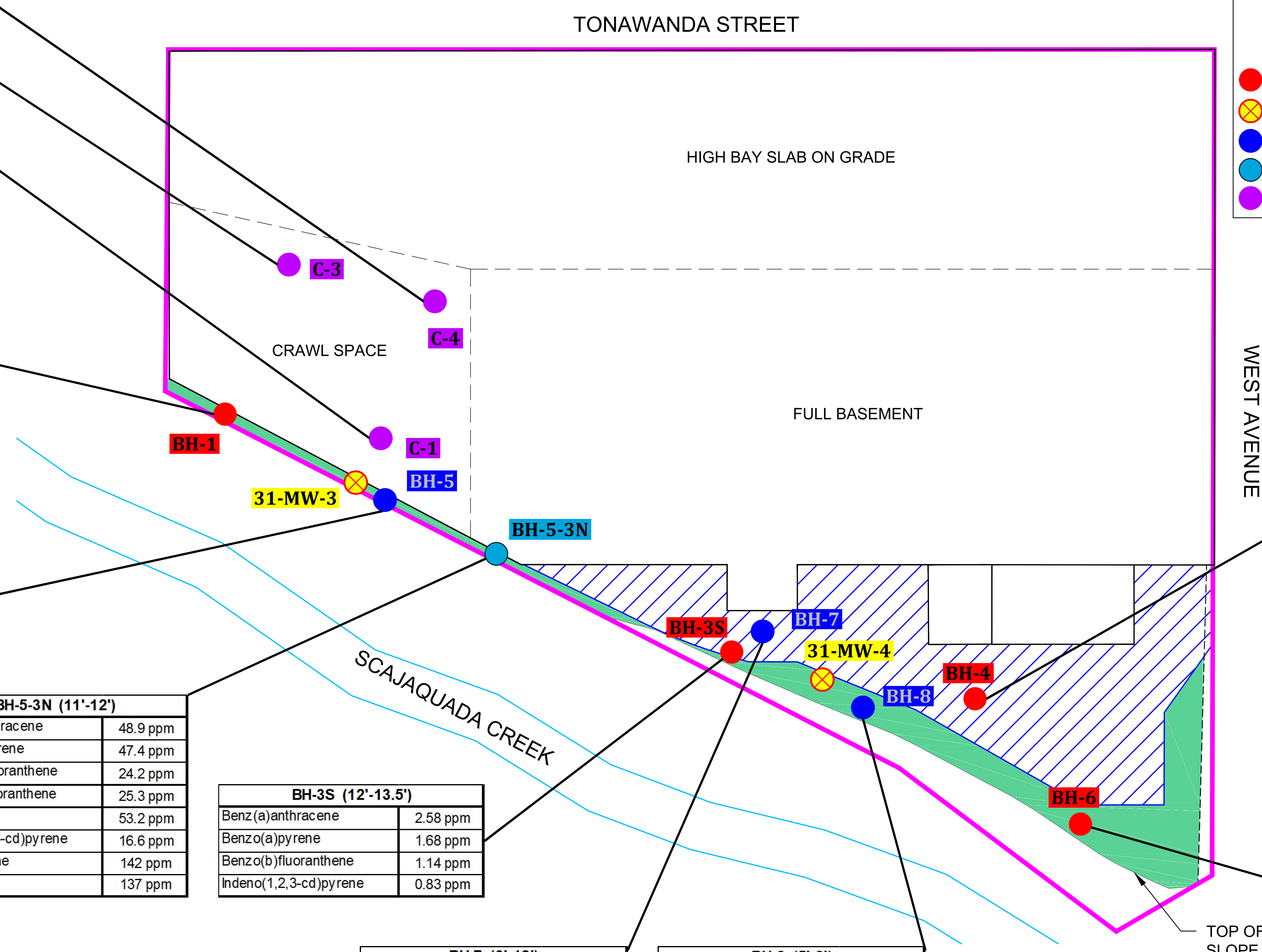
Figure 10-Remaining Contamination Results Exceeding RR SCOs

150 Tonawanda Street
Buffalo, New York

Revisions

09-22-2020 | SCALE: N/A | SHEET 1 OF 1



LEGEND

- SITE BOUNDARY
- BUILDING
- HARDSCAPE - REMOVE TOP 1' OF SOIL AND REPLACE w/ HARDSCAPE (4" ASPHALT OVER 8" CLEAN STONE)
- REMOVE TOP 2' OF SOIL AND REPLACE w/ 2' CLEAN FILL
- BH-# RI SOIL BORINGS
- MW-# RI MONITORING WELLS
- BH-# ESA SOIL BORINGS - APRIL 2014
- BH-# ESA SOIL BORINGS - SEPT 2014
- C-# ESA SOIL BORINGS - MARCH 2015

C-4 (6'-8')	
Trichloroethene	244 ppm

C-3 (6'-8')	
Trichloroethene	1630 ppm

C-1 (8'-12')	
1,1-Dichloroethane	31.5 ppm
1,1,1-Trichloroethane	670 ppm

BH-1 (0'-3')	
Benzo(a)pyrene	6.37 ppm
Benzo(k)fluoranthene	5.41 ppm
Benzo(b)fluoranthene	6.76 ppm
Benzo(k)fluoranthene	5.41 ppm
Chrysene	8.83 ppm
Dibenz(a,h)anthracene	1.56 ppm
Indeno(1,2,3-cd)pyrene	4.89 ppm
(13.5'-15')	
Benz(a)anthracene	1.45 ppm
cis-1,2-Dichloroethene	152 ppm
Vinyl chloride	30.7 ppm

BH-5 (9'-12')	
Copper	911 ppm
cis-1,2-Dichloroethene	880 ppm
Benzo(b)fluoranthene	5.7 ppm
Chrysene	7.74 ppm
Trichloroethene	6960 ppm

BH-5-3N (11'-12')	
Benz(a)anthracene	48.9 ppm
Benzo(a)pyrene	47.4 ppm
Benzo(b)fluoranthene	24.2 ppm
Benzo(k)fluoranthene	25.3 ppm
Chrysene	53.2 ppm
Indeno(1,2,3-cd)pyrene	16.6 ppm
Phenanthrene	142 ppm
Pyrene	137 ppm

BH-3S (12'-13.5')	
Benz(a)anthracene	2.58 ppm
Benzo(a)pyrene	1.68 ppm
Benzo(b)fluoranthene	1.14 ppm
Indeno(1,2,3-cd)pyrene	0.83 ppm

BH-7 (9'-12')	
Copper	747 ppm

BH-8 (5'-8')	
Chromium	202 ppm
Copper	9550 ppm
Manganese	7780 ppm

BH-4 (0'-1')	
Benz(a)anthracene	5.7 ppm
Benzo(a)pyrene	4.87 ppm
Benzo(b)fluoranthene	5.02 ppm
Chrysene	5.93 ppm
Dibenz(a,h)anthracene	1.06 ppm
Indeno(1,2,3-cd)pyrene	3.51 ppm

BH-6 (4'-6')	
Copper	1480 ppm
Total Mercury	1.34 ppm

Notes:
-Compound levels are all presented in ppm.
-All compound levels shown exceed Restricted Residential SCOs.
-See Figure 9 for BH-5 Hot Spot Excavation.

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Figure 11-Remaining Contamination Results Exceeding RR SCOs

31 Tonawanda Street
Buffalo, New York

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09-22-2020 | SCALE: N/A | SHEET 1 OF 1