PROPOSED REMEDIAL ACTION PLAN

OBI, LLC
State Superfund Project
Rochester, Monroe County
Site No. 828188
February 2020

Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy proposed by this Proposed Remedial Action Plan (PRAP). The disposal of hazardous wastes at this site, as more fully described in Section 6 of this document, has contaminated various environmental media. The proposed remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This PRAP identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for the preferred remedy.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York; (6 NYCRR) Part 375. This document is a summary of the information that can be found in the site-related reports and documents in the document repository identified below.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all PRAPs. This is an opportunity for public participation in the remedy selection process. The public is encouraged to review the reports and documents, which are available at the following repository:

Lincoln Branch Library
Attn: Sarah Lehman
851 Joseph Avenue
Rochester, NY 14621
Phone: (585) 428-8210

A public comment period has been set from:

February 20, 2020 to March 20, 2020

A public meeting is scheduled for the following date:

March 2, 2020 at 6:00 PM

Public meeting location:

Maplewood Family YMCA

25 Driving Park Avenue

Rochester, NY 14613

At the meeting, the findings of the remedial investigation (RI) and the feasibility study (FS) will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP.

Written comments may also be sent through to:

Frank Sowers
NYS Department of Environmental Conservation
Division of Environmental Remediation
6274 East Avon-Lima Road
Avon, NY 14414
frank.sowers@dec.ny.gov

The Department may modify the proposed remedy or select another of the alternatives presented in this PRAP based on new information or public comments. Therefore, the public is encouraged to review and comment on the proposed remedy identified herein. Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the Department's final selection of the remedy for this site.

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup

Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: OBI, LLC site is located in an urban area in the City of Rochester and is approximately 200 feet north of the intersection of Balfour Drive and Hollenbeck Street. The site is about 6.3 acres in size and consists of three parcels identified as:

- 245-265 Hollenbeck Street;
- 271 Hollenbeck Street; and
- 50 Balfour Drive.

Site Features: The main site features include two one-story slab-on-grade buildings surrounded by parking areas and roadways. The main building covers 134,000 square feet and the second building covers 8,000 square feet. Grass and tree covered areas are present along the northern and western edges of the site. The site is fenced with controlled access.

Current Zoning and Land Use: The site is currently active and is zoned for industrial use. The main building is used for manufacturing and the smaller building is used for storage. The surrounding parcels are currently either vacant or used for a combination of commercial, industrial, residential, and recreational purposes. The nearest residential area is adjacent to the site to the south.

Past Use of the Site: The site was originally developed in 1923 for various industrial/manufacturing operations that included printing, lithographing, appliance manufacturing, metal plating, sheet metal fabrication and metal stamping. Prior activities that appear to have contributed to site contamination include a trichloroethene (TCE) degreaser that was used at the site until approximately 1992.

The owner sampled soil and groundwater at the site on several occasions between 1997 and 2013. From 2008 until 2013 the owner conducted bioremediation and phytoremediation studies to evaluate these technologies as potential remedial elements. The phytoremediation project includes approximately 150 hybrid poplars and 10 willow trees that are present along the northern boundary of the site. The Department was not involved with these investigations and evaluations. A summary of the results was provided to the Department in August 2013. The results indicated the presence of TCE contamination in on-site soil and groundwater. Based on these results, OBI, LLC signed an Order-On-Consent with the Department to address the site contamination in November 2013.

Site Geology and Hydrogeology: The ground surface at the site is relatively flat. The average depth to bedrock is approximately 12-feet. The overburden consists of a combination of fill and native soil. Where present, the fill material is up to five feet thick and includes sand, cinders, ash, and slag. The underlying native soil consists of a layer

of silty sand followed by glacial till to the top of bedrock

The Rochester Shale underlies the overburden at the site.

The depth to groundwater is approximately 7 feet below the ground surface and flows to the east.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to industrial use as described in Part 375-1.8(g) are/is being evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the investigation to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

OBI LLC

The Department and OBI LLC entered into a Consent Order, Index No. 88-0815-13-10, on November 6, 2013. The Order obligates the responsible party to implement a full remedial program.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

The analytical data collected on this site includes data for:

- groundwater;
- soil;
- soil vapor;
- indoor air; and
- sub-slab vapor.

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a hazardous waste that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in Exhibit A. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

trichloroethene (TCE)
cyanides (soluble cyanide salts)
polycyclic aromatic hydrocarbons (PAHS), total

petroleum products	copper
cis-1,2-dichloroethene	nickel
vinyl chloride	polychlorinated biphenyls (PCB)

As illustrated in Exhibit A, the contaminants of concern exceed the applicable SCGs for:

- groundwater
- soil
- soil vapor intrusion
- indoor air

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Record of Decision.

The following IRM has been completed at this site based on conditions observed during the RI.

IRM for Vapor Intrusion Mitigation - Positive Pressure System

The on-site soil vapor intrusion evaluation detected trichloroethene (TCE) in the indoor air of the main building on Balfour Drive at concentrations up to 8.1 micrograms per cubic meter (ug/m^3), which exceeds the NYSDOH air guideline concentration of 2 ug/m^3. Based on these results, it was determined that mitigation measures were needed at the main on-site building to address current and potential indoor air contamination of volatile organic compounds associated with soil vapor intrusion.

The IRM included modifications and repairs to the building's existing HVAC system to maintain a positive pressure in the building. Construction of the IRM was completed in February 2015.

Post construction testing verified that the system was effectively pressurizing the building and indoor air concentrations of TCE were reduced to concentrations below the applicable NYSDOH air guideline concentrations. Construction details and post construction testing results are provided in the document entitled *Construction Completion Report: Interim Remedial Measures for Mitigation of Potential Soil Vapor Intrusion* dated February 2019.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary for OU 01.

Nature and Extent of Contamination:
Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals (including cyanide), polychlorinated biphenyls (PCBs), and pesticides. Groundwater was also analyzed for 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS). Based on investigations conducted to date, the primary contaminants of concern for the site include trichloroethene (TCE) and associated degradation products, petroleum-related compounds, a group of SVOCs called polycyclic aromatic hydrocarbons (PAHs), cyanide, and PFAS.

Soil: PAHs, especially benzo(a)pyrene (B(a)P), appear to be the primary contaminants in the on-site surface soils in grass covered areas on the eastern and western portions of the site. B(a)P exceeds the 1 part per million (ppm) soil cleanup objective (SCO) for unrestricted use and the 1.1 ppm SCO for industrial use, with a maximum concentration of 5.9 ppm. PAHs are also present in the 0-1 foot interval under existing pavement where B(a)P is detected at concentrations up to 34 ppm. To a lesser extent copper (up to 548 ppm), nickel (up to 1860 ppm), cyanide (up to 34.7 ppm), and PCBs (up to 1.77 ppm) are also present in the 0-1 foot interval. The respective unrestricted use SCOs for these compounds are: copper - 50 ppm; nickel - 30 ppm; cyanide - 27 ppm; and PCBs - 0.1 ppm.

TCE and associated degradation products are found in shallow soil (0 to 1 foot below grade) outside of the northwest portion of the main building. TCE is also found in deeper soil (5 to 12 feet below grade) underneath much of the central portion of the main building and outside the north central portion of the main building. Maximum soil concentrations and the applicable 6 NYCRR Part 375 Protection of Groundwater SCOs, are provided below for TCE, cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC). For these compounds, the Protection of Groundwater SCO is the same as the Unrestricted Use SCO. During the Remedial Investigation, TCE was detected in soils at up to 5.6 parts per million (ppm), which exceeds the SCO of 0.47 ppm. Cis-1,2-DCE was detected in soils at up to 7.5 ppm which exceeds the SCO of 0.25 ppm. VC was detected in soils at up to 1.3 ppm which exceeds the SCO of 0.02 ppm.

Similar to TCE, petroleum impacted soils are also present underneath the central portion of the main building and outside the north central portion of the main building. A 10,000-gallon underground storage tank was found during the Remedial Investigation outside the north central portion of the main building. Petroleum impacts are present in the form of nuisance odors and Tentatively Identified Compounds.

Data do not indicate any off-site impacts in soil related to this site.

Groundwater: Throughout the site, TCE and its associated degradation products (cis-1,2-DCE and VC) were found in groundwater at concentrations exceeding the groundwater standards (5 parts per billion (ppb) for TCE and cis-1,2-DCE and 2 ppb for VC). The highest concentrations were found in the overburden from the groundwater surface (typically about 7 to 10 feet below ground) to the top of bedrock (approximately 12 feet below ground). The maximum concentrations found during the Remedial Investigation were: 286 ppb for TCE; 40,500 ppb for cis-1,2-DCE; and 3,880 ppb for VC.

The primary source of TCE contamination is located in the north-central portion of the site under and adjacent to the main building. PFAS compounds are also present in this area. Perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were reported at concentrations of up to 40 and 43 parts per trillion (ppt), respectively, exceeding the 10 ppt screening levels for groundwater for each. No other individual PFAS exceeded the 100 ppt screening level. The total concentration of PFAS, including PFOA and PFOS, were reported at concentrations of up to 180 ppt, below the 500 ppt screening level for total PFAS in groundwater.

Additional TCE source areas are present under the central and eastern portions of the main building as well as outside the northwest portion of the main building adjacent to a high voltage electric line and bulk welding gas storage tanks.

TCE and associated degradation products are present in bedrock groundwater to a depth of at least 30 feet, but at lower concentrations. The maximum concentrations in bedrock groundwater were 400 ppb for TCE; 543 ppb for cis-1,2-DCE; and 230 ppb for VC.

Cyanide is present in overburden groundwater at concentrations up to 738 ppb in a localized area under the eastern portion of the main building. The groundwater standard for cyanide is 200 ppb.

1,4-Dioxane was reported at concentrations of up to 0.74 parts per billion (ppb), below the screening level of 1 ppb in groundwater.

Based on off-site groundwater monitoring performed during the Remedial Investigation, off-site migration of site contaminants in groundwater does not appear to be significant at this time. Site contaminants were detected in groundwater at the site boundary, but not in downgradient off-site groundwater.

Light Non-Aqueous Phase Liquid (LNAPL): LNAPL was detected on top of groundwater in a localized area under the eastern portion of the main building at thicknesses ranging from 0.1 to 0.6 inches. The material was determined to be Number 2 Fuel Oil.

Soil Vapor and Indoor Air: A mitigation system was installed in the main building on Balfour Drive to address soil vapor intrusion at the site. Prior to mitigation, TCE was detected in on-site sub-slab soil vapor and indoor air at elevated concentrations.

Based on off-site soil vapor sampling performed during the Remedial Investigation no additional actions were needed to address soil vapor intrusion.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

Direct contact with contaminants in the soil is unlikely because the majority of the site is covered with buildings and pavement and the site is fenced with restricted access. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds in soil vapor (air spaces within the soil), may move into buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Measures are in place to control the potential inhalation of site contamination due to soil vapor intrusion for the impacted onsite building. Sampling indicated that soil vapor intrusion is not a concern for offsite buildings.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

SECTION 7: SUMMARY OF THE PROPOSED REMEDY

To be selected, the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the FS report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved. A summary of the Remedial Alternatives Costs is included as Exhibit C.

The basis for the Department's proposed remedy is set forth at Exhibit D.

The proposed remedy is referred to as the Site Cover for Industrial Use with Groundwater Containment remedy.

The estimated present worth cost to implement the remedy is $1,660,000. The cost to construct the remedy is estimated to be $698,000 and the estimated average annual cost is $30,000.

The elements of the proposed remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent

feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Cover System

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

3. Groundwater Extraction and Treatment

Groundwater extraction and treatment will be implemented to treat contaminants in groundwater and to ensure contaminated groundwater does not migrate off-site. The groundwater extraction system will be designed and installed so that the capture zone is sufficient to intercept the groundwater contaminant plume to stop further migration. The extraction system will create a depression of the water table so that contaminated groundwater is directed toward the extraction wells within the plume area. Groundwater will be extracted from the subsurface from the area of the groundwater contaminant plume shown on Figure 2. Further details of the extraction system will be determined during the remedial design.

Prior to the full implementation of this technology, studies will be conducted to more clearly define design parameters, including extraction well spacing. Between the pilot

and the full-scale implementations, it is estimated that at least 2 shallow and at least 1 deep extraction wells will be installed.

The extracted groundwater will be treated using granular activated carbon (GAC). GAC will be used to remove dissolved contaminants from extracted groundwater by adsorption. The GAC system will consist of one or more vessels filled with carbon connected in series and/or parallel. Following treatment, the groundwater will be discharged to the sanitary sewer.

Monitoring will be required: up-gradient and down-gradient of the groundwater extraction wells; from accessible source areas; at the perimeter of the site; and off-site as necessary. Monitoring will be conducted for contaminants of concern.

4. Enhanced Bioremediation (Targeted Polishing Step)

Once operation of the groundwater extraction system achieves asymptotic concentrations at a level that is acceptable to the Department in the primary source area (the area around well MW-5 shown on Figure 2), in-situ enhanced biodegradation will be employed to treat chlorinated volatile organic compounds in groundwater in primary source area around well MW-5 and the secondary source area around well MW-H depicted on Figure 2. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by injecting an emulsified vegetable oil solution (or similar) into the subsurface to promote microbe growth via injection points in the overburden with injection intervals from approximately 8 to 12 feet. Groundwater extraction and treatment will continue, as needed, at the rest of the site.

Monitoring will be required: up-gradient, down-gradient, and within the treatment zone; at the perimeter of the site; and off-site as necessary. Monitoring will be conducted for contaminants of concern. The treatment zone will be monitored for dissolved oxygen and oxidation/reduction potential.

5. Contingent Remedy: Enhanced Bioremediation plus Activated Carbon Perimeter Barrier

If the groundwater extraction system and targeted enhanced bioremediation elements, along with the existing phytoremediation system, are unable to prevent contaminated groundwater from migrating off-site, especially in the direction of occupied structures, activated carbon will be added to the subsurface to capture and prevent the migration of chlorinated volatile organic compounds. Emulsified vegetable oil solution (or similar) will also be added to enhance the biodegradation. In the area of the captured contamination, conditions will be maintained that will allow anaerobic degradation of the chlorinated volatile organic compounds to occur. Activated carbon and bioremediation amendments will be added to the subsurface to create a permeable barrier between source areas and the areas where off-site migration occurs via injection points in the overburden with injection intervals from approximately 8 to 12 feet and in bedrock through open-cores with injection intervals from approximately 15 to 25 feet.

Monitoring will be required up-gradient and down-gradient of the barrier. Monitoring will be conducted for contaminants of concern.

6. Treatment Remedy Shutdown

The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

7. Tank Closure

The 10,000-gallon underground storage tank shown on Figure 2 will be properly decommissioned. Further details of the decommissioning method will be determined during the remedial design.

8. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- require compliance with the Department approved Site Management Plan

9. A Site Management Plan is required, which includes the following:

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

Institutional Controls: The Environmental Easement discussed in Paragraph 8 above.

Engineering Controls: The soil cover discussed in Paragraph 2, the groundwater extraction and treatment system discussed in Paragraph 3, the contingent perimeter barrier discussed in Paragraph 5, the positive pressure vapor intrusion mitigation system Interim Remedial Measure, and the phytoremediation system installed prior to the execution of the Order-on-Consent.

This plan includes, but may not be limited to:

o an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;

o a provision for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and extent of contamination in areas where access was previously limited or unavailable will be immediately and thoroughly investigated pursuant to a plan approved by the Department. Based on the investigation results and the Department determination of the need for a remedy, a

Remedial Action Work Plan (RAWP) will be developed for the final remedy for the site, including removal and/or treatment of any source areas to the extent feasible. Citizen Participation Plan (CPP) activities will continue through this process. Any necessary remediation will be completed prior to, or in association with, redevelopment. This includes underneath the main building, the courtyard in the north central portion of the site, areas proximate to high voltage electric line, and bulk welding gas storage tanks;

o a provision for removal or treatment of the chlorinated solvent, petroleum, and cyanide source areas located under, and proximate to, the Main Building if and when the building is demolished or becomes vacant;

o descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;

o a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site and in off-site areas of contamination, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;

o a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 2 above will be placed in any areas where the upper one foot of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);

o provisions for the management and inspection of the identified engineering controls;

o maintaining site access controls and Department notification; and

o the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

2. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

o monitoring of groundwater, soil vapor, sub-slab soil vapor, and indoor air to assess the performance and effectiveness of the remedy;

o a schedule of monitoring and frequency of submittals to the Department;

o monitoring for vapor intrusion for any buildings, as may be required by the Institutional and Engineering Control Plan discussed above.

3. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to

o procedures for operating and maintaining the remedy;

o compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;

o maintaining site access controls and Department notification; and

o providing the Department access to the site and O&M records.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into four categories; volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides/ polychlorinated biphenyls (PCBs), and inorganics (metals and cyanide). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 4 and Section 6.1.1 are also presented.

Waste/Source Areas

As described in the RI report, waste/source materials were identified at the site and are impacting groundwater, soil, and soil vapor.

Wastes are defined in 6 NYCRR Part 375-1.2(aw) and include solid, industrial and/or hazardous wastes. Source areas are defined in 6 NYCRR Part 375(au). Source areas are areas of concern at a site where substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium. Wastes and source areas were identified at the site include:

- the north-central portion of the site under and adjacent to the main building where cis-1,2-dichloroethene is present in soil at concentrations up to 7.5 parts per million (ppm);
- under the central and eastern portions of the main building where trichloroethene is present in soil at concentrations up to 5.58 ppm;
- outside the northwest portion of the main building adjacent to a high voltage electric line and bulk welding gas storage tanks where trichloroethene is present in soil at concentrations up to 0.826 ppm; and
- Light Non-Aqueous Phase Liquid (LNAPL) located under the eastern section of the main building at thicknesses ranging from 0.1 to 0.6 inches.

The multiple sources of chlorinated solvent contamination appear to be associated with past industrial operations at the site that included degreasing operations. These sources resulted in widespread groundwater contamination and on-site soil vapor intrusion impacts.

The LNAPL appears to be associated with the past use of Number 2 Fuel Oil at the site. The extent of the LANPL is limited to underneath the eastern portion of the main building and it does not appear to be migrating.

The waste/source areas identified will be addressed in the remedy selection process.

Groundwater

Groundwater samples were collected from overburden and bedrock monitoring wells. The samples were collected to assess groundwater conditions on and off-site. The results indicate that contamination in shallow groundwater at the site exceeds the SCGs for chlorinated volatile organic compounds and cyanide. Contaminant levels in bedrock groundwater exceeded the guidance values for chlorinated volatile organic compounds. Groundwater samples were collected from monitoring wells in the surrounding neighborhood. Chlorinated volatile organic compounds were only found in one well located hydraulically upgradient from the site.

The per- and polyfluoroalkyl substances (PFAS) perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were reported at concentrations of up to 40 and 43 parts per trillion (ppt), respectively, exceeding the 10 ppt screening levels for groundwater for each. No other individual PFAS exceeded the 100 ppt screening level. The total concentration of PFAS, including PFOA and PFOS, were reported at concentrations of up to 180 ppt, below the 500 ppt screening level for total PFAS in groundwater.

Table #1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
Trichloroethene	ND - 286	5	31 of 67
Cis-1,2-Dichloroethene	ND – 40,500	5	41 of 67
Vinyl chloride	ND - 3,880	5	34 of 67
SVOCs			
No Exceedances	NA	NA	0 of 28
Inorganics			
Cyanide	ND - 738	200	2 of 27
Pesticides/PCBs			
No Exceedances	NA	NA	0 of 17

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b - SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

The primary groundwater contaminants are cyanide, PFOA. PFOS, and the chlorinated volatile organic compounds trichloroethene, cis-1,2-dichloroethene, and vinyl chloride. These compounds are

associated with past industrial operations at the site. As noted on Figure 3, the primary groundwater contamination is located in the north central portion of the site. Additional sources are located under the main building and just outside the northwest portion of the main building.

Based on the findings of the RI, the presence of trichloroethene, cis-1,2-dichloroethene, vinyl chloride, cyanide, PFOA, and PFOS has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy selection process are: trichloroethene, cis-1,2-dichloroethene, and vinyl chloride. Cyanide is found in only one location under the building and will not drive the remediation of groundwater. Similarly, the PFOA and PFOS plume is co-mingled with, and smaller than, the chlorinated solvent plume and will not drive the remediation of groundwater.

Soil

Surface and subsurface soil samples were collected at the site during the RI. Surface soil samples were collected from a depth of 0-2 inches to assess direct human exposure and 0-1 foot to assess the existing cover system. Subsurface soil samples were collected from a depth of 1-12 feet to assess soil contamination impacts to groundwater. The results indicate that soils at the site exceed the unrestricted SCG for volatile and semi-volatile organics, metals, cyanide, and PCBs.

Table #2 - Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
VOCs					
Trichloroethene	ND – 5.6	0.47	9 of 50	0.47[d]	9 of 50
Cis-1,2-Dichloroethene	ND – 7.5	0.25	4 of 50	0.25[d]	4 of 50
Vinyl chloride	ND – 1.3	0.02	3 of 50	0.02[d]	3 of 50
SVOCs					
Benz(a)anthracene	ND – 24.1	1	7 of 46	11	2 of 46
Benzo(a)pyrene	ND – 34.5	1	7 of 46	1.1	7 of 46
Benzo(b)fluoranthene	ND – 47.9	1	7 of 46	11	2 of 46
Dibenzo(a,h)anthracene	ND – 4.98	0.33	5 of 46	1.1	2of 46
Indeno(1,2,3-cd)pyrene	ND – 26.1	0.5	9 of 46	11	1 of 46
Inorganics					
Copper	5.2 – 548	50	7 of 46	10,000	0 of 46
Nickel	6.35 – 1860	30	6 of 46	10,000	0 of 46
Cyanide	ND – 34.7	27	1 of 46	10,000	0 of 46
Pesticides/PCBs					
PCBs	ND – 1.77	0.1	4 of 41	25	0 of 14

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;

b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Industrial Use, unless otherwise noted.
d - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Groundwater.

The primary subsurface soil contaminants are trichloroethene, cis-1,2-dichloroethene, and vinyl chloride associated with past industrial operations including degreasing. As noted on Figure 4, the primary soil contamination areas are located: in the north-central portion of the site under and adjacent to the main building; under the central and eastern portions of the main building; and outside the northwest portion of the main building adjacent to a high voltage electric line and bulk welding gas storage tanks.

As shown on Figure 5, benzo(a)pyrene [B(a)P] surface soil (0-2 inches) and cover system (0-1 foot) contamination was found above the Protection of Public Health SCOs for an industrial property. The B(a)P contamination appears to be associated with a former railroad spur line that serviced the site and historic fill material that contained asphalt, coal, slag, ash, cinders, and concrete.

Based on the findings of the Remedial Investigation, the presence of trichloroethene, cis-1,2-dichloroethene, vinyl chloride, and B(a)P has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are, trichloroethene, cis-1,2-dichloroethene, and vinyl chloride.

Soil Vapor

The evaluation of the potential for soil vapor intrusion resulting from the presence of site related soil or groundwater contamination was evaluated by the sampling of soil vapor, sub-slab soil vapor under structures, and indoor air inside structures. At this site, due to the presence of buildings in the impacted area, a full suite of samples was collected to evaluate whether soil vapor intrusion was occurring.

Soil vapor samples were collected from the sub-slab of both structures located on the site. Indoor air and outdoor air samples were also collected at this time. The samples were collected to assess the potential for soil vapor intrusion. The results indicate trichloroethene (TCE) was detected in on-site sub-slab vapor and on-site indoor air of the main building.

Based on the concentration detected, in comparison with the NYSDOH Soil Vapor Intrusion Guidance, soil vapor contamination identified during the RI was addressed during the IRM described in Section 6.2.

Soil vapor samples were also collected from locations within the Right-of-Way of the surrounding neighborhood to assess the potential for soil vapor intrusion to impact air quality of occupied buildings near the site. no additional actions were recommended to address soil vapor intrusion.

Exhibit B

Description of Remedial Alternatives

The following alternatives were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified at the site as described in Exhibit A.

Alternative 1: No Further Action

The No Further Action Alternative recognizes the remediation of the site completed by the IRM described in Section 6.2. This alternative leaves the site in its present condition and does not provide any additional protection of the environment.

Alternative 2: Restoration to Pre-Disposal or Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative would include: demolition of all on-site buildings and removal of underground utilities; excavation and off-site disposal of all waste and soil contamination above the unrestricted soil cleanup objectives; and chemical oxidation of remaining groundwater contamination.

Capital Cost: $28,300,000

Alternative 3: Site Cover for Industrial Use with Focused Groundwater Treatment

This alternative would include:

- A site cover will be required to allow industrial use of the site in areas where the upper one foot of exposed surface soil exceeds the applicable SCOs. Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the industrial use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.
- Groundwater extraction and treatment will be implemented to treat contaminants in groundwater and will be focused to the area with the highest concentrations of chlorinated solvents. The extraction system will create a depression of the water table so that contaminated groundwater is directed toward the extraction wells within the targeted area. The extracted groundwater will be treated using granular activated carbon (GAC).
- Once operation of the groundwater extraction system achieves asymptotic concentrations at a level that is acceptable to the Department in the primary source area (the area around well MW-5 shown on Figure 2), in-situ enhanced biodegradation will be employed as a polishing

step to treat chlorinated volatile organic compounds in groundwater in the primary source area depicted on Figure 2. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by injecting an emulsified vegetable oil solution (or similar) into the subsurface to promote microbe growth via injection points in the overburden with injection intervals from approximately 8 to 12 feet.

- The 10,000-gallon underground storage tank shown on Figure 2 will be properly decommissioned.
- As a contingency, if the groundwater extraction system and targeted enhanced bioremediation elements, along with the existing phytoremediation system, are unable to ensure contaminated groundwater does not migrate off-site, especially in the direction of occupied structures, activated carbon will be added to the subsurface to capture and prevent the migration of chlorinated volatile organic compounds. Emulsified vegetable oil solution (or similar) will also be added to enhance the biodegradation. In the area of the captured contamination, conditions will be maintained that will allow anaerobic degradation of the chlorinated volatile organic compounds to occur. Activated carbon and bioremediation amendments will be added to the subsurface to create a permeable barrier between source areas and the areas where off-site migration occurs via injection points in the overburden with injection intervals from approximately 8 to 12 feet and in bedrock through open-cores with injection intervals from approximately 15 to 25 feet.

This alternative also includes: engineering controls, in the form of the site cover, the groundwater extraction and treatment system, the existing phytoremediation system, and the positive pressure vapor intrusion mitigation system IRM; and institutional controls, in the form of an environmental easement and site management plan, necessary to protect public health and the environment from contamination remaining at the site.

Present Worth:.....$1,080,000
Capital Cost: $598,000
Annual Costs:.....$30,000

Alternative 4: Site Cover for Industrial Use with Groundwater Containment

This alternative would include:

- A site cover will be required to allow industrial use of the site in areas where the upper one foot of exposed surface soil will exceed the applicable SCOs. Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the industrial use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.
- Groundwater extraction and treatment will be implemented to treat contaminants in groundwater and to ensure contaminated groundwater does not migrate off-site. The groundwater extraction system will be designed and installed so that the capture zone is sufficient to intercept the groundwater contaminant plume to stop further migration. The extraction system will create a

depression of the water table so that contaminated groundwater is directed toward the extraction wells within the plume area. The extracted groundwater will be treated using granular active carbon (GAC).

- Once operation of the groundwater extraction system achieves asymptotic concentrations at a level that is acceptable to the Department in the primary source area (the area around well MW-5 shown on Figure 2), in-situ enhanced biodegradation will be employed as a polishing step to treat chlorinated volatile organic compounds in groundwater in the primary source area around well MW-5 and the secondary source area around well MW-H depicted on Figure 2. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by injecting an emulsified vegetable oil solution (or similar) into the subsurface to promote microbe growth via injection points in the overburden with injection intervals from approximately 8 to 12 feet. Groundwater extraction and treatment will continue, as needed, at the rest of the site.
- The 10,000-gallon underground storage tank shown on Figure 2 will be properly decommissioned.
- As a contingency, if the groundwater extraction system and targeted enhanced bioremediation elements, along with the existing phytoremediation system, are unable to ensure contaminated groundwater does not migrate off-site, especially in the direction of occupied structures, activated carbon will be added to the subsurface to capture and prevent the migration of chlorinated volatile organic compounds. Emulsified vegetable oil solution (or similar) will also be added to enhance the biodegradation. In the area of the captured contamination, conditions will be maintained that will allow anaerobic degradation of the chlorinated volatile organic compounds to occur. Activated carbon and bioremediation amendments will be added to the subsurface to create a permeable barrier between source areas and the areas where off-site migration occurs via injection points in the overburden with injection intervals from approximately 8 to 12 feet and in bedrock through open-cores with injection intervals from approximately 15 to 25 feet.

This alternative also includes: engineering controls, in the form of the site cover, the groundwater extraction and treatment system, the contingent perimeter barrier, the existing phytoremediation system, and the positive pressure vapor intrusion mitigation system IRM; and institutional controls, in the form of an environmental easement and site management plan, necessary to protect public health and the environment from contamination remaining at the site.

Present Worth:.....$1,660,000
Capital Cost: $698,000
Annual Costs:.....$30,000

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
#1 No Further Action	0	0	0
#2 Restoration to Pre-Disposal or Unrestricted Conditions	$28,300,000	0	$28,300,000
#3 Site Cover for Industrial Use with Focused Groundwater Treatment	$598,000	$30,000	$1,590,000
#4 Site Cover for Industrial Use with Groundwater Containment	$698,000	$30,000	$1,660,000

Exhibit D

SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative #4, Soil Cover for Industrial Use with Groundwater Containment as the remedy for this site. Alternative #4 would achieve the remediation goals for the site by: using of groundwater extraction and treatment, in-situ bioremediation, phytoremediation, and barrier walls (as needed) to ensure contaminated groundwater does not migrate off-site. Exposure to contaminated soil and groundwater will be prevented by constructing a cover system, restricting future use of the property to industrial activities, restricting groundwater use, and adherence to a Site Management Plan. Exposure to contaminated soil vapor will be prevented by the continued operation of the existing positive pressure vapor intrusion mitigation system. The elements of this remedy are described in Section 7. The proposed remedy is depicted in Figure 2.

Basis for Selection

The proposed remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

The proposed remedy (Alternative 4) would satisfy this criterion by: installing a protective cover to prevent contact with impacted soil; continued operation of the positive pressure IRM to prevent inhalation of impacted soil vapor; a long-term groundwater use restriction to prevent exposure to impacted groundwater; phytoremediation, groundwater extraction and treatment, and a contingency to install a bioremediation and liquid activated carbon barrier to prevent contaminated groundwater from migrating off site, especially toward occupied structures; and limited in-situ bioremediation source area treatment to reduce source mass in two areas that are accessible. The sources of the groundwater contamination are located under the main building, in the vicinity of underground utilities, or in other locations that are difficult to access. Alternative 4 addresses source areas to the extent feasible given current site use. Alternative 1 (No Further Action) does not provide any protection to public health and the environment and will not be evaluated further. Alternative 2, by removing all soil contaminated above the Unrestricted use soil cleanup objectives, meets the threshold criteria. Alternatives 3 and 4 achieve the same level of cleanup in the cover system (industrial use). Alternatives 3 and 4 rely on a restriction of groundwater use at the site to protect human health. Alternatives 2 and 4 provide a higher degree of contaminant containment than Alternative 3. Alternative 2 may require a short-term restriction on groundwater use; however, it is expected the restriction will be able to be removed in less than 10 years. The potential for soil vapor intrusion will be significantly reduced by Alternative 2 and, to a lesser extent, Alternatives 4. The potential for soil vapor intrusion, especially off-site, will remain highest under Alternative 3 as it provides a lower level of contaminant migration control unless the contingent remedy is implemented. Soil vapor mitigation is required on-site under Alternatives 3 and 4 in order to protect human health.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

Alternative 2 complies with all SCGs. It addresses source areas of contamination and complies with the unrestricted use soil cleanup objectives throughout the site. It also creates the conditions necessary to restore groundwater quality to pre-release conditions. Alternatives 3, 4 also comply with this criterion but to a lesser degree or with lower certainty. Because Alternatives 2, 3, and 4 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for the site. It is expected Alternative 2 will achieve groundwater SCGs in less than 10 years, while groundwater contamination above SCGs will remain on-site under Alternatives 3 and 4 for many years.

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

Long-term effectiveness is best accomplished by those alternatives involving excavation of the contaminated overburden soils (Alternative 2). Alternative 2 results in removal of all of the chemical contamination at the site and eliminates the need for property use restrictions and long-term monitoring. Alternatives 3 and 4 do not address contaminant sources in the unsaturated soils. Alternative 3 uses in-situ bioremediation as a polishing step to address source material to a limited extent in the saturated zone in the area with the greatest chlorinated solvent impacts. Alternative 4 provides a higher level of source treatment than Alternative 3 by: expanding the in-situ bioremediation polishing step to include accessible portions of the chlorinated solvent source area in the northwest portion of the site; installing groundwater extraction wells in areas that will collect LNAPL and cyanide under the building in addition to chlorinated solvents and PFAS; and including a provision to implement a more aggressive source removal in the future if the source areas become accessible. The presence of detectable levels of chlorinated solvents in perimeter groundwater monitoring wells in all directions calls into question the long-term effectiveness of Alternative 3, which is not expected to provide hydraulic control throughout the site. Alternative 4 is expected to provide hydraulic control. Alternatives 3 and 4 include contingencies to prevent off-site migration of contaminated groundwater.

Alternative 3 is more energy efficient than Alternative 4. Alternative 3 will have fewer extraction wells than Alternative 4, and all of the Alternative 3 wells are expected to be shut down after approximately three years. Some of the Alternative 4 extraction wells are expected to operate for at least 30 years. Consideration will be given to using renewable energy sources under Alternative 4. Alternative 2 will generate a large volume of soil and construction and demolition waste that will be managed off-site.

Alternatives 3 and 4 require a long-term groundwater use restriction. Soil vapor mitigation is required on-site under Alternatives 3 and 4 in order to protect human health. By focusing on containment, Alternative 4 is favored over Alternative 3 for preventing soil vapor intrusion impacts off-site.

4. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Alternative 2, excavation and off-site disposal, reduces the mobility and volume of on-site waste by transferring the material to an approved off-site location. However, depending on the disposal facility, the volume of the material may not be reduced. The groundwater extraction and treatment elements of Alternatives 3 and 4 reduce the mobility and volume of material by transferring the contaminants to another media, such as activated carbon, which is then managed at an approved off-site location. The in-situ bioremediation elements of Alternatives 3 and 4 permanently reduces the toxicity, mobility and volume of contaminants by breaking down the contaminants using enhanced biological treatment. Alternative 4 will provide greater reductions than Alternative 3 by using more extraction wells and more bioremediation injection locations. Alternatives 3 and 4 also include a contingency to install a bioremediation/activated carbon barrier, if needed, to further reduce the mobility of contamination in groundwater. The activated carbon portion of the barrier has the added benefit of controlling PFAS in addition to chlorinated solvents.

Alternative 2 is expected to require short-term groundwater use restrictions and also provides the greatest reduction in the potential for soil vapor intrusion. All of the other alternatives require long-term groundwater use restrictions and require continued operation of the existing on-site vapor mitigation system. By proactively focusing on containment, Alternative 4 is favored over Alternative 3 for preventing soil vapor intrusion impacts off-site. Alternative 3 addresses off-site migration in a reactive manner through the bioremediation/activated carbon barrier contingent remedy which will be installed after off-site groundwater migration is identified as a concern.

5. Short-term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternative 2 requires demolition of on-site buildings and removal of some underground utilities. This would be a severe burden to this active manufacturing facility. Alternatives 3 and 4 will have some impact on the facility during construction of the groundwater extraction and treatment system and injection of bioremediation amendments, but these can be addressed. The time needed to achieve the remediation goals is the shortest for Alternative 2 and longest for Alternative 3.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

Alternatives 3 and 4 are favorable in that they are readily implementable. Alternative 2 is not implementable, as it requires demolition of an active manufacturing building.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the

other criteria, it can be used as the basis for the final decision.

The costs of the alternatives vary significantly. Alternative 3 has the lowest cost, but the highest potential for contaminants to migrate off-site in groundwater and result in indoor air impacts in off-site occupied buildings. Alternative 2 has the highest cost but requires demolition of an active manufacturing building and is not implementable. Alternative 4 is more expensive than Alternative 3 but, by using more groundwater extraction wells than Alternative 3, Alternative 4 will provide greater migration control and a higher level of protection for the surrounding neighborhood. Because Alternative 3 provides a lower level of migration control, it is also more likely that the contingent remedy will need to be implemented for Alternative 3 than Alternative 4. This could make Alternative 3 more expensive than Alternative 4.

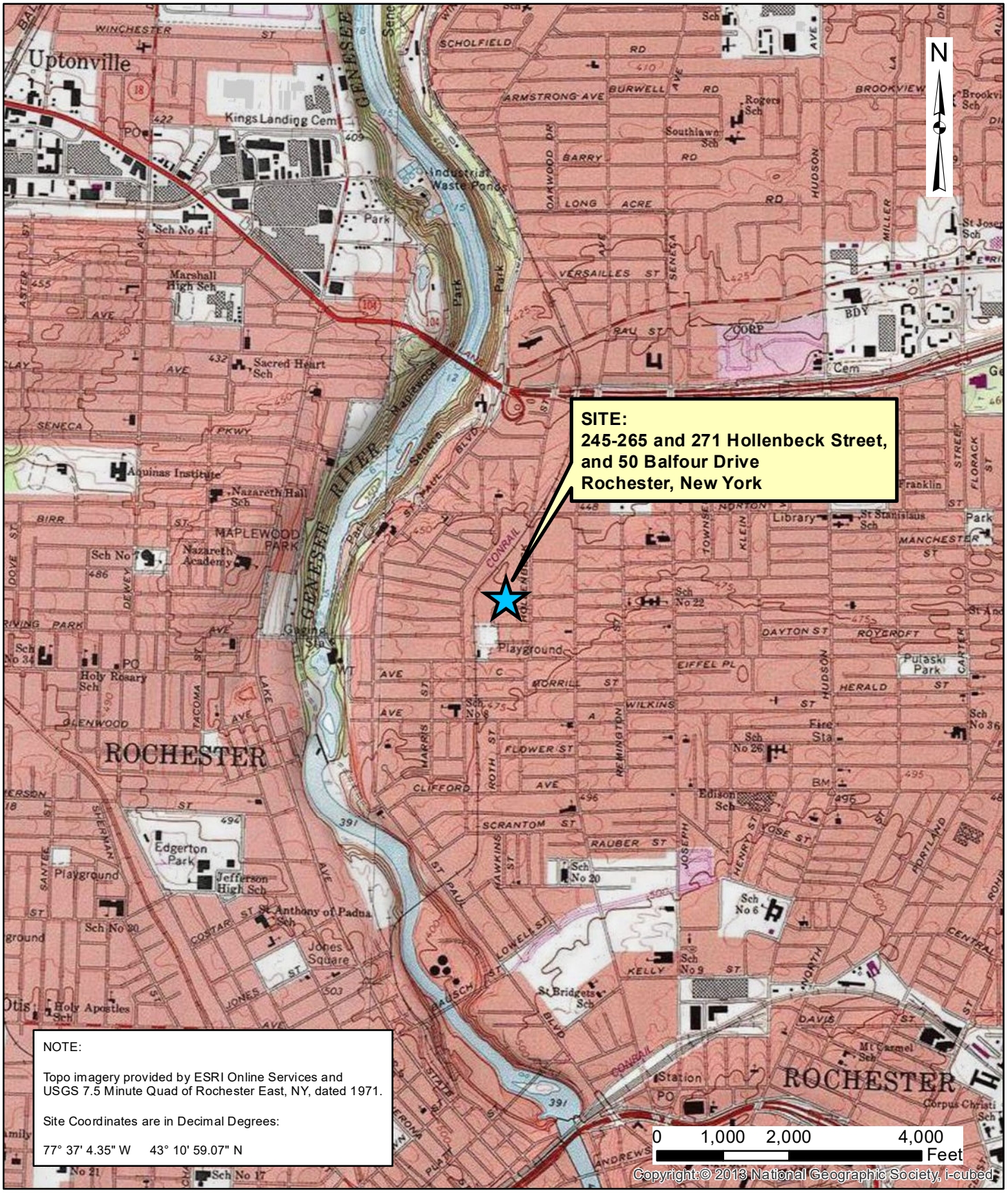
8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

Since the current use of the site is industrial, Alternatives 3 and 4 comply with this criterion through placement of a cover for industrial use. Alternative 2 will remove or treat the contaminated soil permanently and would achieve an unrestricted land use. The remaining contamination with Alternatives 3 and 4 would be controllable with implementation of a Site Management Plan. With Alternative 2 restrictions on the site use would not be necessary since all soil is removed to unrestricted use levels.

The final criterion, Community Acceptance, is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

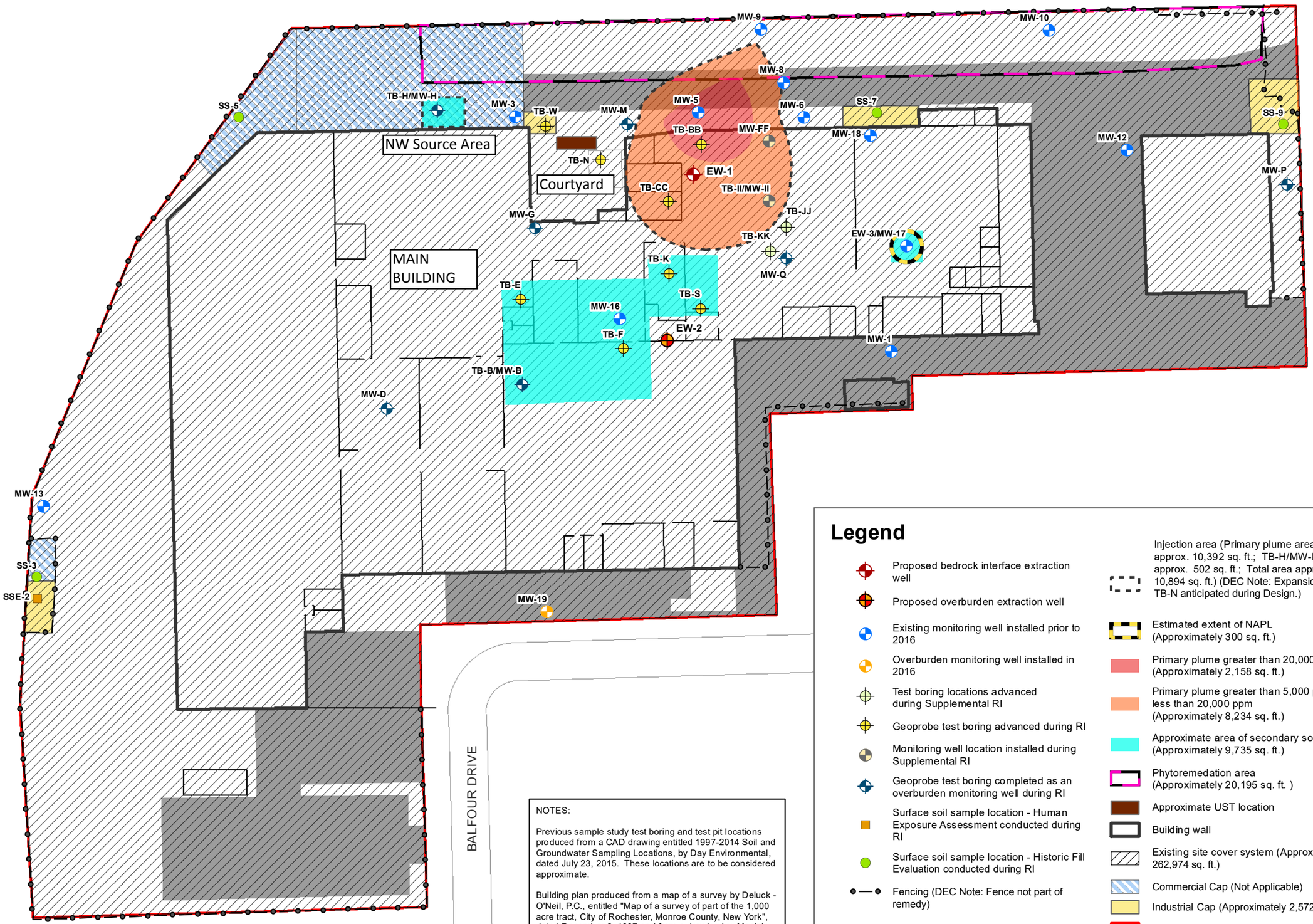
9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

Alternative #4 is being proposed because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.



Date: 11-12-2019 Drawn By: CPS Scale: AS NOTED	**DAY ENGINEERING, P.C.** Environmental Engineering Consultants Rochester, New York 14606 New York, New York 10170	Project Title: OBI, LLC SITE 245 - 265 AND 271 HOLLENBECK ST, AND 50 BALFOUR DR ROCHESTER, NEW YORK NYSDEC SITE NO. 828188 Drawing Title: Project Locus Map	Project No. 5211S-16 FIGURE 1

Document Path: E:\GIS Mapping\Mcalpin\5211S-16Obi\RIFS\5211S-01-RIFS - Locus Map.mxd



Legend

- Proposed bedrock interface extraction well
- Proposed overburden extraction well
- Existing monitoring well installed prior to 2016
- Overburden monitoring well installed in 2016
- Test boring locations advanced during Supplemental RI
- Geoprobe test boring advanced during RI
- Monitoring well location installed during Supplemental RI
- Geoprobe test boring completed as an overburden monitoring well during RI
- Surface soil sample location - Human Exposure Assessment conducted during RI
- Surface soil sample location - Historic Fill Evaluation conducted during RI
- Fencing (DEC Note: Fence not part of remedy)
- Injection area (Primary plume area approx. 10,392 sq. ft.; TB-H/MW-H area approx. 502 sq. ft.; Total area approx. 10,894 sq. ft.) (DEC Note: Expansion to TB-N anticipated during Design.)
- Estimated extent of NAPL (Approximately 300 sq. ft.)
- Primary plume greater than 20,000 ppm (Approximately 2,158 sq. ft.)
- Primary plume greater than 5,000 ppm less than 20,000 ppm (Approximately 8,234 sq. ft.)
- Approximate area of secondary sources (Approximately 9,735 sq. ft.)
- Phytoremedation area (Approximately 20,195 sq. ft.)
- Approximate UST location
- Building wall
- Existing site cover system (Approximately 262,974 sq. ft.)
- Commercial Cap (Not Applicable)
- Industrial Cap (Approximately 2,572 sq. ft.)
- Site boundary
- Pavement (Approximately 64,067 sq. ft.)

0 30 60 120 Feet

N

NOTES:

Previous sample study test boring and test pit locations produced from a CAD drawing entitled 1997-2014 Soil and Groundwater Sampling Locations, by Day Environmental, dated July 23, 2015. These locations are to be considered approximate.

Building plan produced from a map of a survey by Deluck - O'Neil, P.C., entitled "Map of a survey of part of the 1,000 acre tract, City of Rochester, Monroe County, New York", dated December 2, 1997 and from a drawing by: Mcalpin Industries, entitled "Facilities Layout", dated April 1, 1985, and from site observations made by representatives of Day Environmental, Inc.

Edited by F. Sowers, NYSDEC 2/6/2020

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PROJECT MANAGER	RLK
DATE	11-2019
DRAWN BY	CPS
DATE DRAWN	11-2019
SCALE	AS NOTED
DATE ISSUED	11-21-2019

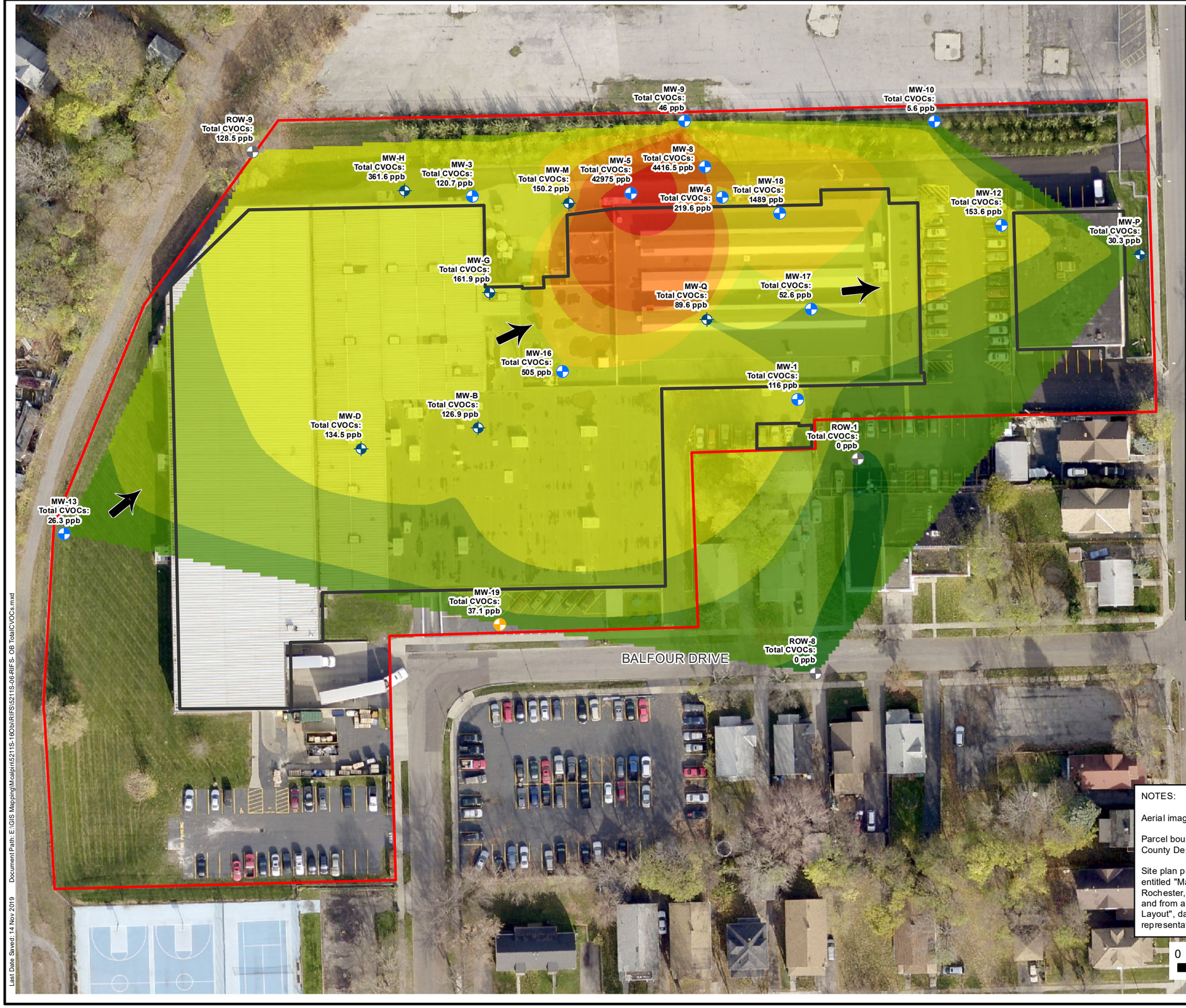
day
DAY ENGINEERING, P.C.
Environmental Engineering Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
OBI, LLC SITE
245 - 265 AND 271 HOLLENBECK ST,
AND 50 BALFOUR DR
ROCHESTER, NEW YORK
NYSDEC SITE NO. 828188

Drawing Title
Components of Feasibility Study Remedial Alternatives #3 and #4

Project No.
5211S-16

FIGURE 2



Legend

N

- Off-site monitoring locations installed during previous study (Sample collected 2014)
- Existing monitoring well installed during previous studies
- Geoprobe test boring completed as an overburden monitoring well during RI
- Overburden monitoring well installed during RI
- Building
- Site boundary

Total Chlorinated Volatile Organic Compounds (CVOCs) in overburden groundwater measured in parts per billion (ppb)

- 0 - 5
- 5 - 50
- 50 - 100
- 100 - 500
- 500 - 2,000
- 2,000 - 5,000
- 5,000 - 20,000
- 20,000 - 42,975

- Approximate flow of groundwater

NOTES:

Aerial imagery provided by the City of Rochester, dated 2012.

Parcel boundary and building footprint provided by Monroe County Department of Environmental Services, dated 2012.

Site plan produced from a map of a survey by Deluck - O'Neil, P.C., entitled "Map of a survey of part of the 1,000 acre tract, City of Rochester, Monroe County, New York", dated December 2, 1997 and from a drawing by: Mcalpin Industries, entitled "Facilities Layout", dated April 1, 1985, and from site observations made by representatives of Day Environmental, Inc.

0 35 70 140 Feet

PROJECT MANAGER	DRAWN BY	SCALE	DATE
RLK	CPS	AS NOTED	11-2019

DATE DRAWN	DATE ISSUED
11-2019	11-12-2019

DAY ENGINEERING, P.C.
Environmental Engineering Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
OBI, LLC SITE
245 - 265 AND 271 HOLLENBECK ST,
AND 50 BALFOUR DR
ROCHESTER, NEW YORK
NYSDEC SITE NO. 828188

Drawing Title
Total Chlorinated VOCs in Overburden Groundwater in May - July 2016

Project No.
5211S-16

FIGURE 3

Last Date Saved: 14 Nov 2019 Document Path: E:\GIS Mapping\Mcalpin\5211S-16ObiRIFS\5211S-06-RIFS- OB TotalCVOCs.mxd

TB-H-1 (0-1) 2/9/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 0.826 D AB
Vinyl chloride ND
Total Xylenes ND
Total TICs 0.880

TB-H-1 (9.2-11.2) 4/6/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.0146
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 0.0382
Vinyl chloride 0.0303 AB
Total Xylenes 0.0009 J
Total TICs 0.486

CONKEY AVE

TB-W-1 (0-4) 4/6/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 0.0032 J
Vinyl chloride ND
Total Xylenes ND
Total TICs 0.115

TB-R-1 (8-10) 4/6/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene ND
Vinyl chloride ND
Total Xylenes 0.0551 JD
Total TICs 30.8

TB-CC (9-11.4) 4/1/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.0282
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 2.15 D AB
Vinyl chloride ND
Total Xylenes ND
Total TICs 0.878

TB-O-1 (8-11.8) 4/6/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 0.0047
Vinyl chloride ND
Total Xylenes ND
Total TICs ND

TB-AA (10-11) 4/4/2016
Acetone ND J
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.0018 J
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 0.0452 J
Vinyl chloride ND J
Total Xylenes ND
Total TICs 1.06

TB-HH (11.5-12.5) 4/3/2017
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.00463
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 0.00288 J
Vinyl chloride 0.00212 J
Total Xylenes ND
Total TICs 0.0108

TB-N-1 (6-8.5) 4/6/2016
Acetone 0.0236 J
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.0469 JD
trans-1,2-Dichloroethene 0.0024 J
Tetrachloroethene ND
Trichloroethene 1.7 D AB
Vinyl chloride 0.0104
Total Xylenes ND
Total TICs 0.0075

TB-M-1 (8-11.7) 4/6/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.0075
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 0.0027 J
Vinyl chloride ND
Total Xylenes 0.0021 J
Total TICs 0.796

TB-BB (9-11) 4/1/2016
Acetone 0.0205 J
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 7.52 D AB
trans-1,2-Dichloroethene 0.0084
Tetrachloroethene ND
Trichloroethene 0.0028 J
Vinyl chloride 1.31 J, D AB
Total Xylenes 0.0184
Total TICs 1.267

TB-FF (10-12) 4/5/2017
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.0242
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 0.0044
Vinyl chloride 0.0103
Total Xylenes ND
Total TICs 0.0584

TB-DD (5-7) 4/1/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene ND
Vinyl chloride ND
Total Xylenes ND
Total TICs ND

TB-I-1 (0-4) 4/6/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene ND
Vinyl chloride ND
Total Xylenes ND
Total TICs ND

TB-G (6-8) 3/31/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND J
Trichloroethene ND
Vinyl chloride ND
Total Xylenes ND
Total TICs 66.8 D

TB-U (7-9) 3/31/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND J
Trichloroethene ND
Vinyl chloride ND
Total Xylenes ND
Total TICs 33.4

TB-P-1 (8-11.8) 4/6/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene ND
Vinyl chloride ND
Total Xylenes ND
Total TICs ND

TB-T (11-12) 4/1/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene 0.041 J, D
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND J
Trichloroethene ND
Vinyl chloride ND
Total Xylenes ND
Total TICs 18.6

TB-J(6-7) 3/31/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.0039 J
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 0.0238
Vinyl chloride ND
Total Xylenes ND
Total TICs ND

TB-II (11-12.7) 4/5/2017
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.197 D
trans-1,2-Dichloroethene 0.00347 J
Tetrachloroethene ND
Trichloroethene 2.21 D AB
Vinyl chloride 0.00272 J
Total Xylenes 0.1441
Total TICs 0.709

TB-GG (10-12) 4/3/2017
Acetone ND J
Benzene ND
1,4-Dichlorobenzene ND J
cis-1,2-Dichloroethene 0.195 D
trans-1,2-Dichloroethene 0.00254 J
Tetrachloroethene 0.0158 JD
Trichloroethene 0.0199 JD
Vinyl chloride 0.0093 J+
Total Xylenes 0.0414 JD
Total TICs ND

TB-E (5-7) 4/1/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.002 J
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 0.52 D AB
Vinyl chloride ND
Total Xylenes ND
Total TICs ND

TB-Q(MW-Q) (10-11) 4/1/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.007
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 0.0005 J
Vinyl chloride ND
Total Xylenes ND
Total TICs 0.0033

TB-JJ (11-11.7) 4/3/2017
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.364 D AB
trans-1,2-Dichloroethene ND
Tetrachloroethene 0.0285 JD
Trichloroethene 0.0232 JD
Vinyl chloride ND
Total Xylenes 0.0674
Total TICs 8.9

TB-K(10-11) 3/31/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND J
Trichloroethene 0.808 D AB
Vinyl chloride ND
Total Xylenes ND
Total TICs 25.4

TB-KK (10-12) 4/3/2017
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.756 D AB
trans-1,2-Dichloroethene 0.00596
Tetrachloroethene ND
Trichloroethene 0.238 D
Vinyl chloride 0.0531 JD AB
Total Xylenes 0.123
Total TICs 6

TB-D (9-12) 4/1/2016
Acetone ND J
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND J
Trichloroethene 0.459 J
Vinyl chloride ND
Total Xylenes ND
Total TICs ND

TB-C (4-6) 4/1/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene ND
Vinyl chloride ND
Total Xylenes ND
Total TICs ND

TB-L (7-9.5) 4/4/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.0077
trans-1,2-Dichloroethene ND
Tetrachloroethene 0.0161
Trichloroethene 0.0406
Vinyl chloride ND
Total Xylenes ND
Total TICs ND

TB-EE (1-4) 4/1/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 0.0165
Vinyl chloride ND
Total Xylenes ND
Total TICs ND

TB-S (6.5-7.5) 4/1/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 2.25 AB
trans-1,2-Dichloroethene 0.007
Tetrachloroethene ND
Trichloroethene 5.58 D AB
Vinyl chloride 0.0036 J
Total Xylenes ND
Total TICs 1.117

TB-F (4-7) 4/1/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene ND
trans-1,2-Dichloroethene ND
Tetrachloroethene 0.0027 J
Trichloroethene 0.764 D AB
Vinyl chloride ND
Total Xylenes ND
Total TICs ND

TB-B (4-6) 4/1/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.0131
trans-1,2-Dichloroethene 0.0032 J
Tetrachloroethene ND
Trichloroethene 0.791 D AB
Vinyl chloride ND
Total Xylenes ND
Total TICs ND

TB-A (4.5-7.5) 4/1/2016
Acetone 0.0463 J
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.0043 J
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene ND
Vinyl chloride ND
Total Xylenes ND
Total TICs ND

TB-V(9.5-10.5) 3/31/2016
Acetone ND
Benzene ND
1,4-Dichlorobenzene ND
cis-1,2-Dichloroethene 0.0079
trans-1,2-Dichloroethene ND
Tetrachloroethene ND
Trichloroethene 0.0059
Vinyl chloride ND
Total Xylenes ND
Total TICs 0.608

MW-9 MW-10R MW-10 MW-7R MW-8 MW-7 MW-3R MW-5 MW-6 MW-3 TB-X TB-Z TB-Y MW-18 MW-12 MW-12R MW-17 MW-Q MW-16 MW-1 MW-1R MW-13 MW-13R MW-19R MW-19

HOLLENBECK ST

BALFOUR DR

N

Legend

- Monitoring well locations installed during Supplemental RI
- Tentative test boring locations advanced during Supplemental RI
- Geoprobe test boring advanced during RI
- Geoprobe test boring completed as an overburden monitoring well during RI
- Existing bedrock well installed during previous study
- Bedrock monitoring well installed during RI
- Overburden monitoring well installed during RI
- Building wall
- Site boundary

Total Chlorinated Volatile Organic Compounds (CVOCs) in overburden groundwater measured in parts per billion (ppb)

- 0 - 5
- 5 - 50
- 50 - 100
- 100 - 500
- 500 - 2,000
- 2,000 - 5,000
- 5,000 - 20,000
- 20,000 - 42,975

Compound	A USCOs	B GWSCOs	C ISCOs
Acetone	0.05	0.05	1000
Benzene	0.06	0.06	89
1,4-Dichlorobenzene	1.8	1.8	250
cis-1,2-Dichloroethene	0.25	0.25	1000
trans-1,2-Dichloroethene	0.19	0.19	1000
Tetrachloroethene	1.3	1.3	300
Trichloroethene	0.47	0.47	400
Vinyl chloride	0.02	0.02	27
Total Xylenes	0.26	1.6	1000
TICS	NS	NS	NS

NOTES:

Test boring ID in **Blue** = Soil sample collected from assumed saturated zone.

Building plan produced from a map of a survey by Deluck O'Neil, P.C., entitled "Map of a survey of part of the 1,000 acre tract, City of Rochester, Monroe County, New York", dated December 2, 1997 and from a drawing by: Mcalpin Industries, entitled "Facilities Layout", dated April 1, 1985, and from site observations made by representatives of Day Environmental, Inc.

0 40 80 160 Feet

PROJECT MANAGER	RLK
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DATE ISSUED	11-18-2019

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DAY ENGINEERING, P.C.
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Project Title
OBI, LLC SITE
245 - 265 AND 271 HOLLENBECK ST,
AND 50 BALFOUR DR
ROCHESTER, NEW YORK
NYSDEC SITE NO. 828188

Drawing Title
Spider Diagram with Concentrations of VOCs in Soil Samples for Compounds Detected in Groundwater above SCGs

Project No.
5211S-16

FIGURE 4

Last Date Saved: 18 Nov 2019 Document Path: E:\GIS Mapping\Mcalpin\5211S-16\Ds\RIFS\5211S-20 RIFS - VOCs Sampled.mxd

TB-H (0-1)2/9/2016
Methylene chloride 0.0544 O01,JD AB
Trichloroethene 0.826 D AB
Copper 97 J A
Nickel 1860 J AB

SS-5 (0-1)2/9/2016
Cyanide 34.7 A

SS-7 (0-1)7/26/2016
Benzo(a)anthracene 3.95 AB
Benzo(a)pyrene 3.94 AC
Benzo(b)fluoranthene 2.76 A
Benzo(k)fluoranthene 5.17 AB
Chrysene 4.82 AB
Indeno(1,2,3-cd)pyrene 2.79 A

SS-7 (1-2)2/9/2016
Acetone 0.201 AB
Benzo(a)anthracene 11.1 D ABC
Benzo(a)pyrene 9.63 D AC
Benzo(b)fluoranthene 12 D ABC
Benzo(k)fluoranthene 4.29 D AB
Chrysene 9.32 D AB
Dibenzo(a,h)anthracene 1.33 D A
Indeno(1,2,3-cd)pyrene 6.35 D A
Copper 85.8 J A
Lead 101 J A

SS-8 (0-1)2/8/2016
Benzo(b)fluoranthene 1.01 D A
Indeno(1,2,3-cd)pyrene 0.59 D A
Lead 67.1 J A

SS-8 (1.8) 2/8/2016
Lead 168 J A
Mercury 0.376 A
Zinc 150 J A

SS-9 (0-1)2/8/2016
Benzo(a)anthracene 1.21 D AB
Benzo(a)pyrene 1.21 D AC
Benzo(b)fluoranthene 1.73 D AB
Chrysene 1.44 D AB
Indeno(1,2,3-cd)pyrene 0.837 D A
Mercury 0.183 A

MW-1R (0-1)2/8/2016
Benzo(a)anthracene 24.1 D ABC
Benzo(a)pyrene 34.5 D ABC
Benzo(b)fluoranthene 47.9 D ABC
Benzo(k)fluoranthene 13.6 D AB
Chrysene 21.5 D AB
Dibenzo(a,h)anthracene 4.98 D AC
Indeno(1,2,3-cd)pyrene 26.1 D ABC
Chromium 45.5 J A
Copper 175 J A
Lead 623 J AB

SS-3 (0-1)2/8/2016
Indeno(1,2,3-cd)pyrene 0.546 D A
Chromium 40.8 J A
Copper 335 J A
Lead 404 J A
Zinc 219 J A

SSE-2 (0-0.18)2/12/2016
Benzo(a)anthracene 6.69 D AB
Benzo(a)pyrene 5.91 D AC
Benzo(b)fluoranthene 8.81 D AB
Benzo(k)fluoranthene 2.68 D AB
Chrysene 6.21 D AB
Dibenzo(a,h)anthracene 0.742 D A
Indeno(1,2,3-cd)pyrene 3.31 D A
Copper 88.9 J A
Lead 137 J A
Zinc 173 J A

BALFOUR DRIVE

N

Legend

- Geoprobe test boring completed as an overburden monitoring well during RI
- Surface soil sample location - Human Exposure Assessment conducted during RI
- Surface soil sample location - Historic Fill Evaluation conducted during RI
- Existing monitoring well installed during previous studies
- Building wall
- Site boundary

0 30 60 120 Feet

Compound	A USCOs	B GWSCOs	C ISCOs
Acetone	0.05	0.05	1000
Methylene chloride	0.05	0.05	1000
Trichloroethene	0.47	0.47	400
Benzo(a)anthracene	1	1	11
Benzo(a)pyrene	1	22	1.1
Benzo(b)fluoranthene	1	1.7	11
Benzo(k)fluoranthene	0.8	1.7	110
Chrysene	1	1	110
Dibenzo(a,h)anthracene	0.33	1000	1.1
Indeno(1,2,3-cd)pyrene	0.5	8.2	11
Chromium	30	NS	6800
Copper	50	1720	1000
Lead	63	450	3900
Mercury	0.18	0.73	5.7
Nickel	30	130	10000
Zinc	109	2480	10000
Cyanide	27	40	10000

NOTES:

Previous sample study test boring and test pit locations produced from a CAD drawing entitled 1997-2014 Soil and Groundwater Sampling Locations, by Day Environmental, dated July 23, 2015. These locations are to be considered approximate.

Building plan produced from a map of a survey by Deluck - O'Neil, P.C., entitled "Map of a survey of part of the 1,000 acre tract, City of Rochester, Monroe County, New York", dated December 2, 1997 and from a drawing by: Mcalpin Industries, entitled "Facilities Layout", dated April 1, 1985, and from site observations made by representatives of Day Environmental, Inc.

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Project Title
OBI, LLC SITE
245 - 265 AND 271 HOLLENBECK ST,
AND 50 BALFOUR DR
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NYSDEC SITE NO. 828188

Drawing Title
Spider Diagram with Extent of Contamination in Human Health Exposure Samples and Historic Fill Material Samples

Project No.
5211S-16

FIGURE 5

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