NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau D
625 Broadway, 12th Floor, Albany, NY 12233-7013
P: (518)402-9676 | F: (518)402-9773
www.dec.ny.gov

7/19/2021

Jennifer Reymond
Ramboll
333 West Washington St.
Syracuse, NY 13202

Re: Mathews Avenue Site
Site ID No. C734116
Town of Geddes, Onondaga County
Remedial Work Plan & Decision Document

Dear Ms. Reymond:

The New York State Department of Environmental Conservation (Department) and the New York State Department of Health (NYSDOH) have reviewed the Remedial Work Plan (RWP) for the Mathews Avenue Site dated June 23, 2020 and prepared by Ramboll on behalf of the 301 Belle Isle Road, LLC. The RWP is hereby approved. Please ensure that a copy of the approved RWP is placed in the document repository. The draft plan should be removed.

Attached is a copy of the Department's Decision Document for the site. The remedy is to be implemented in accordance with this Decision Document. Please ensure that a copy of the Decision Document is placed in the document repository.

Please contact the Department's Project Manager, Michael Belveg, at 315-426-7446 or Michael.Belveg@dec.ny.gov at your earliest convenience to discuss next steps. Please recall the Department requires a notice seven days prior to the start of field work.

Sincerely,

Susan L. Edwards

Susan Edwards
Director
Remedial Bureau D
Division of Environmental Remediation

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau D
625 Broadway, 12th Floor, Albany, NY 12233-7013
P: (518)402-9676 | F: (518)402-9773
www.dec.ny.gov

Enclosure

ec w/attachments:

Michael Ryan
Susan Edwards
Josh Cook
Michael Belveg
Christine Vooris
Scarlett McLaughlin
Kristin Kulow
Christopher Calkins
Eric Gernant
Matt Gokey, matthew.gokey@tax.ny.gov

DECISION DOCUMENT

Mathews Avenue Site
Brownfield Cleanup Program
Geddes, Onondaga County
Site No. C734116
July 2021

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

DECLARATION STATEMENT - DECISION DOCUMENT

Mathews Avenue Site
Brownfield Cleanup Program
Geddes, Onondaga County
Site No. C734116
July 2021

Statement of Purpose and Basis

This document presents the remedy for the Mathews Avenue 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 Mathews Avenue 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. Cover System

A site cover will be required to allow for commercial 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. Consolidation/Capping

Soils and sediment exceeding the commercial use SCOs for soil, or the class C sediment criteria for sediments within the Erie Canal area, northern drainage swale, and eastern drainage swales, and their associated floodplains, will be excavated to a maximum depth of approximately three feet, consolidated on-site above the water table and capped. The consolidation area will be located in an approximately 1-acre area located in the northern portion of the site, as indicated on Figure 3, and will receive an engineered cap system designed, constructed, and maintained in conformance with the substantive requirements of 6 NYCRR Part 360 solid waste regulations.

Approximately 11,500 cubic yards of soil and sediment will be excavated from the swales and an area of the Erie Canal approximately 2,000 feet in length and approximately 3 feet in depth and consolidated on-site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be imported to replace the excavated soil and sediment to establish the designed grades at the site.

4. Monitored Natural Attenuation

Groundwater contamination will be addressed with monitored natural attenuation (MNA). Groundwater will be monitored for site related contamination and for MNA indicators which will provide an understanding of the biological activity breaking down the contamination. It is anticipated that contamination will decrease by an order of magnitude within a reasonable period (5 to 10 years). Reports of the attenuation will be provided at 5 and 10 years, and active remediation will be proposed if it appears that natural processes alone will not address the contamination. The contingency remedial action will depend on the information collected, but it is currently anticipated that in-situ chemical oxidation or reduction would be the expected contingency remedial action.

5. Restoration of Dredged Areas

Stream bed and stream bank bathymetry and topography in the drainage swales and the Erie Canal will be restored with appropriate stream bed material. The Erie Canal bed will be restored to its original design grade. If present, submerged aquatic vegetation in the remediation area will also be restored. The design will include a monitoring plan for areas disturbed by the remedy and all activities will be consistent with the requirements of 6 NYCRR Part 608.

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 commercial 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:

1. 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 6 above.

Engineering Controls: The cover system discussed in paragraph 3 above and the engineered cap as discussed in paragraph 4 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, groundwater use, and surface water use restrictions;
- A provision for evaluation of the potential for soil vapor intrusion for any future buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;

- 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 one foot 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 engineering controls.

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

- Monitoring of groundwater and surface water to assess the performance and effectiveness of the remedy; and
- A schedule of monitoring and frequency of submittals to the Department.
- Monitoring for vapor intrusion for any buildings on the site, 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, inspection, and reporting of any mechanical or physical components of the engineering controls. The plan includes, but is not limited to:

- Procedures for operating and maintaining the system(s); and
- Compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.

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.

7/19/2021 — Date

Susan Edwards — Susan Edwards, Director
Remedial Bureau D

DECISION DOCUMENT

Mathews Avenue Site
Geddes, Onondaga County
Site No. C734116
June 2021

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, where a contaminant is present at levels exceeding the soil cleanup objectives or other health-based or environmental standards, criteria or guidance, based on the reasonably anticipated use of the property.

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=C734116

Solvay Public Library
Attn: Ann L. Moore
615 Woods Road
Solvay, NY 13209
Phone: 315-468-2441

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: The Mathews Avenue Site is a 32.78-acre site located in a suburban area in the Village of Solvay (Town of Geddes). The site is located south and west of Belle Isle Road and west of Mathews Avenue.

Site Features: The site is relatively flat and currently has no buildings. The site is mainly covered by grass, shrubs, and small trees with a small, paved section that runs along the north side of the Erie Canal. The major site features include the 20-acre Mathews Avenue Landfill (located in the eastern portion of the site); a portion of the former Erie Canal to the north; the northern drainage swale, which runs south of, and parallel to, the canal; and the southern drainage swale, which drains to the west. The northern drainage swale empties into Geddes Brook, which is located west of the site. There are wetland areas located to the west of the site.

Current Zoning and Land Uses: Most of the site is currently inactive and vacant but a small portion along the north side of the canal is used as a bike path. The site is zoned for commercial and industrial use. The surrounding parcels are predominantly commercial and industrial, with some residential properties located northwest of the site along Gere Lock Road. Immediately west of the site is an area referred to as Parcel B and the former Village of Solvay Landfill, an 18-acre facility that received construction and demolition debris from the 1950s to 1991. The Village of Solvay Landfill was capped in accordance with Part 360 requirements in 2007.

Upgradient (south) of the site is the Pass and Seymour facility. Historic operations included steel milling and porcelain manufacturing. The western third of the Pass and Seymour site had been used from the early 1900s through the early 1980s as a disposal area for manufacturing waste. The Pass and Seymour facility is now used for office space and product development and testing (Site No. C734102). Other remediation sites located near the Mathews Avenue Site, include: the Frazer and Jones Company site (Site No. 734014) which is located to the south (upgradient); and the LCP Chemical site (Site No. 734049) which is located to the north (downgradient).

Past Use of the Site: The former Mathews Avenue Landfill was owned and operated by the Solvay Process Company and Allied Chemical Corp., predecessors to Honeywell International, Inc., the current owner. As early as 1925, the Solvay Process Company utilized the landfill to dispose of unburned sandstone and limestone rock (spalls) from the Solvay soda ash lime kiln operation. The spalls were transported by dump truck and leveled by periodic spreading with a

bulldozer. Other waste materials disposed at the landfill included office paper, bricks, wood and other demolition debris, and an occasional load of material from the plant's manufacturing areas. In addition, during a 2002-2003 investigation, Allen-Moore diaphragm cells (and possibly mercury cells) were observed in the landfill. These cells were associated with the Chlor-Alkali process employed at the company's LCP/Bridge Street and Willis Avenue plants. Operation of the landfill was terminated between 1985 and 1988. The Mathews Avenue Landfill was not formally capped.

Site Geology and Hydrogeology: Overburden at the Mathews Avenue Site consists of unconsolidated deposits of both natural and man-made origin that range in thickness from 10 to 70 feet. The site is underlain by Silurian Age Vernon Shale.

An artificial fill layer is present above the natural soil throughout the central and eastern parts of the site. The fill unit varies in thickness (less than 10 feet to 40 feet), composition, and grain size across the Site. Borings and test pits in the area encountered varying amounts of silt, sand, gravel, Solvay waste and debris. The debris consisted of concrete, glass, ceramic, brick, plastic, fiberglass insulation, cardboard, metal, and garbage. Spalls are intermixed with the fill material. Wells screened in the fill layer exhibited hydraulic conductivity values in the 0.001 to 0.0001 cm/sec range.

The lower fine-grained sand and silt unit ranges from non-existent to 15 ft thick. The layer is thickest in the center of the site. The unit grades into a finer silt and clay to the north and thins to the south and pinches out as the elevation of the till rises. The texture of this unit is variable, and there are lenses within this silt and sand unit that contain higher percentages of sand or clay. Wells screened in this unit exhibited hydraulic conductivity values in the 0.001 cm/sec range.

A well-compacted red/gray till unit composed of a clay and silt matrix with some sand and gravel overlies the bedrock surface. The till surface likely follows the bedrock surface and dips sharply from the south towards the Onondaga lake Basin.

There are two basic hydrogeologic units that have been screened in the unconsolidated deposits at the site. They include the shallow fill unit and the deep sand and silt unit above the till.

The shallow ground water elevations reflect flow patterns consistent with expected flow given the surface topography. The former Mathews Avenue Landfill, as well as the neighboring Village of Solvay Landfill off-site, create mounded areas and direct the flow northwest towards Geddes Brook and north towards the LCP Site.

The deep groundwater elevation contours indicate that deep groundwater flow is generally northward towards Onondaga lake, which is consistent with the regional groundwater flow.

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 commercial use (which allows for industrial use) as described in Part 375-1.8(g) were/was 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 Volunteer does not have an obligation to address off-site contamination. The Department has determined that this site poses a significant threat to human health and the environment and there are off-site impacts that require remedial activities; accordingly, enforcement actions are necessary.

The Department will seek to identify any parties (other than the Volunteer) known or suspected to be responsible for contamination at or emanating from the site, referred to as Potentially Responsible Parties (PRPs). The Department will bring an enforcement action against the PRPs. If an enforcement action cannot be brought, or does not result in the initiation of a remedial program by any PRPs, the Department will evaluate the off-site contamination for action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs the State incurs or has incurred.

The Department and Honeywell International, Inc. entered into a Consent Order on September 20, 2002 (Index No. D-7-0007-09). The Order obligates the responsible party to implement a Preliminary Site Assessment (PSA), and an RI/FS for the Mathews Avenue Landfill site (Site ID 734073). The Order covered the areas referred to as Parcel A (this BCP site) and Parcel B (Site ID C734073) and the Village of Solvay Landfill.

Parcel A was admitted into the BCP. A BCP application was submitted for Parcel B Site ID C734073; however, Parcel B was not accepted into the BCP, since it was determined that contamination at Parcel B was due to an off-site source or sources. The Village of Solvay Landfill was capped in accordance with 6 NYCRR Part 360 requirements.

A Revised Preliminary Site Assessment (PSA) Report was submitted and determined to substantially address the requirements of the Order on Consent. The Department approved the PSA on September 9, 2008.

Data collected during the PSA was used to prepare the Remedial Action Work Plan Parcel A Mathews Avenue Site Redevelopment Plan that is included in the Brownfield Application that was accepted on June 28, 2013. The NYSDEC determined the data collected during the PSA was sufficient to fulfill the requirements of a remedial investigation for the BCP on-site area.

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 potential for that contamination go impact the environmental or human health. 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:

- air
- groundwater
- surface water
- soil
- sediment
- 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 contaminants of concern identified at this site are:

chlorobenzene	xylene (mixed)
1,2-dichlorobenzene	polycyclic aromatic hydrocarbons (PAHS),
1,4-dichlorobenzene	total
trichloroethene (TCE)	polychlorinated biphenyls (PCB)
vinyl chloride	mercury

The contaminants of concern exceed the applicable SCGs for:

- groundwater
- surface water
- soil
- sediment
- soil vapor intrusion

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.

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

Parcel A Bike Trail Corridor IRM

In November of 2019, a soil and asphalt cover was constructed over a portion of the site. The work took place along the northern portion of the site parallel to the Erie Canal corridor. See the gray and brown colored area on Figure 02.

The soil cover consists of a minimum of 1-foot thick, clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d). An asphalt cover was also placed over the area to allow it to be used as a bike trial. A demarcation layer was placed between the contaminated soils and the clean fill or asphalt. More details of the work completed under this IRM are described in the Construction Completion Report (CCR) submitted to the Department in March 2021.

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.

Nature and Extent of Contamination: Soil, groundwater, sediment, surface water, air, and soil vapor were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds

(SVOCs), metals, polychlorinated biphenyls (PCBs), per- and polyfluoroalkyl substances (PFAS), and pesticides. Based on the results of site investigations, the primary contaminants of concern include the following: mercury; polychlorinated biphenyls (PCBs); several SVOCs, including benzo(a)pyrene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(b)fluoranthene, and benzo(a)anthracene; and several volatile organic compounds (VOCs), including chlorobenzene, 1,2-dichlorobenzne, 1,4-dichlorobenzene and xylenes. These contaminants have been detected in various environmental media including soil (surface and subsurface), groundwater, sediment, surface water and soil vapor.

Soil

Several SVOCs were detected at concentrations exceeding the Part 375 commercial use SCOs, including benzo(a)pyrene at a maximum of 25 parts per million (ppm), which exceeds its commercial SCO of 1 ppm; dibenzo(a,h)anthracene at a maximum of 4.5 ppm which exceeds its commercial SCO of 0.56 ppm; indeno(1,2,3-cd)pyrene at a maximum of 12 ppm, which exceeds its commercial SCO of 5.6 ppm; benzo(b)fluoranthene at a maximum of 32 ppm which exceeds its commercial SCO of 5.6 ppm; and benzo(a)anthracene at a maximum of 24 ppm which exceeds its commercial SCO of 5.6 ppm. There were a few other SVOCs that exceeded their respective unrestricted use SCOs, including benzo(k)fluoranthene at a maximum of 16 ppm, chrysene at a maximum of 24 ppm, and phenol at a maximum of 0.36 ppm.

No VOCs exceeded their respective commercial SCOs but several VOCs exceeded their respective unrestricted use SCOs including acetone at a maximum of 100 ppm, 1,2-dichlorobenzene at a maximum of 2.6 ppm, 1,4-dichlorobenzene at a maximum of 17 ppm, and hexachlorobenzene at a maximum of 0.39 ppm.

Several metals were detected at concentrations exceeding the Part 375 commercial use SCOs, including mercury at a maximum of 15.4 ppm which exceeds its commercial SCO of 2.8 ppm; lead at a maximum of 3,200 ppm which exceeds its commercial SCO of 1,000 ppm; copper at a maximum of 4,820 ppm which exceeds its commercial SCO of 270 ppm; and arsenic at a maximum of 18.8 ppm, which exceeds the commercial SCO of 16 ppm. Several other metals exceeded their respective unrestricted use SCOs, including zinc at a maximum of 4,090 ppm, chromium at a maximum of 44.7 ppm, nickel at a maximum of 84 ppm, silver at a maximum of 2.7 ppm, and barium at a maximum of 355 ppm.

No pesticides exceed their respective commercial use SCOs, but a few exceeded their respective unrestricted use SCOs including 4,4'-DDE at a maximum of 0.5 ppm, 4,4'-DDT at a maximum of 1 ppm, 4,4'- DDD at a maximum of 0.012 ppm, dieldrin at a maximum of 0.72 ppm, and endrin at a maximum of 0.086 ppm.

Total PCBs were detected at a maximum of 17.1 ppm which exceeds the commercial use SCO of 1 ppm.

Off-site soil samples were collected during the investigation and data indicates impacts in off-site soil related to this site. No SVOCs, pesticides or PCBs were detected in off-site soils. Two VOCs, acetone at a maximum of 79 ppb and cis-1,2-dichloroethene at a maximum of 11 ppb,

were detected in off-site soils. Several metals including arsenic at a maximum of 5.2 ppm, copper at a maximum of 80.8 ppm, mercury at a maximum of 0.2 ppm, nickel at a maximum of 32.1 ppm and chromium at a maximum of 21.9 ppm. These soil samples were taken to the east of the site in an area known as the Mathews Avenue Landfill Superfund site, ID No. 734073.

Groundwater

No PCBs or pesticides were detected above the groundwater standards.

VOCs detected in groundwater above the standard of 5 parts per billion (ppb) include 1,1-dichloroethene at a maximum of 14 ppb, chlorobenzene at a maximum of 121 ppb, trichloroethene at a maximum of 400 ppb, xylenes (total) at a maximum of 58 ppb, cis-1,2-dichloroethene at a maximum of 140 ppb, and trans-1,2-dichloroethene at a maximum of 21 ppb. Other VOCs that were above groundwater standards include 1,2-dichlorobenzene at a maximum of 4.5 ppb with a standard of 3 ppb, benzene at a maximum of 1.6 ppb with a standard of 1 ppb, and vinyl chloride at a maximum of 54 ppb with a standard of 2 ppb.

SVOCs that were detected in groundwater above their criteria include benzo(a)anthracene at a maximum of 1.1 ppb with a criteria of 0.002 ppb; benzo(b)fluoranthene at a maximum of 0.7 ppb with a criteria of 0.002 ppb; indeno(1,2,3-cd)pyrene at a maximum of 0.4 ppb with a criteria of 0.002 ppb; chrysene at a maximum of 0.7 ppb with a criteria of 0.002 ppb; benzo(k)fluoranthene at a maximum of 0.2 ppb with a criteria of 0.002 ppb; and naphthalene at a maximum of 18 ppb with a criteria of 10 ppb.

Total (unfiltered) metals that exceeded the groundwater standards include iron at a maximum of 52,200 ppb with a standard of 300 ppb; mercury at a maximum of 2.8 ppb with a standard of 0.7 ppb; manganese at a maximum of 2,650 ppb with a standard of 600 ppb; selenium at a maximum of 12 ppb with a standard of 20 ppb; and magnesium at a maximum of 378,000 ppb with a standard of 35,000 ppb. Metals in groundwater were detected throughout the site.

Emerging contaminants (ECs) detected in the groundwater include multiple per and polyfluorinated alkyl substances (PFAS). Perfluorooctanesulfonic acid (PFOS) is present at a maximum of 76 parts per trillion (ppt), exceeding its maximum contaminant level (MCL) of 10 ppt; and perfluorooctanoic acid (PFOA) is present at a maximum of 150 ppt exceeding its MCL of 10 ppt. 1,4-dioxane is present at a maximum of 30 ppb exceeding its MCL of 1 ppb. Most of the ECs were detected in the central portion of the site.

Off-site wells were sampled during the investigation and data indicates impacts in off-site groundwater related to the site. No SVOCs, pesticides, or PCBs were detected in off-site groundwater wells. One VOC, vinyl chloride at a maximum of 2.7 ppb, was detected in off-site groundwater. Several metals including iron at a maximum of 50.6 ppm, magnesium at a maximum of 121 ppm, selenium at a maximum of 0.01 ppm, manganese at a maximum of 1.92 ppm, lead at a maximum of 0.442 ppm, and mercury at a maximum of 0.0017 ppm. These wells were located to the east of the site in an area known as the Mathews Avenue Landfill Superfund site, 734073.

Surface Water

No PCBs or pesticides were detected above the surface water standards.

VOCs detected in surface water above their respective standard include 1,4-dichlorobenzene at a maximum of 10 ppb with a standard of 5 ppb and chlorobenzene at a maximum of 9.6 ppb with a standard of 5 ppb.

Two SVOCs were detected above their surface water standards: pyrene at a maximum of 5.9 ppb with a standard of 4.6 ppb and benzo(a)anthracene at a maximum of 2.8 ppb with a standard of 0.03 ppb.

Metals detected in surface water above their respective standards include aluminum at a maximum of 6930 ppb with a standard of 100 ppb; copper at a maximum of 9600 ppb with a standard of 200 ppb; iron at a maximum of 23500 ppb with a standard of 300 ppb; lead at a maximum of 66 ppb with a standard of 50 ppb; mercury at a maximum of 66 ppb with a standard of 0.7 ppb; and pyrene at a maximum of 5900 ppb with a standard of 50 ppb.

Off-site surface water was sampled during the investigation and data indicates impacts in off-site surface water related to the site. No SVOCs, VOCs, pesticides, or PCBs were detected in off-site surface water. Two metals, aluminum at a maximum of 470 ppb and iron at a maximum of 410 ppb. These samples were taken in a downstream location within Geddes Brook.

Sediment

No VOCs or pesticides were detected above their respective sediment criteria.

Only one SVOC, benzo(a)pyrene, was detected above its sediment criteria of 0.018 ppm at a maximum of 2.3 ppm Total PAHs were detected at a maximum of 56.22 ppm compared to its class A sediment criteria of 4.0 ppm and its class C sediment criteria of 35.0 ppm. A Class A sediment is considered to present little or no potential for risk to aquatic life, while a sediment that exceeds the Class C guideline has a high potential to be toxic to aquatic life.

Metals detected in sediment above their respective criteria include arsenic at a maximum of 42.2 ppm with a class A criteria of 10 ppm and a class C criteria of 33 ppm; copper at a maximum of 302 ppm with a class A criteria of 32 ppm and a class C criteria of 150 ppm; chromium at a maximum of 75 ppm with a class A criteria of 43 ppm; lead at a maximum of 245 ppm with a class A criteria of 36 ppm and a class C criteria of 130 ppm; mercury at a maximum of 22.5 ppm with a class A criteria of 0.2 ppm and a class C criteria of 1 ppm; nickel at a maximum of 37.2 ppm with a class A criteria of 23 ppm; and zinc at a maximum of 1,580 ppm with a class A criteria of 120 ppm and a class C criteria of 460 ppm.

Total PCBs were detected at a maximum of 3.41 ppm in sediment, with a class C criteria of 1 ppm.

Off-site sediment samples were collected during the investigation and data indicates impacts in off-site sediment related to the site. No PCBs or pesticides were detected in off-site sediment.

One VOC, acetone at a maximum of 110 ppb, was detected in off-site sediment. This sample was taken in an upstream area of Geddes Brook. One SVOC, benzo(a)pyrene at a maximum of 2,100 ppb, was detected in off-site sediment. This sample was located downstream within Geddes Brook. Also, within this sample, total PAHs were detected at a maximum of 24.67 ppm. Several metals including copper at a maximum of 36.6. ppm, lead at a maximum of 59.1 ppm, mercury at a maximum of 0.17 ppm, and nickel at a maximum of 18.6 ppm, were detected in off-site sediments. These contaminates were detected in both upstream and downstream locations within Geddes Brook.

Soil Vapor Intrusion

Compounds detected in soil vapor samples include benzene at a maximum of 57 micrograms per cubic meter (ug/m3), vinyl chloride at a maximum of 2,200 ug/m3, trichloroethene at a maximum of 12,000 ug/m3, and chloroform at a maximum of 33 ug/m3.

Off-site soil gas samples were taken during the investigation and data does not indicate impacts in off-site soil vapor related to the site. There were no off-site soil vapor detections.

Special Resources Impacted/Threatened: There are several wetland areas on-site or immediately adjacent to the site. A portion of the former Erie Canal is located on site. Data shows that contaminants have impacted surface water and sediment quality in these features. A Fish and Wildlife Resources Impact Analysis (FWRIA) is included in the PSA Report. The FWRIA noted the site is used by a variety of fish and wildlife; however, also noted the surrounding area is developed and primarily used for industrial purposes.

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.*

People are not drinking contaminated groundwater because the area is served by a public water supply that is not affected by site-related contamination. The site is partially fenced and persons who enter the site could contact contaminants in the soil by disturbing soils at or beneath the ground surface, or contacting surface water and/or sediments in the Old Erie Canal or site drainage swales. 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 sub-surface into the indoor air of buildings, is referred to as soil vapor intrusion. Because the site is currently vacant, the potential for people to inhale site-related contaminants due to soil vapor intrusion does not represent a current concern. However, people may inhale site contaminants due to soil vapor intrusion if new buildings are developed at the site in the future. Environmental sampling indicates soil vapor intrusion from site contaminants is not a concern for off-site 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.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Surface Water

RAOs for Public Health Protection

- Prevent ingestion of water impacted by contaminants.
- Prevent contact or inhalation of contaminants from impacted water bodies.

RAOs for Environmental Protection

- Restore surface water to ambient water quality criteria for the contaminant of concern.
- Prevent impacts to biota from ingestion/direct contact with surface water causing toxicity and impacts from bioaccumulation through the marine or aquatic food chain.

Sediment

RAOs for Public Health Protection

- Prevent direct contact with contaminated sediments.
- Prevent surface water contamination which may result in fish advisories.

RAOs for Environmental Protection

- Prevent releases of contaminant(s) from sediments that would result in surface water levels in excess of (ambient water quality criteria).
- Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity or impacts from bioaccumulation through the marine or aquatic food chain.
- Restore sediments to pre-release/background conditions to the extent feasible.

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 Soil and Sediment Consolidation/Capping and Cover System and Monitored Natural Attenuation Remedy.

The elements of the selected remedy, as shown in Figure 3, 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 for commercial 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. Consolidation/Capping

Soils and sediment exceeding the commercial use SCOs for soil, or the class C sediment criteria for sediments within the Erie Canal area, northern drainage swale, and eastern drainage swales, and their associated floodplains, will be excavated to a maximum depth of approximately three feet, consolidated on-site above the water table and capped. The consolidation area will be located in an approximately 1-acre area located in the northern portion of the site, as indicated on Figure 3, and will receive an engineered cap system designed, constructed, and maintained in conformance with the substantive requirements of 6 NYCRR Part 360 solid waste regulations.

Approximately 11,500 cubic yards of soil and sediment will be excavated from the swales and an area of the Erie Canal approximately 2,000 feet in length and approximately 3 feet in depth and consolidated on-site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be imported to replace the excavated soil and sediment to establish the designed grades at the site.

4. Monitored Natural Attenuation

Groundwater contamination will be addressed with monitored natural attenuation (MNA). Groundwater will be monitored for site related contamination and for MNA indicators which will provide an understanding of the biological activity breaking down the contamination. It is anticipated that contamination will decrease by an order of magnitude within a reasonable period (5 to 10 years). Reports of the attenuation will be provided at 5 and 10 years, and active remediation will be proposed if it appears that natural processes alone will not address the contamination. The contingency remedial action will depend on the information collected, but it is currently anticipated that in-situ chemical oxidation or reduction would be the expected contingency remedial action.

5. Restoration of Dredged Areas

Stream bed and stream bank bathymetry and topography in the drainage swales and the Erie Canal will be restored with appropriate stream bed material. The Erie Canal bed will be restored to its original design grade. If present, submerged aquatic vegetation in the remediation area will also be restored. The design will include a monitoring plan for areas disturbed by the remedy and all activities will be consistent with the requirements of 6 NYCRR Part 608.

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 commercial 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:

1. 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 6 above.

Engineering Controls: The cover system discussed in paragraph 3 above and the engineered cap as discussed in paragraph 4 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, groundwater use, and surface water use restrictions;

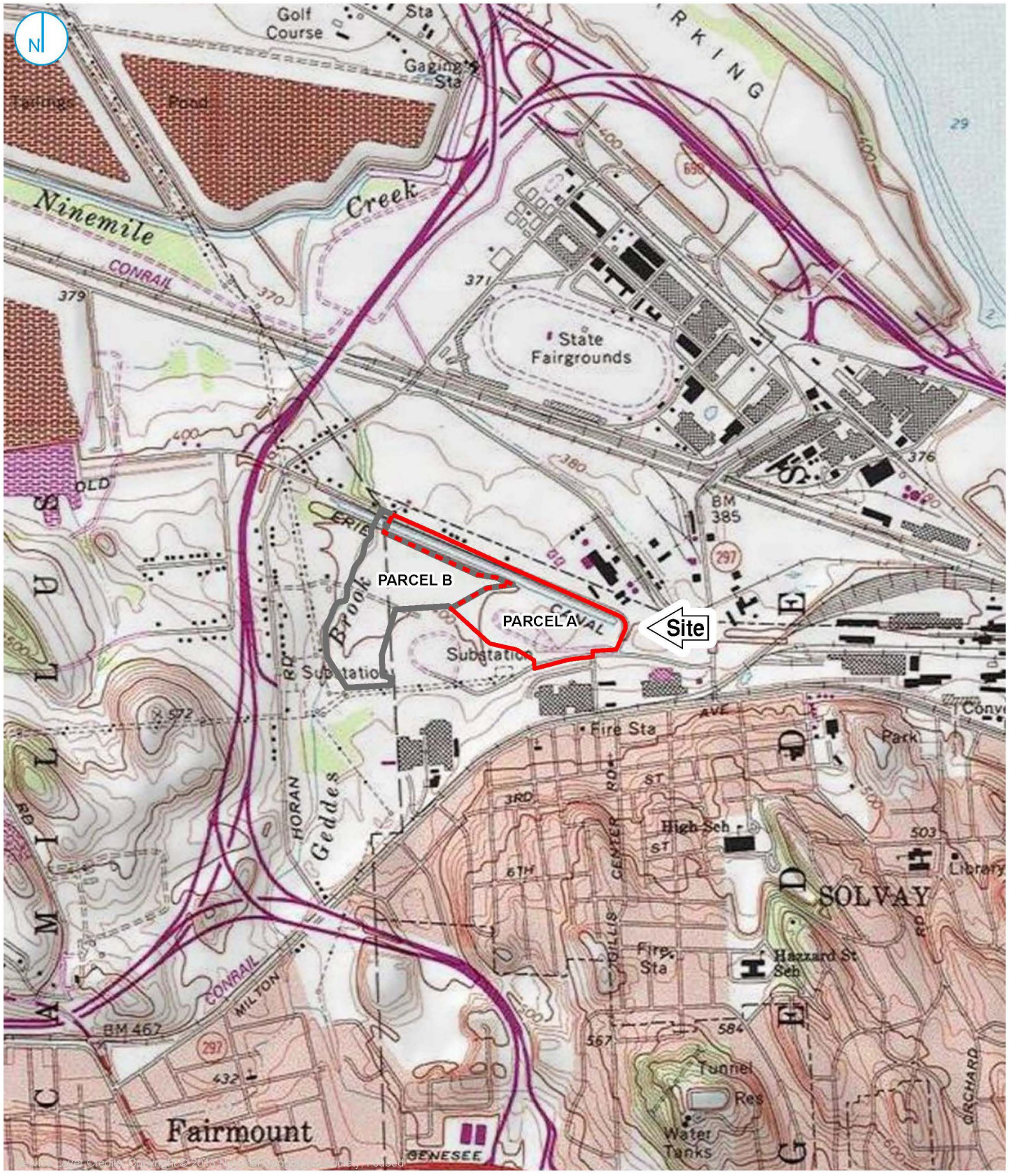
- A provision for evaluation of the potential for soil vapor intrusion for any future buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- A provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 3 above will be placed in any areas where the upper one foot 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 engineering controls.

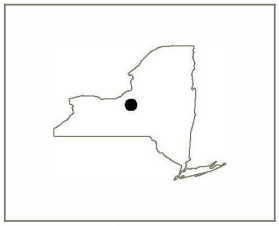
2. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- Monitoring of groundwater and surface water to assess the performance and effectiveness of the remedy; and
- A schedule of monitoring and frequency of submittals to the Department.
- Monitoring for vapor intrusion for any buildings on the site, 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, inspection, and reporting of any mechanical or physical components of the engineering controls. The plan includes, but is not limited to:

- Procedures for operating and maintaining the system(s); and
- Compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.





KEY MAP

MATHEWS AVENUE PARCEL A BOUNDARY

Map Scale: 1:1:24,000;
Map Center: 76°13'31"W 43°3'56"N

0 1,000 2,000 Feet

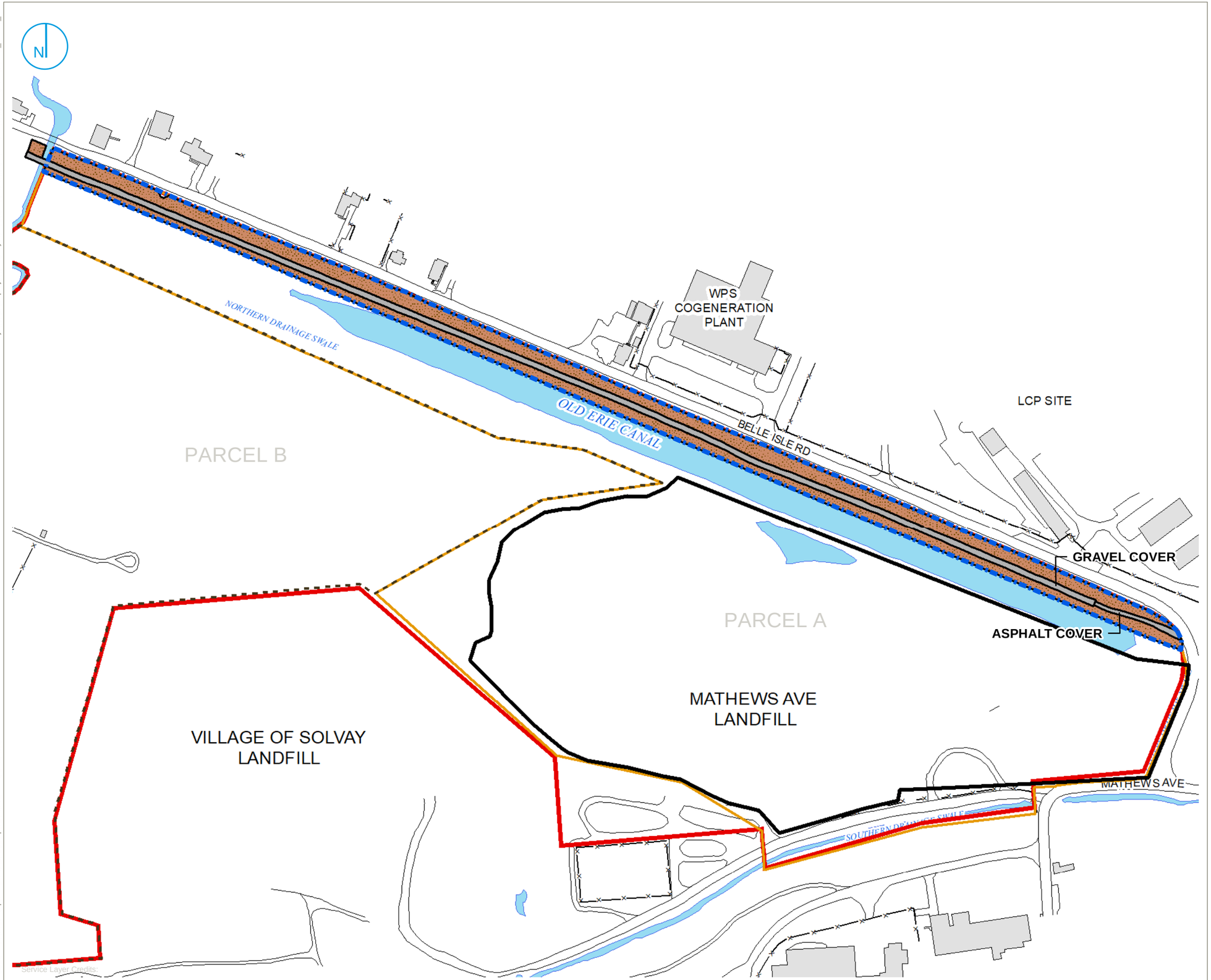
SITE LOCATION

MATHEWS AVENUE SITE
REMEDIAL ACTION WORK PLAN
GEDDES AND CAMILLUS, NY

FIGURE 01

O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY

RAMBOLL



ERIE CANALWAY TRAIL
TRAIL EXTENT & DEMARCATION LAYER
1 FT VEGETATED SOIL COVER & DEMARCATION LAYER
IRM BOUNDARY
MATHEWS AVENUE LANDFILL
MATHEWS AVENUE PARCEL B BOUNDARY
MATHEWS AVENUE PARCEL A BOUNDARY
MATHEWS AVENUE SITE BOUNDARY

0 110 220
Feet

SITE PLAN
PARCEL A BIKE TRAIL CORRIDOR

HONEYWELL
MATHEWS AVENUE
GEDDES AND CAMILLUS, NY

FIGURE 02

O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY

RAMBOLL

- MATHEWS AVENUE PARCEL B BOUNDARY
- MATHEWS AVENUE PARCEL A BOUNDARY
- VILLAGE OF SOLVAY LANDFILL
- FORMER MATHEWS AVENUE LANDFILL
- 1-FT VEGETATED COVER
- 2-FT LOW PERMEABILITY VEGETATED COVER
- 1-FT SOIL REMOVAL AND RESTORATION
- SEDIMENT REMOVAL AND RESTORATION
- STORMWATER MANAGEMENT AREA (SWMA)
- FOREBAY
- COMPLETED ERIE CANALWAY TRAIL
- INTERIM REMEDIAL MEASURE
- OPEN WATER

Notes

SWMA-1, 3, AND 4 TOTAL 0.9 AC,

0 125 250 Feet

MATHEWS AVE PARCEL A PREFERRED REMEDY

MATHEWS AVENUE SITE
REMEDIAL ACTION WORK PLAN
GEDDES AND CAMILLUS, NY

FIGURE 03

O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY

RAMBOLL

I:\Honeywell.1163\71978.Mathews-Ave-PlDocs\DWG\MXD\Revised_RAWP

PROJECT: 1163.71978 | DATED: 6/22/2021 | DESIGNER: MCCOMBSI