# ALTERNATIVES ANALYSIS REPORT

## 71 TONAWANDA STREET SITE
## BUFFALO, NEW YORK 14209
## NYSDEC SITE # C915024

Prepared for:

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**JUNE 2022 (Revised)**

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## CERTIFICATION

I, Jason M. Brydges, certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Alternative Analysis Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) 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

Fedder Lofts, LLC owner of the 71 Tonawanda Street Site (NYSDEC Site #C915024) located at 71 Tonawanda Street, Buffalo, New York 14209 (See **Figure 1**) has entered into a Brownfield Cleanup Agreement (BCA) with the NYSDEC under the Voluntary section of the "Brownfield Cleanup Program (BCP)". Fedder Lofts, LLC has contracted BE3 Corp (BE3) to conduct a Remedial Investigation (RI) and prepare an Alternatives Analysis Report (AAR) as required by the BCA and complete remedial measures, as necessary. The BCA was amended on March 10, 2022, to remove the 57 Tonawanda parcel from the original BCA resulting in the NYSDEC Site #C915024 that includes only the 71 Tonawanda parcel (See **Appendix B** Survey Map). The RI for both the 71 and 57 Tonawanda Street properties (see **Figure 2**) was completed between December 2019 and March 2020 and the initial RI/AAR for both properties dated May 2020 was approved by NYSDEC on June 10,2020. This document presents the revised AAR for the 71 Tonawanda Site only.

This AAR is being completed in accordance with BCP requirements as defined in section 375-3.8 of the 6 NYCRR Part 375 Environmental Remediation Program Regulations. It is anticipated that the remedial measure selected will lead to a Site remedy as defined in Part 375-1.8(g)(2)(ii); achieve, at a minimum, restricted-residential use Soil Cleanup Objectives (SCOs) as defined in Part 375-6.8(b); and mitigate any environmental impacted media issues at the Site. The owner plans to redevelop the Site resulting in the renovation of the existing building for residential housing with ancillary commercial and retail uses.

## 1.1 CONSTITUENTS OF CONCERN (COCS)

Based on the findings related to the historic use of the Site and the RI, contaminants of concern (COCs) in the soils, which exceed Part 375 Restricted Residential SCOs, are semi-volatile organic compounds (SVOCs), primarily polycyclic aromatic hydrocarbons (PAHs), metals and volatile organic compounds (VOC) (See **Figures 3 and 6**). COCs in the groundwater that exceed TOGs values include a few metals and several solvent related VOCs (see **Figure 4**). The solvent TCE is also a COC in the soil vapor beneath the building as indicated by the results of the RI building sub-slab vapor assessment (See **Figure 5**). **Tables 1-11** summarize the analytical results for the 71 Tonawanda Site for all media sampled and tested during the RI. More details regarding the RI can be found in the May 2020 RI/AAR.

# 2.0 REMEDIAL ALTERNATIVES ANALYSIS

## 2.1 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 public health and the environment. The primary RAOs identified for the Site are the following:

**Groundwater**

**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 ALTERNATIVE SELECTION FACTORS

In addition to achieving RAOs, NYSDEC's Brownfield Cleanup Program requires an evaluation of remedial alternatives in accordance with 6 NYCRR Part 375-3 and DER-10 Technical Guidance for Site Investigation and Remediation. The analysis of the remedial alternatives developed for the site uses the following selection factors:

- **Overall Protection of Public Health and the Environment**. This criterion is an evaluation of the remedy's ability to achieve each of the RAOs, and protect public health and the environment, assessing how each existing or potential pathway of exposure is eliminated, reduced, or controlled through removal, treatment, engineering controls, or institutional controls.
- **Compliance with Standards, Criteria, and Guidance (SCGs)**. Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance.
- **Long-Term Effectiveness and Permanence**. This criterion is an evaluation of how effective or permanent the remedy performs in the long term after implementation.
- **Reduction of Toxicity, Mobility or Volume with Treatment**. This criterion evaluates how a remedy can reduce the toxicity, mobility, or volume of contamination with preference given to remedies that significantly reduce the contamination.
- **Short-Term Effectiveness**. Short-term effectiveness is an evaluation of a remedy's impact on human exposures and nuisance conditions during implementation. This includes an assessment of the control of adverse conditions during remediation including engineering controls (e.g., dust control) and an estimate of the length of time needed to achieve the remedial objectives. Sustainability is also evaluated.

- **Implementability**. The implementability criterion evaluates the technical and administrative feasibility of implementing the remedy. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.
- **Cost**. This criterion evaluates the overall cost effectiveness of an alternative or remedy.
- **Community Acceptance**. This criterion evaluates the public's comments, concerns, and overall perception of the remedy.

## 2.3 Land Use Evaluation

In developing and screening remedial alternatives, NYSDEC's Part 375 regulations require that the reasonableness of the anticipated future land use be factored into the evaluation. The future land use will meet the Part 375 Restricted-residential site use category.

The property is in a Brownfield Opportunity Area (BOA) – the City of Buffalo Tonawanda Street Corridor BOA – that has completed the nomination stage of the BOA process. The anticipated planned use of the property is residential with some mixed commercial, which adheres to the land use plan described in the BOA nomination document. The proposed use is consistent with the N-1S District. The property, when redeveloped, with comply with the City requirements.

The project area and scope comply within The Buffalo Green Codes' Land Use Plan as it meets the expanding area need to support residential and student needs and for cross border traffic. The Land Use Plan serves as a bridge between the city's comprehensive plan and zoning code by recommending the appropriate type, intensity, and character of development. It envisions a future for Buffalo built around the restoration of walkable, mixed-use, transit-served neighborhoods and economic centers.

The plan focuses on three core strategies: fuel economic generators, restore neighborhoods, and repair environmental assets. This Project will help the area capitalize on its strategic assets; an opportunity to start a process aimed at repairing neighborhood edges that have been disproportionately impacted by industrial uses over time and creating new opportunities for working and living within the area. The population and growth in Western NY and in the Black Rock section of Buffalo has been declining and or remaining static in recent years. The planned re-development should enhance the potential growth as it will offer residential living with water views and access to water recreational areas in a designated BOA area.

## 2.4 Selection of Alternatives for Evaluation

The results of the RI indicate the following:

- Soils in the parking lot east of the building (mostly fill material) contain elevated PAHs and metal compounds in the surface and subsurface soils above Part 375 restricted-residential SCOs.
- Building sub-slab soils contain TCE concentrations in excess of the SCOs at select locations and various depths ("hot spots").
- A majority of the building will remain and be renovated with installation of a sub-slab depressurization system (SSDS) to mitigate soil vapors from entering the building interior.
- The universal waste inspection indicated the presence of asbestos, LBP and PCB

containing material in the building.
- Solvent related VOCs and a couple metals were detected at concentrations that exceeded TOGs guidance values in groundwater.

Based on the results of the RI program the following two remedial alternatives have been selected for evaluation:

- **Alternative 1 – Track 4 - Restricted Residential Use**
- **Alternative 2 – Track 1 - Unrestricted Use (conditional)**

### *2.4.1 Alternative 1 - Track 4 – Restricted Residential Use*

The details of this alternative are illustrated in **Figure 7** and primarily include the following remedial activities:

1. Remove and dispose sediment from building trenches/drains, as applicable.
2. Remove and dispose asphalt and subsurface soil (approximately one-foot bgs and 200 feet east of the building) and replace with hardscape for a parking lot (4" asphalt and 8" clean stone).
3. Remove and dispose a minimum of one foot of rubble and soil from the collapsed building on the north side of the property and replace with hardscape for the new foundation and concrete courtyard.
4. Remove and dispose a "hot spot" area within the main building near SSB-4 boring that is approximately 10 feet wide by 10 feet long by 12 feet deep (See **Figure 7**) and backfill with compliant imported material.
5. Remove and dispose a minimum of two feet of soil and asphalt east of the proposed parking lot to the property boundary and backfill with compliant imported material.
6. Install an SSDS throughout the renovated building and verify that the vacuum created in the interior is sufficiently effective at removing contaminant vapors through sampling and analyses and comparison to NYSDOH guidance for soil vapor intrusion.
7. Treat upgradient groundwater (vicinity of MW-4) through installing an injection point reactive barrier along the west side of the south half of the building exterior (15+/- points estimated)
8. Treat groundwater through the installation of a permeable Reactive Barrier (PRB) along the eastern fence line of the property at the bike path, the southern end of the site that extends to the bike path, and the east side of the south half of the building exterior.
9. Treat groundwater through the placement of amendment in the "hot spot" area near boring SSB-4. The following treatment systems are currently being considered that are effective for the complete mineralization (degradation) of chlorinated solvents.
    a. Anaerobic BioChem Plus (ABC +).
    b. Anaerobic Reductive Dechlorination (ARD) process.
    c. 3-D Microemulsion (3DME).
    d. Electron Donor Sustainable Bioremediation.

**Permeable Reactive Barrier Wall** details are as follows:

- Groundwater is most shallow at the eastern edge of the site, so it is expected that a Permeable Reactive Barrier (PRB) backfilled with a solid phase electron donor will stimulate microbial activity efficiently, and provide a "polishing step" to the overall site remediation.

- A two (2) to four (4) foot wide trench will be excavated to a depth of six (6) to eight (8) feet below ground surface, where it will encounter groundwater. The trench will be approximately eight to ten feet upgradient of the fence line, which is enough distance to allow microbial activity before groundwater enters Scajaquada Creek. The trench will be backfilled with a solid phase electron donor. The PRB will run the length of the fence line, to prevent contaminated groundwater from leaving the Site.

- The electron donor is FMed, a patented blend of protein and lipids derived from sustainably recycled animal co-products.

**Injection Point Treatment of Groundwater** details are as follows:

- Approximately eight (8) to twelve (12) injection points will be advanced to approximately 22 feet bgs in the most upgradient portion of the plume (along the building face on Tonawanda Street). The injection points will either be direct push points, or “tremie” points in which amendments are distributed into a casing that is slowly removed over time to maximize injection efficiency.
- The goal of treatment at this location is to reduce a significant amount of TCE mass using a chemical amendment, while promoting microbial activity (complete reductive - dechlorination) by adding an electron donor that will dissolve and distribute into the aquifer in an eastern direction, and stimulate TCE reduction (to ethene) at the upgradient edge of the site and under the building.

This alternative also includes provisions for managing the Site upon completion of remediation through an Environmental Easement (EE), Institutional Controls (ICs), and Engineering Controls (ECs) such as the following:

- Completion and submission of a periodic certification to the NYSDEC for ICs/ECs operating at the site in accordance with NYSDEC Part 375-1.8(h)(3);
- Allowance for use of the property for residential, commercial, and industrial purposes as defined by Part 375-1.8(g), subject to local zoning laws;
- Restricted use of groundwater as a source of potable or process water without necessary water quality treatment as determined by the NYSDOH or County DOH;
- Compliance with the approved Site Management Plan (SMP).

An SMP is required that includes, but is not limited to the following:

- Identification of all use restrictions and ECs for the Site and details the steps and media specific requirements necessary to ensure the ICs/ECs remain in place and effective;
- An Excavation Plan that details provisions for management of future excavations in areas of remaining or residual contamination;
- A monitoring plan for groundwater;
- Provisions of the EE including any land use or groundwater use restrictions;
- Provisions for the management and inspection of the identified ECs;
- Maintenance of site access and NYSDEC notifications; and,
- Administration of periodic reviews and certifications of the IC/ECs.

The following text presents the Alternative 1 analysis based upon the previously defined selection factors.

**Overall Protection of Public Health and the Environment –** Alternative 1 is protective of human health and the environment based upon the removal of approximately one foot of impacted material and replacement with a new hardscape (asphalt/stone base) parking lot, and removal of approximately two feet of impacted material and replacement with a minimum of two feet imported "clean" material in all exterior areas. An SSDS will be installed beneath the existing and new building floor slab to mitigate soil vapor intrusion into the building, and groundwater will be treated throughout the site (See **Figure 7**).

The site cover system consisting of imported clean soil and hardscape will be incorporated into the SMP as an engineering control. Institutional controls will be implemented to prevent less restrictive future site uses (e.g., unrestricted, residential) and restrict any use of the groundwater at the Site. The groundwater will be monitored and the cover system will be inspected, monitored, and maintained, and the SMP Excavation Work Plan will apply to any future disturbance of soils beneath the cover system. The SMP also requires the implementation of an approved health and safety plan for all future work.

**Compliance with SCGs** – Alternative 1 adheres to a Part 375 Track 4 remedy with implementation of an approved cover system throughout the site that acts as a barrier between residual contamination in soil and future occupants. As a result of solvent exceedances in site groundwater (i.e., TCE > TOGS), this alternative will require groundwater treatment to prevent the offsite migration of contamination via groundwater and to comply with corresponding TOGS cleanup values.

**Long-Term Effectiveness and Permanence –** The remedial measure will effectively achieve RAOs and meet restricted residential criteria. The removal of impacted soil and implementation of a hardscape and greenscape cover system across the site meets the RAOs for soil. The SMP requires periodic inspection and monitoring of the cover system including applicability to any future disturbance of the cover to assure its integrity. The installation and maintenance of an SSDS in the building with ongoing monitoring through the SMP will meet the RAOs for soil vapor. The groundwater treatment proposed will reduce or eliminate impacts to the groundwater leaving the property; while attenuation of remaining impacts to the groundwater will be monitored over time through a monitoring well sampling program.

**Reduction of Toxicity, Mobility, or Volume with Treatment –** Alternative one will either permanently or significantly reduce the mobility of contamination in site soils at the Site through the removal of impacted material and installing the cover system. The volume and toxicity of impacted groundwater will be reduced by the treatment system. The volume and mobility of contaminated soil vapor from beneath the building will be reduced through the removal of "hot spot" soils and installation of an SSDS. This alternative will not, however, reduce the toxicity of the residual soil contamination left in place upon completion of the remedial measure.

**Short-Term Effectiveness –** Potential short-term adverse impacts and human exposures may occur during remediation and redevelopment; however, these impacts should be minimal. A Remedial Action Work Plan (RAWP) will be implemented prior to remediation that requires the implementation of a site-specific health and Safety plan for all workers. The SSDS, once installed, will eliminate impacts from soil vapor intrusion on workers within building. 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 environmental easement and the implementation of the SMP.

**Implementability –** There are no implementation issues related to the proposed remediation or related to the Institutional and Engineering Controls placed on the Site under this alternative. Soil excavation, groundwater treatment, and soil vapor intrusion activities are common remedial measures and easily implementable.

**Community Acceptance** – Community acceptance will be evaluated based upon comments from the public in response to Fact Sheets, documents released to public, and other planned Citizen Participation activities. To-date there have been no public comments and no significant comments that would alter or prevent this alternative are anticipated.

**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 this Alternative is $1.4M. The cost summaries for this alternative are provided in **Appendix A.**

### *2.4.2 Alternative 2 - Unrestricted Use (conditional)*

The details of this alternative are illustrated in **Figure 8** and primarily included the following remedial activities:

1. Removal and disposal of material throughout the site where contaminant concentrations exceed Unrestricted SCOs or removal of material to bedrock, whichever is shallowest. Based on RI data it is estimated that this would require soil removal of approximately eight feet bgs across the site. The site would be backfilled with imported “clean” material meeting Unrestricted-Use SCOs.
2. Installation of an SSDS and subsequent indoor air sampling and analysis to assess the reliability of the soil and groundwater remediation.
3. Treatment of groundwater using a permeable reactive barrier along the west, east, and south limits of the property. Groundwater would also be treated in the hot spot area proximate to boring SSB-4 where the soil sample indicated elevated concentrations of TCE. Similar treatment technologies and applications as those listed in Alternative 1 would also apply to this alternative.
4. Implementation of a groundwater monitoring program to assess attenuation of impacts to the groundwater over a five-year period. A temporary EE and SMP will be required for this alternative. The treatment system and any vapor intrusion monitoring must no longer be needed within 5 years of the date of the Certificate of Completion (COC) eliminating the EE and SMP or the remedy would result in a Default - Track 2 - Restricted Residential cleanup.

The following text presents the Alternative 2 analysis based upon the previously defined selection factors.

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

**Compliance with SCGs** – This alternative would comply with SCOs, NYSDOH soil vapor guidelines, and groundwater cleanup guidelines as specified in TOGs.

**Long-Term Effectiveness and Permanence –** This alternative would employ the removal of all contamination across the site in soil, groundwater, and vapor; therefore, this Track 1

unrestricted use alternative would provide long-term effectiveness and permanence. Accordingly, post-remedial monitoring and certifications would not be required other than groundwater and soil vapor for up to 5 years to assess the effectiveness of treatment.

**Reduction of Toxicity, Mobility, or Volume with Treatment –** Through removal of contaminate sources across the site, this alternative would permanently reduce the toxicity, mobility, and volume of contamination in soil, groundwater, and soil vapor.

**Short-Term Effectiveness –** The short-term adverse impacts and risks to the community, workers, and environment during implementation of the Unrestricted Use alternative would increase due to the volume of material requiring treatment and the extended time to implement the remedy. The HASP in the RAWP, however, is designed to mitigate these exposures.

**Implementability –** Technical implementability of the Unrestricted Use alternative would be more difficult compared to Alternative 1; however, still not too complex. Shoring measures along the building and creek could be warranted that would decrease this alternative's implementability.

**Community Acceptance** – Community acceptance will be evaluated based on comments to be received from the public in response to Fact Sheets, public comment periods on documents and other planned Citizen Participation activities. However, it would be anticipated that this alternative would be more accepted than Alternative 1.

**Cost -** The capital cost of implementing an Unrestricted Use alternative is estimated at approximately $2.1M. (see **Appendix A**).

# 3.0 CONCLUSIONS

Based on the analysis completed, Alternative 1 is the recommended remedy for the site. Both alternatives are protective of human health and the environment, and while Alternative 2 is more comprehensive, the additional remedial measures do not translate into additional effectiveness or protection of future occupants. Alternative 1 generally includes the following remedial concepts to protect human health and the environment:

1. Remove asphalt and subbase/soil and replace with hardscape for the redevelopment parking lot (4" asphalt and 8" clean stone).
2. Remove rubble and soil from the collapsed building area and replace with hardscape (rebuilt building foundation and concrete courtyard)
3. Excavate "hot spot" area within the main building (SSB-4 boring); approximately10 feet x 10 feet x 12 feet deep (See **Figure 7**).
4. Remove and dispose soil and asphalt east of the proposed new parking area and backfill with a minimum of two (2) feet of clean soil/stone/topsoil.
5. Install an SSDS in the renovated building.
6. Treat groundwater through installing an injection point reactive barrier along the west side of the south half of the building exterior (15+/- points estimated) and install a permeable Reactive Barrier (PRB) as shown on **Figure 7**.
7. Remove and properly dispose of sediment from building trenches/drains.

8. Manage the Site upon completion of remediation with implementation, through an Environmental Easement (EE) of Institutional Controls (ICs) and Engineering Controls (ECs)
9. Generate a Site Management Plan (SMP) that identifies all use restrictions and ECs for the Site, contains an Excavation Plan which details provisions for management of future excavations in areas of remaining contamination, contains a monitoring plan for groundwater, maintains site access controls and NYSDEC notifications; and provides the steps necessary for the periodic reviews and certifications of the IC/EC.

Alternative 1 fully satisfies the remedial action objectives and is protective of human health and the environment. Therefore, this alternative is the recommended final remedial approach for the Site.

# 71 TONAWANDA PROPERTY

# REMEDIAL INVESTIGATION TABLES

BE3
BRYDGES ENGINEERING

# TABLE 1



**71 TONAWANDA STREET - RI SOIL BORING/TEST PIT SAMPLE ANALYTICAL RESULTS SUMMARY**

| Contaminants | | | | PART 375 Soil Cleanup Objectives | | |
|---|---|---|---|---|---|---|
| | BH-03 (1 -4') | BH-05 (1 -4') | BH-06 (1-4') | Unrestricted Use | Residential | Restricted Residential |
| Sample Date | 12/18/2019 | 12/18/2019 | 12/18/2019 | | | |
| **METALS** | | | | | | |
| Arsenic | 3.22 | 9.25 | 4.78 | 13 | 16 | 16 |
| Barium | 30.00 | 65.00 | 59.40 | 350 | 350 | 400 |
| Beryllium | 0.27 | 0.41 | 0.38 | 7.2 | 14 | 72 |
| Cadmium | 1.21 | 2.14 | 1.03 | 2.5 | 2.5 | 4.3 |
| Chromium | 12.20 | 35.70 | 14.60 | 30 | 36 | 180 |
| Copper | 92.70 | **1090.00** | 151.00 | 50 | 270 | 270 |
| Lead | **1390.00** | 273.00 | 161.00 | 63 | 400 | 400 |
| Manganese | 483.00 | **2150.00** | 661.00 | 1600 | 2,000 | 2,000 |
| Total Mercury | 0.07 | 0.22 | 0.05 | 0.18 | 0.81 | 0.81 |
| Nickel | 11.60 | 27.40 | 11.10 | 30 | 140 | 310 |
| Selenium | ND | 0.93 | ND | 3.9 | 36 | 180 |
| Silver | 10.00 | 1.20 | 0.48 | 2 | 36 | 180 |
| Zinc | 157.00 | 394.00 | 218.00 | 109 | 2200 | 10,000 |
| Cyanide | 4.30 | ND | ND | 27 | 27 | 27 |
| **PCBs** | | | | | | |
| PCB-1254 | ND | ND | 0.034 | 0.1 | 1 | 1 |
| PCB-1260 | 0.031 | ND | ND | 0.1 | 1 | 1 |
| **PESTICIDES** | | | | | | |
| 4,4-DDT | 0.006 | 0.010 | 0.007 | 0.0033 | 1.7 | 7.9 |
| 4,4-DDD | ND | 0.011 | ND | 0.0033 | 2.6 | 13 |
| 4,4-DDE | ND | 0.002 | ND | 0.0033 | 1.8 | 8.9 |
| delta-BHC | ND | ND | ND | 0.04 | 100 | 100 |
| Endosulfan II | ND | 0.002 | ND | 2.4 | 4.8 | 24 |
| Endosulfan Sulfate | 0.003 | 0.014 | 0.002 | 2.4 | 4.8 | 24 |
| Lindane | ND | ND | ND | 0.1 | 0.28 | 1.3 |
| Endrin | 0.002 | 0.003 | ND | 0.014 | 2.2 | 11 |
| **SEMIVOLATILE ORGANIC COMPOUNDS** | | | | | | |
| Acenaphthene | 1.83 | 3.61 | ND | 20 | 100 | 100 |
| Acenapthylene | ND | ND | ND | 100 | 100 | 100 |
| Anthracene | 0.76 | 8.9 | 0.31 | 100 | 100 | 100 |
| Benz(a)anthracene | **2.58** | **16.6** | **1.05** | 1 | 1 | 1 |
| Benzo(a)pyrene | **2.25** | **12.5** | 0.97 | 1 | 1 | 1 |
| Benzo(b)fluoranthene | **2.44** | **10.9** | 1.08 | 1 | 1 | 1 |
| Benzo(g,h,i)perylene | 1.32 | 6.23 | 0.71 | 100 | 100 | 100 |
| Benzo(k)fluoranthene | 1.43 | **10.1** | 0.6 | 0.8 | 1 | 3.9 |
| Chrysene | 2.17 | **13.9** | 1.05 | 1 | 1 | 3.9 |
| Dibenz(a,h)anthracene | **0.41** | **1.85** | ND | 0.33 | 0.33 | 0.33 |
| Fluoranthene | 5.01 | 37 | 2.38 | 100 | 100 | 100 |
| Fluorene | 0.2 | 4.02 | ND | 30 | 100 | 100 |
| Indeno(1,2,3-cd)pyrene | **1.55** | **7.71** | **0.71** | 0.5 | 0.5 | 0.5 |
| Naphthalene | 0.23 | 1.71 | ND | 12 | 100 | 100 |
| Phenanthrene | 2.57 | 36.2 | 1.44 | 100 | 100 | 100 |
| Pyrene | 3.32 | 25.1 | 1.55 | 100 | 100 | 100 |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | | |
| Acetone | ND | ND | ND | 0.05 | 100 | 100 |
| Toluene | ND | ND | ND | 0.7 | 100 | 100 |
| Ethylbenzene | ND | ND | ND | 1 | 30 | 41 |
| m,p-Xylene | ND | ND | ND | 0.26 | 100 | 100 |
| Methylene chloride | ND | ND | ND | 0.05 | 51 | 100 |
| cis-1,2-Dichloroethene | 0.038 | ND | ND | 0.25 | 59 | 100 |
| Trichloroethene | 0.077 | 0.089 | 0.004 | 0.47 | 10 | 21 |
| trans-1,2-Dichloroethene | 0.043 | 0.043 | 0.007 | 0.19 | 100 | 100 |
| Vinyl chloride | ND | ND | ND | 0.02 | 0.21 | 0.9 |
| 1,2,4-Trimethylbenzene | ND | ND | ND | 3.6 | 47 | 52 |
| 1,3,5- Trimethylbenzene | ND | ND | ND | 8.4 | 47 | 52 |

ND - Non-Detect NA - Not Applicable

All values in ppm
Data Validtion is Complete

**TABLE 1** 

**57-71 TONAWANDA STREET - RI SOIL BORING/TEST PIT SAMPLE ANALYTICAL RESULTS SUMMARY**

| Contaminants | BH-13 (1 -2') | TP-14 (8- 9') | TP-16 (1 -3') | TP-17 (3 -4') | MW-4 Soil Sample (12-13') | PART 375 Soil Cleanup Objectives: Unrestricted Use | Residential | Restricted Residential |
|---|---|---|---|---|---|---|---|---|
| | 12/18/2019 | 1/8/2020 | 1/8/2020 | 1/8/2020 | 1/14/2020 | | | |
| **METALS** | | | | | | | | |
| Arsenic | 3.45 | 2.97 | 2.55 | 3.55 | NA | 13 | 16 | 16 |
| Barium | 17.9 | 33.8 | 44.4 | 171 | NA | 350 | 350 | 400 |
| Beryllium | 0.173 | ND | 0.181 | 0.897 | NA | 7.2 | 14 | 72 |
| Cadmium | 0.698 | 0.467 | 0.248 | 0.523 | NA | 2.5 | 2.5 | 4.3 |
| Chromium | 10.4 | 5.82 | 7.95 | 25.1 | NA | 30 | 36 | 180 |
| Copper | **345** | **297** | 21.8 | 23.3 | NA | 50 | 270 | 270 |
| Lead | **165** | 52.5 | **74.5** | 11.7 | NA | 63 | 400 | 400 |
| Manganese | 187 | 133 | 175 | 520 | NA | 1600 | 2,000 | 2,000 |
| Total Mercury | 0.023 | 0.0638 | 0.0332 | 0.0145 | NA | 0.18 | 0.81 | 0.81 |
| Nickel | 11.6 | 7.02 | 8.43 | 28.8 | NA | 30 | 140 | 310 |
| Selenium | ND | 1.94 | 1.08 | 0.673 | NA | 3.9 | 36 | 180 |
| Silver | ND | ND | ND | ND | NA | 2 | 36 | 180 |
| Zinc | 0.86 | 92.4 | 129 | 64.5 | NA | 109 | 2200 | 10,000 |
| Cyanide | ND | ND | ND | ND | NA | 27 | 27 | 27 |
| **PCBs** | | | | | | | | |
| PCB-1254 | ND | ND | ND | ND | NA | 0.1 | 1 | 1 |
| PCB-1260 | ND | ND | ND | ND | NA | 0.1 | 1 | 1 |
| **PESTICIDES** | | | | | | | | |
| 4,4-DDT | ND | **0.004** | **0.004** | ND | NA | 0.0033 | 1.7 | 7.9 |
| 4,4-DDD | ND | ND | ND | ND | NA | 0.0033 | 2.6 | 13 |
| 4,4-DDE | ND | ND | ND | ND | NA | 0.0033 | 1.8 | 8.9 |
| delta-BHC | ND | ND | ND | ND | NA | 0.04 | 100 | 100 |
| Endosulfan II | ND | ND | ND | ND | NA | 2.4 | 4.8 | 24 |
| Endosulfan Sulfate | 0.002 | 0.003 | 0.004 | ND | NA | 2.4 | 4.8 | 24 |
| Lindane | ND | 0.005 | ND | ND | NA | 0.1 | 0.28 | 1.3 |
| Endrin | ND | ND | ND | ND | NA | 0.014 | 2.2 | 11 |
| **SEMIVOLATILE ORGANIC COMPOUNDS** | | | | | | | | |
| Acenaphthene | ND | ND | ND | ND | NA | 20 | 100 | 100 |
| Acenapthylene | ND | 0.23 J | 0.5 J | ND | NA | 100 | 100 | 100 |
| Anthracene | ND | 0.31 J | 0.96 J | ND | NA | 100 | 100 | 100 |
| Benz(a)anthracene | **2.46** | 0.71 J | **1.95 J** | ND | NA | 1 | 1 | 1 |
| Benzo(a)pyrene | **2.48** | 0.94 J | **1.6 J** | ND | NA | 1 | 1 | 1 |
| Benzo(b)fluoranthene | **3.26** | 0.87 J | **1.63 J** | ND | NA | 1 | 1 | 1 |
| Benzo(g,h,i)perylene | ND | 0.73 J | 1.05 J | ND | NA | 100 | 100 | 100 |
| Benzo(k)fluoranthene | ND | 0.7 J | 1.28 J | ND | NA | 0.8 | 1 | 3.9 |
| Chrysene | 2.67 | 0.77 J | 1.78 J | ND | NA | 1 | 1 | 3.9 |
| Dibenz(a,h)anthracene | ND | 0.22 J | **0.36 J** | ND | NA | 0.33 | 0.33 | 0.33 |
| Fluoranthene | 5.53 | 1.4 J | 4.55 J | ND | NA | 100 | 100 | 100 |
| Fluorene | ND | ND | 0.27 J | ND | NA | 30 | 100 | 100 |
| Indeno(1,2,3-cd)pyrene | ND | 0.59 J | **0.9 J** | ND | NA | 0.5 | 0.5 | 0.5 |
| Naphthalene | ND | ND | ND | ND | NA | 12 | 100 | 100 |
| Phenanthrene | 2.57 | 0.65 J | 2.94 J | ND | NA | 100 | 100 | 100 |
| Pyrene | 4 | 1.1 J | 3.12 J | ND | NA | 100 | 100 | 100 |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | | | | |
| Acetone | 0.022 | ND | ND | ND | ND | 0.05 | 100 | 100 |
| Toluene | ND | ND | ND | ND | ND | 0.7 | 100 | 100 |
| Ethylbenzene | ND | ND | ND | ND | ND | 1 | 30 | 41 |
| m,p-Xylene | ND | ND | ND | ND | ND | 0.26 | 100 | 100 |
| Methylene chloride | ND | ND | ND | ND | ND | 0.05 | 51 | 100 |
| cis-1,2-Dichloroethene | 0.004 | ND | ND | ND | ND | 0.25 | 59 | 100 |
| Trichloroethene | 0.014 | ND | ND | 0.038 | **36.1** | 0.47 | 10 | 21 |
| trans-1,2-Dichloroethene | 0.01 | 0.003 | 0.003 | ND | ND | 0.19 | 100 | 100 |
| 1,2,4-Trimethylbenzene | ND | ND | ND | ND | ND | 3.6 | 47 | 52 |
| 1,3,5- Trimethylbenzene | ND | ND | ND | ND | ND | 8.4 | 47 | 52 |

ND - Non-Detect NA - Not Applicable

All values in ppm

Data Validation is Complete

## TABLE 2
### 71 TONAWANDA STREET - RI SURFACE SOIL SAMPLE ANALYTICAL RESULTS SUMMARY

| Contaminants | SS-01 (1) (0-0.5') | SS-02 (1) (0-0.5') | SS-03 (1) (0-0.5') | PART 375 Soil Cleanup Objectives | | |
|---|---|---|---|---|---|---|
| | | | | Unrestricted Use | Residential | Restricted Residential |
| | 12/18/2019 | 12/18/2019 | 12/18/2019 | | | |
| **METALS** | | | | | | |
| Arsenic | 10 | 2.61 | 5.02 | 13 | 16 | 16 |
| Barium | 140 | 33.5 | 157 | 350 | 350 | 400 |
| Beryllium | 0.647 | ND | ND | 7.2 | 14 | 72 |
| Cadmium | 1.99 | 0.83 | **5.26** | 2.5 | 2.5 | 4.3 |
| Chromium | 22.5 | 16.1 | 68.3 | 30 | 36 | 180 |
| Copper | 73.3 | 41.4 | 243 | 50 | 270 | 270 |
| Lead | 353 | 50.5 | **442** | 63 | 400 | 400 |
| Manganese | 337 | 551 | 808 | 1600 | 2,000 | 2,000 |
| Total Mercury | 0.206 | 0.0222 | 0.104 | 0.18 | 0.81 | 0.81 |
| Nickel | 22.7 | 15.5 | 61.9 | 30 | 140 | 310 |
| Selenium | 0.727 | ND | 6.1 | 3.9 | 36 | 180 |
| Silver | 0.472 | 0.387 | 2.27 | 2 | 36 | 180 |
| Zinc | 322 | 469 | 1100 | 109 | 2200 | 10,000 |
| Cyanide | ND | ND | 0.952 | 27 | 27 | 27 |
| **PCBs** | | | | | | |
| PCB-1254 | ND | ND | ND | 0.1 | 1 | 1 |
| PCB-1260 | ND | ND | ND | 0.1 | 1 | 1 |
| **PESTICIDES** | | | | | | |
| 4,4-DDT | **0.007** | 0.003 | ND | 0.0033 | 1.7 | 7.9 |
| 4,4-DDD | 0.002 | 0.002 | ND | 0.0033 | 2.6 | 13 |
| 4,4-DDE | **0.005** | ND | ND | 0.0033 | 1.8 | 8.9 |
| Dieldrin | 0.002 | ND | ND | 0.005 | 0.039 | 0.2 |
| delta-BHC | ND | 0.002 | ND | 0.04 | 100 | 100 |
| Endosulfan II | ND | ND | ND | 2.4 | 4.8 | 24 |
| Endosulfan Sulfate | ND | 0.005 | 0.006 | 2.4 | 4.8 | 24 |
| Lindane | 0.002 | 0.002 | 0.009 | 0.1 | 0.28 | 1.3 |
| Endrin | ND | ND | ND | 0.014 | 2.2 | 11 |
| **SEMIVOLATILE ORGANIC COMPOUNDS** | | | | | | |
| Acenaphthene | ND | ND | ND | 20 | 100 | 100 |
| Acenapthylene | ND | ND | ND | 100 | 100 | 100 |
| Anthracene | ND | 1.27 | 2.07 | 100 | 100 | 100 |
| Benz(a)anthracene | 0.33 | **6.71 J** | **14.8 J** | 1 | 1 | 1 |
| Benzo(a)pyrene | 0.31 | **8.35 J** | **16.8 J** | 1 | 1 | 1 |
| Benzo(b)fluoranthene | 0.37 | **9.97 J** | **21.3 J** | 1 | 1 | 1 |
| Benzo(g,h,i)perylene | ND | 6.52 J | 13.6 J | 100 | 100 | 100 |
| Benzo(k)fluoranthene | ND | **4.24 J** | **11.3 J** | 0.8 | 1 | 3.9 |
| Chrysene | 0.32 | **7.31 J** | **17.6 J** | 1 | 1 | 3.9 |
| Dibenz(a,h)anthracene | ND | **1.99 J** | **4.32 J** | 0.33 | 0.33 | 0.33 |
| Fluoranthene | 0.63 | 15.6 J | 36.3 J | 100 | 100 | 100 |
| Fluorene | ND | ND | ND | 30 | 100 | 100 |
| Indeno(1,2,3-cd)pyrene | ND | **7.98 J** | **14.3 J** | 0.5 | 0.5 | 0.5 |
| Naphthalene | ND | ND | ND | 12 | 100 | 100 |
| Phenanthrene | 0.32 | 6.35 J | 11.9 J | 100 | 100 | 100 |
| Pyrene | 0.39 | 10.7 J | 0.78 J | 100 | 100 | 100 |

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

>/= to Residential/Restricted-Residential S All values in ppm

>Unrestricted Use SCO but <Residential/Restricted-Residential SCO.

>Unrestricted Use & Residential SCO but <Restricted-Residential SCO

(1) SS-01 - Surface soil sample collected with shovel

# TABLE 3

## 71 TONAWANDA STREET - RI SOIL BORING/TEST PIT SAMPLE ANALYTICAL RESULTS SUMMARY - PFAS & 1,4 DIOXANE

| Sample Number | BH-03 (1 -4') | BH-05 (1 -4') | BH-06 (1-4') | NYSDEC Guideline |
|---|---|---|---|---|
| **Sample Date** | **12/18/2019** | **12/18/2019** | **12/18/2019** | |
| **1,4 Dioxane by 8270D** | | | | |
| 1,4 Dioxane | ND | ND | ND | 1 ppm |
| **Perfluorinated Alkyl Acids by Isotope Dilution EPA 537** | | | | |
| Perfluorobutanoic Acid (PFBA) | ND | 0.026 | 0.042 | |
| Perfluoropentanoic Acid (PFPeA) | ND | ND | ND | |
| Perfluorobutanesulfonic Acid (PFBS) | ND | ND | ND | |
| Perfluorohexanoic Acid (PFHxA) | ND | 0.074 | 0.063 | |
| Perfluoroheptanoic Acid (PFHpA) | ND | ND | ND | |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | ND | ND | |
| Perfluorooctanoic Acid (PFOA) | ND | 0.090 | 0.0840 | 33.00 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | ND | ND | |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | ND | ND | |
| Perfluorononanoic Acid (PFNA) | ND | ND | ND | |
| Perfluorooctanesulfonic Acid (PFOS) | 0.310 | 1.080 | 0.656 | 44.00 |
| 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) | 0.136 | ND | ND | |
| Perfluorododecanoic Acid (PFDoA) | ND | ND | ND | |
| Perfluorotridecanoic Acid (PFTrDA) | ND | ND | ND | |
| Perfluorotetradecanoic Acid (PFTA) | ND | ND | ND | |

PFAS Values in ppb

N/A - Not Applicable ND - Non-detect

# TABLE 3

## 71 TONAWANDA STREET - RI SOIL BORING/TEST PIT SAMPLE ANALYTICAL RESULTS SUMMARY - PFAS & 1,4 DIOXANE

| Sample Number | BH-13 (1 -2') | TP-14 (8-9') | TP-16 (1-3') | TP-17 (3 -4') | NYSDEC Guideline |
|---|---|---|---|---|---|
| **Sample Date** | **12/18/2019** | **1/8/2020** | **1/8/2020** | **1/8/2020** | |
| **1,4 Dioxane by 8270D** | | | | | |
| 1,4 Dioxane | ND | ND | ND | ND | 1 ppm |
| **Perfluorinated Alkyl Acids by Isotope Dilution EPA 537** | | | | | |
| Perfluorobutanoic Acid (PFBA) | ND | 0.07900 | 0.047 | ND | |
| Perfluoropentanoic Acid (PFPeA) | ND | 0.10200 | ND | ND | |
| Perfluorobutanesulfonic Acid (PFBS) | ND | ND | ND | ND | |
| Perfluorohexanoic Acid (PFHxA) | 0.049 | 0.10800 | 0.073 | ND | |
| Perfluoroheptanoic Acid (PFHpA) | ND | 0.05100 | ND | ND | |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | ND | ND | ND | |
| Perfluorooctanoic Acid (PFOA) | ND | 0.10200 | 0.057 | ND | 33.00 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | ND | ND | ND | |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | ND | ND | ND | |
| Perfluorononanoic Acid (PFNA) | ND | ND | ND | ND | |
| Perfluorooctanesulfonic Acid (PFOS) | ND | 0.27700 | 0.155 | ND | 44.00 |
| Perfluorodecanoic Acid (PFDA) | ND | ND | ND | ND | |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | ND | ND | ND | |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | ND | ND | ND | |
| Perfluoroundecanoic Acid (PFUnA) | ND | ND | ND | ND | |
| Perfluorodecanesulfonic Acid (PFDS) | ND | ND | ND | ND | |
| Perfluorooctanesulfonamide (FOSA) | ND | ND | ND | ND | |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | ND | ND | ND | |
| Perfluorododecanoic Acid (PFDoA) | ND | ND | ND | ND | |
| Perfluorotridecanoic Acid (PFTrDA) | ND | ND | ND | ND | |
| Perfluorotetradecanoic Acid (PFTA) | ND | ND | ND | ND | |

PFAS Values in ppb

N/A - Not Applicable ND - Non-detect

# TABLE 4

## 71 TONAWANDA STREET - RI SOIL SURFACE SAMPLE ANALYTICAL RESULTS SUMMARY - PFAS & 1,4 DIOXANE

| Sample Number | SS-01 (0-0.5') | SS-02 (1) (0-0.5') | SS-03 (1) (0-0.5') | NYSDEC Guideline |
|---|---|---|---|---|
| **Sample Date** | **12/18/2019** | **12/18/2019** | **12/18/2019** | |
| **1,4 Dioxane by 8270D** | | | | |
| 1,4 Dioxane | ND | ND | ND | 1 ppm |
| **Perfluorinated Alkyl Acids by Isotope Dilution EPA 537** | | | | |
| Perfluorobutanoic Acid (PFBA) | 0.1750 | 0.049 | 0.258 | |
| Perfluoropentanoic Acid (PFPeA) | 0.454 | ND | 0.159 | |
| Perfluorobutanesulfonic Acid (PFBS) | ND | ND | ND | |
| Perfluorohexanoic Acid (PFHxA) | 0.327 | 0.075 | 0.164 | |
| Perfluoroheptanoic Acid (PFHpA) | 0.194 | ND | 0.104 | |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | ND | ND | |
| Perfluorooctanoic Acid (PFOA) | 0.5690 | 0.0960 | 0.2570 | 33.00 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | ND | ND | |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | ND | ND | |
| Perfluorononanoic Acid (PFNA) | 0.1940 | ND | 0.2460 | |
| Perfluorooctanesulfonic Acid (PFOS) | 2.2400 | 0.173 | 0.866 | 44.00 |
| Perfluorodecanoic Acid (PFDA) | 0.3210 | 0.089 | 0.358 | |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | ND | ND | |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | ND | ND | |
| Perfluoroundecanoic Acid (PFUnA) | 0.132 | 0.064 | 0.362 | |
| Perfluorodecanesulfonic Acid (PFDS) | ND | ND | ND | |
| Perfluorooctanesulfonamide (FOSA) | ND | ND | ND | |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | 0.180 | ND | ND | |
| Perfluorododecanoic Acid (PFDoA) | 0.249 | 0.084 | 0.330 | |
| Perfluorotridecanoic Acid (PFTrDA) | ND | ND | ND | |
| Perfluorotetradecanoic Acid (PFTA) | 0.126 | 0.068 | 0.211 | |

PFAS Values in ppb

N/A - Not Applicable ND - Non-detect

**Exceeds Guideline**

(1) SS-01 - Surface soil sample collected with shovel

# TABLE 5
## 71 TONAWANDA STREET - RI GROUNDWATER SAMPLE ANALYTICAL RESULTS SUMMARY

| Contaminants | MW-1 | MW-2 | MW-3 | MW-4 | MW-5 | NYSDEC TOGS 1.1.1. GA |
|---|---|---|---|---|---|---|
| **Sample Date** | **1/22/2020** | **1/22/2020** | **1/22/2020** | **1/23/2020** | **1/23/2020** | |
| **DISSOLVED METALS** | | | | | | |
| Arsenic | ND | ND | ND | 24.3 | 12.6 | 25 |
| Barium | 66.5 | 144 | 175 | ND | ND | 1000 |
| Beryllium | ND | ND | ND | ND | ND | 3 |
| Chromium | ND | ND | ND | ND | ND | 50 |
| Copper | ND | ND | ND | ND | ND | 200 |
| Cyanide | ND | ND | ND | ND | ND | 200 |
| Lead | 7 | ND | **42.7** | ND | ND | 25 |
| Manganese | 31.6 | **694** | **2690** | **321** | **365** | 300 |
| Nickel | ND | ND | ND | ND | ND | 100 |
| Total Mercury | ND | ND | ND | ND | 0.14 | 0.7 |
| Zinc | 256 | ND | ND | ND | ND | 2000 |
| Selenium | ND | **15.4** | **18.3** | **16.3** | ND | 10 |
| **PCBs** | | | | | | |
| PCBs | ND | ND | ND | ND | ND | NA |
| **PESTICIDES** | | | | | | |
| Dieldrin | ND | ND | ND | ND | ND | 0.004 |
| Heptachlor | ND | ND | ND | ND | ND | 0.04 |
| Heptachlor Epoxide | ND | ND | ND | ND | ND | 0.03 |
| **SEMIVOLATILE ORGANIC COMPOUNDS** | | | | | | |
| SVOCs | ND | ND | ND | ND | ND | NA |
| **Volatile Organic Compounds** | | | | | | |
| Acetone | 17.4 | **408** | **157** | **409** | 9.73 | 50 |
| 1,1,1-Trichloroethane | 1 | **14.7** | ND | ND | ND | 5 |
| 1,1-Dichloroethane | ND | **57** | ND | ND | ND | 5 |
| 1,1-Dichloroethene | ND | ND | ND | ND | ND | 5 |
| cis-1,2-Dichloroethene | 2.58 | **55.4** | ND | ND | ND | 5 |
| 1,2,4-Trimethylbenzene | ND | ND | ND | ND | ND | 5 |
| 1,3,5-Trimethylbenzene | ND | ND | ND | ND | ND | 5 |
| 1,4-Dioxane | 0.149 | **52.1** | **1.36** | 0.473 | ND | 1 |
| Trichloroethene | **13** | **22.5** | 1.27 | **7370** | 1.28 | 5 |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | ND | 5 |
| Vinyl chloride | ND | **35.3** | ND | ND | ND | 2 |
| **Well Development Field Parameters** | | | | | | |
| Turbidity (NTU) | 11.0 | 19.5 | 13.2 | 27.5 | NM | NA |
| pH | 7.53 | 7.28 | 6.75 | 7.16 | NM | NA |
| Dissolved Oxygen | 6.31 | 7.25 | 1.45 | 4.33 | NM | NA |
| Temp (degrees C) | 6.01 | 8.29 | 8.53 | 9.36 | NM | NA |
| Conductivity | 1.08 | 0.92 | 2.23 | 5.84 | NM | NA |

All values in ppb
"J" = Result estimated between the quantitation limit and half the quantitation limit.
L = Laboratory Control Sample recovery outside accepted QC limits.
N/A - Not Applicable ND - Non-detect NM - Not Measured
(1) - TOGs 1.1.1 GA - Technical and Operational Guidance Series (1.1.1) Source of Drinking Water (Groundwater)
Exceeds TOGs Guidance Value

**TABLE 6**

**71 TONAWANDA STREET - PFAS AND 1,4 DIOXANE IN GROUNDWATER ANALYTICAL RESULTS SUMMARY**

| Sample Number | MW-1 | MW-2 | MW-3 | MW-4 | MW-5 | NYSDEC |
|---|---|---|---|---|---|---|
| Sample Date | 8/7/2019 | 8/7/2019 | 8/6/2019 | 8/6/2019 | 8/6/2019 | Guideline |
| **1,4 Dioxane by 8270D** | | | | | | |
| 1,4 Dioxane | ND | ND | ND | ND | ND | 1 |
| **Perfluorinated Alkyl Acids by Isotope Dilution EPA 537** | | | | | | |
| Perfluorobutanoic Acid (PFBA) | 0.00600 | 0.0110 | 0.010 | 0.0050 | 0.0030 | |
| Perfluoropentanoic Acid (PFPeA) | 0.00300 | 0.002 | 0.005 | 0.00080 | 0.00200 | |
| Perfluorobutanesulfonic Acid (PFBS) | 0.0025 | 0.0020 | 0.001 | ND | ND | |
| Perfluorohexanoic Acid (PFHxA) | 0.00250 | 0.00200 | 0.00400 | 0.00060 | 0.00200 | |
| Perfluoroheptanoic Acid (PFHpA) | 0.002 | 0.001 | 0.001 | 0.0002 | 0.0005 | |
| Perfluorohexanesulfonic Acid (PFHxS) | 0.001 | 0.00 | ND | ND | ND | |
| Perfluorooctanoic Acid (PFOA) | 0.004 | 0.0040 | 0.0040 | 0.00050 | 0.00300 | 0.01 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | ND | ND | ND | ND | |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | ND | ND | ND | ND | |
| Perfluorononanoic Acid (PFNA) | 0.0005 | 0.0003 | ND | ND | ND | |
| Perfluorooctanesulfonic Acid (PFOS) | 0.004 | 0.0007 | ND | ND | ND | 0.01 |
| Perfluorodecanoic Acid (PFDA) | ND | ND | ND | ND | ND | |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | ND | ND | ND | ND | |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | 0.001 | ND | ND | ND | ND | |
| Perfluoroundecanoic Acid (PFUnA) | ND | ND | ND | ND | ND | |
| Perfluorodecanesulfonic Acid (PFDS) | ND | ND | ND | ND | ND | |
| Perfluorooctanesulfonamide (FOSA) | ND | ND | ND | ND | ND | |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | 0.0008 | 0.001 | ND | ND | ND | |
| Perfluorododecanoic Acid (PFDoA) | ND | ND | ND | ND | ND | |
| Perfluorotridecanoic Acid (PFTrDA) | ND | ND | ND | ND | ND | |
| Perfluorotetradecanoic Acid (PFTA) | 0.0003 | ND | ND | ND | ND | |
| PFOA/PFOS Total | 0.009 | 0.0040 | 0.0040 | 0.00050 | 0.00300 | 0.50 |

All Values in ppb

Exceeds NYSDEC Guidance Value

N/A - Not Applicable ND - Non-detect

# TABLE 7

## 71 Tonawanda Street - RI Sample Coordinates

| Sample Identification | Coordinates-North American Datum 1983 | |
|---|---|---|
| | Latitude | Longitude |
| **Surface Soil** | | |
| SS01 | 42.931215 | -78.896439 |
| SS02 | 42.931006 | -78.895721 |
| SS03 | 42.930955 | -78.895119 |
| SS04 | 42.930807 | -78.895197 |
| SS05 | 42.930472 | -78.896132 |
| **GeoProbe** | | |
| BH-01 | 42.930471 | -78.895773 |
| BH-02 | 42.930664 | -78.895301 |
| BH-03 | 42.930909 | -78.895107 |
| BH-04 | 42.930777 | -78.895483 |
| BH-05 | 42.930959 | -78.895565 |
| BH-06 | 42.930997 | -78.895728 |
| BH-07 | 42.930872 | -78.895858 |
| BH-08 | 42.930697 | -78.895854 |
| BH-09 | 42.930655 | -78.896090 |
| BH-10 | 42.930566 | -78.896377 |
| BH-11 | 42.930822 | -78.896412 |
| BH-12 | 42.930595 | -78.896280 |
| BH-13 | 42.931031 | -78.896354 |
| TP-14 | 42.931126 | -78.896426 |
| TP-15 | 42.931193 | -78.896596 |
| TP-16 | 42.931248 | -78.896751 |
| TP-17 | 42.931064 | -78.896837 |
| TP-18 | 42.931065 | -78.896622 |
| **Monitoring Wells** | | |
| MW- 1 | 42.930481 | -78.895722 |
| MW- 2 | 42.930871 | -78.895154 |
| MW- 3 | 42.930686 | -78.895823 |
| MW- 4 | 42.930726 | -78.897105 |
| MW- 5 | 42.931192 | -78.897043 |
| **Sub-Slab Vapor** | | |
| SSV-1 | 42.930600 | -78.897000 |
| SSV-2 | 42.930500 | -78.896600 |
| SSV-3 | 42.930700 | -78.896900 |
| SSV-4 | 42.930700 | -78.896500 |
| SSV-5 | 42.930900 | -78.896900 |
| SSV-6 | 42.930890 | -78.896600 |
| **Sub-Slab BH Soil** | | |
| SSB-1 | 42.930650 | -78.896500 |
| SSB-2 | 42.930750 | -78.896700 |
| SSB-3 | 42.930700 | -78.897000 |
| SSB-4 | 42.930950 | -78.086950 |
| SSB-5 | 42.930960 | -78.096500 |

## TABLE 8
## 71 TONAWANDA STREET SITE - GROUNDWATER ELEVATIONS

| Well Number | T of C Elevation (ft) | Water Level January 2020 | Water Level May 2020 | Groundwater Elevation (5-20) |
|---|---|---|---|---|
| | | | | |
| MW - 1 | 577.70 | 3.75 | 3.70 | 574.00 |
| MW - 2 | 578.33 | 3.06 | 3.2 | 575.13 |
| MW - 3 | 579.15 | 1.66 | 2.3 | 576.85 |
| MW - 4 | 582.75 | 4.11 | 5.4 | 577.35 |
| MW - 5 | 584.00 | N/A (1) | 4.6 | 579.40 |

(1) - MW-05 is an extremely slow recharging well and the measured GW level is not representative of the surrounding GW elevation

**TABLE 9**
**71 TONAWANDA BUILDING - SUB SLAB VAPOR ANALYTICAL RESULTS SUMMARY**
**EPA Air Method Toxic Organics -15 (TO-15)**

| Contaminants | SSV-03 Sub Slab 3/5/2020 | SSV-04 Sub Slab 3/5/2020 | SSV-05 Sub Slab 3/5/2020 | SSV-06 Sub Slab 3/5/2020 | NYSDOH (1) Sub Slab Vapor Concentration Decision Matrix - Min Action Level ug/m3 |
|---|---|---|---|---|---|
| **Volatile Organic Compounds (2)** | | | | | |
| 1,1,1-Trichloroethane | 0.65 | 25 | ND | 15 | **100** |
| 1,1,2-Trichloroethane | 0.93 | ND | ND | ND | |
| 1,1-Dichloroethane | ND | 1.3 | ND | ND | **6** |
| 1,2,4-Trimethylbenzene | ND | ND | ND | ND | |
| 1,3,5-Trimethylbenzene | ND | ND | ND | ND | |
| 2,2,4-trimethylpentane | ND | ND | ND | ND | |
| 1,2-Dichloropropane | ND | 7.2 | ND | ND | |
| 1,3-butadiene | ND | 7.1 | ND | ND | |
| 1,4-Dioxane | ND | ND | ND | 2.7 | |
| 4-ethyltoluene | ND | ND | ND | ND | |
| Acetone | 15 | 31 | 17 | 110 | |
| Benzene | 1.8 | 2.6 | 26 | 2.10 | |
| Carbon disulfide | 1.3 | 0.3 | 1.7 | 17 | |
| Carbon tetrachloride | ND | ND | ND | ND | **6** |
| Chloroethane | ND | ND | ND | ND | |
| Chloroform | 8.0 | 3.7 | 14 | ND | |
| Chloromethane | ND | ND | ND | ND | |
| cis-1,2-Dichloroethene | 4.0 | 38 | ND | 1.0 | **6** |
| Cyclohexane | 8.3 | 10 | ND | 14 | |
| Ethyl acetate | ND | 0.54 | ND | ND | |
| Ethylbenzene | ND | ND | ND | ND | |
| Freon 11 | 1.2 | 1.1 | 1.1 | 1.2 | |
| Freon 12 | 2.5 | 2.4 | 2.3 | 2.5 | |
| Heptane | 23 | ND | 420 | 11 | |
| Hexane | 41 | 12 | 720 | 13 | |
| Isopropyl alcohol | ND | 2.6 J | ND | 8.4 J | |
| m&p-Xylene | 0.43 | 0.61 | 2.4 | 0.5 | |
| Methyl Ethyl Ketone | 2.4 | 3.0 | ND | 6 | |
| Methylene chloride | 3.2 | 3 | 3.5 | 4.6 | **100** |
| Propylene | ND | 6.7 | ND | ND | |
| o-Xylene | ND | ND | ND | ND | |
| Styrene | ND | ND | ND | ND | |
| Tetrachloroethylene | ND | 1.2 | 1.8 | 0.68 | **100** |
| Toluene | 2.9 | 5 | 18 | 3.4 | |
| trans-1,2-Dichloroethene | ND | 4 | ND | 0.9 | |
| Trichloroethene (TCE) | **7400** (3) | **4700** (3) | **19000** (3) | **93** (3) | **6** |
| Vinyl chloride | ND | ND | ND | ND | **6** |

N/A - Not Applicable ND - Non-detect

(1) 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 coump

(2) Compounds with detected concentrations in ug/m3

**(3) - The values noted for TCE in the sub slab vapor samples would automaticlly require mitigation (DOH Matrices) no mater what indoor air values are receievd once buildir See Soil Vapor/Indoor Air Matrix A (May 2017) NYSDOH Guidance titled "Evaluating Soil Vapor Intrusion in the State of New York", October 2006 (and subsequent updat**

**TABLE 10**
**71 TONAWANDA STREET - RI BUILDING SUB-SLAB SOIL SAMPLE ANALYTICAL RESULTS SUMMARY**

| Contaminants | Sample Identification | | | | | | PART 375 Soil Cleanup Objectives | | |
|---|---|---|---|---|---|---|---|---|---|
| | SSB-1 Sub-Slab (0-4') 3/18/2020 | SSB-2 Sub-Slab (6 -8') 3/18/2020 | SSB-2 Sub-Slab (9-16') 3/18/2020 | SSB-3 Sub-Slab (10 -11') 3/19/2020 | SSB-4 Sub-Slab (10-12') 3/19/2020 | SSB-5 Sub-Slab (6-7') 3/19/2020 | Unrestricted Use | Residential | Restricted Residential |
| **METALS** | | | | | | | | | |
| Arsenic | **17.3** | NA | NA | NA | NA | NA | 13 | 16 | 16 |
| Barium | 132 | NA | NA | NA | NA | NA | 350 | 350 | 400 |
| Beryllium | ND | NA | NA | NA | NA | NA | 7.2 | 14 | 72 |
| Cadmium | **2.52** | NA | NA | NA | NA | NA | 2.5 | 2.5 | 4.3 |
| Chromium | 20.7 | NA | NA | NA | NA | NA | 30 | 36 | 180 |
| Copper | **3390** | NA | NA | NA | NA | NA | 50 | 270 | 270 |
| Lead | **2240** | NA | NA | NA | NA | NA | 63 | 400 | 400 |
| Manganese | 518 | NA | NA | NA | NA | NA | 1600 | 2,000 | 2,000 |
| Total Mercury | **0.34** | NA | NA | NA | NA | NA | 0.18 | 0.81 | 0.81 |
| Nickel | **36.7** | NA | NA | NA | NA | NA | 30 | 140 | 310 |
| Selenium | 2.98 | NA | NA | NA | NA | NA | 3.9 | 36 | 180 |
| Zinc | **4940** | NA | NA | NA | NA | NA | 109 | 2200 | 10,000 |
| Cyanide | NA | NA | NA | NA | NA | NA | 27 | 27 | 27 |
| **PCBs** | | | | | | | | | |
| PCB-1254 | ND | NA | NA | NA | NA | NA | 0.1 | 1 | 1 |
| PCB-1260 | ND | NA | NA | NA | NA | NA | 0.1 | 1 | 1 |
| **PESTICIDES** | | | | | | | | | |
| 4,4-DDT | ND | NA | NA | NA | NA | NA | 0.0033 | 1.7 | 7.9 |
| 4,4-DDE | ND | NA | NA | NA | NA | NA | 0.0033 | 1.8 | 8.9 |
| Endosulfan Sulfate | 0.002 | NA | NA | NA | NA | NA | 2.4 | 4.8 | 24 |
| Endrin | ND | NA | NA | NA | NA | NA | 0.014 | 2.2 | 11 |
| **SEMIVOLATILE ORGANIC COMPOUNDS** | | | | | | | | | |
| Acenaphthene | ND | NA | NA | NA | NA | NA | 20 | 100 | 100 |
| Acenapthylene | ND | NA | NA | NA | NA | NA | 100 | 100 | 100 |
| Anthracene | 0.27 | NA | NA | NA | NA | NA | 100 | 100 | 100 |
| Benz(a)anthracene | 0.83 | NA | NA | NA | NA | NA | 1 | 1 | 1 |
| Benzo(a)pyrene | 0.79 | NA | NA | NA | NA | NA | 1 | 1 | 1 |
| Benzo(b)fluoranthene | 0.73 | NA | NA | NA | NA | NA | 1 | 1 | 1 |
| Benzo(g,h,i)perylene | 0.59 | NA | NA | NA | NA | NA | 100 | 100 | 100 |
| Benzo(k)fluoranthene | 0.65 | NA | NA | NA | NA | NA | 0.8 | 1 | 3.9 |
| Chrysene | 0.95 | NA | NA | NA | NA | NA | 1 | 1 | 3.9 |
| Dibenz(a,h)anthracene | ND | NA | NA | NA | NA | NA | 0.33 | 0.33 | 0.33 |
| Fluoranthene | 1.9 | NA | NA | NA | NA | NA | 100 | 100 | 100 |
| Fluorene | ND | NA | NA | NA | NA | NA | 30 | 100 | 100 |
| Indeno(1,2,3-cd)pyrene | 0.48 | NA | NA | NA | NA | NA | 0.5 | 0.5 | 0.5 |
| Naphthalene | 0.25 | NA | NA | NA | NA | NA | 12 | 100 | 100 |
| Phenanthrene | 1.7 | NA | NA | NA | NA | NA | 100 | 100 | 100 |
| Pyrene | 1.7 | NA | NA | NA | NA | NA | 100 | 100 | 100 |
| **VOLATILE ORGANIC COMPOUNDS** | | | | | | | | | |
| Acetone | ND | ND | ND | ND | ND | ND | 0.05 | 100 | 100 |
| Toluene | ND | ND | ND | ND | ND | ND | 0.7 | 100 | 100 |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | ND | 0.044 | 0.25 | 59 | 100 |
| Ethylbenzene | ND | ND | ND | ND | ND | ND | 1 | 30 | 41 |
| m,p-Xylene | ND | ND | ND | ND | ND | ND | 0.26 | 100 | 100 |
| Methylene chloride | ND | ND | ND | ND | ND | ND | 0.05 | 51 | 100 |
| Trichloroethene | **1.7** | **0.8** | **4.57** | **4.85** | **1980** | **0.63** | 0.47 | 10 | 21 |
| 1,2,4-Trimethylbenzene | ND | ND | ND | ND | ND | ND | 3.6 | 47 | 52 |
| 1,3,5- Trimethylbenzene | ND | ND | ND | ND | ND | ND | 8.4 | 47 | 52 |

ND - Non-Detect NA - Not Applicable

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

>/= to Residential/Restricted-Residential SCO and Unrestricted Use SCO

>Unrestricted Use SCO but <Residential/Restricted-Residential SCO.

>Unrestricted Use & Residential SCO but <Restricted-Residential SCO

# TABLE 11

## 71 TONAWANDA - RI BUILDING SUB-SLAB SOIL SAMPLE ANALYTICAL RESULTS - PFAS & 1,4 DIOXANE

| Sample Number | SSB-1 Sub-Slab (0-4') | NYSDEC Guideline |
|---|---|---|
| **Sample Date** | **3/18/2020** | |
| **1,4 Dioxane by 8270D** | | |
| 1,4 Dioxane | ND | 1 ppm |
| **Perfluorinated Alkyl Acids by Isotope Dilution EPA 537** | | |
| Perfluorobutanoic Acid (PFBA) | ND | |
| Perfluoropentanoic Acid (PFPeA) | ND | |
| Perfluorobutanesulfonic Acid (PFBS) | ND | |
| Perfluorohexanoic Acid (PFHxA) | 0.097 | |
| Perfluoroheptanoic Acid (PFHpA) | ND | |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | |
| Perfluorooctanoic Acid (PFOA) | ND | 33.00 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | |
| Perfluorononanoic Acid (PFNA) | ND | |
| Perfluorooctanesulfonic Acid (PFOS) | ND | 44.00 |
| Perfluorodecanoic Acid (PFDA) | ND | |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | |
| Perfluoroundecanoic Acid (PFUnA) | ND | |
| Perfluorodecanesulfonic Acid (PFDS) | ND | |
| Perfluorooctanesulfonamide (FOSA) | ND | |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | |
| Perfluorododecanoic Acid (PFDoA) | ND | |
| Perfluorotridecanoic Acid (PFTrDA) | ND | |
| Perfluorotetradecanoic Acid (PFTA) | ND | |

PFAS Values in ppb

N/A - Not Applicable ND - Non-detect

**Exceeds Guideline**

# 71 TONAWANDA PROPERTY

# REMEDIAL INVESTIGATION FIGURES

BE3
BRYDGES ENGINEERING

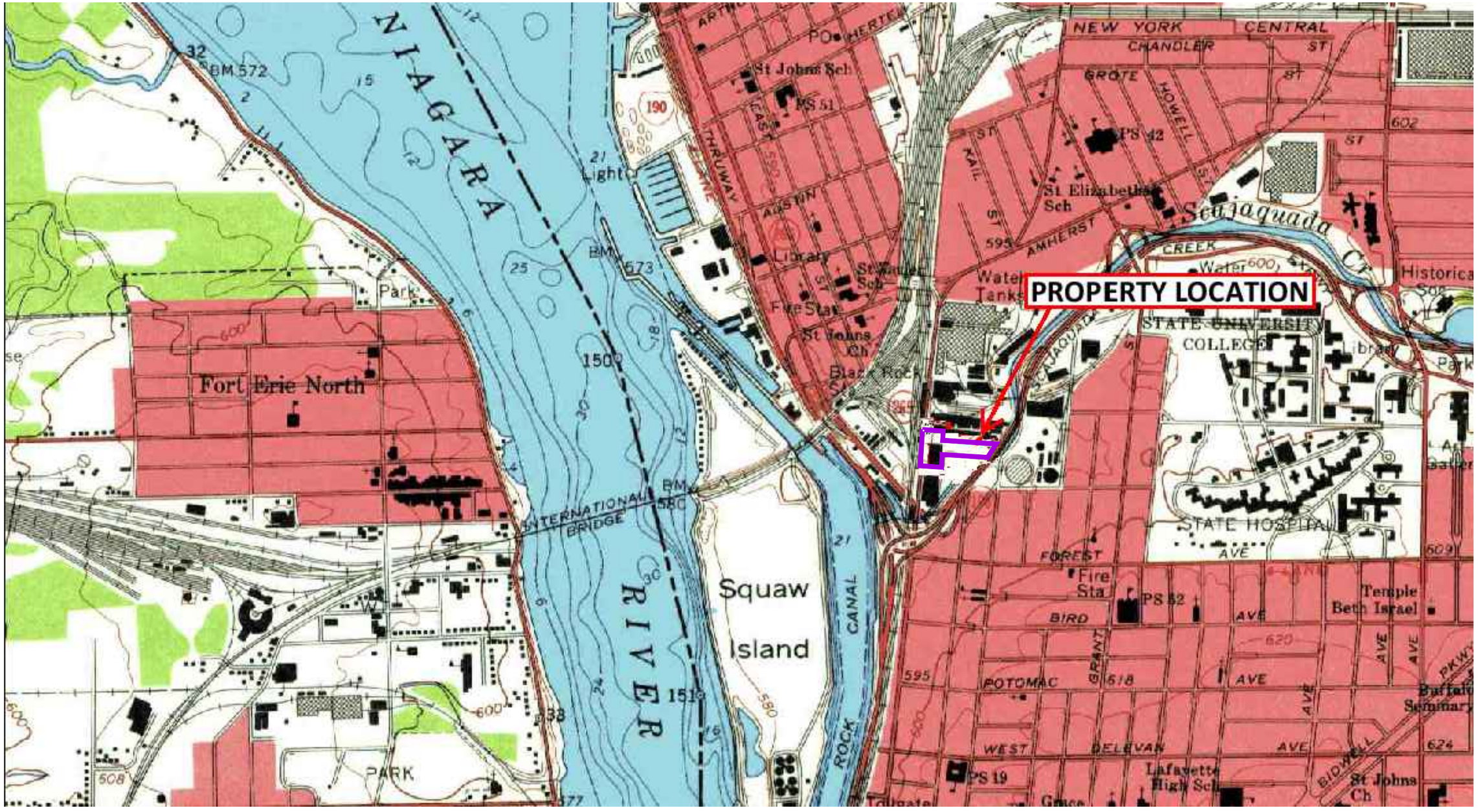


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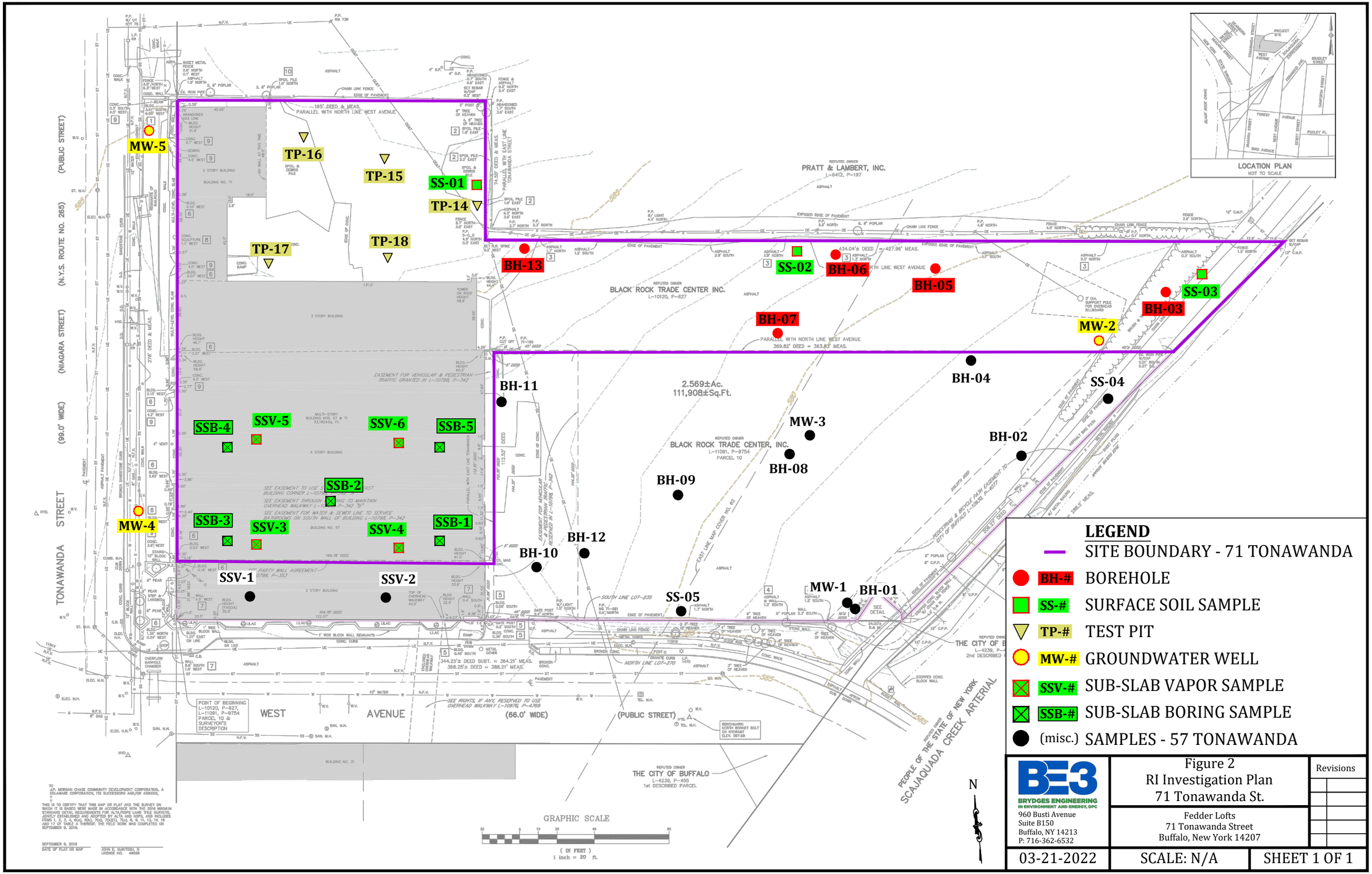
Figure 1
Property Location Map
71 Tonawanda St.

Fedder Lofts
71 Tonawanda Street
Buffalo, New York 14207

Revisions

| 03-21-2022 | SCALE: N/A | SHEET 1 OF 1 |
|---|---|---|




## LEGEND

- SITE BOUNDARY - 71 TONAWANDA
- BH-# BOREHOLE
- SS-# SURFACE SOIL SAMPLE
- TP-# TEST PIT
- MW-# GROUNDWATER WELL
- SSV-# SUB-SLAB VAPOR SAMPLE
- SSB-# SUB-SLAB BORING SAMPLE
- (misc.) SAMPLES - 57 TONAWANDA


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Figure 2
RI Investigation Plan
71 Tonawanda St.

Fedder Lofts
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Buffalo, New York 14207

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| TP-16 | 1 - 3' | RR SCO |
|---|---|---|
| -Benz(a)anthracene | 1.95 | 1 |
| -Benzo(a)pyrene | 1.6 | 1 |
| -Benzo(b)fluoranthene | 1.63 | 1 |
| -Dibenz(a,h)anthracene | 0.36 | 0.33 |
| -Indeno(1,2,3-cd)pyrene | 0.9 | 0.5 |

| SS-02 | 0 - 0.5' | RR SCO |
|---|---|---|
| -Benz(a)anthracene | 6.71 | 1 |
| -Benzo(a)pyrene | 8.35 | 1 |
| -Benzo(b)fluoranthene | 9.97 | 1 |
| -Benzo(k(fluoranthene | 4.24 | 3.9 |
| -Chrysene | 7.31 | 3.9 |
| -Dibenz(a,h)anthracene | 1.99 | 0.33 |
| -Indeno(1,2,3-cd)pyrene | 7.98 | 0.5 |

| TP-14 | 8 - 9' | RR SCO |
|---|---|---|
| -Copper | 297 | 270 |

| BH-13 | 1 - 2' | RR SCO |
|---|---|---|
| -Copper | 345 | 270 |
| -Benz(a)anthracene | 2.46 | 1 |
| -Benzo(a)pyrene | 2.48 | 1 |
| -Benzo(b)fluoranthene | 3.26 | 1 |

| BH-06 | 1 - 4' | RR SCO |
|---|---|---|
| -Benz(a)anthracene | 1.05 | 1 |
| -Benzo(b)fluoranthene | 1.08 | 1 |
| -Indeno(1,2,3-cd)pyrene | 0.71 | 0.5 |

| BH-05 | 1 - 4' | RR SCO |
|---|---|---|
| -Copper | 1090 | 270 |
| -Manganese | 15000 | 2000 |
| -Benz(a)anthracene | 16.6 | 1 |
| -Benzo(a)pyrene | 12.5 | 1 |
| -Benzo(b)fluoranthene | 10.9 | 1 |
| -Benzo(k(fluoranthene | 10.1 | 3.9 |
| -Chrysene | 13.9 | 3.9 |
| -Dibenz(a,h)anthracene | 1.85 | 0.33 |
| -Indeno(1,2,3-cd)pyrene | 7.71 | 0.5 |

| BH-03 | 1 - 4' | RR SCO |
|---|---|---|
| -Benz(a)anthracene | 2.58 | 1 |
| -Benzo(a)pyrene | 2.25 | 1 |
| -Benzo(b)fluoranthene | 2.44 | 1 |
| -Dibenz(a,h)anthracene | 0.41 | 0.33 |
| -Indeno(1,2,3-cd)pyrene | 1.55 | 0.5 |
| -Lead | 1390 | 400 |

| SS-03 | 0 - 0.5' | RR SCO |
|---|---|---|
| -Cadmium | 5.26 | 4.3 |
| -Lead | 442 | 400 |
| -Benz(a)anthracene | 14.8 | 1 |
| -Benzo(a)pyrene | 16.8 | 1 |
| -Benzo(b)fluoranthene | 21.3 | 1 |
| -Benzo(k(fluoranthene | 11.3 | 3.9 |
| -Chrysene | 17.6 | 3.9 |
| -Dibenz(a,h)anthracene | 4.32 | 0.33 |
| -Indeno(1,2,3-cd)pyrene | 14.3 | 0.5 |

| MW-4 Soil Sample | 12 - 13' | RR SCO |
|---|---|---|
| -Trichloroethene | 36.1 | 21 |

Note: See building sub-slab soil boring sample results on Figure 6.

Note: RR SCO = Restricted Residential Soil Cleanup Objective

**LEGEND**

- SITE BOUNDARY - 71 TONAWANDA
- BH-# BOREHOLE
- SS-# SURFACE SOIL SAMPLE
- TP-# TEST PIT
- MW-# GROUNDWATER WELL
- (misc.) SAMPLES - 57 TONAWANDA


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Figure 3 - RI Soil Sample Analytical Results (External to Building)-71 Tonawanda St.

Fedder Lofts
71 Tonawanda Street
Buffalo, New York 14207

Revisions

03-21-2022 | SCALE: N/A | SHEET 1 OF 1

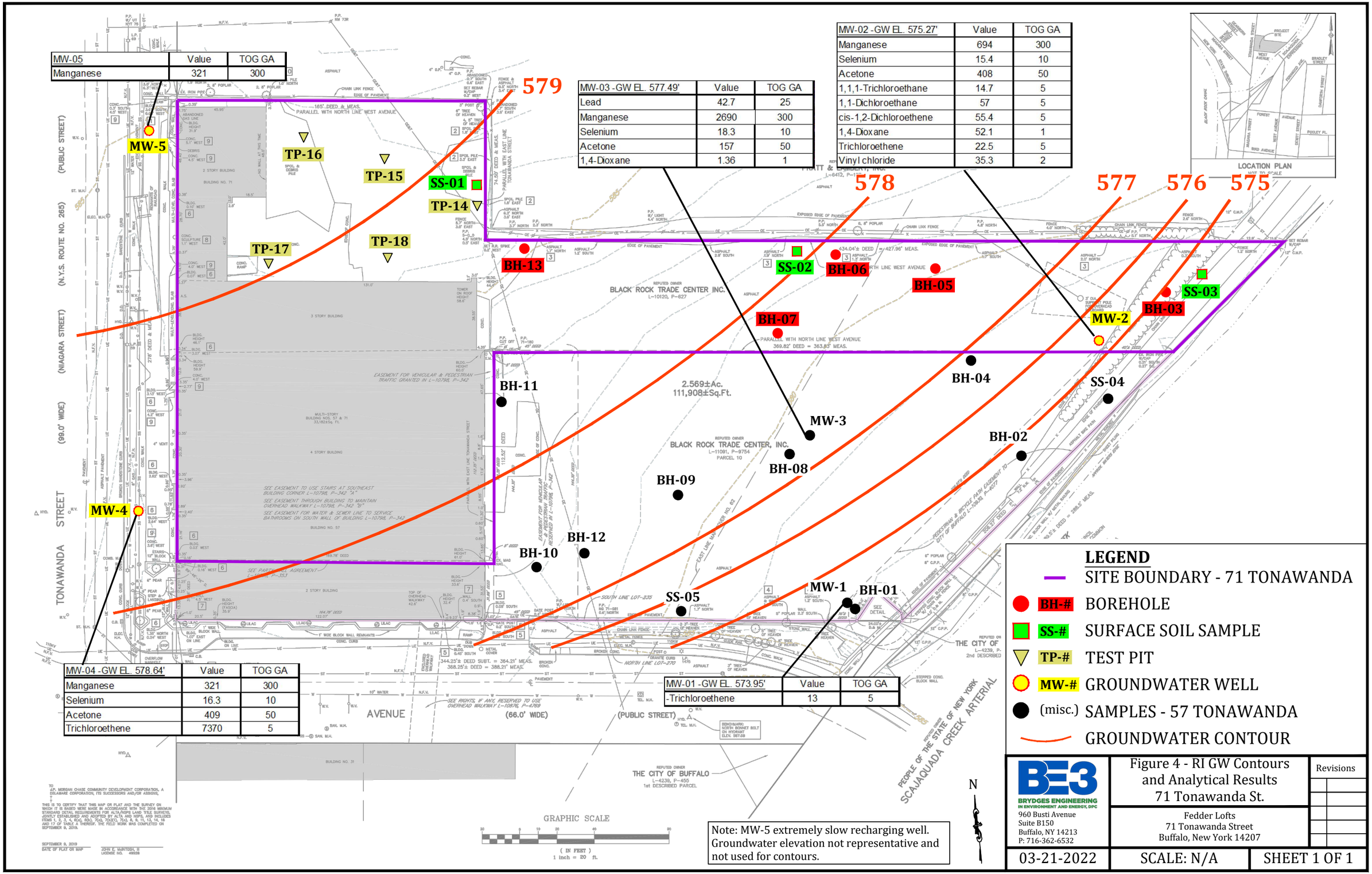
MW-05 | Value | TOG GA
Manganese | 321 | 300
MW-03 -GW El. 577.49' | Value | TOG GA
Lead | 42.7 | 25
Manganese | 2690 | 300
Selenium | 18.3 | 10
Acetone | 157 | 50
1,4-Dioxane | 1.36 | 1
MW-02 -GW El. 575.27' | Value | TOG GA
Manganese | 694 | 300
Selenium | 15.4 | 10
Acetone | 408 | 50
1,1,1-Trichloroethane | 14.7 | 5
1,1-Dichloroethane | 57 | 5
cis-1,2-Dichloroethene | 55.4 | 5
1,4-Dioxane | 52.1 | 1
Trichloroethene | 22.5 | 5
Vinyl chloride | 35.3 | 2
LOCATION PLAN
NOT TO SCALE
579
578
577
576
575
MW-5
TP-16
TP-15
SS-01
TP-14
TP-17
TP-18
BH-13
SS-02
BH-06
BH-05
SS-03
BH-03
MW-2
BH-07
BH-11
2.569±Ac.
111,908±Sq.Ft.
BH-04
SS-04
MW-3
BH-02
BH-08
BH-09
BH-12
BH-10
SS-05
MW-1
BH-01
MW-4
MW-04 -GW El. 578.64' | Value | TOG GA
Manganese | 321 | 300
Selenium | 16.3 | 10
Acetone | 409 | 50
Trichloroethene | 7370 | 5
MW-01 -GW El. 573.95' | Value | TOG GA
-Trichloroethene | 13 | 5
(PUBLIC STREET) (N.Y.S. ROUTE NO. 265)
(NIAGARA STREET) (99.0' WIDE)
TONAWANDA STREET
AVENUE (66.0' WIDE)
(PUBLIC STREET)
BLACK ROCK TRADE CENTER INC. L-10120, P-627
BLACK ROCK TRADE CENTER, INC. L-11091, P-9754 PARCEL 10
PRATT & LAMBERT, INC. L-6412, P-121
THE CITY OF BUFFALO L-4239, P-456 1st DESCRIBED PARCEL
THE CITY OF L-4239, P. 2nd DESCRIBED
PEOPLE OF THE STATE OF NEW YORK SCAJAQUADA CREEK ARTERIAL
EASEMENT FOR VEHICULAR & PEDESTRIAN TRAFFIC GRANTED IN L-10798, P-342
SEE EASEMENT TO USE STAIRS AT SOUTHEAST BUILDING CORNER L-10798, P-342 "A"
SEE EASEMENT THROUGH BUILDING TO MAINTAIN OVERHEAD WALKWAY L-10798, P-342 "B"
SEE EASEMENT FOR WATER & SEWER LINE TO SERVICE BATHROOMS ON SOUTH WALL OF BUILDING L-10798, P-342
SEE PARTY WALL AGREEMENT L-10798, P-353
SEE RIGHTS, IF ANY, RESERVED TO USE OVERHEAD WALKWAY L-10876, P-4769
TO J.P. MORGAN CHASE COMMUNITY DEVELOPMENT CORPORATION, A DELAWARE CORPORATION, ITS SUCCESSORS AND/OR ASSIGNS,
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 6(a), 6(b), 7(a), 7(b)(1), 7(c), 8, 9, 11, 13, 14, 16 AND 17 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON SEPTEMBER 9, 2019.
SEPTEMBER 9, 2019
DATE OF PLAT OR MAP
JOHN E. McINTOSH, III
LICENSE NO. 49928
GRAPHIC SCALE
( IN FEET )
1 inch = 20 ft.
N
Note: MW-5 extremely slow recharging well. Groundwater elevation not representative and not used for contours.
LEGEND
SITE BOUNDARY - 71 TONAWANDA
BH-# BOREHOLE
SS-# SURFACE SOIL SAMPLE
TP-# TEST PIT
MW-# GROUNDWATER WELL
(misc.) SAMPLES - 57 TONAWANDA
GROUNDWATER CONTOUR
BE3
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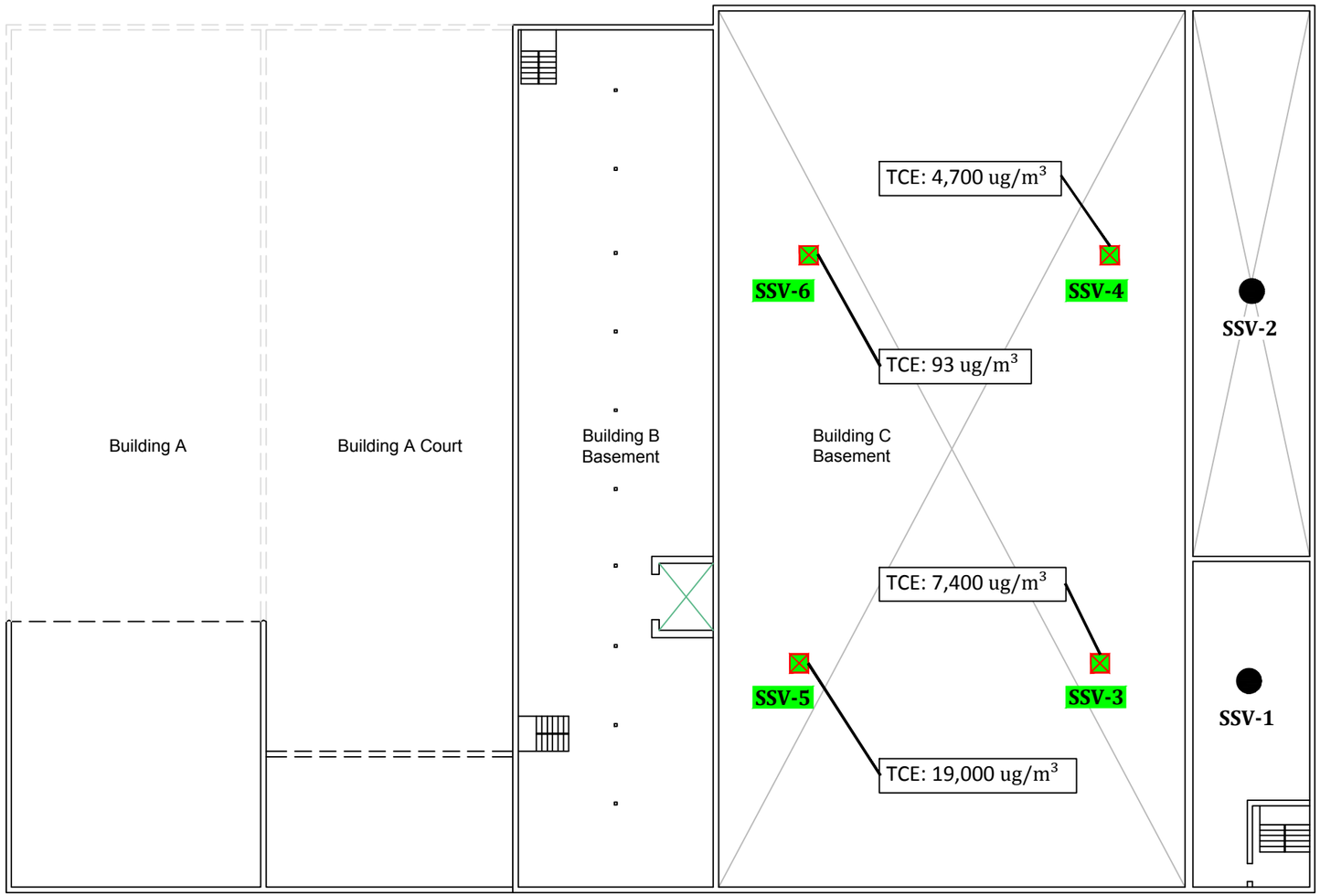
Figure 4 - RI GW Contours and Analytical Results
71 Tonawanda St.
Fedder Lofts
71 Tonawanda Street
Buffalo, New York 14207
Revisions
03-21-2022
SCALE: N/A
SHEET 1 OF 1




EXISTING BASEMENT PLAN

**NOTE:** MINIMUM ACTION LEVEL REQUIRING MITIGATION IS 60 ug/m$^3$ FOR SUB-SLAB VAPOR, REGARDLESS OF INDOOR AIR CONCENTRATION, AS PER NYSDOH SOIL VAPOR/INDOOR AIR MATRIX A FOR TCE.

**LEGEND**

| | |
|---|---|
| SSV-# | SUB-SLAB VAPOR PROBE SAMPLE LOCATION |
| SSV-# | SUB-SLAB VAPOR PROBE SAMPLE - 57 TONAWANDA |
| TCE: # ug/m$^3$ | LAB ANALYTICS RESULT FROM TCE IN SAMPLE |

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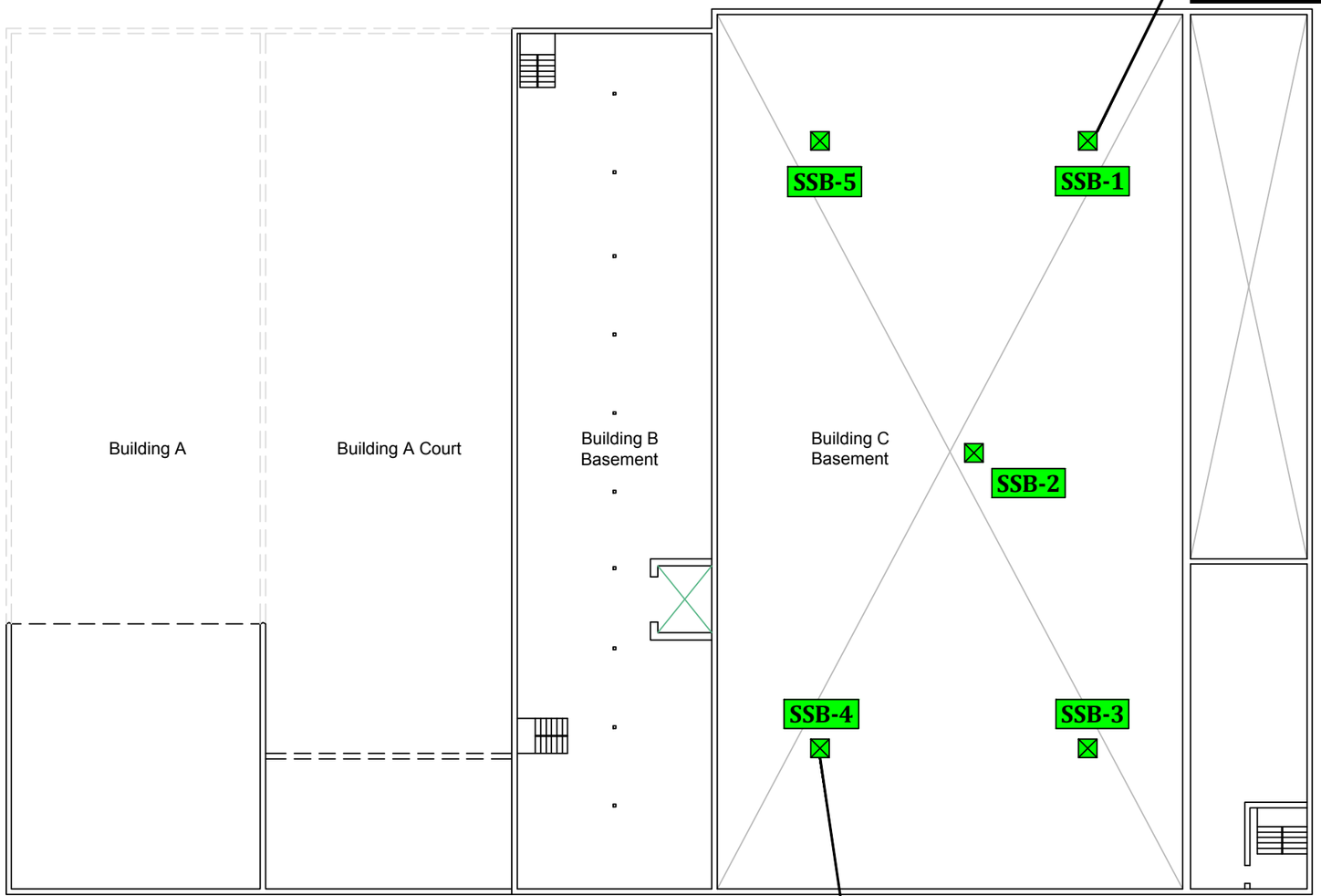
Figure 5 - Sub-Slab Vapor Sample Locations
71 Tonawanda St.

Fedder Lofts
71 Tonawanda Street
Buffalo, New York 14207

Revisions

03-21-2022 | SCALE: N/A | SHEET 1 OF 1

| SSB-1 | 0 - 4' | RR SCO |
|---|---|---|
| Arsenic | 17.3 | 16 |
| Copper | 3390 | 270 |
| Lead | 2240 | 400 |




| SSB-4 | 10 - 12' | RR SCO |
|---|---|---|
| Trichloroethene | 1980 | 21 |

EXISTING BASEMENT PLAN

N

**NOTE:**
RR SCO = RESTRICTED RESIDENTIAL SOIL CLEANUP OBJECTIVE

**LEGEND**
SSB-# SUB-SLAB SOIL BORING SAMPLE LOCATION

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Figure 6 - Sub-Slab Soil Sample Locations / Results
71 Tonawanda St.

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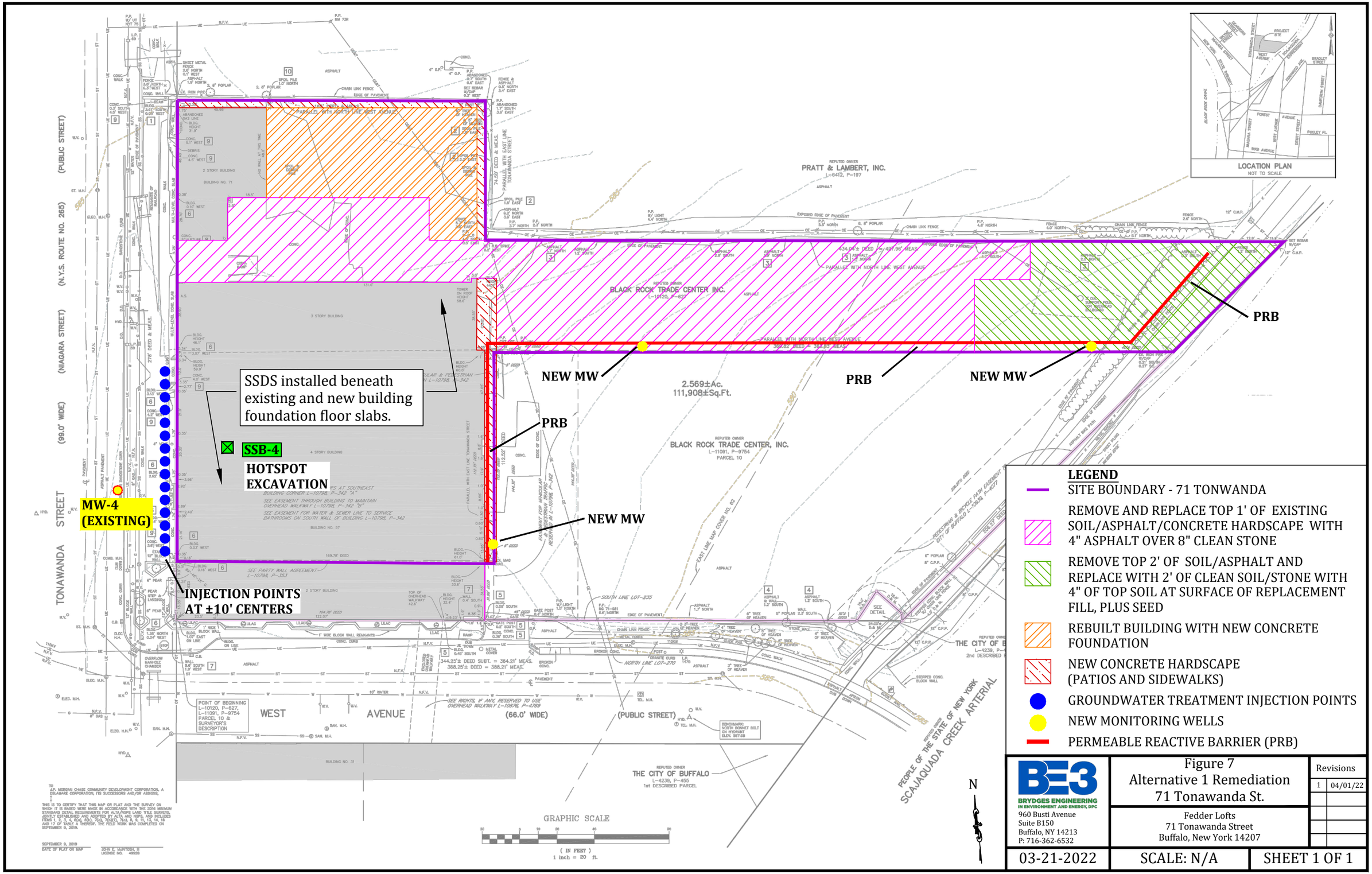
71 Tonawanda Street
Buffalo, New York 14207

Revisions

03-21-2022 | SCALE: N/A | SHEET 1 OF 1




**LEGEND**

- SITE BOUNDARY - 71 TONAWANDA
- REMOVE AND REPLACE TOP 1' OF EXISTING SOIL/ASPHALT/CONCRETE HARDSCAPE WITH 4" ASPHALT OVER 8" CLEAN STONE
- REMOVE TOP 2' OF SOIL/ASPHALT AND REPLACE WITH 2' OF CLEAN SOIL/STONE WITH 4" OF TOP SOIL AT SURFACE OF REPLACEMENT FILL, PLUS SEED
- REBUILT BUILDING WITH NEW CONCRETE FOUNDATION
- NEW CONCRETE HARDSCAPE (PATIOS AND SIDEWALKS)
- GROUNDWATER TREATMENT INJECTION POINTS
- NEW MONITORING WELLS
- PERMEABLE REACTIVE BARRIER (PRB)

BRYDGES ENGINEERING
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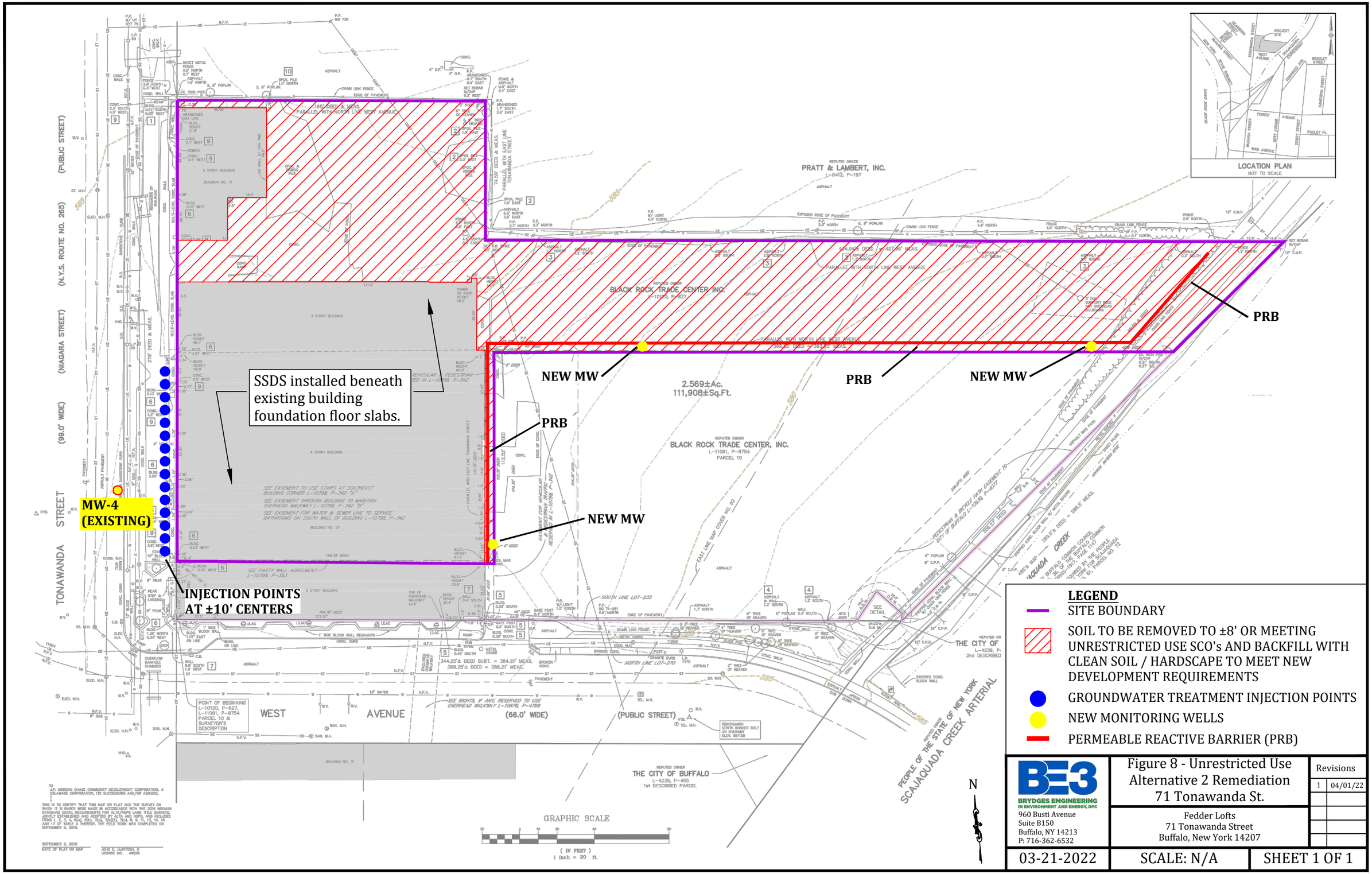
960 Busti Avenue
Suite B150
Buffalo, NY 14213
P: 716-362-6532

Figure 7
Alternative 1 Remediation
71 Tonawanda St.

Fedder Lofts
71 Tonawanda Street
Buffalo, New York 14207

| Revisions | |
|---|---|
| 1 | 04/01/22 |

03-21-2022 | SCALE: N/A | SHEET 1 OF 1

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# Figure 8 - Unrestricted Use Alternative 2 Remediation 71 Tonawanda St.

Fedder Lofts
71 Tonawanda Street
Buffalo, New York 14207

| Revisions | |
|---|---|
| 1 | 04/01/22 |

03-21-2022 | SCALE: N/A | SHEET 1 OF 1

# APPENDIX A

# REMEDIAL ALTERNATIVES COST ESTIMATES

BRYDGES ENGINEERING

## 71 TONAWANDA STREET SITE
## REMEDIAL ALTERNATIVE COST ESTIMATES

**Assumptions:**

1) - Conversion factor of cubic yards of soil/stone to tons is 1.5

| ALTERNATIVE 1 - REMEDIATE TO TRACK 4 - RESTRICTED RESIDENTIAL | | | |
|---|---|---|---|
| **Item** | **Unit Cost** | **Quantity** | **Total** |
| Mobilization/Demobilization | $10,000.00 | 1 | $10,000.00 |
| Excavate/dispose- open areas-top 1' to 2'(tons) | $50.00 | 3000 | $150,000.00 |
| Disposal Sampling | $1,200.00 | 12 | $14,400.00 |
| 8" Stone placement - New parking & Concrete slabs (tons) | $25.00 | 1560 | $39,000.00 |
| Open Area - 4" asphalt placement (SF) | $4.00 | 12400 | $49,600.00 |
| Delinieation fabric (SY) | $1.50 | 2700 | $4,050.00 |
| Clean fill East Area (2') | $15.00 | 1335 | $20,025.00 |
| Place new concrete foundation/slab for rebuilt Section/patio (LS) | $225,000.00 | 1 | $225,000.00 |
| Vapor Mitigation System (LS) | $200,000.00 | 1 | $200,000.00 |
| Groundwater Treatment & 3 MWs (LS) | $350,000.00 | 1 | $350,000.00 |
| Confirmation sampling (LS) | $10,000.00 | 1 | $10,000.00 |
| Sub-Total | | | $1,072,075.00 |
| Engineering Oversight (3 months) (LS) | $80,000.00 | 1 | $80,000.00 |
| Subtotal | | | $1,152,075.00 |
| Contingency (10%) | | | $115,207.50 |
| **Estimated Capital CostTotal** | | | **$1,267,282.50** |
| **Annual Inspection/Monitoring/Maintenance (per Yr.)** | **$8,000.00** | 1.0 | **$8,000.00** |
| **Present Worth Annual Inspection, Monitoring and Reporting** | | | |
| Number of Years - 30 | | | **30** |
| Interest Rate - 5% | | | **5%** |
| **Present Worth (PW)** | | | **$120,000.00** |
| **Total Present Worth: Capital Cost + Annual Costs/PW** | | | **$1,395,282.50** |

| ALTERNATIVE 2 - UNRESTRICTED USE | | | |
|---|---|---|---|
| **Item** | **Unit Cost** | **Quantity** | **Total** |
| Mobilization/Demobilization (LS) | $10,000.00 | 1 | $10,000.00 |
| Excavate/dispose- open area -8' deep (tons) | $50.00 | 12000 | $600,000.00 |
| Replacement Clean fill 7+/- feet | $15.00 | 10600 | $159,000.00 |
| Disposal Sampling | $1,200.00 | 34 | $40,800.00 |
| Open Area 8" Stone placement (tons) | $25.00 | 1560 | $39,000.00 |
| Open Area 4" asphalt placement (SF) | $4.00 | 12400 | $49,600.00 |
| Place new concrete foundation/slab for rebuilt Section/patio (LS) | $225,000.00 | 1 | $225,000.00 |
| Delinieation fabric (SY) | $1.50 | 2700 | $4,050.00 |
| Vapor Mitigation System (LS) | $200,000.00 | 1 | $200,000.00 |
| Groundwater Treatment & 3-MWs (LS) | $350,000.00 | 1 | $350,000.00 |
| Confirmation sampling (ea) | $1,200.00 | 80 | $96,000.00 |
| Sub-Total | | | $1,773,450.00 |
| GW andIndoor Air Sampling (5 years) | $12,000.00 | 5 | $60,000.00 |
| Engineering Oversight (4 months) (LS) | $100,000.00 | 1 | $100,000.00 |
| Sub-Total | | | $1,933,450.00 |
| Contingency (10%) | | | $193,345.00 |
| **Estimated Total** | | | $2,126,795.00 |
| **Total Capital Cost** | | | **$2,126,795.00** |

# APPENDIX B

# SITE BOUNDARY AND TOPOGRAPHIC SURVEY MAP

BE3
BRYDGES ENGINEERING

**LEGEND**
PROPERTY BOUNDARY -
71 TONAWANDA

LOCATION PLAN
NOT TO SCALE

TONAWANDA STREET (99.0' WIDE) (N.Y.S. ROUTE NO. 265) (NIAGARA STREET)

WEST AVENUE (66.0' WIDE) (PUBLIC STREET)

SCAJAQUADA CREEK ARTERIAL

REPUTED OWNER
PRATT & LAMBERT, INC.
L-8412, P-197

REPUTED OWNER
BLACK ROCK TRADE CENTER INC.
L-10120, P-627

REPUTED OWNER
BLACK ROCK TRADE CENTER, INC.
L-11091, P-9754
PARCEL 10

REPUTED OWNER
THE CITY OF BUFFALO
L-4239, P-455
1st DESCRIBED PARCEL

REPUTED OWNER
THE CITY OF BUFFALO
L-4239, P-455
2nd DESCRIBED PARCEL

REPUTED OWNER
PEOPLE OF THE STATE OF NEW YORK

2.569±Ac.
111,908±Sq.Ft.

POINT OF BEGINNING
L-10120, P-627,
L-11091, P-9754
PARCEL 10 &
SURVEYOR'S
DESCRIPTION

LEGEND

| | |
|---|---|
| OE | OVERHEAD ELECTRIC |
| OT | OVERHEAD TELEPHONE |
| OE&T | OVERHEAD ELECTRIC & TELEPHONE |
| UE | UNDERGROUND ELECTRIC |
| UT | UNDERGROUND TELEPHONE |
| SS | SANITARY SEWER |
| ST | STORM SEWER |
| W | WATER |
| G | GAS |
| X | FENCE |
| | GUIDE RAIL |
| | POWER POLE |
| | LIGHT POLE |
| | CATCH BASIN |
| | ST. M.H. STORM MANHOLE |
| | COMB. M.H. COMBINATION MANHOLE |
| | E.M. ELECTRIC METER |
| | G.P. GUARD POST |
| | G.V. GAS VALVE |
| | ELEC. H.H. ELECTRIC HAND HOLE |
| | A.S. AUTO SPRINKLER |
| | W.V. WATER VALVE |
| | HYD. HYDRANT |
| | TEL. M.H. TELEPHONE MANHOLE |
| | TEL. M.H. TELEPHONE MANHOLE |
| | ELEC. M.H. ELECTRIC MANHOLE |
| | SIGN |
| | D.D. DUB DOWN |
| | N.F.V. NOT FIELD VERIFIED |

DETAIL
SCALE: 1"= 10'

GRAPHIC SCALE
( IN FEET )
1 inch = 20 ft.

TO
J.P. MORGAN CHASE COMMUNITY DEVELOPMENT CORPORATION, A DELAWARE CORPORATION, ITS SUCCESSORS AND/OR ASSIGNS;

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 6(a), 6(b), 7(a), 7(b)(1), 7(c), 8, 9, 11, 13, 14, 16 AND 17 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON SEPTEMBER 9, 2019.

SEPTEMBER 9, 2019
DATE OF PLAT OR MAP

JOHN E. McINTOSH, III
LICENSE NO. 49928



NOTES: THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE AND IS SUBJECT TO ANY STATE OF FACTS THAT MAY BE REVEALED BY AN EXAMINATION OF SUCH.

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS SURVEY IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

| RESURVEY | REVISION |
|---|---|
| | |

ALTA/NSPS LAND TITLE SURVEY
57 & 71 TONAWANDA STREET
SHEET 1 OF 2

McINTOSH & McINTOSH, P.C.
CONSULTING ENGINEERS, LAND SURVEYORS, PLANNERS
LOCKPORT, NEW YORK BUFFALO, NEW YORK
PHONE: 434-9135 PHONE 625-8360

SURVEY & TOPOGRAPHICAL MAP OF PART OF LOT-235, PARISH TRACT
LOCATION CITY OF BUFFALO, ERIE COUNTY, NEW YORK
REFERENCE MAP FILED IN E.C.C.O. UNDER MAP COVER NO. 62
JOB No. 7109-A SCALE: 1"= 20' DATE: SEPTEMBER 9, 2019
DRAWN MAS
COMP. JEM, III
DESC.
CADFILE 7109A3699.DWG