DECISION DOCUMENT

Canal Street Manufacturing Site
Brownfield Cleanup Program
Rochester, Monroe County
Site No. C828206
June 2020

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

DECLARATION STATEMENT - DECISION DOCUMENT

Canal Street Manufacturing Site
Brownfield Cleanup Program
Rochester, Monroe County
Site No. C828206
June 2020

Statement of Purpose and Basis

This document presents the remedy for the Canal Street Manufacturing Site, a brownfield cleanup site. The remedial program was chosen in accordance with the 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 decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Canal Street Manufacturing Site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected 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. Excavation

Excavation and off-site disposal of contaminant source areas, including: grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u); soils which exceed the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards; and soils that create a nuisance condition, as defined in Commissioner Policy CP-51 Section G. All soils in the upper two feet which exceed the restricted residential SCOs will be excavated and transported off-site for disposal or placed beneath acceptable cover. Approximately 2,500 cubic yards of contaminated soil will be removed from the site and disposed of at a permitted facility. Approximate excavation areas of impacted soils are depicted in Figure 4.

Backfill

The site will be re-graded to accommodate installation of a cover system as described in remedy element 3 below. On-site soil which does not exceed the above excavation criteria or the protection of groundwater SCOs for any constituent may be used anywhere beneath the cover system, including below the water table, to backfill the excavation or re-grade the site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site.

3. Cover System

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

4. Enhanced Bioremediation

In-situ enhanced biodegradation will be employed to treat petroleum-related and chlorinated volatile organic compounds (VOCs) in groundwater. The target areas for treatment will be along the western and southern property lines to treat chlorinated VOCs migrating on-site and beneath and adjacent to the northeastern portion of the main building. The biological breakdown of contaminants through "anaerobic reductive dechlorination" for the chlorinated VOCs and "anaerobic reduction" for petroleum-related compounds will be enhanced by lactate injections for reductive dechlorination and addition of sulfate rich compounds for anaerobic reduction. Agricultural grade gypsum and Epsom Salts will be added to the excavations and/or injected

beneath the building after source removal discussed in item #2 above. Lactate solution will be injected into the subsurface via injection wells installed at least 5 feet into bedrock with the screened interval straddling the overburden/bedrock interface. Treatment areas for petroleum impacted groundwater are depicted in Figure 5, and proposed injection wells for treatment of chlorinated VOCs are depicted in Figure 6.

5. Vapor Mitigation

Any on-site buildings will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from soil and/or groundwater.

6. 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 restricted residential use, commercial use, or 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.

7. Site Management Plan

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

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

   Institutional Control: The Environmental Easement discussed in Paragraph 6 above.

   Engineering Controls: The soil cover discussed in Paragraph 3, the groundwater treatment system discussed in Paragraph 4, and the sub-slab depressurization system discussed in Paragraph 5 above.

   This plan includes, but may not be limited to:
   - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
   - descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
   - a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 3 above will be placed in any

areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - monitoring of groundwater to assess the performance and effectiveness of the remedy; and
   - a schedule of monitoring and frequency of submittals to the Department.

c. 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:
   - procedures for operating and maintaining the remedy;
   - compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
   - maintaining site access controls and Department notification; and
   - providing the Department access to the site and O&M records.

Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

6/15/2020

Date

Michael Cruden, Director
Remedial Bureau E

DECISION DOCUMENT

Canal Street Manufacturing Site
Rochester, Monroe County
Site No. C828206
June 2020

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repository:

DECInfo Locator - Web Application
https://gisservices.dec.ny.gov/gis/dil/index.html?rs=C828206

City of Rochester Public Library (Rundel Building)
Attn: Ms. Florence Morris
115 South Avenue
Rochester, NY 14604
Phone: (585) 428-7300

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 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:
This 1.7-acre site is located in the Center City District and is bordered by the Carriage Factory Brownfield Cleanup Site (C828184) to the west, a railroad to the north, and commercial/industrial properties to the east and south.

Site Features:
The main site features include a vacant, approximately 170,000 square foot, five story manufacturing building, with an approximately 7,100 square foot single story addition containing loading docks, and one approximately 3,030 square foot garage/shop building currently used to store maintenance supplies. About 95% of the site is covered by building or pavement.

Current Zoning and Land Use:
The current zoning is Cascade-Canal District (CCD-C), which is part of the Center City District (CCD). The Rochester CCD-C is also included within the Susan B. Anthony Historic Preservation District. The site is predominantly vacant. One small on-site garage building is being used by the property owner for storage and vehicle maintenance.

Past Uses of the Site:
Prior to construction of the manufacturing building, the site was used for residential housing. In the early 1900s, the main/manufacturing building was constructed in phases to cover the current building footprint. Historical site operations included manufacture of shoes, paper boxes, and macaroni from the early 1900s to the 1980s. A variety of commercial and industrial tenants, including a storage company, a studio, a graphics company, a woodworking company, and a general contractor occupied the building from the 1980s to the 2000s.

During the site's various uses, multiple tanks for gasoline, unleaded gasoline, and diesel have been located on the site. Since the installation of these tanks, numerous removals and replacements were documented, including several spills. The last known tanks were reportedly removed in 2012.

Site Geology and Hydrogeology:
The depth to shallow groundwater ranges between 5 and 6.5 ft below ground surface at the site.

Groundwater flow within the vicinity of the site is generally in an easterly direction with some radial flow most likely caused by the combined sewers surrounding the site. Overburden consists of urban fill and native soils consisting of brown fine sand and sandy silt with intermittent thin clay layers. Bedrock was encountered on the site from 5.7 to 11.1 ft below ground surface. It consists of limestone and dolostone from the Oak Orchard and Penfield Dolostones of the Lockport Group.

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 that restrict the use of the site to restricted-residential use (which allows for commercial use and industrial use) as described in Part 375-1.8(g) were evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the Remedial Investigation (RI) to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

SECTION 5: ENFORCEMENT STATUS

The Applicant under the Brownfield Cleanup Agreement is a Volunteer. The Applicant does not have an obligation to address off-site contamination. However, the Department has determined that this site does not pose a significant threat to public health or the environment; accordingly, no enforcement actions are necessary.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected

in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
-soil 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. 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 contaminant 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 below. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

petroleum products	polycyclic aromatic hydrocarbons (PAHs)
benzene	toluene
ethylbenzene	xylenes
trimethylbenzenes	Methyl t-butyl ether (MTBE)
tetrachloroethene (PCE)	trichloroethene (TCE)
cis-1,2-dichloroethene (1,2-DCE)	lead
barium	mercury

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil

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 Decision Document.

There were no IRMs performed at this site during the RI.

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. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

The primary contaminants of concern at the site are volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), lead, barium, and mercury.

Soils:
Urban fill consisting of varying amounts of ash, soil, brick, metal and wood is present throughout the site. PAHs, lead, barium, and mercury were detected in urban fill with PAHs being the primary contaminant. Concentrations of total PAHs ranged from 4 to 3740 parts per million (ppm), and concentrations of individual PAHs exceed the restricted residential soil cleanup objectives (SCOs). Lead concentrations range from 421 to 2530 ppm and exceed the restricted residential SCO of 400 ppm in three locations. Barium and mercury exceed the restricted-residential SCOs in only one location with concentrations of 567 ppm and 1.5 ppm respectively.

Soils in the northeastern portion of the site are also contaminated with petroleum-related VOCs exceeding the groundwater protection SCOs. These soils are contaminated with diesel fuel or gasoline products that were formerly stored on site in underground storage tanks (USTs). Total petroleum-related VOC concentrations range from 2.8 to 378 ppm. The major petroleum-related VOCs in soil are 1,2,4-trimethylbenzene 7.3 to 110 ppm, 1,3,5-trimethylbenzene non-detect (ND) to 35 ppm, total xylenes ND to 49 ppm, and ethylbenzene ND to 5.9 ppm. Soil sample results are depicted in Figure 2.

Groundwater:
Petroleum-related VOCs are present in groundwater beneath the northeastern portion of the building. Total petroleum-related VOCs range from ND to 12,000 parts per billion (ppb), and the levels of twelve individual chemical exceed the New York State Groundwater Standards. The main contaminants in groundwater are benzene ND to 2,100 ppb, toluene ND to 230 ppb, total xylenes, ND to 5,000 ppb, 1,2,4-trimethylbenzene ND to 5,600 ppb, 1,3,5-trimethylbenzene ND to 1,400 ppb, and ethylbenzene ND to 1,200 ppb. Methyl t-butyl ether (MTBE) was also detected at two locations at 29 to 290 ppb.

Low levels of chlorinated VOCs were detected in on-site groundwater, but there are no indications of an on-site source. These chemicals appear to be migrating on-site from the adjacent Carriage Factory site (C828184). TCE concentration range from ND to 12 ppb, PCE concentrations range from ND to 23 ppb, and 1,2-DCE concentrations range from ND to 8.5 ppb. Groundwater sample results are depicted in Figure 3 and groundwater flow direction is depicted in Figure 3A.

Soil Vapor:
Passive soil vapor sampling was conducted at the site and both petroleum and chlorinated compounds were detected. The petroleum detections were widespread and consistent with past use at the site while the chlorinated detections were less widespread, at a lower concentration than the petroleum detections, and appear to be coming from off-site.

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.*

Access to the site is unrestricted. Contact with contaminated soil or groundwater is unlikely unless people dig below the ground surface. 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. VOCs in soil vapor (air spaces within the soil) may move into overlying 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. Because the site is currently vacant, inhalation of site contaminants in indoor air due to soil vapor intrusion does not represent a concern. However, the potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site development. The potential for soil vapor intrusion off-site will be evaluated as part of the adjacent Carriage Factory Site (#C828184A).

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: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a Track 4: Restricted use with site-specific soil cleanup objectives remedy.

The selected remedy is referred to as the Excavation and Enhanced Bioremediation remedy.

The elements of the selected remedy, as shown in Figure 2, 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;
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- Conserving and efficiently managing resources and materials;
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- 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.

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5. Vapor Mitigation

Any on-site buildings will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from soil and/or groundwater.

6. 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 restricted residential use, commercial use, or 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.

7. Site Management Plan

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

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

Institutional Control: The Environmental Easement discussed in Paragraph 6 above.

Engineering Controls: The soil cover discussed in Paragraph 3, the groundwater treatment system discussed in Paragraph 4, and the sub-slab depressurization system discussed in Paragraph 5 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 3 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - monitoring of groundwater to assess the performance and effectiveness of the remedy; and
   - a schedule of monitoring and frequency of submittals to the Department.

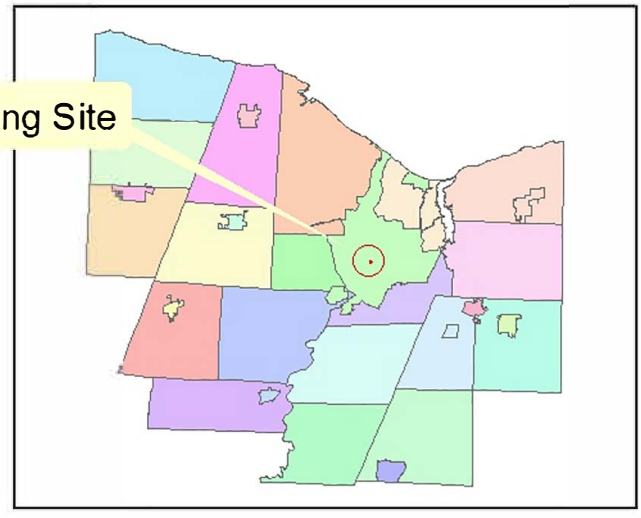
c. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
   - procedures for operating and maintaining the remedy;
   - compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
   - maintaining site access controls and Department notification; and
   - providing the Department access to the site and O&M records.

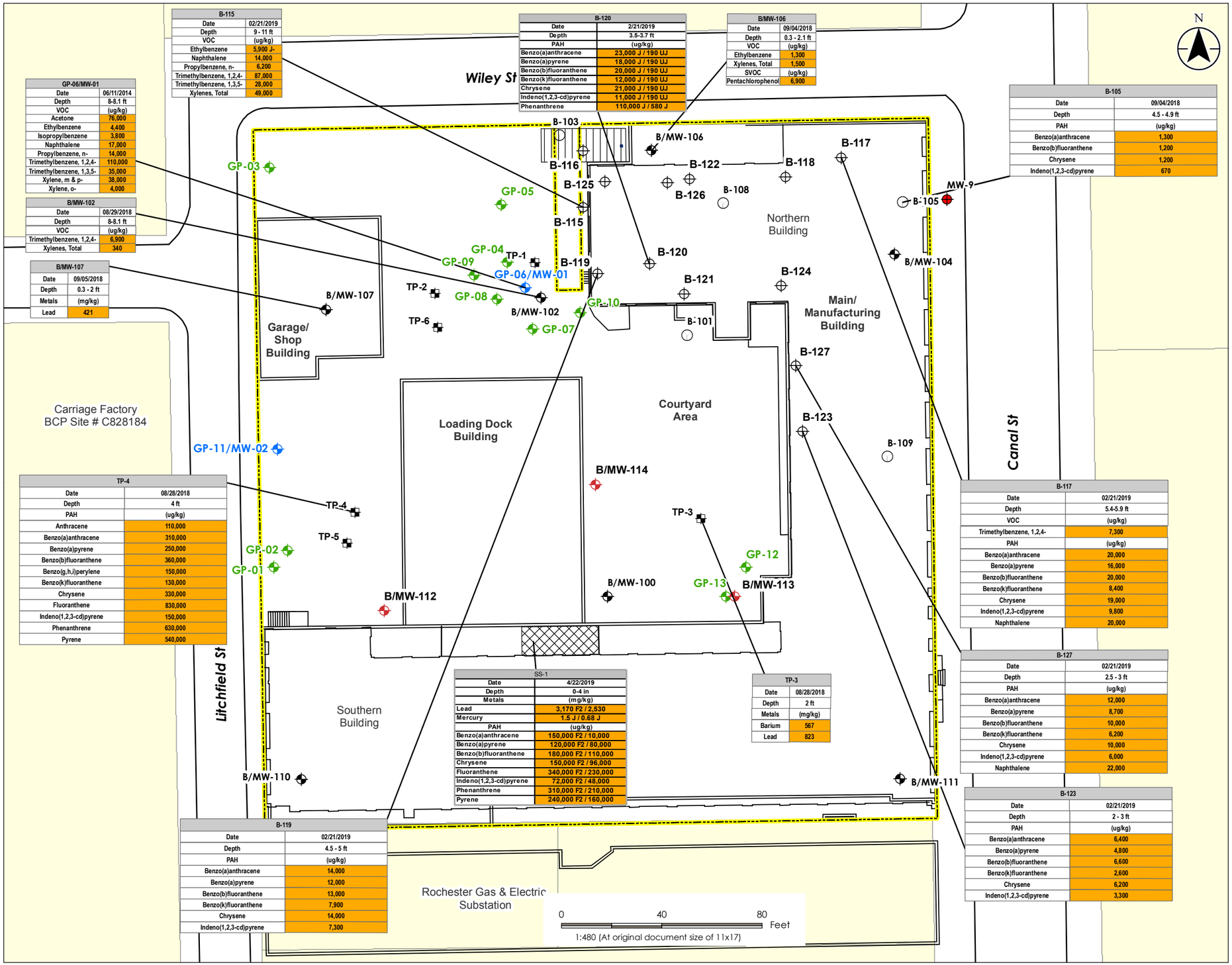
Figure 1

Canal Street Manufacturing Site
C828206

NYSDEC - December 2019
Monroe County 2018 Orthoimagery

Monroe County, New York





B-115	
Date	02/21/2019
Depth	9 - 11 ft
VOC	(ug/kg)
Ethylbenzene	5,900 J-
Naphthalene	14,000
Propylbenzene, n-	6,200
Trimethylbenzene, 1,2,4-	87,000
Trimethylbenzene, 1,3,5-	28,000
Xylenes, Total	49,000

B-120	
Date	2/21/2019
Depth	3.5-3.7 ft
PAH	(ug/kg)
Benzo(a)anthracene	23,000 J / 190 UJ
Benzo(a)pyrene	18,000 J / 190 UJ
Benzo(b)fluoranthene	20,000 J / 190 UJ
Benzo(k)fluoranthene	12,000 J / 190 UJ
Chrysene	21,000 J / 190 UJ
Indeno(1,2,3-cd)pyrene	11,000 J / 190 UJ
Phenanthrene	110,000 J / 580 J

B/MW-106	
Date	09/04/2018
Depth	0.3 - 2.1 ft
VOC	(ug/kg)
Ethylbenzene	1,300
Xylenes, Total	1,500
SVOC	(ug/kg)
Pentachlorophenol	6,900

B-105	
Date	09/04/2018
Depth	4.5 - 4.9 ft
PAH	(ug/kg)
Benzo(a)anthracene	1,300
Benzo(b)fluoranthene	1,200
Chrysene	1,200
Indeno(1,2,3-cd)pyrene	670

GP-06/MW-01	
Date	06/11/2014
Depth	8-8.1 ft
VOC	(ug/kg)
Acetone	76,000
Ethylbenzene	4,400
Isopropylbenzene	3,800
Naphthalene	17,000
Propylbenzene, n-	14,000
Trimethylbenzene, 1,2,4-	110,000
Trimethylbenzene, 1,3,5-	35,000
Xylene, m & p-	38,000
Xylene, o-	4,000

B/MW-102	
Date	08/29/2018
Depth	8-8.1 ft
VOC	(ug/kg)
Trimethylbenzene, 1,2,4-	6,900
Xylenes, Total	340

B/MW-107	
Date	09/05/2018
Depth	0.3 - 2 ft
Metals	(mg/kg)
Lead	421

TP-4	
Date	08/28/2018
Depth	4 ft
PAH	(ug/kg)
Anthracene	110,000
Benzo(a)anthracene	310,000
Benzo(a)pyrene	250,000
Benzo(b)fluoranthene	360,000
Benzo(g,h,i)perylene	150,000
Benzo(k)fluoranthene	130,000
Chrysene	330,000
Fluoranthene	830,000
Indeno(1,2,3-cd)pyrene	150,000
Phenanthrene	630,000
Pyrene	540,000

SS-1	
Date	4/22/2019
Depth	0-4 in
Metals	(mg/kg)
Lead	3,170 F2 / 2,530
Mercury	1.5 J / 0.68 J
PAH	(ug/kg)
Benzo(a)anthracene	150,000 F2 / 10,000
Benzo(a)pyrene	120,000 F2 / 80,000
Benzo(b)fluoranthene	180,000 F2 / 110,000
Chrysene	150,000 F2 / 96,000
Fluoranthene	340,000 F2 / 230,000
Indeno(1,2,3-cd)pyrene	72,000 F2 / 48,000
Phenanthrene	310,000 F2 / 210,000
Pyrene	240,000 F2 / 160,000

TP-3	
Date	08/28/2018
Depth	2 ft
Metals	(mg/kg)
Barium	567
Lead	823

B-119	
Date	02/21/2019
Depth	4.5 - 5 ft
PAH	(ug/kg)
Benzo(a)anthracene	14,000
Benzo(a)pyrene	12,000
Benzo(b)fluoranthene	13,000
Benzo(k)fluoranthene	7,900
Chrysene	14,000
Indeno(1,2,3-cd)pyrene	7,300

B-117	
Date	02/21/2019
Depth	5.4-5.9 ft
VOC	(ug/kg)
Trimethylbenzene, 1,2,4-	7,300
PAH	(ug/kg)
Benzo(a)anthracene	20,000
Benzo(a)pyrene	16,000
Benzo(b)fluoranthene	20,000
Benzo(k)fluoranthene	8,400
Chrysene	19,000
Indeno(1,2,3-cd)pyrene	9,800
Naphthalene	20,000

B-127	
Date	02/21/2019
Depth	2.5 - 3 ft
PAH	(ug/kg)
Benzo(a)anthracene	12,000
Benzo(a)pyrene	8,700
Benzo(b)fluoranthene	10,000
Benzo(k)fluoranthene	6,200
Chrysene	10,000
Indeno(1,2,3-cd)pyrene	6,000
Naphthalene	22,000

B-123	
Date	02/21/2019
Depth	2 - 3 ft
PAH	(ug/kg)
Benzo(a)anthracene	6,400
Benzo(a)pyrene	4,800
Benzo(b)fluoranthene	6,600
Benzo(k)fluoranthene	2,600
Chrysene	6,200
Indeno(1,2,3-cd)pyrene	3,300

Stantec

Legend

- Site Boundary
- Prior On-Site Investigation Location (LaBella Phase II ESA, 2014) - Soil Boring
- Prior On-Site Investigation Location (LaBella Phase II ESA, 2014) - Soil Boring/Monitoring Well
- Previously Installed Off-Site Well (RGE MGP Site)
- 2019 RI Soil Boring Location
- 2019 RI Soil Boring/Monitoring Well Location
- 2019 RI Test Pit
- 2018 RI Soil Boring Location
- 2018 RI Soil Boring/Monitoring Well Location
- Surface Soil Location (Composite Sample)

Notes:

1. Coordinate System:
   NAD 1983 State Plane New York West FIPS 3103 Feet
2. Key Map basemap: ArcGIS World Street Map.
3. Locations are approximate.
4. Abbreviations:
   ug/kg = micrograms per kilogram
   mg/kg = milligrams per kilogram
   PAHs = polycyclic aromatic hydrocarbons
   SVOC = semi-volatile organic compounds
   VOCs = volatile organic compounds

4. Exceedances are shown of one or more of the following: NYSDEC Soil Cleanup Objectives (SCOs) for Restricted Residential Use and Protection of Groundwater and CP-51 Table1 (Supplemental Restricted Residential) and Tables 2 and 3 (SCOs for Gasoline and Fuel Oil Impacted Soil).
5. Data Qualifier
   J The reported result is an estimated value.
   J- The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased low.
   F2 MS/MSD Relative Percent Difference (RPD) exceeds control limits.
   190 U Analyte was not detected at a concentration greater than the laboratory reporting limit.
6. Soil results exceeding SCOs for aluminum, calcium, iron and magnesium are not included.
7. The 2014 data were not collected with quality control samples, and were not reported with NYSDEC ASP Category B deliverables; therefore, a Data Usability Review was not performed.

Project Location
67 - 89 Canal Street
C. of Rochester, Monroe Co., NY

190500965
Prepared by APL on 2019-06-22
Technical Review by KI on 2019-07-22
Independent Review by MPS on 2019-07-22

Client/Project
East House Canal Street, LLC
Alternatives Analysis Report
and Remedial Action Work Plan - BCP Site # 828206

Figure No.
2

Title
Exceedances of NYSDEC Applicable Soil Cleanup Objectives

B/MW-107			
VOC (ug/L)	10/01/2018	02/26/2019	04/25/2019
Ethylbenzene	-	8.9	5.8
Isopropylbenzene	-	5.7	-
Propylbenzene, n-	-	15	8.8
Trichloroethene (TCE)	8.7	-	-
Trimethylbenzene, 1,2,4-	-	64	41
Xylenes, Total	-	6.1	-

MW-01	
VOC (ug/L)	06/11/2014
Butylbenzene, n-	110
Ethylbenzene	390
Isopropylbenzene	190
Naphthalene	1,000
Propylbenzene, n-	580
Trimethylbenzene, 1,2,4-	5,600
Trimethylbenzene, 1,3,5-	1,400
Xylene, m & p-	2,600
Xylene, o-	180
PAH	06/11/2014
Naphthalene	2,300

B/MW-106		
VOC (ug/L)	10/02/2018	04/24/2019
Benzene	680	290
Ethylbenzene	920	260
Isopropylbenzene	34	-
Methyl tert-butyl ether (MTBE)	53	290
Naphthalene	310	-
Propylbenzene, n-	49	-
Toluene	230	-
Trimethylbenzene, 1,2,4-	1,300 J-	140
Trimethylbenzene, 1,3,5-	380	-
Xylenes, Total	5,000 J-	-

B/MW-114		
VOC (ug/L)	02/28/2019	04/24/2019
Benzene	12	16
Butylbenzene, n-	-	11
Ethylbenzene	75	70
Isopropylbenzene	10	13
Methylene Chloride (Dichloromethane)	-	12
Naphthalene	27	30
Propylbenzene, n-	28	28
Toluene	12	16
Trimethylbenzene, 1,2,4-	260	310
Trimethylbenzene, 1,3,5-	56	53
Xylenes, Total	150	220

Freight Elevator Pit	
Pesticides	4/22/2019
DDD (p,p'-DDD)	2.0
DDE (p,p'-DDE)	0.57
DDT (p,p'-DDT)	2.3

B/MW-104			
VOC (ug/L)	10/02/2018	02/26/2019	04/24/2019
Benzene	-	42	5.8
Butylbenzene, n-	-	7.8	-
Ethylbenzene	-	75	38
Isopropylbenzene	-	11	-
Naphthalene	-	23	-
Propylbenzene, n-	-	33	13
Toluene	-	19	-
Trimethylbenzene, 1,2,4-	-	230	130
Trimethylbenzene, 1,3,5-	5.8	59	38
Xylenes, Total	-	160	84
PAH	10/02/2018	02/26/2019	02/26/2019
Naphthalene	-	32	-

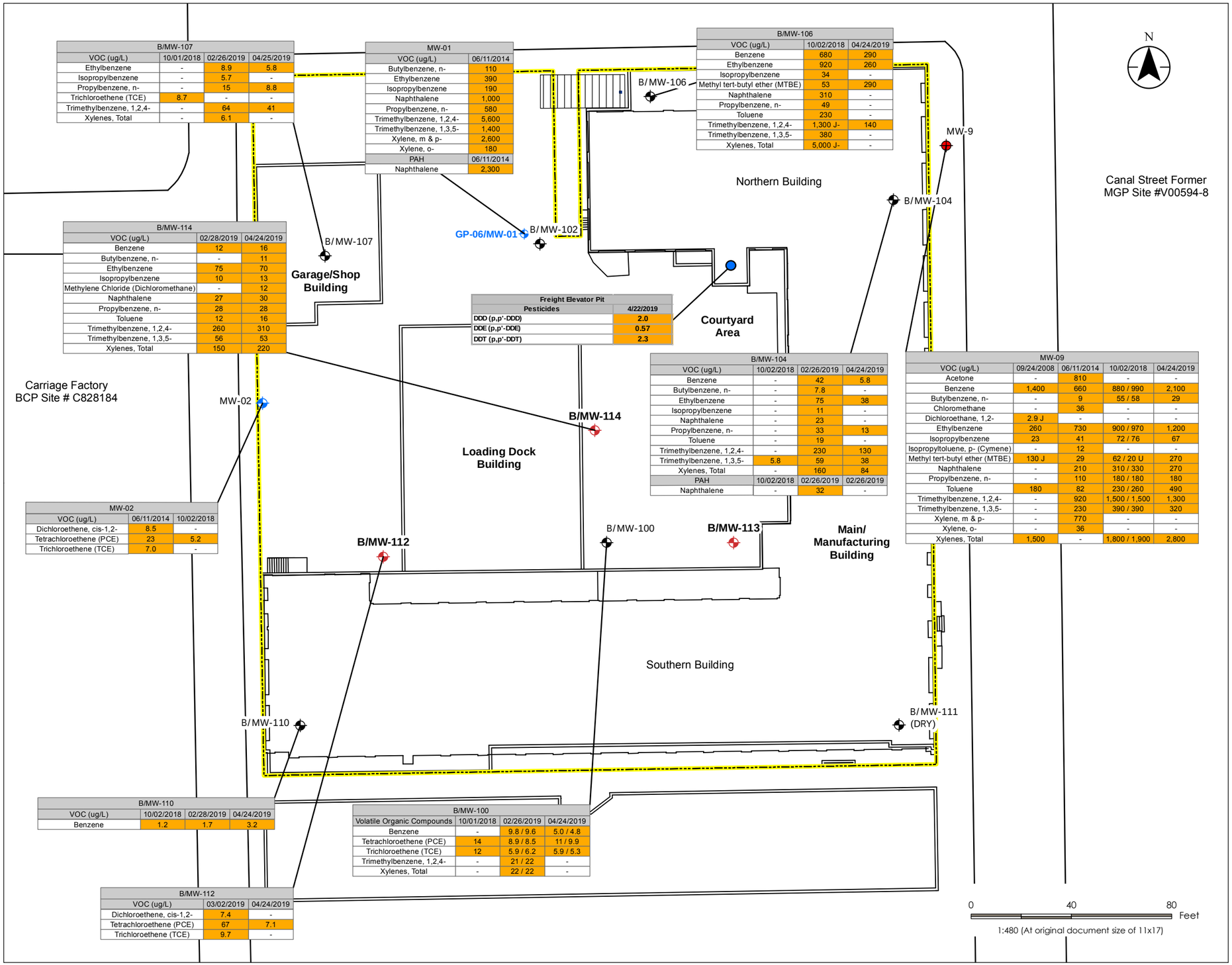
MW-09				
VOC (ug/L)	09/24/2008	06/11/2014	10/02/2018	04/24/2019
Acetone	-	810	-	-
Benzene	1,400	660	880 / 990	2,100
Butylbenzene, n-	-	9	55 / 58	29
Chloromethane	-	36	-	-
Dichloroethane, 1,2-	2.9 J	-	-	-
Ethylbenzene	260	730	900 / 970	1,200
Isopropylbenzene	23	41	72 / 76	67
Isopropyltoluene, p- (Cymene)	-	12	-	-
Methyl tert-butyl ether (MTBE)	130 J	29	62 / 20 U	270
Naphthalene	-	210	310 / 330	270
Propylbenzene, n-	-	110	180 / 180	180
Toluene	180	82	230 / 260	490
Trimethylbenzene, 1,2,4-	-	920	1,500 / 1,500	1,300
Trimethylbenzene, 1,3,5-	-	230	390 / 390	320
Xylene, m & p-	-	770	-	-
Xylene, o-	-	36	-	-
Xylenes, Total	1,500	-	1,800 / 1,900	2,800

MW-02		
VOC (ug/L)	06/11/2014	10/02/2018
Dichloroethene, cis-1,2-	8.5	-
Tetrachloroethene (PCE)	23	5.2
Trichloroethene (TCE)	7.0	-

B/MW-110			
VOC (ug/L)	10/02/2018	02/28/2019	04/24/2019
Benzene	1.2	1.7	3.2

B/MW-100			
Volatile Organic Compounds	10/01/2018	02/26/2019	04/24/2019
Benzene	-	9.8 / 9.6	5.0 / 4.8
Tetrachloroethene (PCE)	14	8.9 / 8.5	11 / 9.9
Trichloroethene (TCE)	12	5.9 / 6.2	5.9 / 5.3
Trimethylbenzene, 1,2,4-	-	21 / 22	-
Xylenes, Total	-	22 / 22	-

B/MW-112		
VOC (ug/L)	03/02/2019	04/24/2019
Dichloroethene, cis-1,2-	7.4	-
Tetrachloroethene (PCE)	67	7.1
Trichloroethene (TCE)	9.7	-



Legend

- Site Boundary
- 2019 RI Monitoring Well Location
- 2018 RI Monitoring Well Location
- Previously Installed On-Site Overburden Well (LaBella Phase II)
- Previously Installed Off-Site Well (RGE MGP Site)

Notes:

1. Coordinate System:
   NAD 1983 State Plane New York West FIPS 3103 Feet
2. Key Map basemap: ArcGIS World Street Map.
3. Locations are approximate.
4. Orange highlight indicate the results exceed NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values.
5. Units are in micrograms per liter (ug/L)
6. Data Qualifier
   - F1 MS and/or MSD recovery is outside acceptance limits
   - J The reported result is an estimated value
   - J- The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased low.
   - - Parameter not analyzed or not detected above standard and guidance values
   - 20 U = Analyte was not detected at a concentration greater than the laboratory reporting limit
7. Results exceeding Standard and Guidance Values for iron, sodium, magnesium and manganese are not included.
8. For the freight elevator pit sample dissolved metal concentrations were used in this figure. Total metal concentrations as well as dissolved metal concentrations are provided in Table 14.
9. The 2008 and 2014 data were not collected with quality control samples, and were not reported
   with NYSDEC ASP Category B deliverables; therefore, a Data Usability Review was not performed.
10. For wells with no exceedances of Standard and Guidance Values for any sampling event data are not presented.

Project Location
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Client/Project
East House Canal Street, LLC
Alternatives Analysis Report
and Remedial Action Work Plan - BCP Site # 828206

Figure No.
3

Title
Exceedances of Standards and Guidance Values in Groundwater Samples

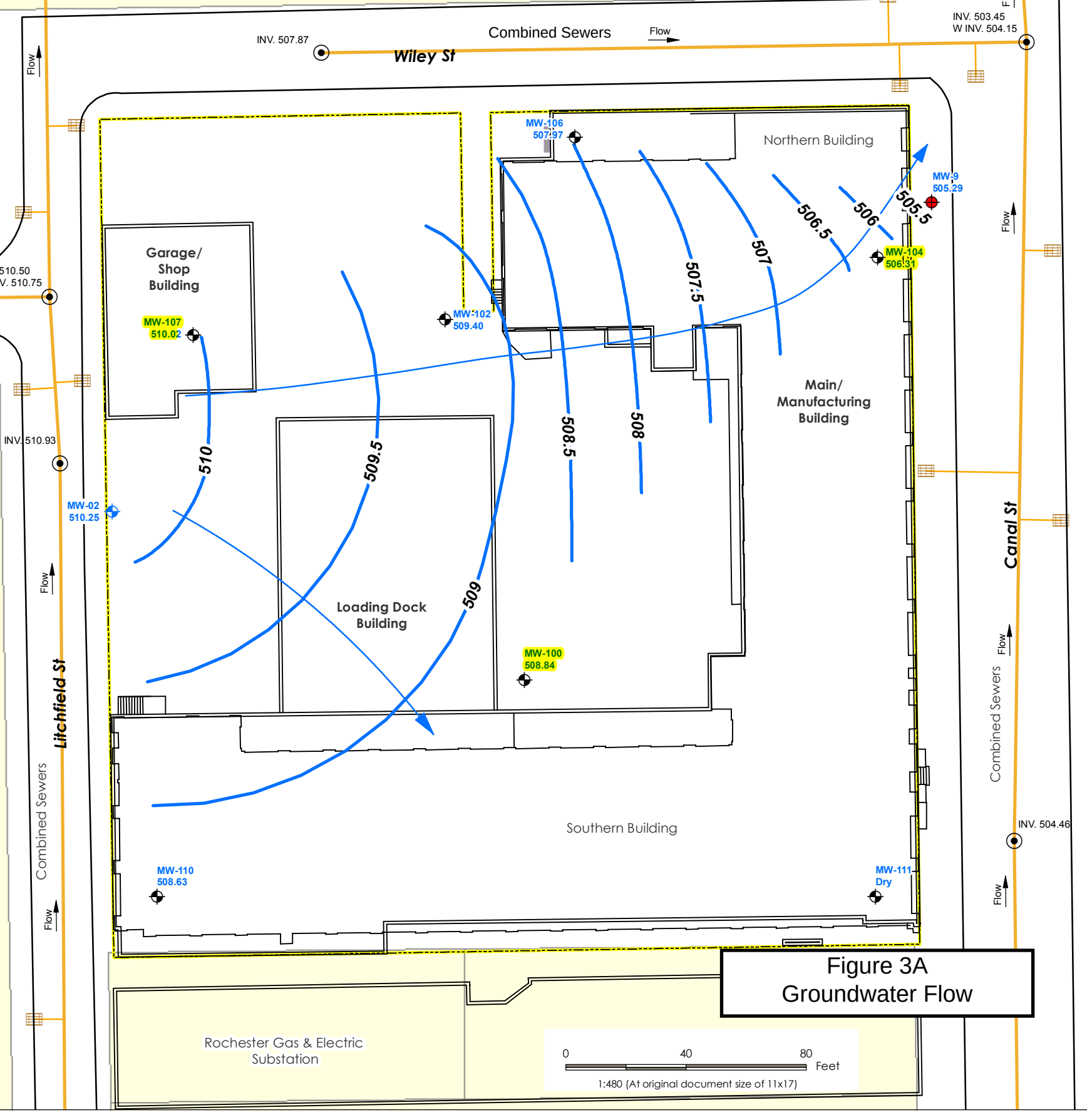
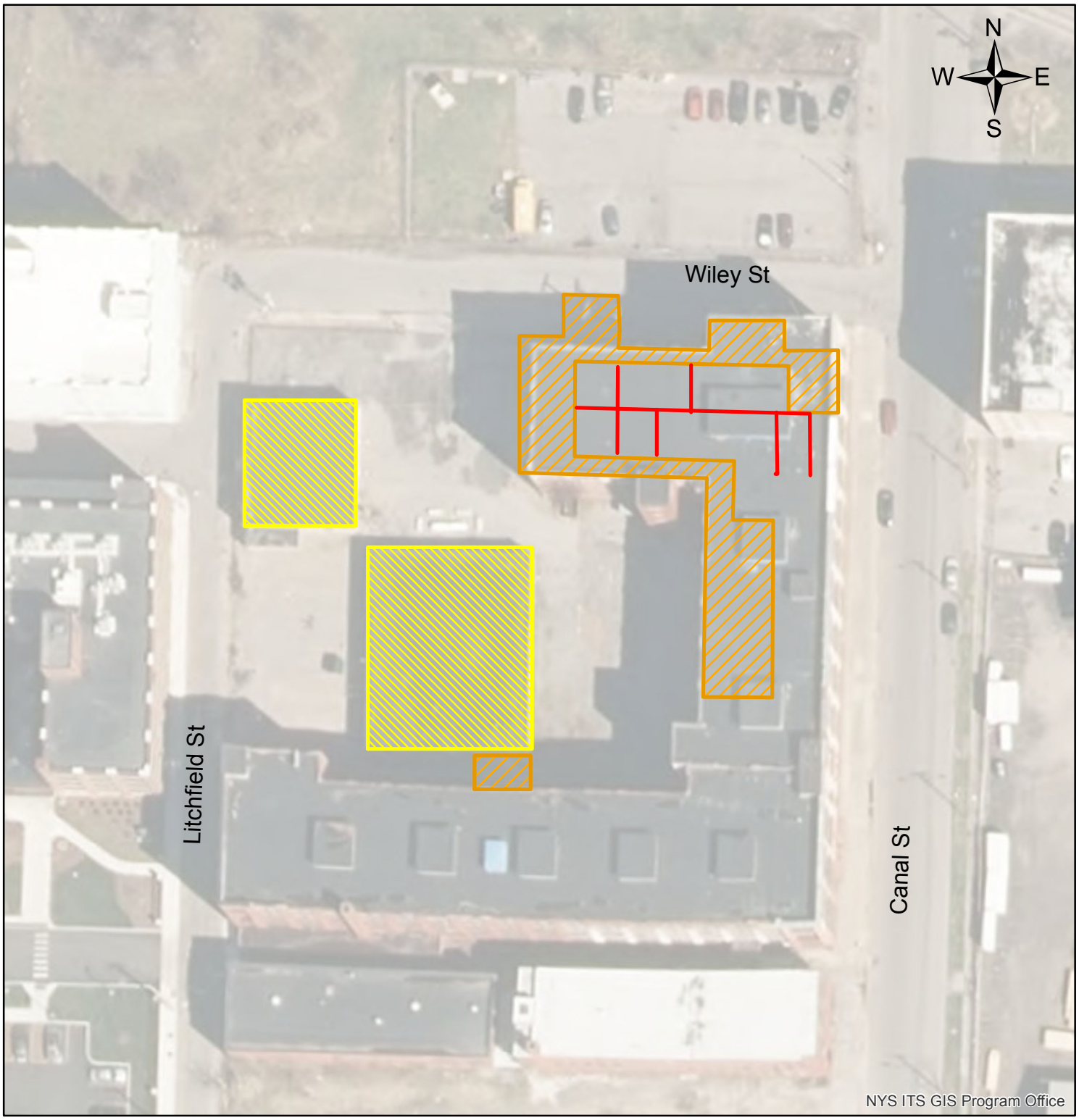


Figure 3A
Groundwater Flow

Figure 4
Canal Street Manufacturing Site #C828206
Demolition and Excavation Areas



Legend

- Excavation Areas
- Trench Drains
- Building Demolition

Excavation areas are approximate and may vary during implementation

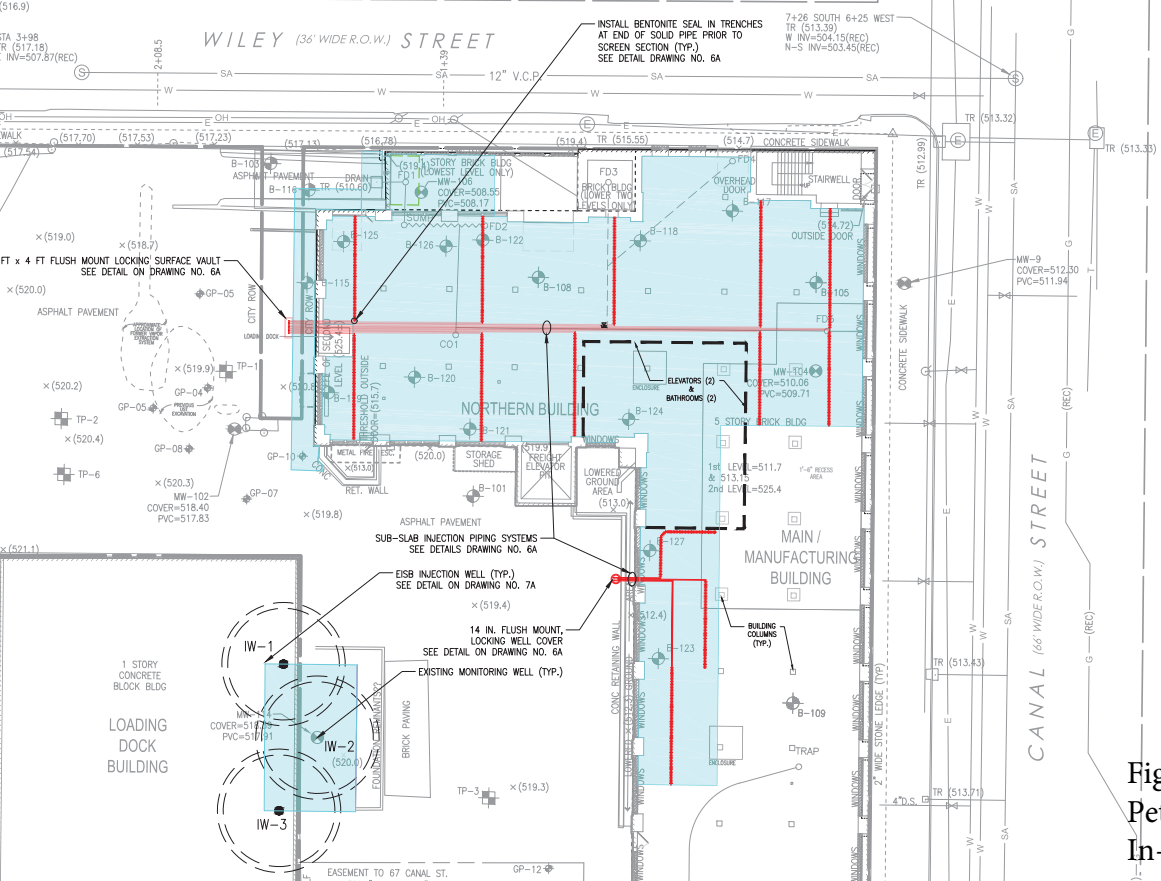


Figure 5
Petroleum Cleanup - Enhanced In-site Bioremedation

Figure 6
Canal Street Manufacturing
Enhanced Reductive Dechlorination Injection Wells

Legend

ERD - Injection Wells

The number and placement of wells may vary based upon field conditions.