
Draft Alternatives Analysis Report (AAR)
NYSDEC Site No. C645049

Former Standard Shade Roller Site

541 Covington Street
City of Ogdensburg, New York

Prepared For
City of Ogdensburg

330 Ford Street
City Hall
Ogdensburg, New York 13669

April 2026

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Prepared By:
Barton & Loguidice, D.P.C.
443 Electronics Parkway
Liverpool, New York 13220



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1.0 INTRODUCTION

On behalf of the City of Ogdensburg, Barton & Loguidice, D.P.C. (B&L), has prepared this Alternatives Analysis Report (AAR) in accordance with the requirements of DER 10, Section 4.4(c) associated with the Brownfield Cleanup Program to evaluate remedial alternatives for the former Standard Shade Roller property (Site), located at 541 Covington Street, Ogdensburg, New York (Figure 1). The intent of the AAR is to evaluate available remedial methodologies for the purpose of reducing or eliminating existing and potential future health concerns associated with the presence of one or more of the following remaining contaminants in soil, groundwater, or reclaimed concrete material (RCM): metals, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and per- and polyfluoroalkyl substances (PFAS). Specifically, environmental investigations conducted at the site from 1991 to the present revealed that subsurface soil, surface soil, sediment, reclaimed concrete material, and groundwater quality in several areas of the parcel has been impacted by metals, VOCs, SVOCs, PCBs, and emerging contaminants presumably related to the Site's historical industrial uses including boat manufacturing, match manufacturing, brewing, shade roller manufacturing, and milling.

Performance of multiple Site characterization activities between 1991 and 2010 determined the extent of surface soil, subsurface soil, sediment/sludge/RCM, and residual groundwater contamination stemming from historic property uses. The Remedial Investigation (RI) activities included a review of available records, a surface soil sampling program, a subsurface boring and well installation program, groundwater sampling, subsurface soil sampling, sludge/sediment and reclaimed concrete sampling program, and in-place testing of groundwater hydraulic conductivity. Supplemental investigations were completed in June 2014, May 2015, August 2015, and July 2021 to further delineate areas of metals, VOCs, SVOCs, PCBs and emerging contaminant impacts.

As a result of remedial investigation efforts, two Interim Remedial Measures (IRMs) were implemented in accordance with the NYSDEC/EPA approved work plans to address the following areas of concern:

1. Polychlorinated biphenyls (PCBs) impacted materials that exist inside the former Maintenance Garage floor drain, in-line dry wells, concrete flooring, hotspot soil removal, and subsurface soils below the concrete flooring (Completed 2022-2023).
2. Removal of one drainpipe which originated from the former Maintenance Building and daylighted along the bank of the St. Lawrence River (Completed 2022).
3. Removal of VOC, SVOC, PCBs, and metal impacted sediment/soil associated with the Maintenance Building discharge piping and dry well structures (Completed 2022-2023).
4. Removal of metal contaminated concrete and soil located in the former Main Mill Building basement area where former plating operations occurred (Completed 2022).

Based on the residual soil and groundwater impacts at the Site, and the completion of a Contaminant Fate and Transport assessment, which considered possible future site development activities (e.g., site construction) that could potentially expose site workers to residual contaminants, B&L identified the following potential exposure pathways:

- Exposure of future on-Site workers to soil and RCM that may be contaminated with SVOCs and metals during future intrusive activities at the site. Routes of exposure to future on-Site workers could include absorption, inhalation, and ingestion.
- Exposure to groundwater that may be contaminated with VOCs, metals, and PFAS if groundwater wells are installed and used for drinking water, etc. Routes of exposure to future on-Site workers could include absorption, inhalation, and ingestion.

Therefore, appropriate Site-specific health and safety measures will be incorporated into the Site Management Plan (SMP) for implementation during future construction activities to minimize exposure to impacted soils or groundwater.

Subsequent sections of this report present an evaluation of remedial alternatives to eliminate or mitigate potential threats to public health and the environment at the former Standard Shade Roller site, to support the selection of a preferred remedy.

1.1 Purpose of Report

This AAR presents an evaluation of the remedial alternatives to eliminate or mitigate potential threats to public health and the environment to support the selection of a preferred remedy. The alternatives are based upon the findings presented in the May 2025 (Revised October 2025 and February 2026) Remedial Investigation Report (RIR). This AAR has been prepared in accordance with DER-10, 6 NYCRR Part 375, and the Brownfield Cleanup Program Guidelines.

1.1.1 Report Organization

This report is organized into five major sections (including this introduction section), with appropriate subsections within each division. Tables, figures, and appendices are located following the text at the end of the document.

Section 2.0 presents the summary of the remedial investigations performed at the site. Section 3.0 presents the remedial alternative evaluations and Section 4.0 provides a comparison of the alternatives and recommended remedy. Lastly, Section 5.0 presents the analysis of cost benefits for each of the evaluated remedies.

1.2 Site Background

1.2.1 Site Description

The former Standard Shade Roller property, which consists of 7.26 acres, is currently owned by the City of Ogdensburg (Figure 1). The former Standard Shade Roller Site is bordered on the northwest by the St. Lawrence River, and access to the site is gained via Adams Avenue, which intersects with Main Street (aka NYS Route 68) in the northwestern corner of the City. The subject property is currently owned by the City of Ogdensburg, as recorded in the St. Lawrence County Clerk's Office as Instrument I.D. No. 2007-14552; Tax Parcel Map I.D. No. 48.077-1-2.1.

The currently vacant Site originally contained 11 abandoned and slowly deteriorating buildings, the locations of which are depicted on the enclosed Site Plan (Figure 2). As noted on Figure 2, the buildings were used for a variety of purposes during the shade manufacturing operations, which ceased in 1997. Based on information presented in a July 2008 Phase IA Literature Review and Archeological Sensitivity Assessment Report prepared by Hartgen Archeological Associates, Inc. (Hartgen) for the City of Ogdensburg, the buildings previously contained equipment maintenance shops, boiler rooms, metal plating areas, metals machining areas, and materials warehouse areas. However, according to the Hartgen Phase IA report, the location and configuration of the originally constructed buildings was altered during Site development, which occurred over a period of approximately 100 years. Furthermore, based on a review of historic aerial photographs and Sanborn Fire Insurance Maps, Hartgen determined that the subject property nearly doubled in size since the onset of its initial development. Specifically, with the use of fill material of unknown origin, the original shoreline of the St. Lawrence River has been extended 40 to over 100 feet in a northwesterly direction. For example, Shed Nos. 1, 2A, 2B, 2C, and No. 3, as well as the Maintenance Garage, were all constructed on fill material.

With the cessation of shade manufacturing operations in 1997, the on-site buildings were left abandoned and no longer maintained. Deterioration of the buildings continued over the next 10-year period, and when the City of Ogdensburg took ownership of the property in 2007, there was evidence of significant wind and water damage to several of the buildings. Due to the deteriorating condition of the on-Site structures, the City decided that for future development of the property to occur, the buildings would need to be demolished. Therefore, in 2007 the City applied to the Empire State Development Corporation (ESDC) for a Restore New York Communities Initiative Program Grant for the purpose of performing asbestos abatement and building demolition activities. The City was subsequently awarded \$700,000 in Restore NY funding and the buildings were demolished.

1.2.2 Site History

The subject property has supported a variety of industrial uses since the turn of the century. Previous Site uses included boat manufacturing, match manufacturing, brewing, shade roller manufacturing, and milling. During its final period of active operation (which ended in 1997), the subject property was occupied by the Joanna Window Décor Division of the Crown Home Furnishings Company. Joanna Window Décor manufactured window shade hardware, and part of this process included the plating of metals. The zinc-cyanide electroplating process, which occurred in the main building of the facility, was initiated in 1945 and continued until 1987. From 1987 through 1992, the electroplating process was cyanide-free, and then in 1992 the electroplating process was terminated at the facility. It is reported that during the 1960's and 1970's the wastes derived from the cyanide plating process were treated on site with the use of peroxides and buffers, and the treated wastewater was discharged

into the facility's combined stormwater sanitary sewer system. The residual solid waste (i.e., sludge) was reportedly disposed of at the City of Ogdensburg Landfill. However, it is unknown how the process-derived cyanide wastes were handled or disposed of during the 1940s and 1950s.

Between 1991 and 1997, nine (9) environmental assessments and subsurface investigations were conducted at the former Standard Shade Roller Site. Post 2000, supplemental investigations performed in 2010, 2013, 2014, 2015, and 2021 were completed to further define areas of PCB, metals, VOCs, SVOCs, emerging contaminants, as well as test pit investigations to verify the locations and origins of on-Site discharge piping visible along the shoreline of the St. Lawrence River. Findings of the investigations showed surface soil, subsurface soil, and groundwater quality in several areas of the parcel were impacted by metals, PCBs, SVOCs, VOCs and emerging contaminants, presumably due to former Site operations.

The lateral and vertical extent of remaining subsurface soil impacts that exceed the applicable NYSDEC Part 375 Restricted Residential Use soil cleanup objectives (SCOs) have been defined for the Site and characterized in the February 2026 RIR. Specifically, the subsurface soils with the highest detected metals concentrations were located below the concrete floor in the main mill building, which was remediated in 2022, and in the alley area north of the main building near the former plating operation. Other areas of subsurface metal impacts were noted on the eastern portion of the Site as well. Additionally, RCM, stockpiled at the Site has documented SVOC exceedances above Restricted Residential Use.

Up until 2012, the vacant Site contained 11 abandoned and slowly deteriorating buildings. The buildings previously contained equipment maintenance shops, boiler room, metal plating area, metals machining areas, and materials warehouse areas (Figure 2). Operations ceased on this property in 1997, and in late 2011/early 2012 the asbestos was abated and the on-Site buildings demolished, leaving the property vacant.

Subsequent to the building demolition operations, B&L conducted supplemental Site investigations in 2013, 2014, 2015, and 2021. The field investigation activities included the installation of subsurface soil borings, groundwater monitoring wells, test pits, and sediment and RCM testing. Media sampled as part of the investigation included sludge/sediment, surface soil, subsurface soil, concrete, and groundwater. During the 2013 investigation, drilling activities identified the general extent of contaminants in the subsurface soil. The 2014 supplemental Site investigation included further delineation of the vertical and horizontal limits of PCB-contaminated soils located in the vicinity of the former Maintenance Garage/Paint Shop drainage system, including a dry well structure (MH 1), and an in-line discharge pipe access structure (MH 2). The 2015 supplemental subsurface investigation was performed to further define the PCB impacts on soil in the vicinity of the former Maintenance Garage/Paint Shop drainage system and to define the presence of contamination beneath concrete slabs on the Site. The 2021 supplemental investigation was performed to further define impacts to surface soils and groundwater.

PCB impacted soil associated with the former Maintenance building and metals impacted soil associated with the former Main Mill building were addressed during the IRMs performed in 2022-2023 which removed PCB impacted material and metals impacted material. Areas were backfilled with certified clean imported fill material. Construction Completion Reports (CCR) summarizing the work performed during each IRM were prepared and submitted to NYSDEC. The CCRs were subsequently approved by the NYSDEC and appended to the February 2026 RIR.

1.2.3 Physical Setting

1.2.3.1 Surface Features

The general topography of the Site is fairly level with a short but steep increase in elevation to the southeast towards Main Street. The regional topography slopes gently north northwesterly towards the St. Lawrence River Valley. The St. Lawrence River, which borders the Site to the north and northwest, flows approximately from southwest to northeast. The Site is bordered to the east and west by vacant commercial and industrial properties and is surrounded to the south by single family homes, with a mixture of business and commercial uses along Main Street.

Over the course of Site development (approximately 100 years), the subject property has nearly doubled in size with the use of fill material where the original shoreline of the St. Lawrence River has been extended 40 to over 100 feet in a northwesterly direction.

1.2.3.2 Climate

The general climate in St. Lawrence County is cool and humid, representative of the Northeastern United States (Pack, 72). Summers are warm with short periods of high temperatures. Winters are usually long and cold with high accumulations of snowfall. Annual precipitation averaged 39.2 inches in the Ogdensburg area for the period between 1991-2020. The annual average temperature is approximately 50°F.

1.2.3.3 Surface Water Hydrology

The general overland flow of water within the vicinity of the Site follows the topography. Based on topographical mapping, the Site generally drains from south to north toward the lower elevation and low-lying areas adjacent to the St. Lawrence River. Most of the Site is covered with impervious asphalt and building foundations. The northern and eastern portions of the Site are vegetated which promote infiltration over these portions of the Site.

1.2.3.4 Site Geology

The Site is in the St. Lawrence Valley, which is characterized by low surface relief, unconsolidated overburden driven from glacial deposition, and bedrock dipping gently to the south at approximately 50 feet per mile. The Site is underlain by the Lower Ordovician age Beekmantown Dolostone; which is characterized as a dark tan, sandy, medium to fine grained, siliceous dolostone (NYS Museum, 1970). Soils at the Site are mapped as Udorthents, which is characterized as a well-drained, loamy soil (USDA). The New York State Surficial Geology Map – Adirondack Sheet maps the Site as Till (Dineen, 1989).

The subsurface investigation revealed mixed fill consisting of brick, woodchips, and concrete debris mixed with sand and gravel near the surface. The total depth of fill was indistinct and variable throughout the Site. In places where fill was noted, it was generally graded to sand with some gravel and varying amounts of silt, which extended to depths ranging from 3- to 26-feet below grade. Groundwater was typically encountered at a depth of 4- to 16-feet on the Site. Bedrock was not encountered during the subsurface investigations.

1.2.3.5 Site Hydrogeology

Based on static water elevations measured in the overburden groundwater monitoring wells in April 2013, the general flow pattern is from the southern portion of the Site to the St. Lawrence River to the north. As described above, most of the Site is characterized as flat lying with a steeper slope on the southern border of the Site. As such, the average gradient across the Site ranges from approximately 0.1085 to 0.0199 ft/ft from south to north, respectively. The hydraulic conductivity values range from 7.15×10^{-3} cm/sec to 1.20×10^{-1} cm/sec.

1.2.3.6 Wetland, Floodplain, and Sensitive Environment Survey

The New York State Freshwater Wetland Maps and National Wetland Inventory (NWI) Maps indicate that there are no mapped wetlands on the Site.

The Site is in a medium-density, urbanized setting in the City of Ogdensburg. At the time of the survey conducted by qualified B&L personnel, no wetlands, sensitive environments or communities were observed; therefore, a detailed ecological risk evaluation was not performed.

1.2.3.7 Ecology

Potential wildlife impacts were assessed for the Site during field inspections. The Site area is in an urban section of the City of Ogdensburg along the waterfront, and the land use adjacent to the Site consists of residential and vacant commercial properties. Potential species that could inhabit or traverse the Site environs include mice, voles, rats, squirrels, woodchucks, rabbits, raccoons and opossum.

The potential pathway for surface exposure is ingestion/adsorption of contaminated sediment soils, and future remedial alternatives considered for the Site should address this potential exposure pathway. Additional exposure to the subsurface soil and groundwater is possible for the species that burrow or inhabit burrows and those species that prey on them. Since no large burrows were noted at the Site during the time of inspection, this analysis is limited to mice, voles, and rats being the species that could receive primary exposure to Site contaminants. It is possible that some secondary exposure to contaminants could occur in predators that consume potentially contaminated rodents.

2.0 SUMMARY OF REMEDIAL INVESTIGATION AND EXPOSURE ASSESSMENT

A summary of the prior investigations conducted at the former Standard Shade Roller Site, including an analysis and evaluation of the contaminated soil, groundwater, and RCM, is the subject of this AAR and presented below. For more detailed information regarding all the previous investigations performed at the Site prior to 2013, including copies of select reports that were made available to B&L, the reader is referred to the “Remedial Investigation Report” prepared by B&L dated May 2025 (Revised October 2025 and February 2026).

The most recent Site characterization and remedial investigation activities were conducted between 2013 and 2023 to define the nature and extent of soil, groundwater, sediment, and building-related RCM contamination associated with historic industrial uses of the property and to support final remediation and State indemnification. The work included surface and subsurface soil sampling, installation and sampling of monitoring wells, hydraulic conductivity testing, sediment, sludge, RCM, and concrete slab sampling, and targeted investigations of suspected source areas. Multiple supplemental investigations were completed to further delineate PCB, metal, SVOC/PAH, and cyanide impacts, particularly in and around the former Maintenance Garage and Main Mill. IRMs addressing PCB contamination at the Maintenance Garage and metal contamination near the Main Mill were completed in 2023.

Subsurface conditions generally consist of heterogeneous historic fill overlying native sand and gravel with variable silt, with groundwater encountered at shallow depths and flowing toward the St. Lawrence River. Sampling identified localized exceedances of NYSDEC Part 375 Restricted Residential criteria for SVOCs/PAHs, metals, PCBs, and cyanide in soils, sediments, and RCM, while VOC and PCB exceedances in soil were limited. PAHs detected across multiple media were consistent with historic fill and combustion-related sources common in urban environments. Groundwater exhibited limited VOC and PFAS exceedances in select wells and widespread metal exceedances, many of which may be influenced by elevated turbidity or Site conditions. Investigations of shoreline discharge piping confirmed limited connections to former buildings, with no ongoing pathways to the river following remediation activities.

After the performance of Site remediation efforts performed through IRMs, a review of soil, groundwater, RCM, and sediment data, along with a contaminant fate and transport analysis, indicates that residual exceedances of the Part 375 Restricted Residential Soil Cleanup Guidance remain. These include remnant SVOCs and metals in soil and RCM material, as well as VOCs, metals, and PFAS in groundwater. These contaminants may pose potential risks through ingestion, injection, and absorption risks, particularly during future construction activities. As a result, Site-specific health and safety measures will be incorporated into the SMP to manage and minimize potential exposure to impacted soils during any future Site work.

3.0 REMEDIAL ALTERNATIVES EVALUATION

3.1 Remedial Goals

The remedial goal is to evaluate options and select a remedy to eliminate or mitigate threats to public health and the environment from the remaining impacts identified in RIR and summarized in Sections 3.3.1 through 3.3.6. This evaluation must consider the potential exposure pathways under current and potential future conditions. In accordance with 6 NYCRR Part 375-1.8(c)(1), the NYSDEC has identified a hierarchy of remedial goals, ranked from the most preferable to least preferable:

1. Removal and/or treatment. All sources concentrated solid or semi-solid hazardous substances, dense non-aqueous phase liquid, light non-aqueous phase liquid and/or grossly contaminated media shall be removed and/or treated; provided however, if the removal and/or treatment of all such contamination is not feasible, such contamination shall be removed or treated to the greatest extent feasible.
2. Containment. Any source remaining following removal and/or treatment shall be contained; provided however, if full containment is not feasible, such source shall be contained to the greatest extent feasible.
3. Elimination of exposure. Exposure to any source remaining following removal, treatment, and/or containment shall be eliminated through additional measures, including but not limited to, as applicable, the timely and sustained provision of alternative water supplies and the elimination of volatilization into buildings; provided however, if such elimination is not feasible such exposure shall be eliminated to the greatest extent feasible.
4. Treatment of source at the point of exposure. Treatment of the exposure resulting from a source of environmental contamination at the point of exposure, as applicable, including but not limited to, wellhead treatment or the management of volatile contamination within buildings, shall be considered as a measure of last resort.

The Site has been divided into two distinct operational units (OU-1 and OU-2) to support phased remediation and redevelopment (Figure 2). OU-1, which comprises the majority of the Site, will be remediated to NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (RRSCOs). OU-2, identified as the corridor area containing a subsurface waterline, will be remediated to NYSDEC Part 375 Commercial SCOs. A Change of Use document has been submitted to NYSDEC to formally document and support the differing remedial end uses for each operational unit.

3.2 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 RAO's for the Site include:

1. Develop site management practices to address exposure pathways associated with hypothetical potential future Site work, primarily around the locations where surface and subsurface soil exceedances for metals and SVOCs have been identified. For this project a portion of the Site (OU-1) will have to meet the 6 NYCRR Part 375 RRSCOs. The

other portion of the Site (OU-2) will have to meet the 6 NYCRRR Part 375 Commercial SCO. OU-2, the former railroad right-of-way, contains an existing subsurface public waterline that will remain in place beneath the corridor.

The selected cleanup levels and institutional controls for each operational unit have been established to be protective of their respective intended uses while accommodating existing infrastructure and future Site operations.

Based on the remedial goals presented in Section 3.1, the RAO's for each operational unit will be evaluated against the following criteria:

1. Overall Protection of Public Health and the Environment – This criterion is an evaluation of the remedy's ability to protect public health and the environment, assessing how risks posed through each existing or potential pathway of exposure are eliminated, reduced, or controlled through removal, treatment, engineering controls, or institutional controls.
2. Compliance with Standards, Criteria, and Guidance (SCGs) – Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance. The NYSDEC standard utilized for comparison of alternatives is the Part 375 SCOs for Restricted Residential Use (OU-1) and for Commercial Use (OU-2).
3. Long-Term Effectiveness and Permanence – This criterion evaluates the long-term effectiveness of the remedy after implementation. It is anticipated that residual contamination will remain on-Site after the selected remedy has been implemented. This evaluation, therefore, will assess the impact of the remaining contamination on human exposures, ecological receptors, and impacts to the environment. The use of institutional and/or engineering controls will be considered as part of the evaluation.
4. Reduction of Toxicity, Mobility, or Volume – This criterion is an evaluation of the ability of an alternative or remedy to reduce the toxicity, mobility, and volume of Site contamination.
5. Short-term impact and effectiveness – This criterion is an evaluation of the potential short-term adverse environmental impacts and human exposures during the construction and/or implementation of an alternative or remedy. Considerations include the potential for human exposures, adverse environmental impacts, and nuisance conditions at the Site resulting from the implementation of the remedy or alternative. Short term impacts include potential exposures resulting from increased traffic, detours or loss of the use of access to property; odors; vapors; dust; habitat disturbance; run off from the Site, and noise. The length of the short-term impacts will be identified for each alternative.
6. Implementability - This criterion is an evaluation of the technical and administrative feasibility of implementing an alternative or remedy. Technical feasibility includes the difficulties associated with construction and the ability to monitor the effectiveness of an alternative or remedy. Administrative feasibility includes the availability of the necessary personnel and material; potential difficulties in obtaining specific operating approvals; access for construction and other concerns.

7. Cost Effectiveness – This criterion is an evaluation of the overall cost effectiveness of an alternative or remedy. A remedy is cost effective if its costs are proportional to its overall effectiveness. To evaluate cost effectiveness:
 - a. The overall effectiveness of an alternative or remedy is determined;
 - b. A comparison of the overall effectiveness is then made to the cost of the alternative or remedy; and
 - c. An assessment is made as to whether the cost is proportional to the overall effectiveness, to determine whether it is cost effective.

In addition to the evaluation of alternatives to remediate the likely end use of the Site, NYSDEC regulation and policy require an evaluation of an unrestricted use scenario. The evaluation of a “no-action” and “no further remedial action” alternatives are also required to provide a baseline for comparison against other alternatives.

3.3 Remaining Site Impacts (OU-1)

The following results are evaluated in accordance with 6 NYCRR Part 375 Environmental Remediation Program, with discussion of exceedances limited to those remaining within the upper two feet of soil. Any exceedances identified in the RI below two feet are inherently addressed by a minimum of two feet of soil cover meeting 6 NYCRR Part 375 Restricted Residential SCOs, have been removed and properly disposed of during either IRM, or are located beneath existing concrete or asphalt surfaces where the Site cover requirement is satisfied under Restricted Residential use.

3.3.1 Subsurface Soil Metal Impacts

Metal concentrations exceeding applicable RRSCO’s in subsurface soils were identified subsequent to the RI and supplemental IRMs within OU-1. Boring locations with metal concentrations exceeding RRSCOs within OU-1 are shown on Figure 3.

A summary of the qualified subsurface soil data with metal impacts in OU-1 exceeding the applicable RRSCOs are presented below.

OU-1 Subsurface Soil Sample NYSDEC Standards Exceedances: Metals (EPA Method 6010B)			
Parameter	Part 375 RRSCOs	B-116 (0-2)	B-142 (0-2)
Mercury	0.3	0.4	0.4
() – Feet below ground surface where the exceedance was detected All concentrations presented in mg/kg Items in bold exceed NYSDEC Part 375 SCOs for Restricted Use - Restricted Residential			

3.3.2 Surface Soil Metals Impacts

The surface soil sample with a metal concentration exceeding Restricted Residential Use SCOs within OU-1 is shown on Figure 5. A summary of the qualified surface soil data with a metal concentration in OU-1 exceeding the Restricted Residential Use SCOs are presented below.

OU-1 Surface Soil Sample NYSDEC Standards Exceedances: Metals (EPA Method 6010B)		
Parameter	Part 375 RRSCOs	SURS-6
Total Mercury	0.3	0.365
All concentrations presented in mg/kg Items in bold exceed NYSDEC Part 375 SCOs for Restricted Residential Use.		

3.4 Remaining Site Impacts (OU-2)

The following results are evaluated in accordance with 6 NYCRR Part 375 Environmental Remediation Program, with discussion of exceedances limited to those remaining within the upper one foot of soil. Any exceedances identified in the RI below one foot are inherently addressed by a minimum of one foot of soil cover meeting 6 NYCRR Part 375 Commercial SCOs. Several borings were installed outside of the OU-2 property line and therefore not included in the evaluation.

3.4.1 Subsurface Soil Metal Impacts

Boring locations with metal concentrations exceeding Commercial Use SCOs within OU-2 are shown on Figure 3. A summary of the qualified subsurface soil data with metal concentrations in OU-2 exceeding the Commercial Use SCOs are presented below.

OU-2 Subsurface Soil Sample NYSDEC Standards Exceedances: Metals (EPA Method 6010B)		
Parameter	Part 375 Commercial SCOs	B-151 (0-2)
Cadmium	3.7	4.7
() – Feet below ground surface where the exceedance was detected. All concentrations presented in mg/kg. Items in bold exceed NYSDEC Part 375 SCOs for Restricted Use – Commercial.		

3.4.2 Subsurface Soil SVOCs Impacts

One subsurface soil sample exhibited a SVOC concentration greater than the applicable Commercial SCOs in area OU-2 (Figure 4). The following table displays SVOC subsurface soil exceedances in OU-2.

OU-2 Subsurface Soil Sample NYSDEC Standards Exceedances: SVOCs (EPA Method 8270)		
Parameter	Part 375 Commercial SCOs	B-151 (0-2)
Benzo(a)pyrene	3700	4900
() – Feet below ground surface where the exceedance was detected. All concentrations presented in ug/kg. Items in bold exceed NYSDEC Part 375 SCOs for Restricted Use – Commercial.		

3.4.3 Surface Soil Metal Impacts

A summary of the surface soil data with metal concentrations in OU-2 exceeding the Commercial Use SCOs are presented below. Figure 5 displays the surface soil sample location.

OU-2 Subsurface Soil Sample NYSDEC Standards Exceedances: Metals (EPA Method 6010B)			
Parameter	Part 375 Commercial SCOs	SURS-9	SURS- 8
Arsenic	16	24.1	--
Total Mercury	1.1	--	1.6
All concentrations presented in mg/kg. Items in bold exceed NYSDEC Part 375 SCOs for Restricted Use – Commercial.			

3.4.4 Surface Soil SVOCs Impacts

Surface soil samples with SVOCs concentrations exceeding Commercial Use SCOs within OU-2 are shown on Figure 6. A summary of the qualified surface soil data with SVOCs concentrations in OU-2 exceeding the Commercial Use SCOs are presented below.

OU-2 Surface Soil Sample NYSDEC Standards Exceedances: SVOCs (EPA Method 8270)			
Parameter	Part 375 Commercial SCOs	SURS-8	SURS-9
Benzo(a)pyrene	3700	7600	6200
All concentrations presented in ug/kg. Items in bold exceed NYSDEC Part 375 SCOs for Restricted Use – Commercial.			

3.5 Remaining Reclaimed Concrete Material Stockpiles

Samples were collected from three stockpiles of crushed concrete generated as a result of building demolition activities (Figure 7). Summarized in the tables below are the SVOCs concentrations in excess of the applicable Part 375 RRSCOs within the concrete samples.

Reclaimed Concrete Material Sample NYSDEC Standards Exceedances: SVOCs (EPA Method 8270)									
Parameter	Part 375 RRSCO	SP-1C	SP-1D	SP-1E	SP-2C	SP-2D	SP-2E	SP-4	DUP-3 (SP-2C)
Benzo(a)anthracene	1400	44000	1700	4600	28000	2300 J	13000	3400	7300
Benzo(a)pyrene	1000	37000	1700	4100	24000	2000 J	10000	3000	7100
Benzo(b)fluoranthene	1400	31000	1300	3600	19000	2400 J	8900	3300	6800
Benzo(k)fluoranthene	4900	35000	1400	4100	19000	1800 J	9500	2200	5200
Chrysene	4900	41000	1800	4700	27000	2600 J	12000	3500	7100
Dibenzo(a,h)anthracene	330	7300 J	360	880	5000 J	ND	2400	750 J	1600 J
Indeno(1,2,3-cd)pyrene	1400	19000	1000	2600	13000	ND	7100	2100	5200
Phenanthrene	4900	120000	2400	9700	62000	3000 J	26000	5000	19000
J – Estimated Result. ND – Compound was analyzed for but not detected. All concentrations presented in ug/kg. Items in bold exceed NYSDEC Part 375 SCOs for Restricted Use – Restricted Residential.									

3.6 Remaining Groundwater Impacts

Groundwater samples were collected from on-Site monitoring wells in 2013, 2019, and 2021. Each monitoring well location was sampled for VOCs, SVOCs, metals, PCBs, and PFAS. The results were compared to Part 375 Protection of Groundwater SCO (PG-SCO). Refer to Figures 8 through 12 for groundwater exceedances.

The following tables summarize the PG-SCO exceedances to date.

2013 Monitoring Well Groundwater NYSDEC Standards Exceedances: Volatile Organic Compounds (EPA Method 8260)			
Parameter	NYSDEC Groundwater Standard	MW-5	MW-7
CIS-1,2-dichloroethene	5	13	ND
Tetrachloroethene	5	18	5
Trichloroethene	5	10	2.1 J
J – Estimated result. ND – Compound was analyzed for but not detected. All concentrations presented in ug/L. Items in bold exceed NYS TOGS 1.1.1 Guidance Value.			

2013 Monitoring Well Groundwater NYSDEC Standards Exceedances: Metals (EPA Method 6010B)																
Parameter	NYSDEC GW Std.	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	DUPE-X (MW-6)	MW-7	MW-7 Existing	MW-8	MW-9	BL-1	DUP-1 (BL-1)	OP-3	OP-5
Arsenic	25	35.4	30.2	29.9	4.6 J	13.5	11.4	14.1	27.2	ND	ND	3.1 J	5.4 J	3.2 J	ND	17.1
Barium	1000	1630	706	514	223	321	355	347	352	239	174	64.2	454	450	261	595
Cadmium	5	4.2 J	0.202 J	1.4 J	ND	2.6 J	ND	ND	0.464 J	ND	3.8 J	ND	5.9	4.6 J	ND	ND
Chromium	50	996	282	86.7	31.2	50.2	90.5	93.1	102	1.2 J	2.6 J	ND	14.5	7.4 J	13.3	123
Copper	200	255	125	159	34.4	278	205	209	129	174	22.2	5.2 J	47.4	36.4	10 J	93.2
Iron	300	278000	120000	69300	20900	38100	58600	61700	83400	6360	3850	3400	22000	17800	17700	92200
Lead	25	80.9	39.3 J	251	55.8	1110	49 J	48.3 J	98.3	148	22.2 J	3 J	55.1	36.9	13 J	99.9
Magnesium	35000	338000	232000	109000	68800	70000	115000	121000	133000	31900	31600	15300	39600	38900	30500	87900
Magnesium (diss.)	35000	36200	ND	30300	51500	34400	1240	27500	28500	31600	-	-	-	-	-	-
Manganese	300	6750	3180	1660	608	961	88.3	1260	2050	170	136	87.7	279	272	296	1980
Nickel	100	213	139	ND	30 J	103	91.5	95.3	106	5 J	4.8 J	2.9	11.6 J	6.5 J	6.6 J	76.5
Sodium	20000	55800	77000	118000	149000	40200	31500	33500	33300	26800	29900	77700	40300	40800	29100	13200
Sodium (diss.)	20000	35700	62500	109000	157000	38300	28200	27500	26400	-	-	-	-	-	-	-

J – Estimated Result
 ND – Compound was analyzed for but not detected
 All concentrations presented in ppb
 Items in bold exceed NYS TOGS 1.1.1 Guidance Value

2019 Monitoring Well Groundwater NYSDEC Guidance Exceedances: PFAS (EPA Method 1633)			
Parameter	Part 375 Value	MW-7	MW-8
PFOS	10	20	20
All concentrations presented in ppt Items in bold exceed NYSDEC 2023 Part 375 Guidance Value			

2021 Monitoring Well Groundwater NYSDEC Standards Exceedances: VOCs (EPA Method 8260)			
Parameter	NYSDEC Groundwater Standard	BL-2	MW-5
CiS-1,2-dichloroethene	5	14	19
Tetrachloroethene	5	ND	31
Trichloroethene	5	ND	10
Vinyl Chloride	2	32	ND
J – Estimated result ND – Compound was analyzed for but not detected All concentrations presented in ppb Items in bold exceed NYS TOGS 1.1.1 Guidance Value			

2021 Monitoring Well Groundwater NYSDEC Standards Exceedances: Metals (EPA Method 6010B)												
Parameter	NYS	MW-1	MW-2	MW-3	MW-4	MW-5	MW-7	MW-8	MW-9	BL-1	BL-2	OP-3
Iron	300	1910	-	-	-	-	-	383	4240	3630	6710	2090
Magnesium	3500	36900	37100	-	-	-	43800	-	-	42600	38200	-
Sodium	20000	35900	185000	61700	96000	35900	53800	28800	45000	63800	32600	27600
All concentrations presented in ug/L Items in bold exceed NYS TOGS 1.1.1 Guidance Value												

2021 Monitoring Well Groundwater NYSDEC Standards Exceedances: SVOCs (EPA Method 8270)			
Parameter	NYS	BL-2	MW-5
Cis,1-2, dichloroethene	300	14	19
Tetrachloroethane	5	-	31
Trichloroethene	5	-	10
Vinyl Chloride	2	32	-
All concentrations presented in ug/L Items in bold exceed NYS TOGS 1.1.1 Guidance Value			

3.7 General Response Actions

The following section discusses the general response actions that may be utilized within each media of interest in order to achieve the remedial objectives described above.

Soil response actions may include selective excavation and off-Site disposal of soils exceeding applicable Part 375 Soil Cleanup Objectives, installation of engineered soil or hardscape cover systems with demarcation layers and limited in-situ treatment or stabilization where appropriate. Institutional and engineering controls, including an environmental easement and Site Management Plan, would be implemented to restrict land use, prevent exposure to remaining impacted soil, manage future intrusive activities, and ensure long-term protectiveness consistent with restricted residential and commercial use.

Groundwater response actions are intended to eliminate exposure and control contaminant migration in accordance with Part 375 requirements for restricted residential and commercial use. Measures may include groundwater use restrictions implemented through an environmental easement, reliance on monitored natural attenuation and/or targeted in-situ treatment to address residual impacts, and plume management to prevent off-Site migration. Long-term groundwater monitoring and reporting would be conducted to confirm plume stability, evaluate remedial effectiveness, and ensure continued protectiveness.

Response actions for reclaimed concrete material (RCM) generated from building demolition may include characterization and segregation of material to confirm suitability for on-Site reuse, crushing and processing for use as fill or subbase, or off-Site disposal at a permitted facility if reuse criteria are not met. Where RCM is reused on-Site, placement would be limited to appropriate locations and depths and covered by clean soil, pavement, or an engineered cover system to prevent direct contact. Institutional and engineering controls, including provisions in the Site Management Plan and environmental easement, would govern material handling, placement restrictions, and future disturbance to ensure protectiveness consistent with restricted residential and commercial use.

3.8 Remediation Goals

Investigations completed to date at the Former Shade Roller property have identified residual impacts to surface and subsurface soils, groundwater, and on-Site stockpiles of RCM. As previously discussed, the Site has been divided into two operational units: Operational Unit 1 (OU-1), which is subject to the 6 NYCRR Part 375 Restricted Residential Soil Cleanup Objectives, and Operational Unit 2 (OU-2), which is subject to Restricted Commercial Cleanup Objectives.

The objective for the Former Shade Roller property is to enable the City of Ogdensburg to return the Site to the tax base through sale and redevelopment for restricted residential and/or commercial use. Responsibility for implementing the selected remedial measures would be transferred to the future property owner. To support this objective, remediation at the Site must either achieve the applicable Part 375 cleanup criteria or, where those criteria cannot be practicably or economically attained, be evaluated for a No Further Remedial Action determination based on Site-specific exposure scenarios associated with the intended future use.

Although several metals exceedances relative to NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (RRSCOs) were identified at varying depth intervals within OU-1, only one (1) discrete location exhibited an exceedance within the upper two (2) feet of soil and one (1) discrete surface soil location. Two (2) discrete surface soil locations exceeded the applicable Part 375 Commercial SCOs for metals within OU-2.

One (1) discrete location exhibited an SVOC exceedance relative to the Part 375 Commercial SCOs within the upper foot of soil within OU-2 and two (2) discrete surface soil locations.

Exceedances identified below the two-foot depth interval for OU-1 and one-foot depth interval for OU-2 are already effectively isolated from exposure by existing overlying soils, which function as a protective cover. Consistent with Part 375 framework, the primary concern for direct human exposure is limited to the upper two feet of soil; therefore, deeper exceedances do not present a current exposure risk under existing Site conditions.

3.8.1 General Remedial Treatment Technologies

Capping – This alternative consists of installing engineered caps over grass areas and to prevent direct contact, limit infiltration, and control potential exposure pathways. Cap design and construction would be tailored to each operational unit and its respective cleanup criteria, with OU-1 capped to meet Restricted Residential Use requirements and OU-2 capped to meet Commercial Use requirements. Caps may include a combination of clean soil cover, pavement, concrete, and/or other engineered barrier systems, along with demarcation layers. For the project Site, an existing cap is created by existing building slabs and asphalt pavement, which covers a good portion of the Site. Although this capping system was not by design, it does minimize the amount precipitation infiltrating through metal impacted soils at the Site.

Source Removal – This alternative involves the targeted excavation and off-Site disposal of impacted surface and subsurface soils exceeding the applicable Part 375 cleanup objectives for each operational unit. Removal activities would be designed to achieve Restricted Residential SCOs in OU-1 and Commercial SCOs in OU-2. Following source removal, clearance sampling is conducted to verify that all contaminated soil was removed. Excavated areas would be backfilled with clean material meeting applicable criteria. Source removal would reduce ongoing impacts to groundwater by eliminating contaminant mass. Groundwater impacts would be evaluated for additional management measures consistent with Part 375 requirements. This alternative would minimize or eliminate the need for long-term reliance on caps and institutional controls in affected areas.

Typical costs associated with source removal include capital costs for the excavation equipment, disposal costs for the treatment or disposal of contaminated media, laboratory costs for clearance sampling, costs for replacement backfill, and any cost associated with groundwater control and/or treatment (if required). Source removal could be successful in the elimination of remaining metals-contaminated soils from the Site in order to achieve Part 375 Restricted Residential Use SCOs for OU-1. OU-2, the former railroad right-of-way, contains an existing subsurface public waterline that will remain in place beneath the corridor and therefore source removal of low-level metals and SVOCs will be avoided in this unit.

4.0 REMEDIAL ALTERNATIVES

This section proposes the remedial alternatives for the Site. Each alternative is summarized below.

Alternative 1 – No Action

Alternative 1 would result in No Action. This alternative does not require any additional remedial actions at the Site. Existing conditions would be allowed to persist over time allowing the Site to naturally attenuate. This option will not be considered since it neglects to address existing environmental and potential human exposure concerns.

Alternative 2 – Hot Spot Removal (Upper 2-feet) in OU-1 with Cover System in OU-2

This remedial alternative consists of targeted excavation and removal of surface soil in areas where contaminant concentrations exceed the applicable Part 375 RRSCOs. The scope of work will include removal of no more than the upper two (2) feet of soil within identified hot spot areas exhibiting exceedances. Lateral confirmation sampling along the side walls only, is proposed under this alternative.

Following excavation, the affected areas will be backfilled with certified clean fill meeting the requirements for Restricted Residential use and restored to existing grade.

Removal of the upper two feet of impacted soil, in conjunction with placement of clean backfill, will achieve compliance with cover system requirements under Part 375 for Restricted Residential use. The restored soil layer will function as a protective barrier to mitigate exposure.

In areas where existing surface conditions include maintained grass cover and/or impervious materials such as concrete or asphalt, these features will be left in place and will serve as components of the overall Site cover system. These existing covers will be maintained to ensure continued protection against exposure to underlying soils.

Source removal of impacted soils in OU-2 is not proposed under this alternative due to the presence of an existing subsurface public waterline that could be adversely impacted by excavation activities. Instead, OU-2 will be addressed through the installation of a one (1) foot clean soil cover system in areas where NYSDEC Part 375 Commercial SCOs exceedances were observed.

In addition to cover system implementation, RCM currently stockpiled on-Site will be characterized in accordance with NYSDEC DER-10 requirements. Should analytical results indicate that the material exceeds criteria for on-Site reuse, it will be properly managed and transported off-Site for disposal at a permitted facility in accordance with applicable federal, state, and local regulations.

Institutional controls will be established to ensure the long-term integrity and effectiveness of the remedy. These controls will include the development and implementation of a SMP, which will outline identify groundwater monitoring requirements to track potential impacts associated with metals, VOCs, and PFAS, including those potentially related to former plating operations conducted in the basement area of the Main Mill building.

The property owner will be responsible for implementing the SMP and submitting periodic certifications confirming the continued effectiveness of the engineering and institutional controls.

This approach is intended to be a practical and effective means of addressing shallow soil impacts while achieving compliance with applicable regulatory standards for Restricted Residential use.

Alternative 3 – Site-wide Cover System (No Excavation)

This remedial alternative consists of implementing a Site-wide cover system without soil excavation, in combination with institutional controls to achieve compliance with applicable standards.

OU-1 includes approximately 3.71 acres of grassed areas or compromised surface cover, which will be improved through installation of a two (2)-foot soil cover system meeting the requirements of NYSDEC Part 375 RRSCOs. The remaining 2.5 acres consist of concrete and asphalt paving associated with former buildings and Site access. These existing impervious surfaces will remain in place and will be maintained as part of the Site cover system.

OU-2, totaling approximately 1.05 acres, will be addressed through installation of a one (1) foot soil cover system meeting NYSDEC Part 375 Commercial SCOs.

In addition to cover system implementation, RCM currently stockpiled on-Site will be characterized in accordance with NYSDEC DER-10 requirements. Should analytical results indicate that the material exceeds criteria for on-Site reuse, it will be properly managed and transported off-Site for disposal at a permitted facility in accordance with applicable federal, state, and local regulations.

No excavation of existing Site soils is proposed under this alternative. The combination of existing pavement and newly installed soil cover systems will serve as a continuous barrier to prevent exposure to underlying impacted soils and will meet applicable Part 375 cover system requirements.

Institutional controls will be established to ensure the long-term integrity and effectiveness of the remedy. These controls will include the development and implementation of a SMP, which will outline identify groundwater monitoring requirements to track potential impacts associated with metals, VOCs, and PFAS, including those potentially related to former plating operations conducted in the basement area of the Main Mill building.

The property owner will be responsible for implementing the SMP and submitting periodic certifications confirming the continued effectiveness of the engineering and institutional controls.

While this alternative provides a comprehensive approach to exposure mitigation and long-term Site management, it may be less favorable given the City of Ogdensburg's interest in redevelopment, as the reliance on cover systems and institutional controls could limit future Site use and flexibility.

Alternative 4 – Hot Spot Removal (Upper 2-feet) with Cover System in OU-1 and OU-2

This remedial alternative consists of targeted excavation and removal of surface soil in areas where contaminant concentrations exceed the applicable Part 375 RRSCOs. The scope of work will include removal of no more than the upper two (2) feet of soil within identified hot spot areas exhibiting exceedances. Lateral confirmation sampling along the side walls only is proposed under this alternative. Following excavation and clean fill restoration, this alternative would be combined with a cover system approach in both OU-1 and OU-2, and implementation of institutional and engineering controls to ensure long-term protectiveness.

All excavated materials will be transported off-Site for disposal at appropriately permitted facilities in accordance with applicable regulations.

Source removal of impacted soils in OU-2 is not proposed under this alternative due to the presence of an existing subsurface public waterline that could be adversely impacted by excavation activities. Instead, OU-2 will be addressed through the installation of a one (1) foot clean soil cover system meeting NYSDEC Part 375 Commercial SCOs, which will serve as a protective barrier to prevent exposure to underlying soils.

In addition, RCM currently stockpiled on-Site will be characterized in accordance with NYSDEC DER-10 requirements. If analytical results indicate that the material exceeds criteria for on-Site reuse, it will be properly managed and transported off-Site for disposal at a permitted facility in accordance with all applicable federal, state, and local regulations.

Long-term maintenance, monitoring, and institutional controls will be implemented through an SMP to ensure the continued effectiveness of the remedy. The SMP will outline procedures for inspection and maintenance of the cover system and will establish groundwater monitoring requirements to evaluate potential impacts associated with metals, VOCs, and PFAS.

This alternative provides a comprehensive approach to source removal in OU-1 while minimizing risk to existing infrastructure in OU-2 and supports both long-term protectiveness and future Site usability.

Summary of Remedial Alternative Tasks				
	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Selective Soil Cover OU-1 (2')			X	X
Selective Soil Cover OU-2 (1')		X		
Complete Soil Cover OU-2			X	X
Hot Spot Excavation		X		X
RCM Removal		X	X	X
SMP		X	X	X

4.1 Detailed Analysis of Remedial Alternatives

This section evaluates the feasibility and cost-effectiveness of the proposed remedial alternatives developed for the Site. Three remedial alternatives were evaluated to address the metals-contaminated soil. Each alternative is evaluated against the following criteria, including:

- Overall Protection of Public Health and the Environment;
- Compliance with Standards, Criteria, and Guidance (SCGs);
- Long-Term Effectiveness and Permanence;
- Reduction of Toxicity, Mobility or Volume;
- Short-term impact and effectiveness;
- Implementability; and
- Cost effectiveness.

4.1.1 Alternative 1 – No Action

This alternative does not require any additional remedial actions at the Site. It would not include the development of Institutional Controls and would allow areas of impacted soil and groundwater to naturally attenuate over time.

This alternative provides no protection of public health and the environment; will not meet compliance standard, criteria, and guidance; has no long-term effectiveness and permanence; provides no reduction of toxicity, mobility, or volume; and has no short-term impact and effectiveness. This option is fully implementable. No cost is associated with this option since no remedial action would be implemented. This alternative would not support the intended Restricted Residential and Commercial SCOs of the Site and is not likely to be accepted by the City, given their desire to develop the Site.

This alternative will not be further evaluated for the Site given the observed VOC, SVOC, metals, and PFAS impacts and the potential for human exposure during potential future development.

4.1.2 Alternative 2 – Shallow Excavation with Development of Engineering and Institutional Controls

- **Overall Protection:** Provides improved protection by removing the most highly impacted surface soils while preventing exposure to remaining subsurface contamination.
- **SCG Compliance:** Meets SCGs through a combination of excavation and cover system requirements.
- **Long-Term Effectiveness:** More effective than Alternative 3, though still dependent on cover system integrity for residual contamination.

- **Reduction of Toxicity/Mobility/Volume:** Moderate reduction through removal of contaminated surface soils.
- **Short-Term Impacts:** Moderate; includes excavation activities with associated dust, noise, and material handling considerations.
- **Implementability:** Feasible with conventional excavation methods; requires coordination for disposal and Site restoration.
- **Cost Effectiveness:** Generally low-cost relative to the other alternatives do to the minimal excavation and minimal cover importation. A detailed breakdown of the estimated costs to implement this alternative is presented in Appendix A.

4.1.3 *Alternative 3 – No Excavation with Development of Engineering and Institutional Controls*

- **Overall Protection:** Provides protection by preventing exposure through engineered and existing covers; does not eliminate contamination.
- **SCG Compliance:** Achieves compliance through cover system requirements rather than removal.
- **Long-Term Effectiveness:** Relies on long-term maintenance of soil cover and existing pavement; effectiveness dependent on institutional controls.
- **Reduction of Toxicity/Mobility/Volume:** Minimal reduction; contaminants remain in place.
- **Short-Term Impacts:** Low; minimal disturbance and limited risk during implementation.
- **Implementability:** Readily implementable with standard construction methods; minimal technical complexity.
- **Cost Effectiveness:** Moderate cost. Higher than Alternative 2 but lower than full excavation alternatives.

4.1.4 *Alternative 4 – Shallow Excavation with Development of Engineering and Institutional Controls*

- **Overall Protection:** Provides improved protection by removing the most highly impacted surface soils while preventing exposure to remaining subsurface contamination; OU-2 protection achieved via cover system.
- **SCG Compliance:** Meets SCGs through a combination of excavation and cover system requirements.
- **Long-Term Effectiveness:** Like Alternative 2, though still dependent on cover system integrity for residual contamination.

- **Reduction of Toxicity/Mobility/Volume:** Moderate reduction through removal of contaminated surface soils; limited reduction in OU-2.
- **Short-Term Impacts:** Moderate; includes excavation activities with associated dust, noise, and material handling considerations.
- **Implementability:** Feasible with conventional excavation methods; requires coordination for sampling, disposal and Site restoration.
- **Cost Effectiveness:** Highest cost due to excavation, transportation, disposal, and restoration, but provides greater long-term benefit in OU-1.

A detailed breakdown of the estimated costs to implement this alternative is presented in Appendix A.

5.0 ANALYSIS OF COST-BENEFIT RELATIONSHIP

The capital costs associated with each alternative are summarized below in Table 1 (No cost is associated with Alternative 1; therefore, this option does not appear in the table). A detailed cost estimate for Alternative 2, Alternative 3, and Alternative 4 are presented in Appendix A.

Alternative 1 – “No Action,” is not protective of human health and the environment since it does not address existing and potential future exposure scenarios. Although there is no capital cost associated with this alternative, the cost-benefit of Alternative 1 is low since the observed impacts would remain on-Site to naturally attenuate.

Alternative 2 – Hot Spot Removal (Upper Two Feet) in OU-1 with Cover System in OU-2

Alternative 2 involves moderate capital costs associated with excavation and off-Site disposal of the most impacted shallow soils, as well as placement of clean backfill. These increased upfront costs are balanced by a meaningful reduction in contaminant mass in the most exposure-prone zone.

The removal of surface “hot spots” improves Site conditions and reduces risk more effectively than Alternative 3, while still maintaining a relatively manageable construction scope. Long-term costs are reduced compared to Alternative 3 and Alternative 4, as the most contaminated soils are removed, though some reliance on cover systems and institutional controls remains for deeper contamination.

From a cost-benefit perspective, this alternative offers a balanced approach, achieving a notable improvement in protectiveness and reduction in liability at a moderate increase in cost. It is often considered a practical middle-ground solution where full excavation is not necessary or feasible.

Alternative 3 – No Excavation with Development of Engineering and Institutional Controls

Alternative 3 represents a moderate capital cost option, as it avoids excavation, transportation, and disposal of contaminated soils. Construction activities are limited to placement of soil cover in exposed areas and maintenance of existing pavement and concrete building slabs, resulting in relatively low implementation costs and minimal schedule duration.

However, the benefits are also more limited. Contamination remains in place, and long-term protectiveness is dependent on the integrity of the cover system and adherence to institutional controls. This introduces ongoing operation, maintenance, and monitoring costs, as well as potential future liabilities if the cover is compromised. Additionally, reliance on institutional controls may limit redevelopment flexibility and could impose administrative burdens over time.

Overall, the Alternative 3 long-term cost-benefit relationship is less favorable due to continued maintenance obligations and limited reduction in contaminant mass.

Alternative 4 – Hot Spot Removal (Upper Two Feet) with Cover System in OU-1 and OU-2

Alternative 4 has the highest capital cost due to extensive excavation, confirmation sampling, transportation, and disposal of contaminated soils in OU-1, along with backfilling and restoration. Additional costs are associated with increased construction complexity and potential logistical challenges.

Despite these higher upfront costs, the benefits are substantial. In OU-1, this alternative achieves a permanent reduction in contaminant mass, eliminating the need for long-term soil management, institutional controls related to soil exposure, and many associated liabilities. This significantly enhances the long-term value of the property and maximizes redevelopment potential. In OU-2, costs are lower due to the use of a cover system, though some long-term maintenance remains.

Over the life of the project, the reduction in long-term operation, maintenance, and administrative burdens in OU-1 can offset a portion of the initial investment. As a result, Alternative 4 provides the greatest long-term benefit and permanence, though at a premium upfront cost.

Overall, this alternative offers the strongest long-term cost-benefit relationship where redevelopment and elimination of liability are key project drivers but may be less favorable if near-term budget constraints are a primary consideration.

Summary of Remedial Alternative Costs					
Remedial Alternative	Capital Costs	Engineering and Contingency Costs	Annual Operation and Maintenance	Estimated Number of Years of Operation	Total Estimated Costs
Alternative 1 – “No Action”	\$0	\$0	\$0		\$0
Alternative 2 – Hot Spot Excavation (Upper Two Feet) with Engineering (Selective Soil Cap in OU-2), RCM Removal and Institutional Controls (SMP)	\$603,175	\$128,237	\$15,700		\$747,112
Alternative 3 – Site Wide Cover System (No Excavation)	\$1,141,448	\$241,274	\$15,700		\$1,398,422
Alternative 4 – Hot Spot Excavation (Deep Excavation) with Engineering (Soil Cap), RCM Removal and Institutional Controls (SMP)	\$1,218,003	\$257,351	\$15,700		\$1,491,054

Based on the analysis conducted above, Alternative 2 remedy is recommended to address the existing and future hypothetical exposure scenarios.

5.1 Summary of Remedial Alternatives Evaluation

Four remedial alternatives were evaluated to address the remedial objectives at the Site. Areas and contaminants of concern include metals in the subsurface soil above State standards.

Alternative 1 would not require any additional remedial actions at the Site. It would not include maintenance of the Site cap or development of Institutional Controls. This alternative is not protective of human health and the environment under existing and hypothetical future conditions.

Alternative 2 consists of targeted excavation and off-Site disposal of the upper two feet of soil in hot spot areas exceeding applicable criteria within OU-1, followed by placement of clean backfill to establish a compliant cover system. Remaining areas, including existing pavement and grass cover, function as part of the overall barrier to prevent exposure. OU-2 would receive a one-foot soil cover system. The total cost of this alternative is estimated at \$747,112. This option would provide some level of protection of human health and environment and address future hypothetical exposure scenarios.

Alternative 3 consists of implementing a Site wide cover system, including a two-foot clean soil cover in exposed areas and maintaining existing concrete and asphalt as part of the barrier, and a one-foot clean soil cover in OU-2, with no excavation of underlying soils. Institutional controls and a SMP would be established to ensure long-term protectiveness, including maintenance of the cover system and groundwater monitoring. The total cost of this alternative is estimated at \$1,398,422. This option would provide some level of protection of human health and environment and address future hypothetical exposure scenarios.

Alternative 4 consists of targeted excavation and off-Site disposal of the upper two feet of soil in areas exceeding applicable criteria within OU-1, followed by placement of clean backfill to establish a compliant cover system in excavated areas. Grassed areas within OU-1 would receive a two-foot cover system. OU-2 would be addressed with a one-foot soil cover system due to subsurface utility constraints, with institutional controls and long-term management applied Site-wide. The total cost of Alternative 3 is estimated at \$1,491,054 and would provide a more significant level of protection of human health and environment.

Figure 1
Site Location Map

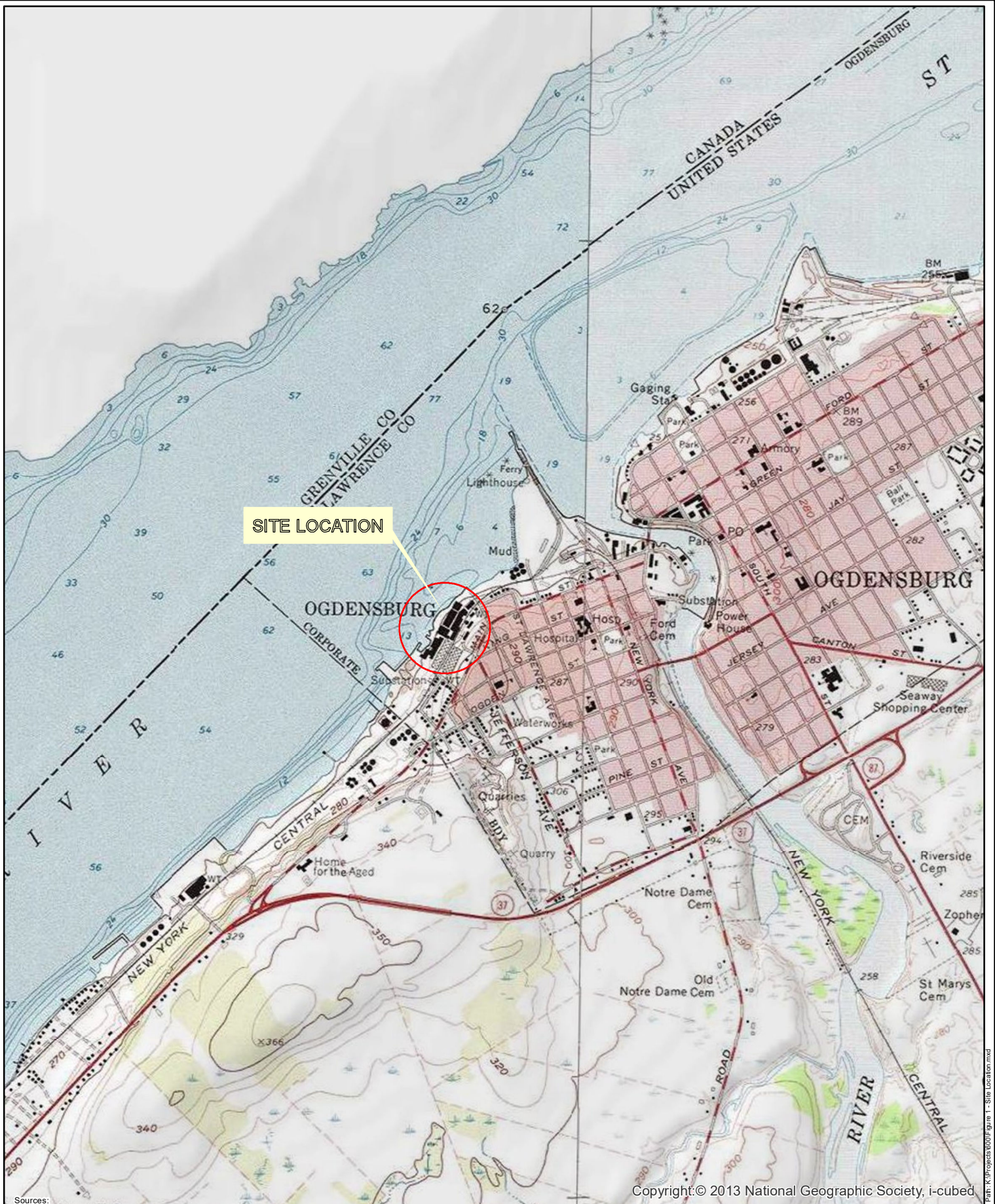
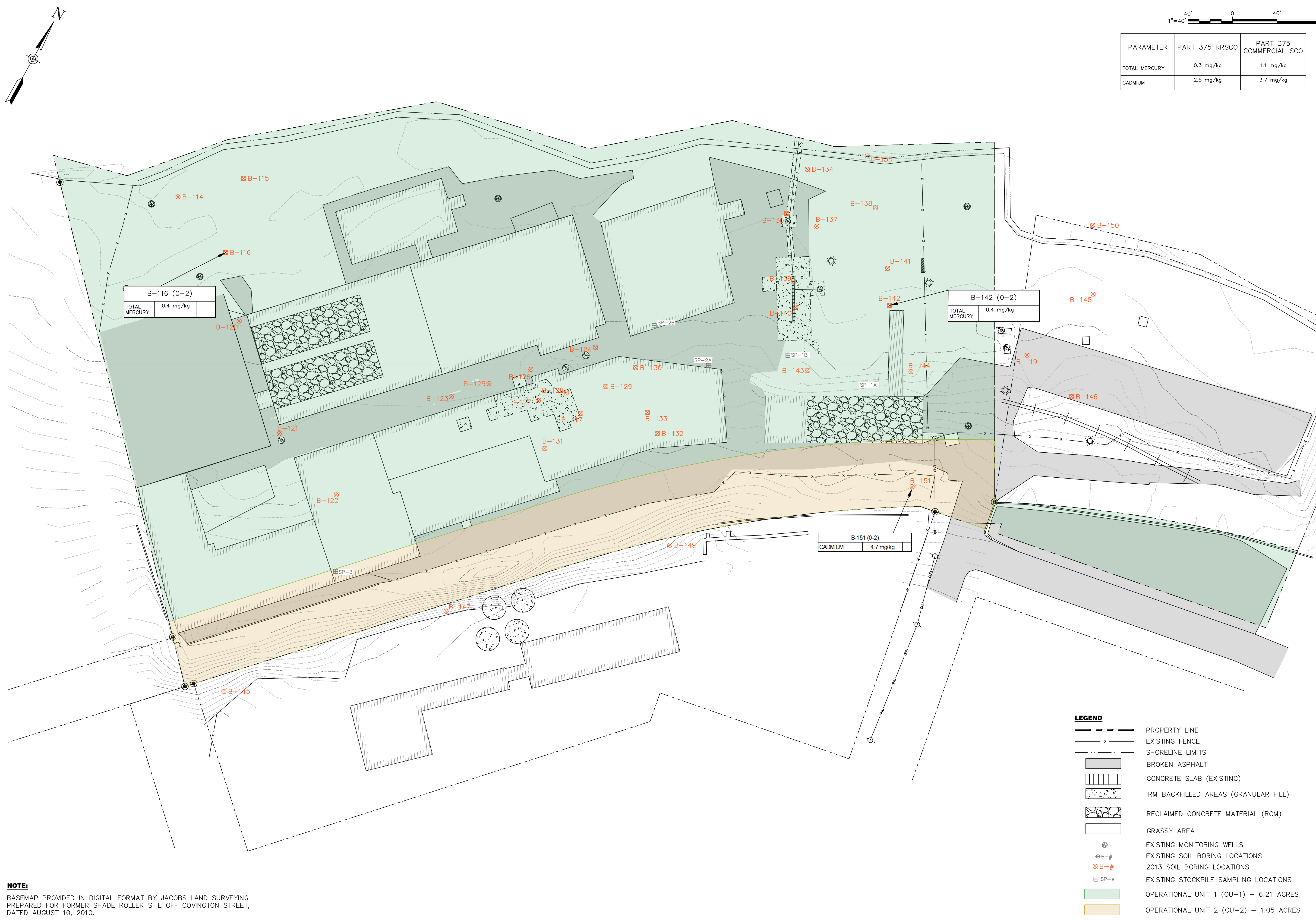


Figure 2
Site Plan

Figure 3
Remaining Soil Boring Metals Exceedances

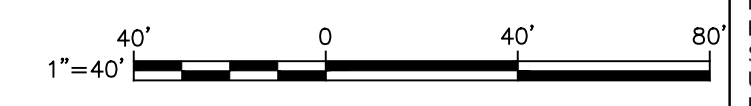
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NOTE:
 BASEMAP PROVIDED IN DIGITAL FORMAT BY JACOBS LAND SURVEYING
 PREPARED FOR FORMER SHADE ROLLER SITE OFF COVINGTON STREET,
 DATED AUGUST 10, 2010.

LEGEND

	PROPERTY LINE
	EXISTING FENCE
	SHORELINE LIMITS
	BROKEN ASPHALT
	CONCRETE SLAB (EXISTING)
	IRM BACKFILLED AREAS (GRANULAR FILL)
	RECLAIMED CONCRETE MATERIAL (RCM)
	GRASSY AREA
	EXISTING MONITORING WELLS
	EXISTING SOIL BORING LOCATIONS
	2013 SOIL BORING LOCATIONS
	EXISTING STOCKPILE SAMPLING LOCATIONS
	OPERATIONAL UNIT 1 (OU-1) - 6.21 ACRES
	OPERATIONAL UNIT 2 (OU-2) - 1.05 ACRES



PARAMETER	PART 375 RRSCO	PART 375 COMMERCIAL SCO
TOTAL MERCURY	0.3 mg/kg	1.1 mg/kg
CADMIUM	2.5 mg/kg	3.7 mg/kg

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 §7209 SPECIAL PROVISIONS, FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVIVOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING PROFESSIONAL SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

REVISIONS

NO.	DESCRIPTION

CITY OF OGDENSBURG
 FORMER STANDARD SHADE ROLLER SITE
 ALTERNATIVES ANALYSIS REPORT
REMAINING SOIL BORING METALS EXCEEDANCES
 OGDENSBURG
 ST. LAWRENCE COUNTY, NEW YORK

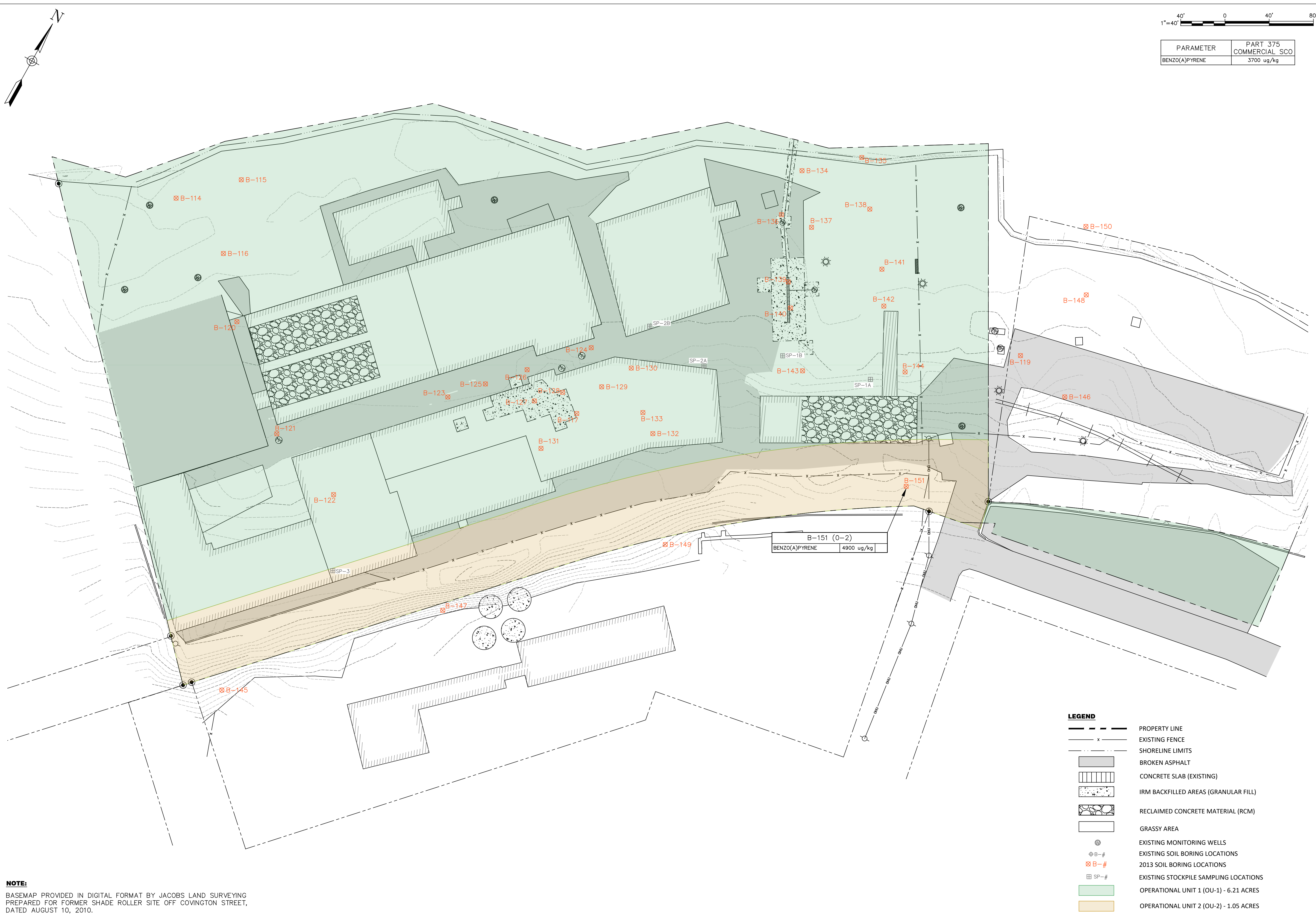
Barton & Loguidice
 443 Electronics Parkway
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 NYS CERTIFICATE #
 0021642, 00202688, 0019903,
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 Project Number: 692.022.001

Figure 4
Remaining Soil Boring SVOC Exceedances

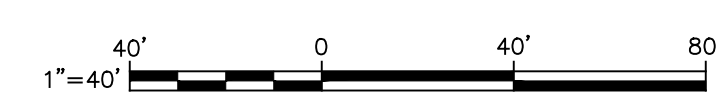
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 Z:\BL-Vault\02\18217AD2-1C71-4823-8927-9905C6054147\0\35333000-3533999\3533344\1\FIGURE 4 SUB SVOCs 692005_03 Basemap (ID 3533344).dwg
 Checked by _____ Drawn by _____ Designed by _____ In charge of _____



NOTE:
 BASEMAP PROVIDED IN DIGITAL FORMAT BY JACOBS LAND SURVEYING
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 DATED AUGUST 10, 2010.

LEGEND

	PROPERTY LINE
	EXISTING FENCE
	SHORELINE LIMITS
	BROKEN ASPHALT
	CONCRETE SLAB (EXISTING)
	IRM BACKFILLED AREAS (GRANULAR FILL)
	RECLAIMED CONCRETE MATERIAL (RCM)
	GRASSY AREA
	EXISTING MONITORING WELLS
	EXISTING SOIL BORING LOCATIONS
	2013 SOIL BORING LOCATIONS
	EXISTING STOCKPILE SAMPLING LOCATIONS
	OPERATIONAL UNIT 1 (OU-1) - 6.21 ACRES
	OPERATIONAL UNIT 2 (OU-2) - 1.05 ACRES



PARAMETER	PART 375 COMMERCIAL SCO
BENZO(A)PYRENE	3700 ug/kg

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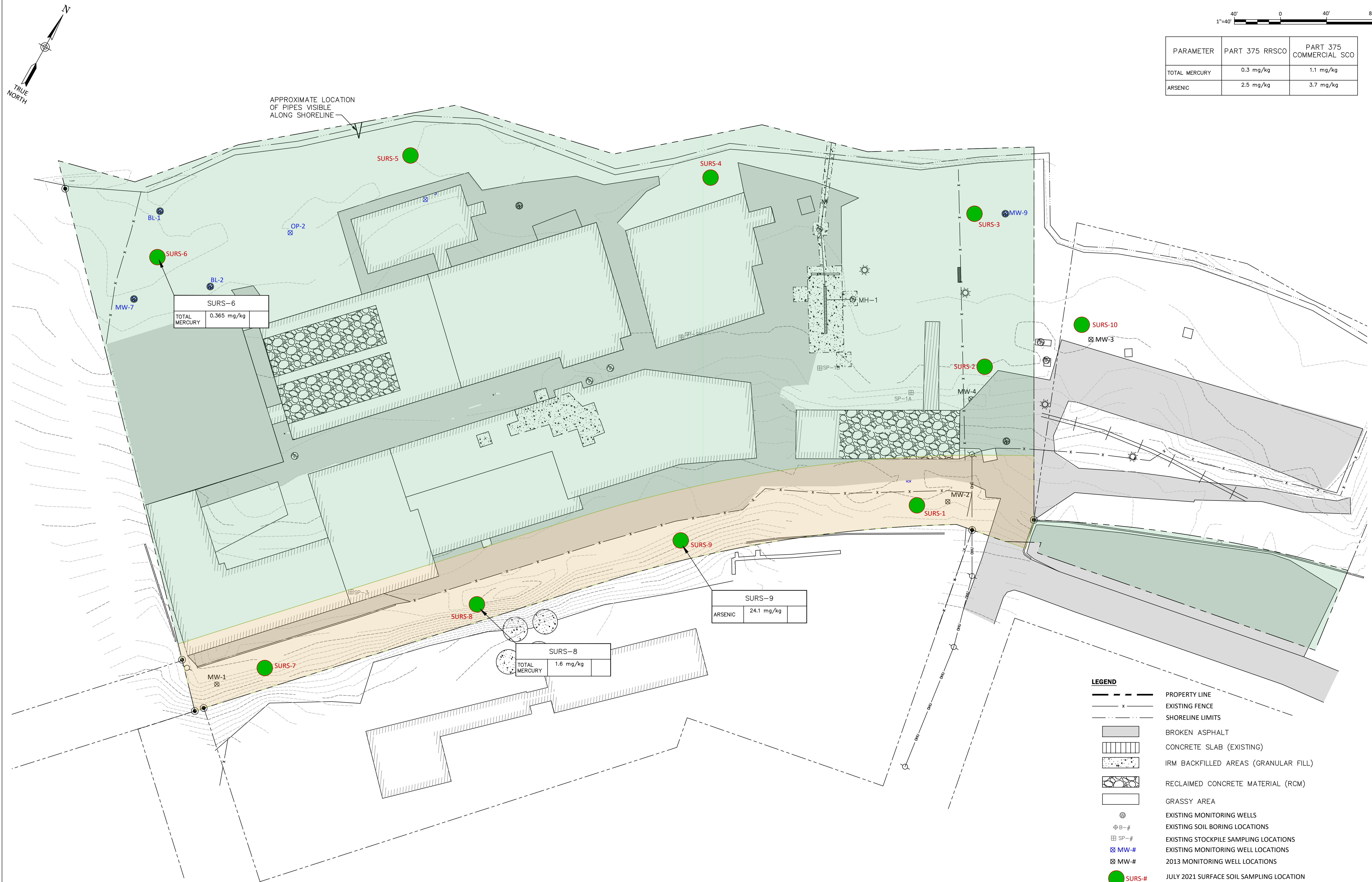
REVISIONS

CITY OF OGDENSBURG
 FORMER STANDARD SHADE ROLLER SITE
 ALTERNATIVES ANALYSIS REPORT
REMAINING SOIL BORING SVOC EXCEEDANCES
 OGDENSBURG
 ST. LAWRENCE COUNTY, NEW YORK

Barton & Loguidice
 443 Electronics Parkway
 Liverpool, NY 13088
 NYS CERTIFICATE #
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Scale AS SHOWN
Sheet Number 4
Project Number 692.022.001

Figure 5
Remaining Surface Soil Metals Exceedances
(2021 Investigation)



PARAMETER	PART 375 RRSCO	PART 375 COMMERCIAL SCO
TOTAL MERCURY	0.3 mg/kg	1.1 mg/kg
ARSENIC	2.5 mg/kg	3.7 mg/kg

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REVISIONS

CITY OF OGDENSBURG
 FORMER STANDARD SHADE ROLLER
 ALTERNATIVES ANALYSIS REPORT
**REMAINING SURFACE SOIL METALS EXCEEDANCES
 (2021 INVESTIGATION)**
 ST. LAWRENCE COUNTY, NEW YORK

443 Electronics Parkway
 Liverpool, NY
 13088
Barton & Loguidice, D.P.C.

Date	FEBRUARY 2026
Scale	AS SHOWN
Sheet Number	5
Project Number	692.022.001

SURS-6	
TOTAL MERCURY	0.365 mg/kg

SURS-8	
TOTAL MERCURY	1.6 mg/kg

SURS-9	
ARSENIC	24.1 mg/kg

- LEGEND**
- PROPERTY LINE
 - - - EXISTING FENCE
 - - - SHORELINE LIMITS
 - ▨ BROKEN ASPHALT
 - ▤ CONCRETE SLAB (EXISTING)
 - ▥ IRM BACKFILLED AREAS (GRANULAR FILL)
 - ▧ RECLAIMED CONCRETE MATERIAL (RCM)
 - GRASSY AREA
 - ⊕ EXISTING MONITORING WELLS
 - ⊕ SP-# EXISTING SOIL BORING LOCATIONS
 - ⊕ MW-# EXISTING STOCKPILE SAMPLING LOCATIONS
 - ⊕ MW-# EXISTING MONITORING WELL LOCATIONS
 - SURS-# JULY 2021 SURFACE SOIL SAMPLING LOCATION
 - ⊕ OP-# OPTECH INSTALLED MONITORING WELL LOCATIONS (BEFORE 2013)
 - ⊕ BL-# B&L INSTALLED MONITORING WELL LOCATIONS (AFTER 2013)
 - OPERATIONAL UNIT 1 (OU-1) - 6.21 ACRES
 - OPERATIONAL UNIT 2 (OU-2) - 1.05 ACRES

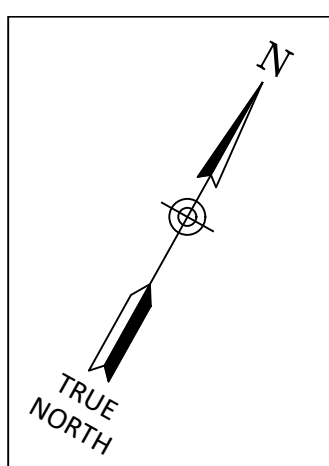
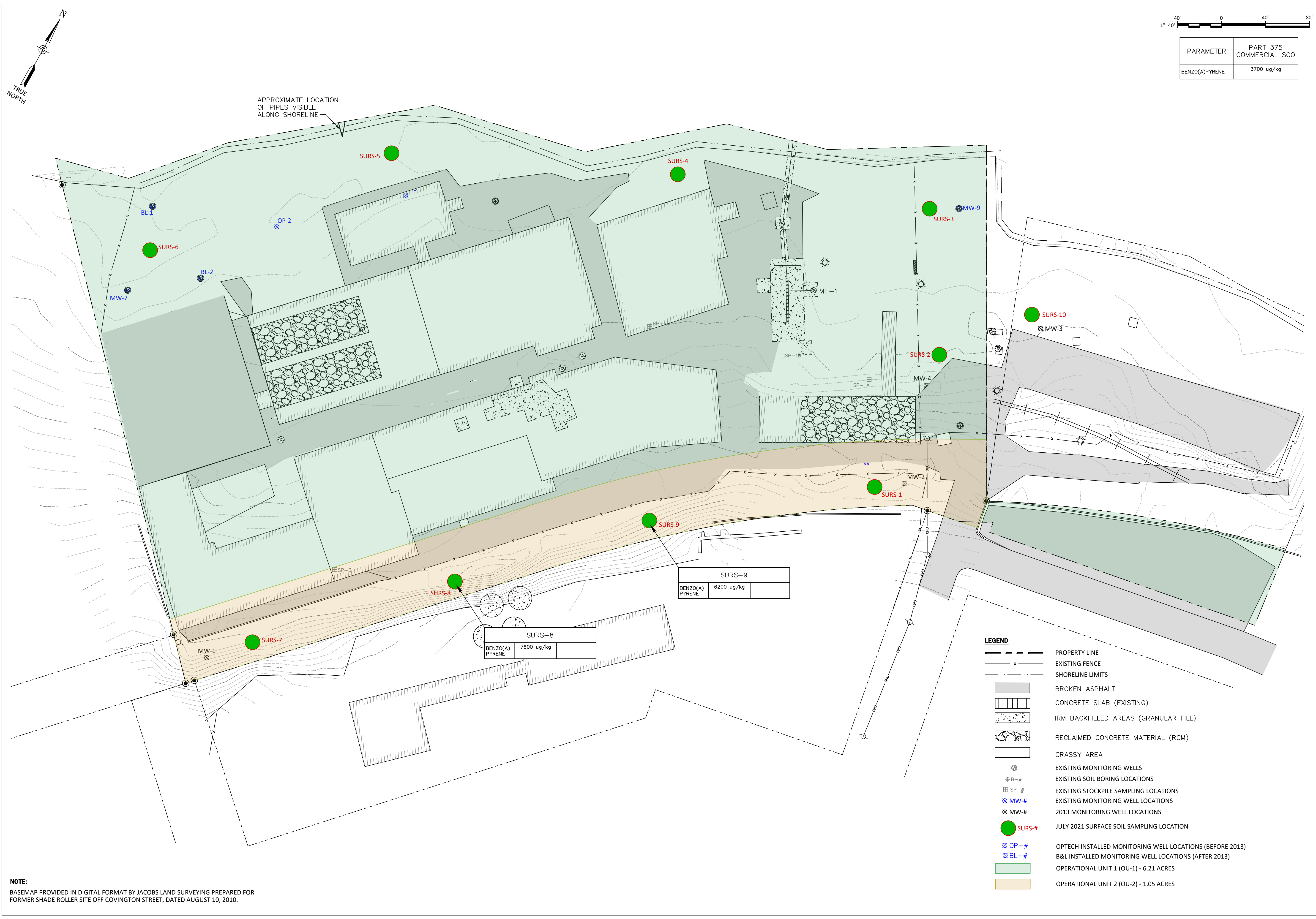
Checked by: JGS
 Drawn by: SDN
 Designed by: BDD
 In charge of: SDN

NOTE:
 BASEMAP PROVIDED IN DIGITAL FORMAT BY JACOBS LAND SURVEYING PREPARED FOR FORMER SHADE ROLLER SITE OFF COVINGTON STREET, DATED AUGUST 10, 2010.

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 Z:\BL-Vault\02\18217AD2-1C71-4823-8927-9905C054147\0\3533000-3533999\3533348\FIGURE 5 SUR Metals (D_3533348).dwg

Figure 6
Remaining Surface Soil SVOC Exceedances
(2021 Investigation)

Plotted: Apr 07, 2026 - 11:30AM SYR By: bas
 Z:\BL-Vault\02\18217AD2-1C71-4823-8927-9905C6054147\0\3533000-3533999\3533349\FIGURE 6 SUR SVOCs (ID 3533349).dwg
 Checked by JGS Drawn by SDN In charge of BDD



PARAMETER	PART 375 COMMERCIAL SCO
BENZO(A)PYRENE	3700 ug/kg

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 §7209 SPECIAL PROVISIONS, FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVIVOR TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING PROFESSIONAL SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

REVISIONS

CITY OF OGDENSBURG
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 ALTERNATIVES ANALYSIS REPORT
REMAINING SURFACE SOIL SVOC EXCEEDANCES (2021 INVESTIGATION)
 ST. LAWRENCE COUNTY, NEW YORK
 CITY OF OGDENSBURG

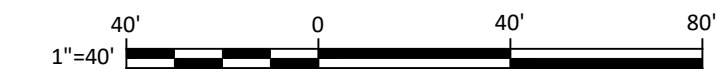
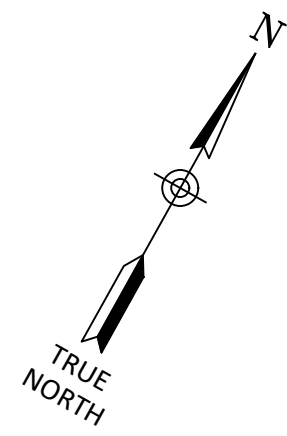
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 Liverpool, NY
 13088
Barton & Loguidice, D.P.C.

Date	FEBRUARY 2026
Scale	AS SHOWN
Sheet Number	6
Project Number	692.022.001

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- LEGEND**
- PROPERTY LINE
 - - - EXISTING FENCE
 - - - SHORELINE LIMITS
 - ▨ BROKEN ASPHALT
 - ▤ CONCRETE SLAB (EXISTING)
 - ▥ IRM BACKFILLED AREAS (GRANULAR FILL)
 - ▧ RECLAIMED CONCRETE MATERIAL (RCM)
 - GRASSY AREA
 - ⊙ EXISTING MONITORING WELLS
 - ⊕B-# EXISTING SOIL BORING LOCATIONS
 - ⊕SP-# EXISTING STOCKPILE SAMPLING LOCATIONS
 - ⊗MW-# EXISTING MONITORING WELL LOCATIONS
 - ⊗MW-# 2013 MONITORING WELL LOCATIONS
 - SURS-# JULY 2021 SURFACE SOIL SAMPLING LOCATION
 - ⊗OP-# OPTTECH INSTALLED MONITORING WELL LOCATIONS (BEFORE 2013)
 - ⊗BL-# B&L INSTALLED MONITORING WELL LOCATIONS (AFTER 2013)
 - OPERATIONAL UNIT 1 (OU-1) - 6.21 ACRES
 - OPERATIONAL UNIT 2 (OU-2) - 1.05 ACRES

Figure 7
Reclaimed Concrete Material Exceedances



SP-2C	Restricted Res. SCO	Result
Benzo(a)anthracene	1400 ug/kg	28000 ug/kg
Benzo(a)pyrene	1000 ug/kg	24000 ug/kg
Benzo(b)fluoranthene	1400 ug/kg	19000 ug/kg
Benzo(k)fluoranthene	4900 ug/kg	19000 ug/kg
Chrysene	4900 ug/kg	27000 ug/kg
Dibenzo(a,h)anthracene	330 ug/kg	5000 ug/kg
Indeno(1,2,3-cd)pyrene	1400 ug/kg	13000 ug/kg

APPROXIMATE LOCATION OF PIPES VISIBLE ALONG SHORELINE

SP-1C	Restricted Res. SCO	Result
Benzo(a)anthracene	1400 ug/kg	44000 ug/kg
Benzo(a)pyrene	1000 ug/kg	37000 ug/kg
Benzo(b)fluoranthene	1400 ug/kg	31000 ug/kg
Benzo(k)fluoranthene	4900 ug/kg	35000 ug/kg
Chrysene	4900 ug/kg	41000 ug/kg
Dibenzo(a,h)anthracene	330 ug/kg	7300 ug/kg
Indeno(1,2,3-cd)pyrene	400 ug/kg	19000 ug/kg
Phenanthrene	4900 ug/kg	120000 ug/kg

SP-1D	Restricted Res. SCO	Result
Benzo(a)anthracene	1400 ug/kg	1700 ug/kg
Benzo(a)pyrene	1000 ug/kg	1700 ug/kg
Dibenzo(a,h)anthracene	330 ug/kg	360 ug/kg
Phenanthrene	4900 ug/kg	2400 ug/kg

SP-2D	Restricted Res. SCO	Result
Benzo(a)anthracene	1400 ug/kg	2300 ug/kg
Benzo(a)pyrene	1000 ug/kg	2000 ug/kg
Benzo(b)fluoranthene	1400 ug/kg	2400 ug/kg
Phenanthrene	4900 ug/kg	3000 ug/kg

SP-1E	Restricted Res. SCO	Result
Benzo(a)anthracene	1400 ug/kg	4600 ug/kg
Benzo(a)pyrene	1000 ug/kg	4100 ug/kg
Benzo(b)fluoranthene	1400 ug/kg	3600 ug/kg
Dibenzo(a,h)anthracene	330 ug/kg	880 ug/kg
Indeno(1,2,3-cd)pyrene	1400 ug/kg	2600 ug/kg

SP-2E	Restricted Res. SCO	Result
Benzo(a)anthracene	1400 ug/kg	13000 ug/kg
Benzo(a)pyrene	1000 ug/kg	10000 ug/kg
Benzo(b)fluoranthene	1400 ug/kg	8900 ug/kg
Benzo(k)fluoranthene	4900 ug/kg	9500 ug/kg
Chrysene	4900 ug/kg	12000 ug/kg
Dibenzo(a,h)anthracene	330 ug/kg	2400 ug/kg
Indeno(1,2,3-cd)pyrene	1400 ug/kg	7100 ug/kg

SP-4	Restricted Res. SCO	Result
Benzo(a)anthracene	1400 ug/kg	3400 ug/kg
Benzo(a)pyrene	1000 ug/kg	3000 ug/kg
Benzo(b)fluoranthene	1400 ug/kg	3300 ug/kg
Dibenzo(a,h)anthracene	330 ug/kg	750 ug/kg
Indeno(1,2,3-cd)pyrene	1400 ug/kg	2100 ug/kg

FORMER LOCATION OF RCM STOCKPILE. MATERIAL TESTING RESULTS EXCEED RESTRICTED RESIDENTIAL SCO RESULTS FOR SVOCs. MATERIALS MOVED TO FORMER SHED 2-A AND STAGED ON 40 MIL LINER.

- LEGEND**
- PROPERTY LINE
 - EXISTING FENCE
 - SHORELINE LIMITS
 - BROKEN ASPHALT
 - CONCRETE SLAB (EXISTING)
 - IRM BACKFILLED AREAS (GRANULAR FILL)
 - RECLAIMED CONCRETE MATERIAL (RCM)
 - GRASSY AREA
 - EXISTING MONITORING WELLS
 - STOCKPILE SAMPLING LOCATIONS
 - SEDIMENT SAMPLE LOCATIONS
 - CONCRETE DUST/CHIP SAMPLE LOCATIONS
 - OPERATIONAL UNIT 1 (OU-1) - 6.21 ACRES
 - OPERATIONAL UNIT 2 (OU-2) - 1.05 ACRES

NOTE:
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REVISIONS

NO.	DATE	DESCRIPTION

CITY OF OGDENSBURG
FORMER STANDARD SHADE ROLLER SITE
ALTERNATIVES ANALYSIS REPORT
**SEDIMENT AND CONCRETE
SVOC EXCEEDANCES**
ST. LAWRENCE COUNTY, NEW YORK

OGDENSBURG

Barton & Loguidice
443 Electronics Parkway
Liverpool, NY 13088
NYS CERTIFICATE #
0021642.00202658.0019903.
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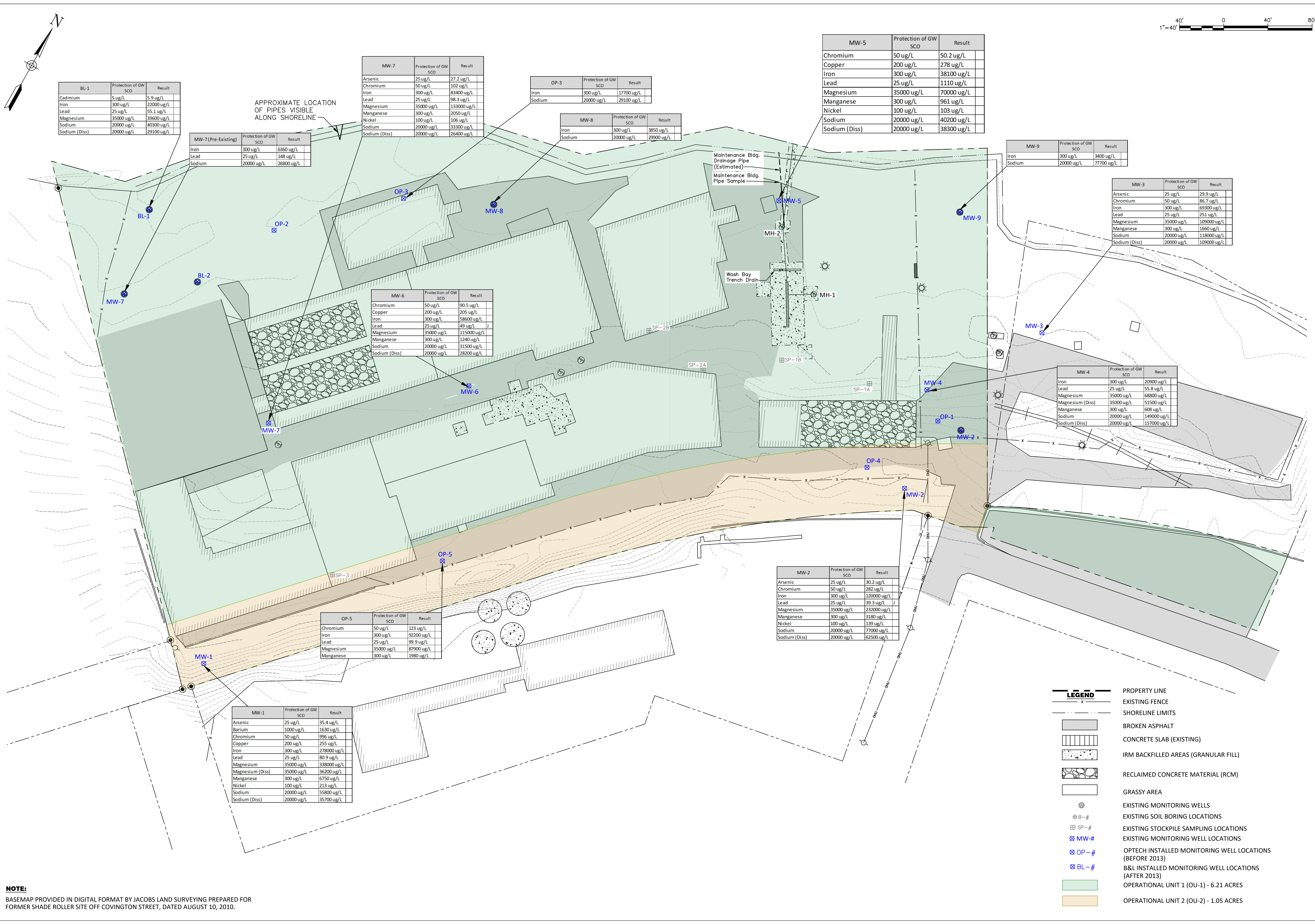
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Project Number: 692.022.001

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Z:\BL\Vault\02\18217A02-1C71-4823-8927-9905C054147\0\35333000-3533999\3533347\FIGURE 7 - ROM (ID 3533347).dwg
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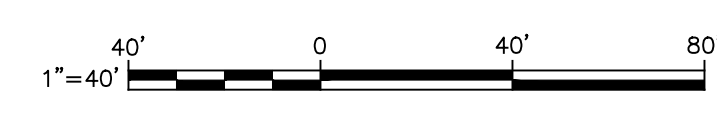
Figure 8
Groundwater Metals Exceedances 2013

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 Checked by: In charge of

Designed by: Drawn by:



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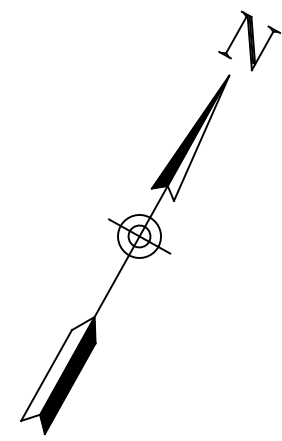
CITY OF OGDENSBURG
 FORMER STANDARD SHADE ROLLER SITE
 ALTERNATIVES ANALYSIS REPORT
GROUNDWATER METALS EXCEEDANCES 2013
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 Project Number: 692.022.001

Figure 9
Groundwater VOC Exceedances 2013



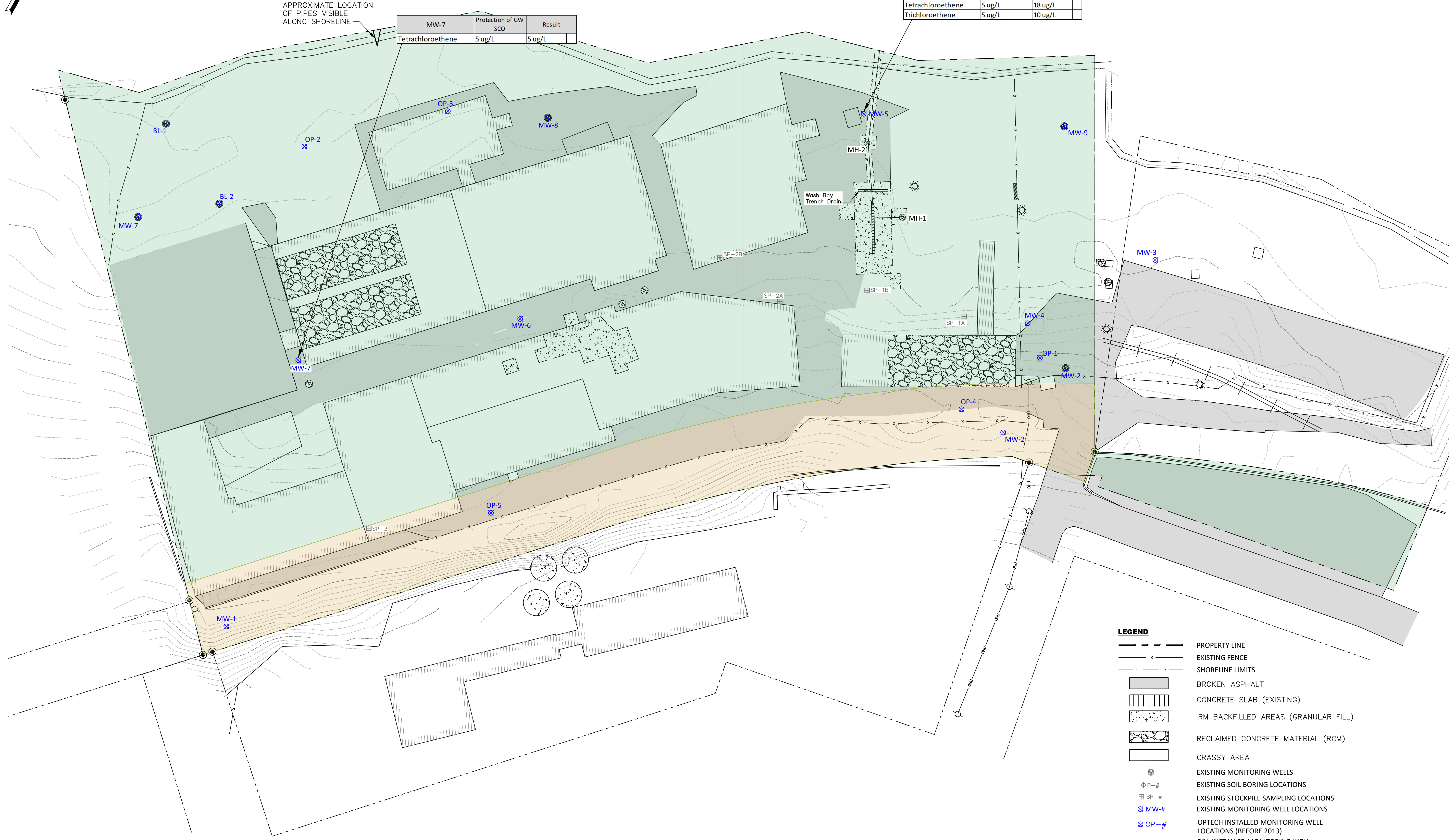
IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 § 7209 SPECIAL PROVISIONS, FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING PROFESSIONAL SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

REVISIONS	

CITY OF OGDENSBURG
 FORMER STANDARD SHADE ROLLER SITE
 ALTERNATIVES ANALYSIS REPORT
GROUNDWATER VOCS EXCEEDANCES 2013
 OGDENSBURG ST. LAWRENCE COUNTY, NEW YORK

Barton & Loguidice
 443 Electronics Parkway
 Liverpool, NY 13088
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Scale AS SHOWN
Sheet Number 9
Project Number 692.022.001



MW-7	Protection of GW SCO	Result
Tetrachloroethene	5 ug/L	5 ug/L

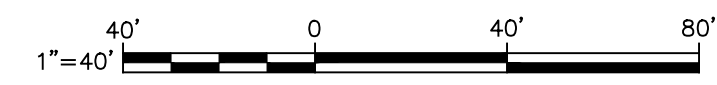
MW-5	Protection of GW SCO	Result
cis-1,2-Dichloroethene	5 ug/L	13 ug/L
Tetrachloroethene	5 ug/L	18 ug/L
Trichloroethene	5 ug/L	10 ug/L

APPROXIMATE LOCATION OF PIPES VISIBLE ALONG SHORELINE

NOTE:
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Plotter: Feb 01, 2026 - 4:27PM By: bos
 Z:\BL-Vault\02\8217AD2-1C71-4823-8927-9905C054147\0\3533000-3533999\3533351\1\FIGURE 9 GW VOCS 2013 (D 3533351).dwg
 Checked by: _____ Drawn by: _____ Designed by: _____ In charge of: _____

Figure 10
Groundwater PFAS Exceedances 2019



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REVISIONS	

CITY OF OGDENSBURG
FORMER STANDARD SHADE ROLLER SITE
ALTERNATIVES ANALYSIS REPORT

GROUNDWATER PFAS EXCEEDANCES
2019

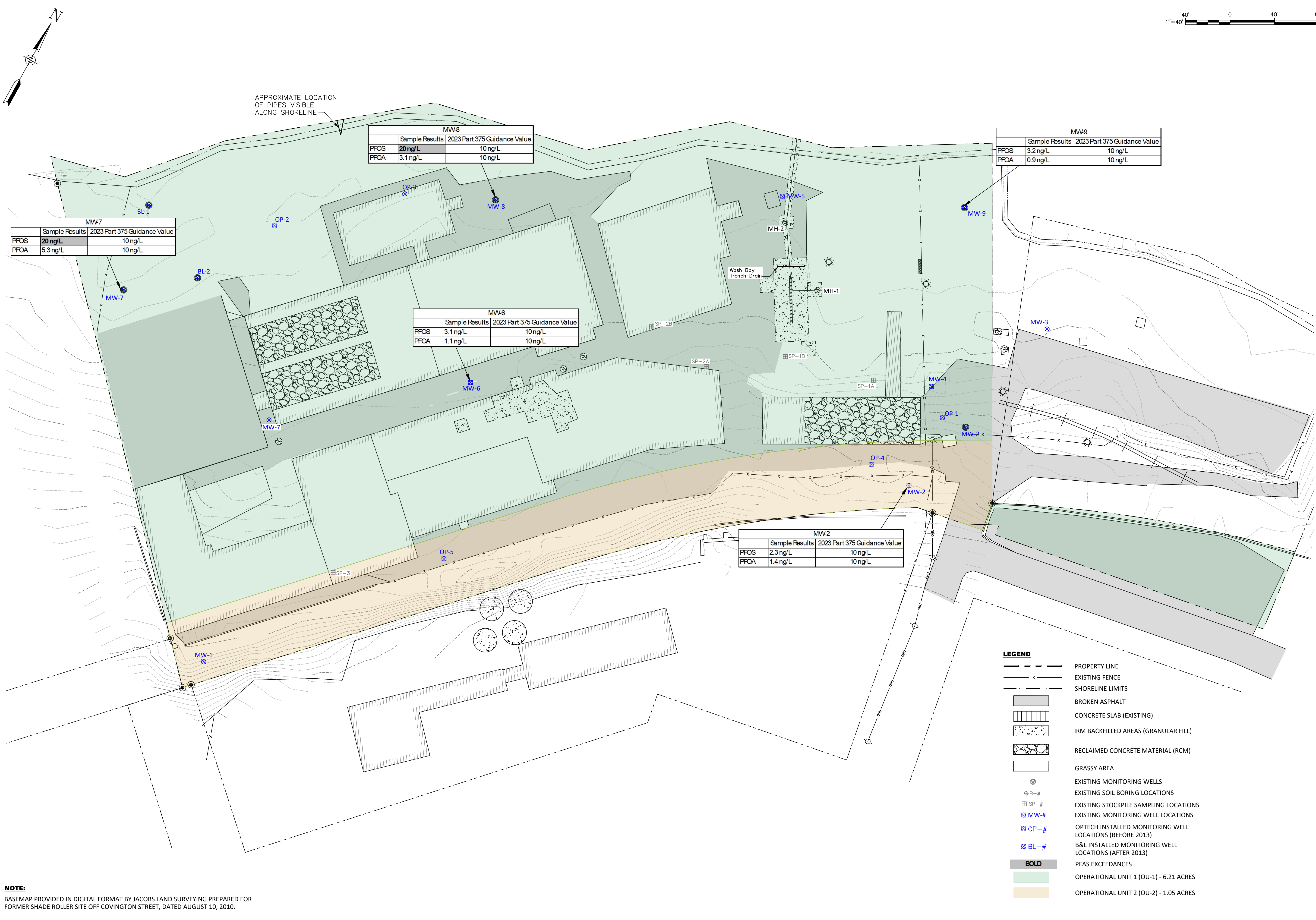
ST. LAWRENCE COUNTY, NEW YORK

Barton & Loguidice
443 Electronics Parkway
Liverpool, NY 13088

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Sheet Number: **10**
Project Number: 692.022.001



MW8		
Sample Results	2023 Part 375 Guidance Value	
PFOS	20 ng/L	10 ng/L
PFQA	3.1 ng/L	10 ng/L

MW9		
Sample Results	2023 Part 375 Guidance Value	
PFOS	3.2 ng/L	10 ng/L
PFQA	0.9 ng/L	10 ng/L

MW7		
Sample Results	2023 Part 375 Guidance Value	
PFOS	20 ng/L	10 ng/L
PFQA	5.3 ng/L	10 ng/L

MW6		
Sample Results	2023 Part 375 Guidance Value	
PFOS	3.1 ng/L	10 ng/L
PFQA	1.1 ng/L	10 ng/L

MW2		
Sample Results	2023 Part 375 Guidance Value	
PFOS	2.3 ng/L	10 ng/L
PFQA	1.4 ng/L	10 ng/L

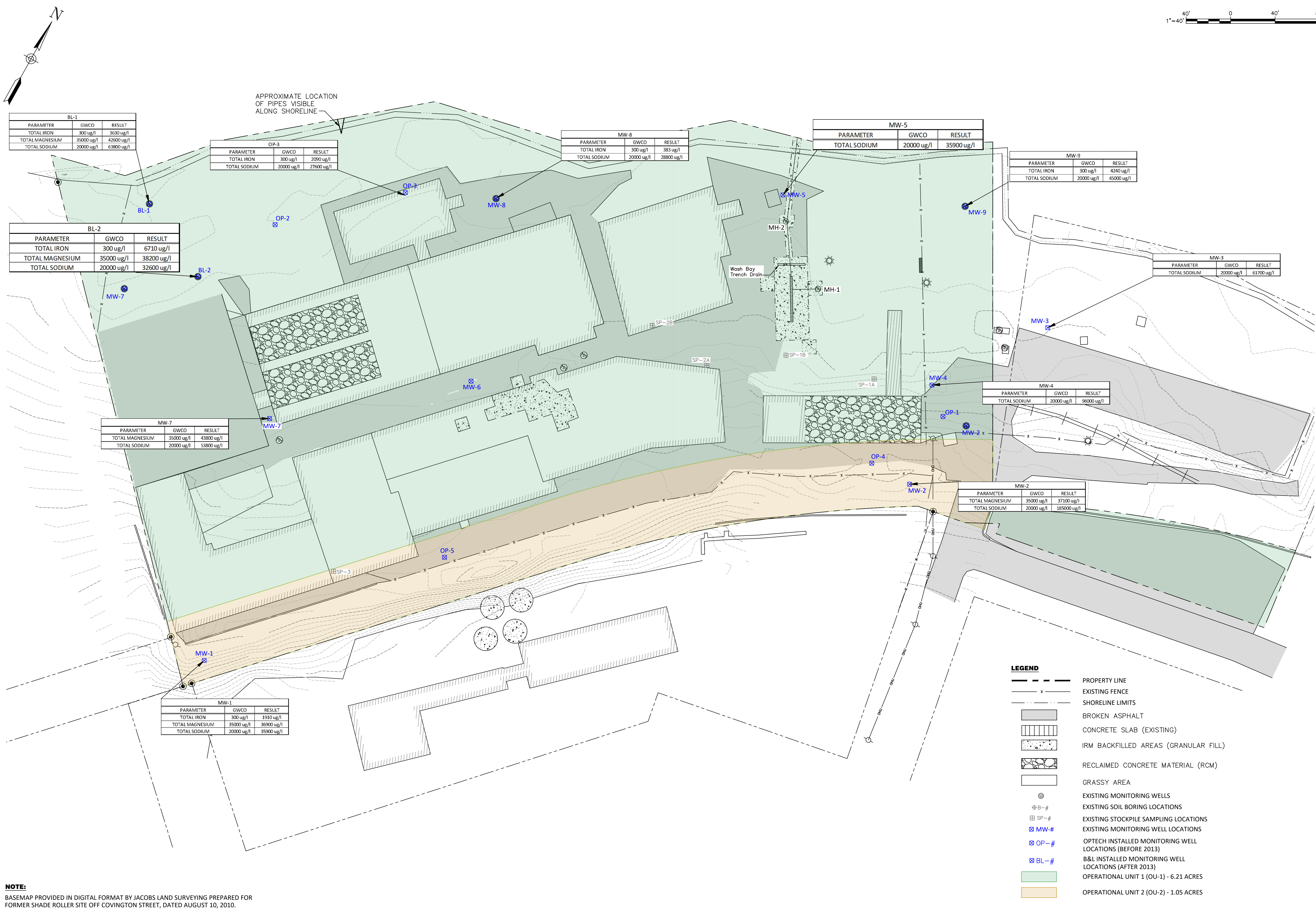
- LEGEND**
- PROPERTY LINE
 - EXISTING FENCE
 - SHORELINE LIMITS
 - BROKEN ASPHALT
 - CONCRETE SLAB (EXISTING)
 - IRM BACKFILLED AREAS (GRANULAR FILL)
 - RECLAIMED CONCRETE MATERIAL (RCM)
 - GRASSY AREA
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 - EXISTING STOCKPILE SAMPLING LOCATIONS
 - EXISTING MONITORING WELL LOCATIONS
 - OPTECH INSTALLED MONITORING WELL LOCATIONS (BEFORE 2013)
 - B&L INSTALLED MONITORING WELL LOCATIONS (AFTER 2013)
 - PFAS EXCEEDANCES**
OPERATIONAL UNIT 1 (OU-1) - 6.21 ACRES
 - OPERATIONAL UNIT 2 (OU-2) - 1.05 ACRES

NOTE:
BASEMAP PROVIDED IN DIGITAL FORMAT BY JACOBS LAND SURVEYING PREPARED FOR FORMER SHADE ROLLER SITE OFF COVINGTON STREET, DATED AUGUST 10, 2010.

Plotted: Feb 01, 2026 - 4:28PM
 Z:\BL-Vault\02\8217A02-1071-4823-8927-9905C054147\03533000-3533999\3533352\FIGURE 10 GW PFAS 2019 (ID 3533352).dwg
 Checked by: _____
 Drawn by: _____
 Designed by: _____
 In charge of: _____
 By: bos

Figure 11
Groundwater Metal Exceedances 2021

Plotted: Feb 01, 2026 - 4:28PM By: bos
 Z:\BL-Vault\ID2\18217AD2-1C71-4823-8927-9905C0541470\35333000-3533999\3533354\1\FIGURE 11 GW Metals 2021 (ID 3533354).dwg
 Checked by: Drawn by: Designed by: In charge of:



BL-1		
PARAMETER	GWCO	RESULT
TOTAL IRON	300 ug/l	3630 ug/l
TOTAL MAGNESIUM	35000 ug/l	42600 ug/l
TOTAL SODIUM	20000 ug/l	63800 ug/l

BL-2		
PARAMETER	GWCO	RESULT
TOTAL IRON	300 ug/l	6710 ug/l
TOTAL MAGNESIUM	35000 ug/l	38200 ug/l
TOTAL SODIUM	20000 ug/l	32600 ug/l

MW-7		
PARAMETER	GWCO	RESULT
TOTAL MAGNESIUM	35000 ug/l	43800 ug/l
TOTAL SODIUM	20000 ug/l	53800 ug/l

MW-1		
PARAMETER	GWCO	RESULT
TOTAL IRON	300 ug/l	1910 ug/l
TOTAL MAGNESIUM	35000 ug/l	36900 ug/l
TOTAL SODIUM	20000 ug/l	35900 ug/l

OP-3		
PARAMETER	GWCO	RESULT
TOTAL IRON	300 ug/l	2090 ug/l
TOTAL SODIUM	20000 ug/l	27600 ug/l

MW-8		
PARAMETER	GWCO	RESULT
TOTAL IRON	300 ug/l	383 ug/l
TOTAL SODIUM	20000 ug/l	28800 ug/l

MW-5		
PARAMETER	GWCO	RESULT
TOTAL SODIUM	20000 ug/l	35900 ug/l

MW-9		
PARAMETER	GWCO	RESULT
TOTAL IRON	300 ug/l	4240 ug/l
TOTAL SODIUM	20000 ug/l	45000 ug/l

MW-3		
PARAMETER	GWCO	RESULT
TOTAL SODIUM	20000 ug/l	61700 ug/l

MW-4		
PARAMETER	GWCO	RESULT
TOTAL SODIUM	20000 ug/l	96000 ug/l

MW-2		
PARAMETER	GWCO	RESULT
TOTAL MAGNESIUM	35000 ug/l	37100 ug/l
TOTAL SODIUM	20000 ug/l	185000 ug/l

- LEGEND**
- PROPERTY LINE
 - x- EXISTING FENCE
 - - - SHORELINE LIMITS
 - ▭ BROKEN ASPHALT
 - ▭ CONCRETE SLAB (EXISTING)
 - ▭ IRM BACKFILLED AREAS (GRANULAR FILL)
 - ▭ RECLAIMED CONCRETE MATERIAL (RCM)
 - ▭ GRASSY AREA
 - ⊙ EXISTING MONITORING WELLS
 - ⊕ B-# EXISTING SOIL BORING LOCATIONS
 - ⊕ SP-# EXISTING STOCKPILE SAMPLING LOCATIONS
 - ⊗ MW-# EXISTING MONITORING WELL LOCATIONS
 - ⊗ OP-# OPTECH INSTALLED MONITORING WELL LOCATIONS (BEFORE 2013)
 - ⊗ BL-# B&L INSTALLED MONITORING WELL LOCATIONS (AFTER 2013)
 - ▭ OPERATIONAL UNIT 1 (OU-1) - 6.21 ACRES
 - ▭ OPERATIONAL UNIT 2 (OU-2) - 1.05 ACRES

NOTE:
 BASEMAP PROVIDED IN DIGITAL FORMAT BY JACOBS LAND SURVEYING PREPARED FOR FORMER SHADE ROLLER SITE OFF COVINGTON STREET, DATED AUGUST 10, 2010.

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 § 7209 SPECIAL PROVISIONS, FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVIVOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING PROFESSIONAL SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

REVISIONS	

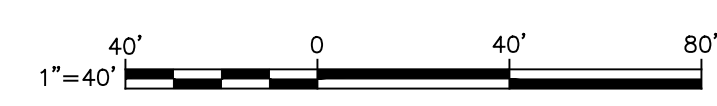
CITY OF OGDENSBURG
 FORMER STANDARD SHADE ROLLER SITE
 ALTERNATIVES ANALYSIS REPORT
GROUNDWATER METALS EXCEEDANCES
 2021
 OGDENSBURG
 ST. LAWRENCE COUNTY, NEW YORK

Barton & Loguidice
 443 Electronics Parkway
 Liverpool, NY 13088
 NYS CERTIFICATE #
 0021642, 00202588, 0019903,
 0019505, 0020336

REVIEW ONLY
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CONSTRUCTION

NYS EXP.: xx/xx/xxxx
 Date: FEBRUARY 2026
 Scale: AS SHOWN
 Sheet Number: 11
 Project Number: 692.022.001

Figure 12
Groundwater VOC Exceedances 2021



IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 § 7209 SPECIAL PROVISIONS, FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVIVOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING PROFESSIONAL SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

REVISIONS	

CITY OF OGDENSBURG
FORMER STANDARD SHADE ROLLER SITE
ALTERNATIVES ANALYSIS REPORT

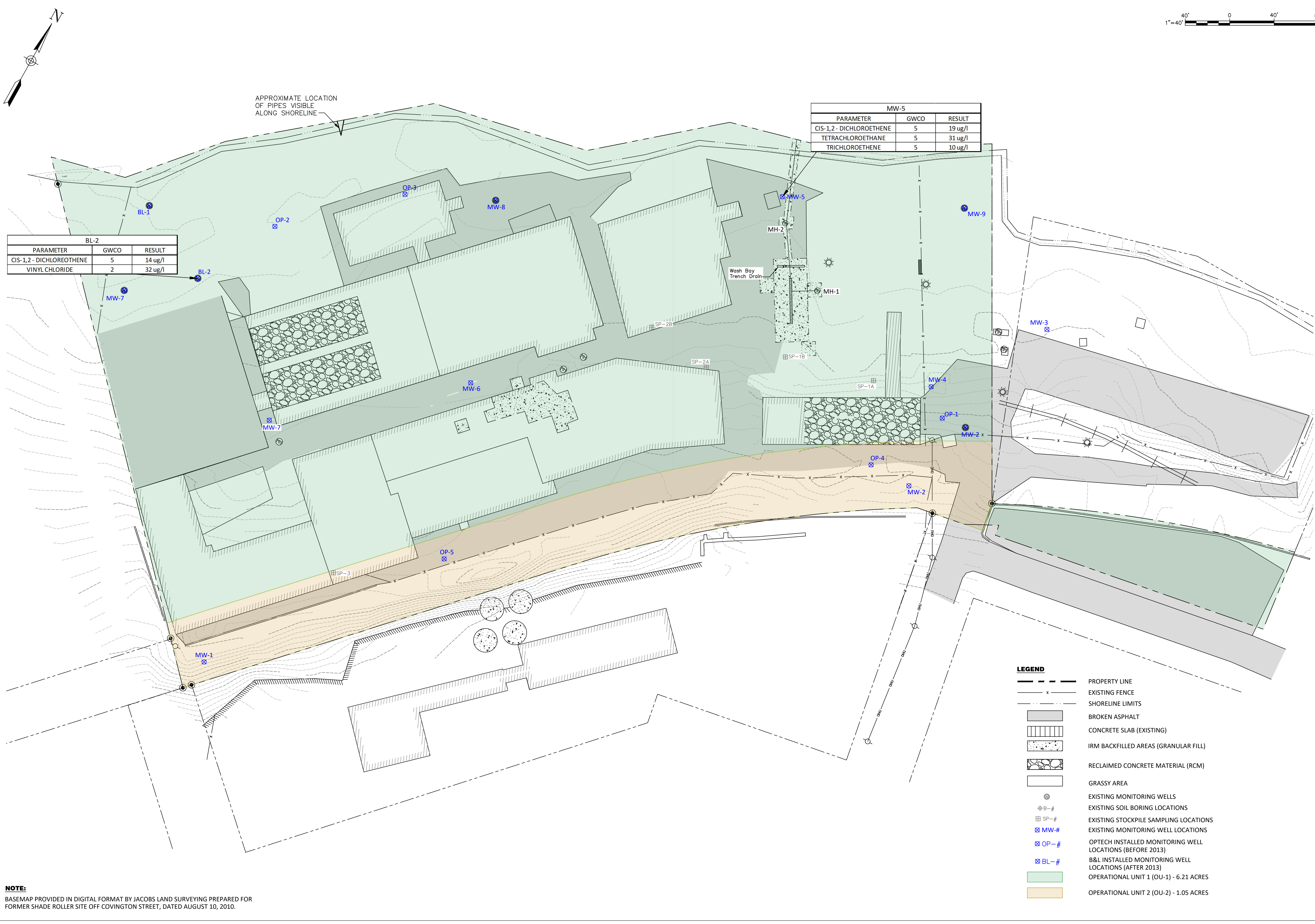
**GROUNDWATER VOC EXCEEDANCES
2021**

ST. LAWRENCE COUNTY, NEW YORK
OGDENSBURG

Barton & Loguidice
443 Electronics Parkway
Liverpool, NY 13088

NYS CERTIFICATE #
0021642.0020588.0019903.
0019905.0020336

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NYS EXP.: XX/XX/XXXX
Date FEBRUARY 2026
Scale AS SHOWN
Sheet Number 12
Project Number 692.022.001



MW-5		
PARAMETER	GWCO	RESULT
CIS-1,2 - DICHLOROETHENE	5	19 ug/l
TETRACHLOROETHANE	5	31 ug/l
TRICHLOROETHENE	5	10 ug/l

BL-2		
PARAMETER	GWCO	RESULT
CIS-1,2 - DICHLOROETHENE	5	14 ug/l
VINYL CHLORIDE	2	32 ug/l

LEGEND

	PROPERTY LINE
	EXISTING FENCE
	SHORELINE LIMITS
	BROKEN ASPHALT
	CONCRETE SLAB (EXISTING)
	IRM BACKFILLED AREAS (GRANULAR FILL)
	RECLAIMED CONCRETE MATERIAL (RCM)
	GRASSY AREA
	EXISTING MONITORING WELLS
	EXISTING SOIL BORING LOCATIONS
	EXISTING STOCKPILE SAMPLING LOCATIONS
	EXISTING MONITORING WELL LOCATIONS
	OPTECH INSTALLED MONITORING WELL LOCATIONS (BEFORE 2013)
	B&L INSTALLED MONITORING WELL LOCATIONS (AFTER 2013)
	OPERATIONAL UNIT 1 (OU-1) - 6.21 ACRES
	OPERATIONAL UNIT 2 (OU-2) - 1.05 ACRES

NOTE:
BASEMAP PROVIDED IN DIGITAL FORMAT BY JACOBS LAND SURVEYING PREPARED FOR FORMER SHADE ROLLER SITE OFF COVINGTON STREET, DATED AUGUST 10, 2010.

Plotted: Apr 20, 2026 - 12:25PM By: struex
 Z:\BL-Vault\02\18217AD2-1C71-4823-8927-9905C054147\03533000-3533999\3533357\FIGURE 12 GW SVOCs 2021 (ID 3533357).dwg
 Checked by: _____ Drawn by: _____ Designed by: _____ In charge of: _____

Appendix A
Remedial Alternative Cost Estimate

ALTERNATIVE 2 COST ESTIMATE
"Hot Spot Removal, Biannual Groundwater Monitoring, and RCM Disposal"
Town of Ogdensburg - Former Shade Roller Site
Alternatives Analysis Report

Item	Unit cost	Unit	Quantity	Cost
General and Site Preparation				
Mobilization	\$30,000.00	ls	1	\$30,000
Hot Spot Excavation				
Excavation	\$35.00	cy	22	\$770
Contam. soil transport, disposal	\$150.00	ton	39	\$5,850
Topsoil Import to grade	\$50.00	cy	22	\$1,100
CAMP monitoring	\$12,000.00	month	1	\$12,000
Dewatering System/Treatment System	\$20,000.00	ls	1	\$20,000
Dewatering System Operation	\$1,300.00	day	30	\$39,000
Restoration OU-2				
Selective Imported Topsoil Cover (1-ft.)	\$50.00	cy	22	\$1,100
Geofabric Demarcation Layer	\$0.40	/ft2	600	\$240
Hydroseed Disturbed Area	\$3,500.00	acre	0.25	\$875
Silt Fence	\$2.00	/ft.		\$0
RCM Removal from OU-1				
Characterization (PCBs, SVOCs, TCLP RCRA Metals)	\$300.00	unit	5	\$1,500
Loading, Hauling, Non-Hazardous Disposal	\$125.00	ton	3780	\$472,500
Final Site Work				
Clearance sampling (SVOCs, metals)	\$195.00	sample	32	\$6,240
Survey	\$12,000.00	ls	1	\$12,000
Subtotal:				\$603,175
Annual Operations & Maintenance (1 Year)				
Groundwater Monitoring				
Sampling (5 wells)	\$2,500.00	lump sum	2	\$5,000.00
Laboratory services	\$3,600.00	lump sum	2	\$7,200.00
Annual report	\$3,500.00	lump sum	1	\$3,500.00
Rounded Subtotal:				\$15,700
Subtotal (without O&M)				\$603,175
O&M				\$15,700
Engineering (10% w/o O&M)				\$60,318
Contingency (10%)				\$67,919
Total Estimated Costs				\$747,112

ALTERNATIVE 3 COST ESTIMATE
"Soil Cover System with Biannual Groundwater Monitoring and RCM Disposal"
Town of Ogdensburg - Former Shade Roller Site
Alternatives Analysis Report

Item	Unit cost	Unit	Quantity	Cost
General and Site Preparation				
Mobilization	\$50,000.00	ls	1	\$50,000
Restoration OU-1				
Imported Topsoil Cover (2-ft.) w. isolated 8-ft area	\$50.00	cy	8,243	\$412,150
Geofabric Demarcation Layer	\$0.40	/sqft	161,607	\$64,643
Hydroseed Disturbed Area	\$3,500.00	acre	3.71	\$12,985
Silt Fence	\$2.00	/ft.	2700	\$5,400
Restoration OU-2				
Imported Topsoil Cover (1-ft.)	\$50.00	cy	1,694	\$84,700
Geofabric Demarcation Layer	\$0.40	/ft2	45,738	\$18,295
Hydroseed Disturbed Area	\$3,500.00	acre	1.05	\$3,675
Silt Fence	\$2.00	/ft.	1800	\$3,600
RCM Removal from OU-1				
Characterization (PCBs, SVOCs, TCLP RCRA Metals)	\$300.00	unit	5	\$1,500
Loading, Hauling, Disposal	\$125.00	ton	3780	\$472,500
Final Site Work				
Survey	\$12,000.00	ls	1	\$12,000
Subtotal:				\$1,141,448
Annual Operations & Maintenance (1 Year)				
Groundwater Monitoring				
Sampling 2x / Year (5 wells)	\$2,500.00	lump sum	2	\$5,000.00
Laboratory services	\$3,600.00	lump sum	2	\$7,200.00
Annual report	\$3,500.00	lump sum	1	\$3,500.00
Rounded Subtotal:				\$15,700
Subtotal (without O&M)				\$1,141,448
O&M				\$15,700
Engineering (10% w/o O&M)				\$114,145
Contingency (10%)				\$127,129
Total Estimated Costs				\$1,398,422

ALTERNATIVE 4 COST ESTIMATE

Shallow Soil Excavation with Site Cover (OU-1 + OU-2), Biannual Groundwater Monitoring, RCM Disposal"
Town of Ogdensburg - Former Shade Roller Site
Alternatives Analysis Report

Item	Unit cost	Unit	Quantity	Cost
General and Site Preparation				
Mobilization	\$50,000.00	ls	1	\$50,000
Hot Spot Excavation				
Excavation	\$35.00	cy	29	\$1,015
Contam. soil transport, disposal	\$150.00	ton	39	\$5,850
Topsoil Import to grade	\$50.00	cy	29	\$1,450
CAMP monitoring	\$3,000.00	month	1	\$3,000
Dewatering System/Treatment System	\$20,000.00	ls	1	\$20,000
Dewatering System Operation	\$1,300.00	day	30	\$39,000
Restoration OU-1				
Topsoil	\$50.00	cy	8,243	\$412,150
Geofabric Demarcation Layer	\$0.40	/ft2	161,607	\$64,643
Hydroseed Disturbed Area	\$3,500.00	acre	3.71	\$12,985
Silt Fence	\$2.00	lf	2700	\$5,400
Restoration OU-2				
Imported Topsoil Cover (1-ft.)	\$50.00	cy	1,694	\$84,700
Geofabric Demarcation Layer	\$0.40	/ft2	45,738	\$18,295
Hydroseed Disturbed Area	\$3,500.00	acre	1.05	\$3,675
Silt Fence	\$2.00	/ft.	1800	\$3,600
RCM Removal from OU-1				
Characterization (PCBs, SVOCs, TCLP RCRA Metals)	\$300.00	unit	5	\$1,500
Loading, Hauling, Disposal	\$125.00	ton	3780	\$472,500
Final Site Work				
Clearance sampling (SVOCs, metals)	\$195.00	sample	32	\$6,240
Survey	\$12,000.00	ls	1	\$12,000
Subtotal:				\$1,218,003
Annual Operations & Maintenance (1 Year)				
Groundwater Monitoring				
Sampling (5 wells)	\$2,500.00	lump sum	2	\$5,000.00
Laboratory services	\$3,600.00	lump sum	2	\$7,200.00
Annual report	\$3,500.00	lump sum	1	\$3,500.00
Rounded Subtotal:				\$15,700
Subtotal (without O&M)				\$1,218,003
O&M				\$15,700
Engineering (10% w/o O&M)				\$121,800
Contingency (10%)				\$135,550
Total Estimated Costs				\$1,491,054

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