60% REMEDIAL DESIGN REPORT

for the
East Station Former MGP Site
Rochester, New York

Prepared for:



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DECEMBER 2024

CERTIFICATION

I, Matthew DeGracia, certify that I am currently a NYS registered professional engineer and that this Remedial Design was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and DER Green Remediation (DER-31) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

NYS Professional Engineer #089571	Date	Signature

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ACRONYMS

Acronym	Definition / Description
ACM	asbestos containing material
ARAR	Applicable or Relevant and Appropriate Requirement
bgs	below ground surface
B+L	Bausch and Lomb
BTEX	benzene, toluene, ethylbenzene and xylene
CAMP	Community Air Monitoring Plan
CCR	Construction Completion Report
CFR	U.S. Code of Federal Regulations
cfs	cubic foot/feet per second
City	City of Rochester
CHASP	Contractor's Health and Safety Plan
cm/sec	centimeters per second
COC	constituent of concern
CPP	Citizen Participation Plan
CQAP	Construction Quality Assurance Plan
CQC	Construction Quality Control
CWTS	construction water treatment system
CY	cubic yard(s)
DER	Division of Environmental Remediation
DNAPL	dense nonaqueous phase liquid
EC	engineering control
ESD	Explanation of Significant Difference
FDP	Floodplain Development Permit
FRI	Focused Remedial Investigation
GAC	granular activated carbon
GEI	GEI Consultants, Inc.
gpm	gallon(s) per minute
GPR	Ground penetrating radar
HEC-RAS	Hydraulic Engineering Center's River Analysis System
IC	institutional control
IECP	Institutional and Engineering Controls Plan
IRM	interim remedial measure
ISS	*In-situ* stabilization/solidification

Acronym	Definition / Description
LNAPL	light nonaqueous phase liquid
LTTD	low temperature thermal desorption
LWRP	Local Waterfront Revitalization Program
MCPW	Monroe County Division of Pure Water
MGP	manufactured gas plant
MMP	Monitoring and Maintenance Plan
MNA	monitored natural attenuation
NAD83/2011	North American Datum of 1983, 2011 adjustment
NAPL	nonaqueous phase liquid
NAVD	North American Vertical Datum
NTU	nephelometric turbidity unit(s)
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OHWM	ordinary high-water mark
OWS	oil/water separation
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PDI	Pre-design Investigation
PFAS	per- and polyfluoroalkyl substances
PGW	protection of groundwater
PLS	professional land surveyor
PM	Project Manager
PPE	personal protective equipment
ppm	part(s) per million
psi	pound(s) per square inch
QA/QC	quality assurance/quality control
RAO	remedial action objective
RD	Remedial Design
RG&E	Rochester Gas and Electric
RI	Remedial Investigation
RECP	rolled erosion control product
SCG	standards, criteria and guidance

Acronym	Definition / Description
SCO	soil cleanup objective
SF	square foot/feet
SGV	sediment guidance value
Site	East Station Site at Suntru Street, Rochester, Monroe County, New York
SMP	Site Management Plan
SOE	support of excavation
SPDES	State Pollutant Elimination System
SPLP	synthetic precipitation leaching procedure
SWPPP	Stormwater Pollution Prevention Plan
SVOC	semi-volatile organic compound
TBD	to be determined
TCL	target compound list
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound

1.0 INTRODUCTION AND BACKGROUND

This report presents the 60% Remedial Design (RD) for the Remedy of the Rochester Gas and Electric Corporation (RG&E) East Station Former Manufactured Gas Plant (MGP) Site (the Site). The Site is one of three sites included in a New York State Department of Environmental Conservation (NYSDEC) Multi-Site Order on Consent that became effective June 26, 2018 (Index No, CO-8-20180517-48, Site No. 828204). NYSDEC issued a Record of Decision for the Site in June 2022 (NYSDEC 2022). A Draft Explanation of Significant Difference (ESD) for the Site is currently being developed in consultation with NYSDEC. This section presents further details on Site history and the remedy.

1.1 Site Description

The Site is located in the City of Rochester (City), Monroe County, New York in an industrial/commercial area (Figure 1). The Site is on the eastern bank of the Genesee River, west and south of Suntru Street, and north of the Inner Loop Highway. The approximately 13.15-acre Site is bordered to the west by the Genesee River and a 2.25-acre New York State-owned parcel (Tax Parcel No. 106.53-1-9), to the north by a former 7.82-acre Bausch and Lomb (B+L) manufacturing facility parcel (B+L Property, also referred to as the Off-Site Property in historical documents, Tax Parcel No. 106.45-1-32), to the east by the Genesee River gorge wall and Suntru Street, and to the south by the Bausch Memorial Bridge. Most of the Site is open space with four vacant RG&E buildings located in the northern portion of the parcel. The Site is relatively flat with the gorge wall rising to the east and the river to the west. Due to the presence of MGP-related impacts at the B+L Property and the New York State-owned property, both properties are included in the Site remedy.

1.2 Land Use

All properties are zoned “M-1 Industrial,” and the Site is vacant except for a natural gas regulating station. According to zoning regulations found in Chapter 120, Article XI, §120-80 of the City Code, the M-1 Industrial District promotes the retention and growth of employment opportunities by providing areas where a broad range of industrial uses may locate and where options for complementary uses exist in older two-story and multi-story buildings (Rochester City Code 2002). A beverage brewing facility operates south of the Bausch Memorial Bridge on the eastern side of the Genesee River. Further east and west lie commercial and industrial properties, beyond which are residential properties.

1.3 Site Geology and Description

The Site is located within the Genesee River Gorge. The Site is underlain by approximately 10 to 20 feet of unconsolidated deposits consisting of urban fill materials and the remains of the former MGP over a discontinuous layer of alluvial deposits. The alluvial deposits beneath the fill material and former MGP structures range in thickness from one to 10 feet, where present. Alluvial deposits tend to be thicker along the eastern property boundary and generally become thinner or pinch out in the western portion of the Site.

Overburden soil on the B+L Property to the north is similar. The fill thickness ranges from approximately 20.5 feet in the southeast corner of this property to not present along the Genesee River, where alluvial deposits were observed at the ground surface. The alluvial deposits range in thickness from 32 feet in the southeast corner of the B+L Property to 8.5 feet along the Genesee River.

The top of the weathered bedrock surface, which was observed across the majority of the upland portions of the Site, generally slopes gently to the north and west toward the Genesee River. Weathered bedrock consists of rock fragments and gravel with silt and sand approximately one to three feet in thickness. The

weathered bedrock encountered directly beneath overburden soil covering most of the former Site consists of the Rochester Shale and Irondequoit Limestone below the northwest portion of the Site and the majority of the B+L Property. In total, nine bedrock formations have been located beneath the Site and/or B+L Property.

Overburden groundwater is typically encountered six to 20 feet below ground surface (bgs) at the Site. Groundwater elevation contours indicate that the groundwater flow direction is to the west toward the Genesee River. The Genesee River, a Class B waterway, flows south to north past the Site and the B+L Property, eventually discharging to Lake Ontario to the north (NYSDEC 2022).

1.4 Site History

A coal carbonization plant was constructed at the Site in 1872 by Citizen's Gas Works. Coal gas manufacturing at the Site started in 1910 and ceased around 1952. A catalytic reforming process was used at the Site from around 1951 until 1976. Manufactured gas was transported to the Site from the West Station MGP site via a pipe bridge across the Genesee River. Manufactured gas operations ceased at the Site in 1976. The former MGP had several gas holders and gas manufacturing plant buildings which have since been demolished and the foundations filled in. Although four buildings remain on site, they are neither used nor occupied (NYSDEC 2022).

1.5 Previous Environmental Investigations and Remedial Actions

Five environmental investigations and two interim remedial measures (IRMs) have been conducted at the Site since 1992. Additional details of these investigations are provided in each respective report. These investigations are summarized below.

- A Site investigation was conducted in 1992 to evaluate site conditions. It included a soil gas survey, test pit excavations, surface and subsurface soil sampling, soil and bedrock borings, monitoring well installations, and groundwater sampling. The investigation identified the presence of MGP residuals in surface soil, subsurface soil, and groundwater (Atlantic Environmental Services, Inc. et. al, 1993).
- The 1998 and 2000 Focused Remedial Investigation (FRI) was conducted to identify sources of non-aqueous phase liquid (NAPL) found along the Genesee River shoreline adjacent to the Site, identify preliminary remedial alternatives, characterize the contents of the tar well, identify remedial alternatives for the tar well, and further evaluate groundwater quality. The FRI identified the presence of light non-aqueous phase liquid (LNAPL) and dense non-aqueous phase liquid (DNAPL) in soil and bedrock beneath the Site (Ish Inc. et. al. 2000a; Ish Inc. et. al. 2000b).
- An IRM to address coal-tar impacts in the Former Tar Well area, located in the southeast portion of the Site, was performed between 2004 and 2005. The IRM included the removal of approximately 20,000 tons of impacted soil/fill material and the removal of the Former Tar Well structure. IRM activities also included the construction of a circular perimeter slurry wall surrounding the tar well, soil excavation immediately outside the tar well to the inside of the slurry wall, and excavation dewatering and off-site disposal of approximately 978,000 gallons of groundwater (URS, Inc. 2006).
- An IRM was completed in 2007 and 2008 to mitigate seeps along the bank of the Genesee River. The IRM included *in-situ* stabilization/solidification (ISS) of approximately 18,000 cubic yards (CY) of soil to immobilize MGP residuals (including NAPL) in the overburden material near the riverbank. It also included the installation of a slurry wall and DNAPL collection trench with 22 NAPL recovery/monitoring wells east of the ISS area. Approximately 27,000 tons of overburden soil

containing purifier box material was also removed and transported to an off-site disposal facility as part of the project (Ish Inc. 2009).

- Sediment investigations were completed in the Genesee River in 2008 and 2009. The investigations included portions of the Genesee River adjacent to the Site. NAPL was found in sediment immediately along the shoreline at the southern portion of the Site and in a limited area adjacent to the B+L Property (GEI Consultants, Inc. [GEI] 2010).
- A Remedial Investigation (RI) was performed between December 2010 and August 2014. The RI was conducted to investigate and define the distribution of NAPL in the subsurface. The presence of NAPL was identified in overburden in three areas of the Site and one area of the B+L Property. NAPL was typically observed near the weathered bedrock and overburden interface in these areas. NAPL and sheen were observed in competent bedrock to a maximum depth of 154 feet bgs. NAPL and sheen were also observed in sediment adjacent to the Site and B+L Property (Haley Aldrich 2015).
- A Pre-design Investigation (PDI) was performed from August 2023 through January 2024 to further delineate the extent of soil/sediment removal and inform the RD (Parsons 2024). Groundwater flow rate monitoring continued through July 2024, additional survey data was collected in October 2024, and geotechnical boring installations were performed in October and November 2024.

During these environmental investigations, soil (including near-river soil between the ISS barrier wall and the sediment), groundwater, and sediments were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), pesticides, and cyanide. While no PCBs or pesticides were detected in any media, these investigations have noted impacts related to the historical MGP operations within the soil and groundwater at the Site including the near-shore sediments adjacent to the Site. Based on the investigations conducted to date, the primary constituents of concern (COCs) include SVOCs and metals in shallow soils; VOCs, SVOCs, and metals in subsurface soils, groundwater; and VOCs, and SVOCs in river sediment. Groundwater in several select monitoring wells was additionally analyzed for the emerging contaminants per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane.

1.6 Selected Remedy

The selected remedy was outlined in the Record of Decision (NYSDEC 2022). However, based on lack of availability of suitable material satisfying the compliance requirements of Title 6 of the New York Codes, Rules and Regulations (NYCRR) Part 375-6.7(d), NYSDEC Commissioner Policy-51 (CP-51), and NYSDEC Division of Environmental Remediation (DER) Technical Guidance for Site Investigation (DER-10) Section 5.4(e) for reuse, the NYSDEC elected to amend the selected remedy. An ESD is currently being developed in consultation with NYSDEC. The Amended Remedy, as described in the ESD, includes the following:

- Excavation of approximately 98,700 CY of on-site MGP-impacted soil to a depth of 10 feet bgs; excavation of approximately 33,400 CY of B+L Property MGP-impacted soil to a depth of 24 feet bgs or to competent bedrock, as feasible; and excavation of near-river soils to facilitate off-site disposal of soil meeting the disposal criteria listed in the ESD Summary and as outlined in Section 5.9, below. The upper 10 feet of on-site MGP-impacted soil may be stockpiled for potential reuse on site. Prior to reuse, stockpiled soil will be analyzed to confirm compliance with 6 NYCRR Part 375-6.7(d), CP-51, DER-10 Section 5.4(e) and with NYSDEC concurrence.
- ISS of approximately 197,300 CY of on-site MGP-impacted soil to the top of competent bedrock as outlined in Section 5.10, below.

- Dredging and off-site disposal/thermal treatment of approximately 2,500 CY of sediment containing MGP NAPL impacts and exceeding Class C Sediment Guidance Value (SGV) criteria (35 parts per million [ppm] polycyclic aromatic hydrocarbon [PAH]).
- Placement of an engineering control (EC) in the form of a soil cover consisting of a demarcation layer and, at a minimum, two feet of soil. The upper six inches of soil must be of sufficient quality to maintain a vegetative layer to allow for development of the Site for restricted residential use. In near-river soils, the upper two feet will be sufficient quality to maintain a vegetative layer, and the demarcation layer will not include any fabric. Substitution of other 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 (e.g., pavement, concrete, paved surface parking areas, sidewalks, building foundations, and building slabs).
- Placement of an EC in the form of a soil cover over the ISS treated areas consisting of a minimum of four feet of soil, with the top two feet of soil to allow for development of the Site for restricted residential use.
- Installation and operation of NAPL, petroleum, or coal tar recovery wells.
- Restoration of stream bed and bank bathymetry and upland topography.
- Monitored natural attenuation (MNA) of groundwater contamination remaining after active remediation.
- Imposition of an institutional control (IC) in the form of an environmental easement for the controlled property.
- Preparation of a Site Management Plan (SMP), consisting of an Institutional and Engineering Controls Plan (IECP) and a Monitoring and Maintenance Plan (MMP).

1.6.1 Remedial Action Objectives

Remedial action objectives (RAOs) for the Site and site cleanup objectives were established in the Record of Decision (NYSDEC 2022). The RAOs for the Site, by media, include:

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 groundwater 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 volatizing 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

Sediment

- RAOs for Public Health Protection
    - Prevent direct contact with contaminated sediments
- RAOs for Environmental Protection
    - Prevent releases of contaminant(s) from sediments that will result in surface water levels in excess of (ambient water quality criteria)
    - 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 the Site

1.6.2 Compliance with Applicable or Relevant and Appropriate Requirements

This section lists the Applicable or Relevant and Appropriate Requirements (ARARs) for the remedy to be constructed at the Site.

As stated in the Record of Decision, the remedy will comply with all substantive requirements of the New York State Environmental Conservation Law and applicable guidance (NYSDEC 2022). 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 standards, criteria and guidance (referred to as 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 NYSDEC has developed SCGs for groundwater, surface water, sediments, and soil. The New York State Department of Health (NYSDOH) has developed SCGs for drinking water and soil vapor intrusion. A full listing of all SCGs as presented at http://www.dec.ny.gov/regulations/61794.html is provided in **Table 1**.

Additional New York State (e.g., coastal consistency concurrence) and local (e.g., building codes, sewer use ordinances, nuisance codes) ARARs may also be required. The additional state and local ARARs are included in **Table 1**.

1.7 Project Plans and Technical Documents

Various project plans and technical documents have been prepared during the RD process to implement the remedy and discuss the management of materials generated during site remediation.

Table 2, below, provides the project plans and schedule for submittal. **Table 3** provides the technical documents and schedule for submittal.

Table 2 – Project Plans and Submittal Schedule:

Plan	Schedule
Design Drawings (**Appendix A**)	Included with this RD Report
Technical Specifications (**Appendix B**)	
Avangrid Networks EH&S Procedure: Marine Operations & Work in Proximity to Water (**Appendix D**)	
Soil Hauling and Traffic Control Plan (**Appendix E**)	
Community Air Monitoring Plan (CAMP; **Appendix G**)	
Dust, Odor, and Vapor Control Plan (**Appendix H**)	
River Turbidity Monitoring/Sheen Response Plan (**Appendix I**)	
Materials Handling and Management Plan (**Appendix J**)	
Citizen Participation Plan (CPP; **Appendix K**)	
Construction Quality Assurance Plan (CQAP; **Appendix C**)	To be provided with the 95% RD Report submittal (indicated as "Reserved")
Stormwater Pollution Prevention Plan (SWPPP; **Appendix F**)	
Contractor's Health and Safety Plan (CHASP)	To be provided prior to remedy implementation as required Submittals, to be prepared by the selected Remediation Engineer and/or Contractor.
SMP and Environmental Easement	To be provided at remedy completion

Table 3 – Technical Documents and Submittal Schedule:

Technical Document	Schedule
HEC-RAS Modeling Memorandum (**Appendix L**)	Included with this RD Report
Groundwater Modeling Memorandum (**Appendix M**)	
Wetland Delineation and Habitat Assessment Report (**Appendix O**)	
Gorge Road Stability Analysis (**Appendix N**)	To be provided with the 95% RD Report submittal (indicated as "Reserved")
Environmental Footprint Analysis (**Appendix P**)	

1.8 Report Organization

In addition to this introductory section, this RD Report is organized as follows:

- **Section 2.0 – Organizational Structure and Responsibilities:** presents the organizational structure, roles, and responsibilities for the project.
- **Section 3.0 – Access Agreements and Permits:** presents the anticipated access and authorization requirements to complete the work, including federal, state, and local permits.

- **Section 4.0 – Basis of Design**: presents the regulatory requirements for the RD and the means for fulfilling these requirements, including the basis for the soil excavation design, ISS treatment design, river hydraulics and groundwater modeling, Suntru Street Improvement, and site cover design.
- **Section 5.0 – Construction Activities**: describes the survey control, well abandonment, environmental and safety controls, mobilization, site preparation and access, building demolition and utility decommissioning, construction water management and treatment, excavation shoring and support, excavation, ISS treatment, existing ISS barrier wall grading, material handling and management, decontamination, site cover, site restoration, environmental wells installation, and demobilization.
- **Section 6.0 – Green Remediation**: describes the green construction practices to be employed to promote sustainability while conducting work.
- **Section 7.0 – Engineering Controls and Institutional Controls:** describes the ECs and ICs that will be implemented as part of the remediation.
- **Section 8.0 – Post-Remediation Activities:** describes the Construction Completion Report (CCR) and SMP.
- **Section 9.0 – Preliminary Project Schedule**: presents the anticipated schedule for the RD, Contractor procurement, and implementation of the remedy.
- **Section 10.0 – References:** lists the literature cited and referenced within this document. This RD Report is also supported by the appendices listed in the table of contents and in Tables 2 and 3, above.

2.0 ORGANIZATIONAL STRUCTURE AND RESPONSIBILITIES

Construction of the Site Remedy is a concerted effort between NYSDEC and RG&E. The NYSDEC will provide regulatory oversight for implementation of the Site Remedy. RG&E is responsible for implementing all remediation activities in accordance with the approved RD Report. Parsons, as the Design Engineer, will provide design, engineering, and technical support services. The Remediation Engineer will provide construction oversight to ensure compliance with the RD Report. NYSDEC and NYSDOH personnel are anticipated to be on site periodically to observe work activities. Key project personnel for RG&E, NYSDEC, NYSDOH, and Parsons are identified in **Table 4** below. The Remediation Engineer and Contractor are to be determined.

Minimum responsibilities of RG&E, the Design Engineer, the selected Remediation Engineer, and the selected Contractor for work to be conducted prior to, during, and following implementation of the remedial activities at the project area are summarized in the following subsections. A detailed description of responsibilities will be provided in the CQAP (**Appendix C**).

Table 4 - Key Project Personnel

Name/Affiliation	Address	Contact Information
RG&E		
Mr. Jeremy Wolf Project Manager Environmental Remediation	3 City Center Building, 5th Floor 1800 South Clinton Ave. Rochester, NY 14604	T: 585.450.7957 Jeremy_Wolf@avangrid.com
NYSDEC		
Mrs. Greta Kowalski Project Manager	625 Broadway Albany, NY 12233	T: 518.402.2029 Greta.Kowalski@dec.ny.gov
NYSDOH		
Mr. Anthony Perretta	Corning Tower Rm. 1787 Albany, NY 12237	T: 518.486.7186 beei@health.ny.gov
Design Engineer: Parsons		
Ms. Anne Burnham Project Manager Mr. Matthew DeGracia, PE Engineer of Record	1422 S. Tryon Street, Suite 800 Charlotte, NC 28203 301 Plainfield Road, Suite 350 Syracuse, NY 13212	T: 315.546.5318 Anne.Burnham@parsons.com T: 315.552.9774 Matthew.DeGracia@parsons.com
Remediation Engineer: TBD		
Contractor: TBD		

2.1 RG&E Responsibilities

RG&E is ultimately responsible for implementing the East Station Remedy construction in accordance with the Record of Decision. Mr. Jeremy Wolf is RG&E's Project Manager (PM), who is in direct contact with the NYSDEC. RG&E's PM attends public meetings and specific construction meetings and reviews documents prior to submission to the NYSDEC.

2.2 Design Engineer Responsibilities

Parsons, as the Design Engineer, is responsible for providing engineering support to RG&E, the Remediation Engineer, and final certification of the RD. Parsons, or their representative, will also assist the Remediation Engineer during construction with quality assurance (QA) activities. The Parsons Engineer of Record is Mr. Matthew DeGracia, who is a New York State licensed Professional Engineer.

2.3 Remediation Engineer Responsibilities

The Remediation Engineer is responsible for providing construction oversight of the remedy, engineering support to the selected Contractor and final certification of the remedy completion. The Remediation Engineer, or their representative, will be on site during construction and be responsible for completing QA activities and the preparation and submittal of daily reporting, including a daily summary report, field logs, photographic documents, and construction reports. The Remediation Engineer will review and implement the requirements of the CQAP to document that the remediation activities are conducted in general conformance with the Remedial Design and will notify RG&E of any deviations. Additional QA testing beyond what is specified in the CQAP may be required by the Remediation Engineer, Design Engineer, and/or RG&E. The Remediation Engineer will be responsible for preparing and certifying the CCR. The Remediation Engineer will be a New York State licensed Professional Engineer.

2.4 Contractor Responsibilities

The Contractor is responsible for providing all supervision, labor, equipment, and materials needed (unless otherwise noted) to implement the activities described in the RD Report, including Quality Control (QC) procedures identified in the Technical Specifications (**Appendix B**). Contractor responsibilities are detailed throughout the Contract Documents, including the Design Drawings (**Appendix A**) and Technical Specifications (**Appendix B**).

3.0 ACCESS AGREEMENTS AND PERMITTING

Based on the work to be conducted at the Site and the information currently available, the agreements/authorizations, and/or permits described below have been identified, at a minimum, as potentially applicable for the remediation activities.

3.1 Access Agreements

Access and/or easement agreements are anticipated to be required to facilitate remediation activities. Non-RG&E-owned properties anticipated to be affected during the remediation activities include:

- 10 Bausch Street (B+L Property, Tax Parcel No. 106.45-1-32)
- 130 Smith Street (New York State-owned parcel, Tax Parcel No. 106.53-1-9)
- 691 St. Paul Street (691 St. Paul Street LLC, Tax Parcel No. 106.53-1-11.001)
- 705 St. Paul Street (Spectronic Instruments Inc., Tax Parcel No. 106.45-1-49)

3.2 Permitting

Project-related permits/approvals are anticipated to consist of the following:

- Joint Application for Permit – to be obtained by RG&E as a part of the Joint Application for Permit process, with the assistance of the Design Engineer
- U.S. Army Corps of Engineers (USACE) Nationwide Permit No. 38 for Cleanup of Hazardous and Toxic Wastes under Sections 10 and 404
- NYSDEC Section 401 Individual Water Quality Certification
- New York State Department of State Coastal Consistency Certification
- New York State Office of General Services Lands Underwater
- Federal Energy Regulatory Commission Division of Dam Safety and Inspections and Division of Hydropower Administration and Compliance consultation – to be completed by RG&E with the assistance of the Design Engineer
- NYSDEC State Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Construction Activity – GP-0-25-001 (or current) substantial equivalency (includes preparation of a SWPPP) – to be obtained by RG&E with the assistance of the Design Engineer
- 6 NYCRR Part 364 Waste Transporter Permit – to be obtained by the Contractor
- Monroe County Sewer Use Law Permit for discharge of treated construction water to the sanitary sewer – to be obtained by the Contractor

  City of Rochester Floodplain Development Permit (FDP) – to be obtained by RG&E with the assistance of the Design Engineer. Note that the FDP is valid for two years. The Design Engineer will procure a renewed FDP prior to permit expiration term.
- City of Rochester Right-of-Way Permit(s) – to be obtained by the Contractor with the assistance of the Design Engineer.
- City of Rochester Lane Closure Permit(s) – to be obtained by the Contractor with the assistance of the Design Engineer

- City of Rochester Site Plan Review/Building/Other Permit(s) – to be obtained by the Contractor with the assistance of the Design Engineer, where necessary

In support of the Joint Application for Permit, the U.S. Fish and Wildlife Service (USFWS) and New York Natural Heritage Program will be contacted to confirm that the remediation activities will not affect protected fish and wildlife species or their habitats. In addition, the New York State Historic Preservation Office will be contacted to identify cultural resources present in the vicinity of the Site.

4.0 BASIS OF DESIGN

4.1 Removal Areas

The remedy for the Site includes the removal of MGP-impacted soils and sediments from four specific areas, delineated on Design Drawing C-005. The four removal areas include: the RG&E Former MGP Site (On-Site) Area, the B+L Property (Off-Site) Area, the Near-River Soils Area, and the Genesee River Sediments Area. The removal requirements and design rationale for these areas are described in the following sections.

4.1.1 RG&E Former MGP Site (On-Site) Area

The RG&E Former MGP Site (On-Site) Area will require removal of the upper 10 feet of soil. The remaining MGP-impacted soils in this area will receive ISS treatment as detailed in Section 4.2. As identified in the ESD (NYSDEC 2024), the removal requirements for RG&E Former MGP Site (On-Site) Area are based on the following criteria:

- Grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- Soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead;
- Concentrated solid or semi-solid hazardous substances per 6 NYCRR Part 375-1.2(au)(1);
- Soil with visual waste material or NAPL;
- Soil containing total SVOCs exceeding 500 ppm;
- Soils exceeding the protection of groundwater (PGW) soil cleanup objectives (SCOs), as defined by 6 NYCRR Part 375-6.8, for those contaminants found to exceed standards in Site groundwater; and
- Soils that create a nuisance condition, as defined in CP-51 Section G.

Based on the above criteria, the total in-situ volume of soil to be removed from the RG&E Former MGP Site (On-Site) Area is 89,400 CY.

4.1.1.1 Design Rationale

Site observations and information presented in the RI Report (Haley Aldrich 2015) and the PDI Report (Parsons 2024) identified exceedances for PGW, Restricted Residential Use, and Commercial Use SCOs for VOCs, SVOCs, and inorganic compounds in soils throughout the Site. Eighty-nine analytical samples and 10 geotechnical samples were collected from 28 sample locations on the Site during the PDI, Summarized below are the analytical results from 80 analytical samples and nine geotechnical samples that were located within the On-Site and Soil Cover Only areas. The remaining soil samples are within the Near-River Soils Area and are discussed in Section 4.1.3. Additional analytical results from sampling during the RI are summarized in the ROD (NYSDEC 2022).

VOCs, including benzene, ethylbenzene, toluene, and xylenes (BTEX), as well as common laboratory contaminants (acetone and methylene chloride), were detected in concentrations that exceeded PGW, Restricted Residential Use, and/or Commercial Use SCOs for six VOCs at 18 locations throughout the Site. SVOCs consisting primarily of PAHs were detected at concentrations exceeding PGW, Restricted Residential Use, and/or Commercial Use SCOs for 18 SVOCs at 23 locations in soils throughout the Site.

Inorganic compounds including arsenic, copper lead, mercury, selenium, and cyanide were detected at concentrations exceeding PGW, Restricted Residential Use, and/or Commercial Use SCOs at 18 locations throughout the Site. Exceedances of arsenic and mercury were distributed throughout the Site, while

exceedances of lead and cyanide tended to be located either along the western edge of the Site near the Genesee River or near the slurry wall structure in the southeast portion of the Site. A single exceedance for both copper and selenium were identified in the 5 to 7 foot depth interval of sample PDI-ONSO-008.

No concentrations of PFAS compounds were observed above the SCO guidance values (NYSDEC 2023) in locations sampled during the PDI.

NAPL coating, saturation, and blebs were observed in borings located throughout the Site, with NAPL observed less frequently in borings in the northwest and southeast portions of the Site. Sheens and staining were frequently observed in boring locations above intervals containing NAPL coating, saturation, and blebs. Odors, including petroleum/fuel odors and naphthalene/mothball odors, were observed in borings located throughout the Site, including locations with no visible staining or sheens.

4.1.2 B+L Property (Off-Site) Area

The B+L Property (Off-Site) Area will require excavation to bedrock of two areas located adjacent and north of the Site to remove MGP-impacted soils. Excavation support measures including internal bracing and tiebacks for lateral earth support will be necessary to achieve the required removal depth to competent bedrock.

Competent bedrock is defined as a surface that is visibly free of soil, sediment, and waste-like material or when scraped along a 10-foot cutting pass by an excavator (minimum Cat 325 or equivalent) equipped with a grading bucket (i.e., a bucket with no teeth), and the material collected in the bucket consists primarily of rock visibly free of soil, sediment, and waste-like materials.

As identified in the ESD (NYSDEC 2024), the removal requirements for the B+L Property (Off-Site) Area are based on the following criteria:

- Grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- Soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead;
- Concentrated solid or semi-solid hazardous substances per 6 NYCRR Part 375-1.2(au)(1);
- Soil with visual waste material or NAPL;
- Soil containing total SVOCs exceeding 500 ppm;
- Soils exceeding the PGW SCOs, as defined by 6 NYCRR Part 375-6.8 for those contaminants found to exceed standards in Site groundwater; and
- Soils that create a nuisance condition, as defined in CP-51 Section G.

The total in-situ volume of soil to be removed from the B+L Property Off-Site Area is 48,300 CY.

4.1.2.1 Design Rationale

Site observations and information presented in the RI Report (Haley Aldrich 2015) and PDI Report (Parsons 2024) identified exceedances for PGW, Restricted Residential Use, and Commercial Use SCOs for VOCs, SVOCs, and inorganic compounds in soils throughout the Off-Site Area. Fifty-eight analytical samples and two geotechnical samples were collected from 18 sample locations on the Off-Site Area during the PDI, with the results summarized below. Additional analytical results from sampling during the RI are summarized in the ROD (NYSDEC 2022).

VOCs, including benzene and xylenes, as well as common laboratory contaminants (acetone and methylene chloride), were detected in concentrations that exceeded PGW and/or Unrestricted Use SCOs for four VOCs at 12 locations throughout the Off-Site Area. VOCs above the SCOs were most commonly located toward the southern portion of the B+L Property. SVOCs consisting primarily of PAHs were detected

at concentrations exceeding PGW and/or Unrestricted Use SCOs for nine SVOCs at 10 locations in soils throughout the B+L Property (Off-Site) Area.

Inorganic compounds including arsenic, lead, mercury, and cyanide were detected at concentrations exceeding PGW and/or Unrestricted Use SCOs for 10 inorganic compounds at 14 locations throughout the Off-Site Area.

No concentrations of PFAS compounds were observed above the SCO guidance values (NYSDEC 2023) in locations sampled during the PDI.

Sheens and staining were observed in all 17 of the borings and frequently indicated the most visually contaminated intervals of the borings. NAPL coating was observed in multiple borings, most commonly located near the boundary with the RG&E Property and Suntru Street. No borings within the B+L Property exhibited NAPL saturation or blebs.

4.1.3 Near-River Soils Area

The Near-River Soils Area includes the portion of the Site between the existing ISS wall and the Genesee River. The removal limits for the Near-River Soils Area were delineated during the PDI based on the presence of MGP contamination (including NAPL). The presence of MGP contamination was determined based on the following criteria:

- Grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- Soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead;
- Concentrated solid or semi-solid hazardous substances per 6 NYCRR Part 375-1.2(au)(1);
- Soil with visual waste material or NAPL;
- Soil containing total SVOCs exceeding 500 ppm;
- Soils exceeding the PGW SCOs, as defined by 6 NYCRR Part 375-6.8 for those contaminants found to exceed standards in Site groundwater; and
- Soils that create a nuisance condition, as defined in CP-51 Section G.

Based on these criteria and the results of the PDI Report (Parsons 2024), near-river soils (i.e., soils located between the existing ISS wall and the Genesee River) will be removed to competent bedrock and disposed of off site. The total in-situ volume of soils to be removed from the near-river soils area is 37,700 CY.

Soil removed from within the Near-River Soils Area will be dewatered and stabilized for off-site disposal. Excavated cobble/boulders larger than 6 inches in diameter may be evaluated for potential on-site reuse. If reuse is feasible, the Contractor will screen the material to separate cobbles and boulders greater than 6 inches in diameter. Screened cobble will be sprayed (e.g., pressure washed or equivalent) to remove all visible contamination and inspected prior to being reused as backfill.

Near-river soils removal will be performed in the wet from within a water diversion barrier system (i.e., causeway). The causeway will consist of medium stone fill and concrete blocks (e.g., concrete Jersey barriers) and be equipped with turbidity/sheen controls. The shallow bedrock prevents embedment of traditional diversion barrier system elements (e.g., cantilevered sheet piling); therefore, the causeway will be placed on the existing sediments and/or exposed bedrock surface outside the limits of removal. Positioning in the Genesee River will be determined based on the expected depth of sediment removal adjacent to the causeway so as not to undermine the causeway during dredging. A 3H:1V slope for sediment sloughing has been assumed for offsetting the causeway from the limits of removal. Additional details of the causeway are discussed in Section 4.3.4.

Refer to Design Drawings C-018, C-019, and C-020 (**Appendix A**) for the limits of removal, causeway alignment, typical sections, and details.

4.1.3.1 Design Rationale

Site observations and information presented in the RI Report (Haley Aldrich 2015) and PDI Report (Parsons 2024) identified exceedances for PGW, Restricted Residential Use, and Commercial Use SCOs for VOCs, SVOCs, and inorganic compounds in soils throughout the Near-River Soils Area. Nine analytical samples and one geotechnical sample were collected from three sample locations within the Near River Soils Area during the PDI. The analytical results for the PDI are summarized below, with additional analytical results from sampling during the RI summarized in the ROD (NYSDEC 2022).

VOCs benzene, ethylbenzene, and xylenes were detected in concentrations that exceeded PGW and/or Restricted Residential Use SCOs at three locations throughout the Near-River Soils Area. SVOCs consisting primarily of PAHs were detected at concentrations exceeding PGW, Restricted Residential Use, and/or Commercial Use SCOs for eight SVOCs at three locations in soils throughout the Near-River Soils Area.

Inorganic compounds arsenic, lead, mercury, and cyanide were detected at concentrations exceeding PGW, Restricted Residential Use, and Commercial Use SCOs at two locations within the Near-River Soils Area. No concentrations of PFAS compounds were observed above the SCO guidance values (NYSDEC 2023) in locations sampled during the PDI.

Exceedances of SCOs and other removal criteria were exhibited during the RI and PDI throughout the lateral and vertical extent (i.e., competent bedrock) of the Near-River Soils Area. As a result, the entire Near-River Soils Area will require removal to competent bedrock to meet remedial criteria.

Near-river soils removal is anticipated to be sequenced working from upstream to downstream to minimize the potential for deposition of suspended solids on clean or remediated surfaces. A structural analysis of the existing ISS barrier wall will be performed as part of the 95% RD Report to evaluate if the wall requires reinforcement to enable safe excavation to a depth of up to 20 feet. The Contractor will be required to sequence excavation and backfill activities to minimize the exposed length of wall at any given time. Additionally, methods to s address the migration of NAPL beneath the existing ISS barrier wall during excavation of the near-river soils located at the toe of the existing ISS wall will be evaluated as part of the 95% RD Report. These methods may include jet grouting through the existing ISS barrier wall and/or performing additional ISS treatment in front of the existing barrier wall.

Based on design drawings provided by RG&E of the downstream Station 5 Hydroelectric Dam and the Hydraulic Engineering Center's River Analysis System (HEC-RAS) modeling of the Genesee River (**Appendix L**), it is expected that dam operation will cause the water surface elevation under normal (i.e., non-flood) flow conditions within the limits of excavation to be approximately five feet higher than the estimated water surface when the dam is not operating. When the dam is in operation, the water surface elevation is expected to be at its normal operating pool elevation of approximately 390 feet (North American Vertical Datum of 1988 [NAVD 88]). Sediment thickness and depth to bedrock varies significantly (from zero feet of sediment to six feet of sediment) along the limits of excavation where the diversion barrier will be installed.

Consideration was given to determine a design elevation of the diversion barrier that will be protective of both the Genesee River and the workers in the removal area. Specifically, the diversion barrier is intended to reduce the peak velocities and shear stresses within the removal areas for flood events up to the two-year recurrence interval flood. Additional detail related to results of HEC-RAS modeling is provided in Section 4.3.3 and **Appendix L**.

4.1.4 Sediment Removal Area

As indicated in the ESD (NYSDEC 2024), sediment containing MGP NAPL impacts and exceeding Class C SGV criteria (35 ppm PAH) will be excavated and disposed of off site. Based on these criteria and the results of the PDI, sediment from a total area of 7,970 square feet (SF) will be removed to competent bedrock. The total in-situ volume of sediment to be removed from the sediment areas is 315 CY.

Sediment removed from within the Sediment Removal Area will be dewatered and stabilized for off-site disposal. Excavated cobble/boulders larger than 6 inches in diameter may be evaluated for on-site reuse, and sediment removal will be performed in the wet from within a water diversion system as outlined in Section 4.1.3 above.

Refer to Design Drawings C-018, C-019, and C-020 (**Appendix A**) for the limits of removal, causeway alignment, typical sections, and details.

4.1.4.1 Design Rationale

Site observations and information presented in the RI Report (Haley Aldrich 2015) and PDI Report (Parsons 2024) identified exceedances for target compound list (TCL) SVOCs compared to the NYSDEC Class C SGV for total PAHs in sediment samples. Twenty-nine analytical samples and 12 geotechnical samples were collected from 26 sample locations during the PDI, with the results summarized below. Two sample locations were attempted; however, insufficient sediment was present for sample collection. All samples were collected within the boundaries of the potential sediment removal area shown in the ROD (NYSDEC 2022). Additional analytical results from sampling during the RI are summarized in the ROD.

Total PAHs were detected in concentrations that exceeded the Class C SGV in 10 samples at depths up to 6 feet below sediment surface. Petroleum odors were observed within eight of the 26 sediment cores, two located at the downstream edge of the Site and six upstream near the Bausch Memorial Bridge. The cores exhibiting petroleum odors were generally located near the shoreline. Sheen, NAPL coating, and blebs were observed in the eight cores.

The Class C SGV for total PAHs was exceeded in limited locations within the proposed sediment removal area, with exceedances generally located toward the southern (upstream) side of the RG&E Property. A single exceedance was located adjacent to the B+L Property. The ROD removal limits for the sediment removal areas have been revised to address sediment with Class C SGV exceedances as presented in the PDI Report (Parsons 2024).

4.2 ISS Treatment

4.2.1 RG&E Former MGP Site (On-Site)

The Amended Remedy includes ISS treatment of Former MGP Site (On-Site) soils from 10 feet bgs to 30 feet bgs, or competent bedrock, as depicted on Design Drawing C-017 (**Appendix A**). The bedrock surface was interpolated using boring logs and was estimated to range between 14.4 and 29 feet bgs in the RG&E Former MGP Site (On-Site) Area. The limits of ISS treatment are based on the footprint of the Former MGP Site area and will result in approximately 166,000 CY of solidified soils. The ISS swell resulting from the ISS mixing process is anticipated to be 30 percent of the mixing volume. The ISS swell will be managed within the excavation and graded as necessary to meet final subgrade requirements. The top of ISS treatment will be terminated at approximately four feet bgs to satisfy the minimum site cover thickness requirements and to provide sufficient thermal protection from seasonal freeze/thaw cycles.

Due to the complex subsurface conditions (e.g., NAPL impacted bedrock, historic fills, and debris and obstructions) present at the Site, the selected Contractor will be required to implement the ISS treatment via bucket mixing equipment.

4.2.2 Design Rationale

The ISS design rationale for the Site is based on the Phase 2 ISS Treatability Study (Ish Inc. 2006) performed for the existing ISS barrier wall shown on the Design Drawing C-017. The treatability study evaluated 13 mix designs using soil collected from the Site. The selected mix design consisted of 5.25 percent blast furnace slag grade 120, 1.75 percent Portland cement Type I-II, and 0.5 percent bentonite. The selected mix design produced a mixture with adequate workability, relatively low synthetic precipitation leaching procedure (SPLP), unconfined strength of 114 pounds per square inch [psi] at 28 days and permeability of 1.7 x 10^{-7} centimeters per second [cm/sec].

The limitations of the Treatability Study include performing a mix design test using only one representative soil type from the Site. Due to the historical site use and the placement of historic fills, the site soils are not expected to be uniform and homogenous throughout the limits of proposed ISS. As such, adaptive management and implementation of rigorous QA/QC procedures will be required during construction to meet the design requirements. In addition, the Contractor will be responsible for performing an ISS test section (i.e., pilot-test) on site. The pilot-test will be performed prior to implementing full-scale ISS treatment activities. The results of the pilot-test will be used to verify that the performance requirements can be met and confirm application parameters of the selected mix design required for the means and methods proposed by the Contractor. The ISS test section requirements are provided in Section 02 55 00 – ISS Construction of the Technical Specifications (Appendix B).

4.3 River Hydraulics and Groundwater

4.3.1 River Hydraulics

River hydraulics for the Site were evaluated using information obtained from RG&E Hydroelectric Power Group, the West Station PDI (GEI 2018) and topographic and bathymetric surveys (Thew Associates 2020, Parsons 2024). Genesee River flow and stage information was obtained from RG&E Hydroelectric Power Group, including detailed as-built drawing of the Station 5 Hydroelectric Dam (i.e., Middle Falls Dam) located at the Middle Falls downstream of the Site. The as-built drawing identified a pool elevation of 389.84 feet (NAVD 88) (391.5 feet Barge Canal Datum) when the Tainter gates are closed (i.e., Station 5 is generating electricity). During operation of the Station 5 Hydroelectric Dam, the typical water surface elevation adjacent to the Site will vary between 389 to 391 feet (NAVD 88). Operation of the hydroelectric dam results in a water surface elevation that is approximately five feet higher than typical “run-of-the-river” water surface conditions encountered during the West Station PDI (GEI 2018) and topographic and bathymetric surveys (Thew Associates 2020).

Between 1952 and 2017, the mean Genesee River discharge reported by the gage is 2,895 cubic feet per second (cfs), and the median discharge is 1,590 cfs.

4.3.2 HEC-RAS Model

An understanding of the flow dynamics of the Genesee River is required to inform a constructable design and to ensure safe construction conditions. A two-dimensional model of flow in the Genesee River from just below High Falls to the Middle Falls Dam (USACE HEC-RAS) (Brunner 2016) was used for estimation of flow during construction. The East Station HEC-RAS Model was based on previous modeling completed for the RG&E West Station Former MGP RD (Parsons 2022). The West Station model, which was field verified during construction, was updated, expanded, and optimized for this RD.

The model was used to estimate the flow conditions under which flow diversions would provide moderate isolation and protection for remediation areas along the banks during the remedial action and to aid in determining the stone substrate size to provide erosion protection for the post-remediation restored

banks. A description of model development, analyses performed, and conclusions are provided in the HEC-RAS Modeling Memorandum (**Appendix L**).

4.4.3 Design Calculations

The Genesee River watershed encompasses approximately 2,500 square miles, and the flow is partially controlled by multiple upstream dams and reservoirs. To better understand Genesee River discharge, information was gathered from the U.S. Geological Survey (USGS) Ford Street Gage (Station Number 04232000) which is located approximately two miles upstream of the Site on the west bank, adjacent to a floodwall, and approximately 400 feet upstream from the bridge on Ford Street. The coordinates are 43˚08'30.2", -77˚36'58.7" referenced to North American Datum 1983 (NAD 83). This gage was installed in 2005 and collects flow measurements at 15-minute intervals.

Review of the gage data showed that the difference between daily maximum and minimum flowrates often exceeded 1,000 cfs. General flow statistics from the USGS StreamStats application (https://streamstats.usgs.gov/ss/) calculated the standard deviation of daily flows to be 3,190 cfs. The daily maximum and minimum differential and standard deviation values indicate that there is significant daily and seasonal variability in Genesee River discharge. Exceedance curves for select months are included in **Appendix L**.

The gage data in the early spring months routinely indicates flowrates greater than 10,000 cfs. Additional evaluation was required to refine the understanding of seasonal flow variability and estimate when in-water work could be performed safely and effectively.

Table 5 – Genesee River Peak Flow Data

Peak-Flow Data	Full Year (cfs)	May to Dec (cfs)	June to Nov (cfs)
1% Exceedance Flowrate(1)	11,800	10,000	9,050
2% Exceedance Flowrate(1)	11,300	9,250	8,000
5% Exceedance Flowrate(1)	9,490	7,500	6,360
10% Exceedance Flowrate(1)	8,250	5,850	4,650
Maximum Daily Flowrate	17,600	15,000	13,000
Average of Maximum Daily Flowrate	3,740	2,646	2,244
Standard Deviation of Maximum Daily Flowrate	2,905	2,115	1,759

Notes:

(1) Percentage Exceedance Flowrate was calculated by dividing the number of days where the measured flowrate was greater than the presented value by the total number of days flow was measured.

4.3.4 Diversion Barrier

As referenced in the above sections, sediment removal is expected to be performed in the wet and will require isolation of the in-river remediation areas. This will be accomplished by constructing a temporary causeway using stone fill and concrete blocks (e.g., Jersey barriers), turbidity curtains, and oil absorbent booms to isolate the remediation areas from the Genesee River. Because the diversion barrier is not watertight, gradients between water surfaces on the two sides of the causeway will be negligible. The causeway will therefore not need to withstand high hydraulic pressures. Impermeable, filtering, and/or absorbent barriers within the causeway will prevent turbidity from migrating through the causeway and consequently avoid the release of contaminated sediment and sheen into the Genesee River. Design

Drawing C-018 (**Appendix A**) presents a profile of the bedrock, sediment, and expected water surface elevations along the diversion barriers.

4.3.4.1 Turbidity Controls, Threshold Criteria, and Contingencies

The diversion system is intended to reduce the peak velocities and shear stresses within the respective removal areas, in part, to enable the Contractor to deploy conventional turbidity curtains and oil booms in the interior of the diversion system and/or in the immediate working area of the dredge/excavator.

The alignment of the diversion system is such that the diversion barrier will fully enclose the removal areas. The concrete diversion blocks will function as a stable platform to securely anchor a layer of environmental controls around the outer perimeter of the removal area. Oil absorbent boom and turbidity curtains will be installed on/anchored to the remediation side of the diversion system. The turbidity curtain will be sized appropriately for the water depth and oil booms will be overlapped at connection points. The turbidity curtain/oil boom controls will be inspected by the Contractor at the start and end of each workday, with additional inspections as field conditions dictate (i.e., after weather events, during potential for loss of contamination from the removal area), or as directed by the Remediation Engineer. Turbidity curtain/oil boom controls will be replaced and/or repaired if any part of the system is noted to be non-functional. Excavation work will be paused until the deficient controls have been repaired/replaced.

The Contractor may propose the use of alternative contingency devices and methods, such as weir oil-skimmers or "moon pool" systems, with approval from the Remediation Engineer.

4.3.4.2 Diversion Barrier Overtopping

Water levels at the Site vary depending on RG&E Station 5 Hydroelectric Dam operating conditions. Site construction means and methods have been developed under the assumption that the Station 5 Hydroelectric Dam will be operational during construction activities and have been designed to accommodate operating pool water elevations. Contractor operations in the Genesee River will be under the control of RG&E and must be performed in accordance with Avangrid Networks EH&S Procedure: Marine Operations & Work in Proximity to Water (most recent version) (**Appendix D**). The protocols establish notification procedures should any changes in water elevations occur during in-water work.

To accommodate potential changing water elevations, disturbance of contaminated material will be minimized at all stages of the project by limiting the allowable area of underwater and shoreline soil/sediment disturbance. For example, no underwater disturbance will exceed 25 percent of the removal area or 5,000 square feet, whichever is less; and shoreline soil disturbance will not exceed the area that can be stabilized during one 8-hour shift. In the event of advance notice in which high water or flood conditions may overtop the diversion structure, the Contractor will prepare exposed excavation areas with the placement of armor stone and/or rolled erosion control product (RECP).

A designated supervisor will be on site and in communication with the hydroelectric control center during in-river work activities. The supervisor will regularly update the control center as to work activities and will monitor pond levels, gate positions, and dam and Genesee River conditions. In addition, the supervisor will be alerted if there are changes that may affect the work site including operational changes, increased flow conditions, severe weather, and emergency situations.

4.3.5 Groundwater Modeling

A numerical finite difference groundwater model was developed to support the remedial design. The purpose of the groundwater modeling activities was to:

- Gain quantitative insight to existing hydrogeological conditions at the Site;
- Understand the effects of the remedial action on the groundwater flow domain; and

- Estimate dewatering requirements related to excavations deeper than the water table.

Using data from the previous investigations, including the 2023-2024 PDI (Parsons 2024), a numerical finite difference, steady-state, groundwater model was developed, constructed, and calibrated to simulate groundwater flow conditions. Details of the groundwater model are provided in Groundwater Modeling Memorandum (**Appendix M**). Results from the groundwater model indicated the following:

- Construction of the ISS will divert groundwater flow around the areas of contamination, thereby reducing the contaminant migration.
- Without considering surface flow improvements which will reduce recharge, hydraulic heads on the upgradient side of the ISS will rise by an estimate of less than 6 feet under long-term steady state conditions.
- During deeper excavations (to bedrock on the B+L Property), dewatering requirements were estimated at approximately 10 gallons per minute (gpm). Since the groundwater model is steady state, higher flows should be anticipated during earlier excavation periods as the localized water table drains. Furthermore, this model simulates groundwater flow with no consideration of overland flow, interflow, construction water, or direct precipitation.

4.4 Suntru Street Improvement

Access to the Site is limited to Suntru Street, which is a steep and narrow asphalt road that runs along the eastern boundary of the Site. The road is bound by a masonry/concrete wall located on the northeast and a steep shoulder, wire mesh fence, and utility poles on the southwest. Suntru Street is heavily weathered, and longitudinal cracks, settlement, and potholes were observed during the PDI (Parsons 2024). The existing masonry/concrete wall is comprised of discrete sections that appear to have been built and/or improved at various times. The wall is generally constructed of masonry (including brick and stone) and concrete, depending on the portion of the wall.

An ALTA/NSPS Land Title Survey was conducted by Bear Land Surveying in 2023, which delineated the boundaries and deed lines of the Site and adjacent properties. According to the survey, approximately 65 feet of a stonework masonry portion of the wall exists on the 691 St. Paul Street, LLC property (Tax Parcel No. 106.53-1-11.001); approximately 160 feet of concrete wall and brick wall portions exist on the B+L Property (Tax Parcel No. 106.53-1-32); and approximately 400 feet of brick wall and concrete wall portions exist on the boundary between the B+L Property and 691 St. Paul Steet, LLC property. An approximately 40-foot anchored soldier pile timber wall exists separate from the masonry/concrete wall on the Spectronic Instruments, Inc. property (Tax Parcel No. 106.45-1-49).

Based on the observed condition of the masonry/concrete wall at the time of the PDI (Parsons 2024), there are concerns about its structural conditions and stability. Remedial activities are expected to include regular heavy-truck traffic on Suntru Street, ISS construction at the toe of the Suntru Street slope, and embankment construction to widen Suntru Street to accommodate project construction traffic. Each of these activities including the remedial earthwork activities may result in increased vibration levels that may stress the masonry/concrete wall and cause risk of further damage or collapse.

To address these concerns, the slope stability along the Suntru Street alignment will be evaluated under existing, construction, and final conditions, and an analysis with drawings for replacement/repair of the existing retaining wall will be provided as part of the 95% RD Report submittal. Subsurface and groundwater data, historical engineering reports, and as-built plans for the multi-story building and retaining wall along Suntru Street are currently unavailable. To address these data gaps, a geotechnical subsurface investigation is being performed in fall 2024 to obtain subsurface engineering data for slope stability analysis. The geotechnical fieldwork will include performing ground penetration radar (GPR) to

locate existing underground utilities, installation of geotechnical borings, geotechnical laboratory testing, and the installation of geotechnical instrumentation (e.g., inclinometers, piezometers) to observe and document lateral deformation and excess pore water pressure development. Soil and rock samples will be obtained in accordance with ASTM International standards to specified depths and required intervals for geotechnical evaluations. A visual soil and rock classification will be performed and selected soil and rock samples will be submitted for laboratory testing. The number of samples to be collected will be determined in the field. An evaluation of the support of excavation (SOE) alternatives and a geotechnical analysis, and design of SOEs will be performed as required.

A Suntru Street Improvement Memorandum (**Appendix N**) will be prepared as part of the 95% RD Report submittal which will include a geotechnical engineering design report evaluating historical and new subsurface investigations, interpretations, analyses, and providing design recommendations.

4.5 Site Cover

A site cover is required to allow for restricted-residential use of the Site in areas where the upper two feet of existing surface soil has COC concentrations exceeding the applicable SCOs. Where a site cover is used, it will consist of 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.

Where the site cover is required over the existing and new ISS treatment areas, it will consist of a minimum of four feet of soil, with the top two feet meeting the SCOs for restricted residential use. For areas where solidified material underlies the cover, the solidified material will serve as the demarcation layer.

In accordance with the ROD (NYSDEC 2022) and Draft ESD, no site cover system will be placed over the Near-River Soils Area. The Near-River Soils Area will be restored as described in Section 5.16. In addition, a site cover will not be required on the B+L Property since the backfill will meet unrestricted use SCOs.

Refer to Design Drawing C-021 (**Appendix A**) for a typical detail of the site cover.

4.5.1 Design Rationale

Site cover material, including imported fill must meet the SCOs for cover material for the use of the Site as set forth in 6 NYCRR Part 375-6.7(d). At this Site, imported fill for the soil cover must exhibit concentrations below the lower of the restricted-residential SCOs or protection of groundwater SCOs, as listed in Table 375-6.8(b) of NYSDEC Subpart 375. 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 limited to pavement, cement, paved surface parking areas, sidewalks, building foundations and building slabs.

5.0 CONSTRUCTION ACTIVITIES

The design requirements as detailed in the ROD (NYSDEC 2022) and Draft ESD are presented in the following sections. These components are further addressed by this RD.

5.1 Survey Control

The Contractor will retain a New York State licensed professional land surveyor (PLS) to maintain survey control during the construction activities. The Contractor will provide survey information to the Remediation Engineer to support record drawing documentation. Survey work associated with the construction activities will be performed in accordance with Technical Specification 01 71 23 – Field Engineering (**Appendix B**), and includes, but is not limited to, the following:

- An Existing Conditions Topographic Survey, depicting the pre-construction horizontal and vertical limits for the Site, including all subsurface areas, utilities, and structures
- An Existing Conditions Bathymetric Survey, depicting the horizontal and vertical limits of the sediment removal areas
- A Post-Excavation Topographic Survey, depicting the horizontal and vertical limits of material removed from the soil removal areas of the Site
- A Post-Dredging Bathymetric Survey, depicting the horizontal and vertical limits of material removed from the sediment removal areas of the Site
- An ISS Survey, depicting the horizontal and vertical limits of the ISS activities completed
- Interim Progress Surveys, depicting the installation of support components (e.g., temporary river diversion system, Site access improvements), as well as excavation, dredging, restoration, and the installation of the soil cover
- Final Survey(s), signed and sealed by a New York State licensed PLS, documenting the final as-built conditions and depicting the final grades and surface conditions for all disturbed portions of the Site

5.2 Well Abandonment

Prior to the implementation of remedial construction activities, existing monitoring and recovery wells located on site will require abandonment and removal. Existing monitoring and recovery wells to either be protected or abandoned are identified on Design Drawing C-006 (**Appendix A**). Wells to be abandoned prior to construction are presented in the Well Abandonment Schedule located on Design Drawings C-007 and C-007A (**Appendix A**). The wells identified for abandonment will be abandoned in accordance with Technical Specification 33 01 10.81 – Groundwater Monitoring Well Abandonment (**Appendix B**) and NYSDEC CP-43: Groundwater Monitoring Well Decommissioning Policy (NYSDEC 2009).

5.3 Environmental and Safety Controls

5.3.1 Health and Safety Controls

The identification of the exclusion zone demarcation will be discussed at the construction project kickoff meeting and will be identified and shown in the CHASP. No site construction work will begin until a CHASP is issued, reviewed, and approved by the Remediation Engineer. Demarcation fencing will be placed at the perimeter of the excavation areas.

5.3.2 Traffic Control

Access to the Site is limited to Suntru Street, which is a steep and narrow road that runs along the eastern boundary of the Site. Trucks will regularly access the Site at this access point. To ensure that traffic safety is maintained throughout the course of the work, traffic control best management practices will be strictly enforced. Best management practices may include use of flag men, spotters, gates, automatic signal lights, and other methods to control traffic during Site deliveries and transportation and disposal activities. A Soil Hauling and Traffic Control Plan is included in **Appendix E**. All transportation activities will be conducted in accordance with applicable federal, state, and local regulations.

5.3.3 Erosion and Sediment Controls

Erosion and sediment controls will be required to be in-place by the Contractor before intrusive work begins. Erosion control measures will be inspected at a frequency detailed in the SWPPP (**Appendix F**). Contract documents will require the Contractor to maintain a supply of erosion control material on site for maintenance of existing erosion control features.

Additional details on specific requirements for erosion and sediment controls are located in Technical Specification 31 25 00 – Erosion Control (**Appendix B**).

5.3.4 Air Monitoring

A CAMP (**Appendix G**) has been prepared to support the implementation of remedial activities. The CAMP describes the air monitoring activities that will be performed during completion of the remedial activities and was developed in accordance with NYSDEC's DER-10 guidance (NYSDEC 2010a).

The CAMP requires real-time monitoring for VOCs and particulate material (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, the intent is to provide a measure of protection for the downwind community from potential airborne contaminant releases as a direct result of investigative and remedial work activities. These communities include off-site receptors such as residences and businesses and on-site workers not directly involved with the subject work activities. The CAMP provides action levels required for increased monitoring, corrective actions to abate emissions, and/or work shutdown.

Additional details on measures for minimizing the production and distribution of dust, vapors, and odors are located in Dust, Odor, and Vapor Control Plan (**Appendix H**). Additional details on specific requirements of the CAMP are located in Technical Specification 01 35 49 – Community Air Monitoring Plan (**Appendix B**).

5.3.5 Dust, Odor, and Vapor Controls

A Dust, Odor, and Vapor Control Plan (**Appendix H**) has been prepared to support the implementation of remedial activities. The plan describes the dust, odor, and vapor controls that will be performed during completion of the remedial activities and was developed in accordance with NYSDEC's DER-10 guidance (NYSDEC 2010a).

Additional details on specific requirements of the dust, odor, and vapor control are located in Technical Specification 01 76 50 – Nuisance Controls, Management, and Corrective Measures (**Appendix B**). CAMP requirements are located in Technical Specification 01 35 49 – Community Air Monitoring Plan (**Appendix B**) and CAMP (**Appendix G**).

5.3.6 River Turbidity and Sheen Monitoring and Response Actions

A River Turbidity and Sheen Monitoring and Response Plan (**Appendix I**) has been prepared to support the implementation of remedial activities. The plan describes the turbidity and sheen control, monitoring, and response activities that will be performed during completion of the remedial activities and was developed in accordance with NYSDEC's DER-10 guidance (NYSDEC 2010a).

During the in-water work, turbidity will be monitored upstream and downstream of the active work area. Turbidity monitoring will consist of installing two real-time turbidity monitors. One real-time turbidity monitor will be installed upstream of the active work area near a former bridge pier upstream of the Bausch Memorial Bridge. The second real-time turbidity monitor will be installed downstream of the active work area near the abandoned Conrail railroad bridge pier.

The upstream turbidity monitoring location will represent the background turbidity level and will be compared against the downstream turbidity monitoring location to assess if there is a quantitative exceedance in water turbidity. Turbidity values will be calculated as one-hour averages for quantitative differential comparison and applied as part of a three-tiered monitoring level program outlined below.

Alert Level: A quantitative differential of 25 to 30 nephelometric turbidity units (NTUs) or a qualitative observation of minor contrast between upstream and downstream water quality will be treated as an early alert level. Potential turbidity sources will be investigated and mitigated.

Action Level: A quantitative differential of 30 to 100 NTUs or a qualitative observation of substantial contrast between upstream and downstream water quality. Immediate action will be taken to mitigate turbidity generation with engineering controls or best management practices.

Stop Work Level: A quantitative differential exceeding 100 NTUs will result in in-water work temporarily being ceased until the cause of the turbidity has been abated.

Additional details on specific requirements for turbidity and sheen controls are located in Technical Specification 35 80 00 – Turbidity Barriers and Monitoring (**Appendix B**).

5.3.7 Structural Monitoring and Surveys

Structural surveys, deformation, settlement and vibration monitoring and requirements for performing preconstruction and post-construction condition surveys will be included as part of the Contract Documents. Surveys and monitoring will be performed to document and record the structural condition of buildings, structures, embankments, and utilities within 100 feet of any earthwork and construction or demolition activities that may have potential to impact those structures.

A vibration monitoring program will be developed by the Contractor's Professional Engineer to measure and record the existing conditions, deformations, settlement and preconstruction ambient and construction period vibration levels at existing structures within the affected area(s). Monitoring will be initiated prior to the start of construction operations in the area and continue until two months after construction completion.

Structural monitoring and surveys will be performed in accordance with Technical Specification 02 21 00 – Structural Monitoring and Surveys (**Appendix B**). Structural surveys and monitoring reports will be certified by a New York state licensed Professional Engineer(s).

5.3.7.1 Pre- and Post-Construction Condition Surveys

Pre- and post-construction condition surveys, respectively, will be performed on the existing structures prior to construction and after construction completion. The pre- and post-construction condition surveys will be performed by the Contractor.

The pre-construction condition survey will document structure types, materials of construction, structural conditions, corrosion of steels, existing damage, and signs of distress, and/or disrepair observed during visual survey. The pre-construction condition survey will include a graphical depiction of the location of existing damage or other features of concern. If any repair is required for existing structures, the repair or replacement will be implemented prior to construction. Based on the results of the pre-construction condition survey, acceptable vibration levels will be established, and additional structural monitoring measures may be implemented.

Post-construction condition surveys will be performed using the same methods and requirements as the pre-construction condition surveys. Conditions observed from the post-construction condition surveys will be compared with those observed during the pre-construction condition surveys. The Remediation Engineer will be responsible for performing an independent final post-construction structural inspection.

5.3.8 Pre- and Post-Construction Off-Site Property Verification Sampling

RG&E intends to secure access and occupation agreements for four off-site properties that are located immediately adjacent to the Site: Tax Parcels 106.45-1-32 (10 Bausch Street), 106.53-1-9 (130 Smith Street [New York State-owned]), 106.53-1-11.001 (691 St. Paul Street), and 106.45-1-49 (705 St. Paul Street). Potential anticipated uses of the off-site properties include, but are not limited to, site access, installation of temporary fencing and signage, vegetation removal, land grading activities, staging of temporary facilities and equipment, excavation and filling activities, and restoration activities.

Pre- and post-construction verification sampling will be co-located on off-site properties at a frequency of one sample per 900 SF (i.e., 30-foot by 30-foot grid). Samples will be analyzed for VOCs (BTEX), SVOCs (PAHs), and cyanide. Pre- and post-construction verification sample results will be provided to the NYSDEC for review. If directed by the NYSDEC, soil in off-site properties that has been impacted by Site COCs as a result of Site access requirements will be removed to a depth of 6 inches and the excavation bottom will be resampled. If impacts extend beyond 6 inches, additional removal will occur, and excavation bottoms will be resampled. Removed soil will be disposed of off site at an approved landfill. Clean backfill will be imported and grading activities will be completed to restore the off-site properties to pre-construction conditions, as necessary.

Dependent on activity type and property conditions, the above confirmation and restoration approach will be followed if additional off-site properties, including City public rights-of-way, are required for Site access and/or staging, as applicable.

5.4 Mobilization

Mobilization activities include transporting personnel, equipment, and materials to the Site to support the construction activities. Mobilization activities include, but are not limited to, the following:

- On-site underground utilities will be marked out prior to initiating intrusive ground disturbance activities by contacting the New York UDig One-Call System and by using a private utility locator. To support the utility mark-out for areas proposed for intrusive areas, the following activities will be undertaken, as appropriate:
    - "As-built" or "record" drawings of Site utility plans will be reviewed.
    - The areas around planned subsurface intrusive work locations will be visually inspected.
- Field office trailers will be mobilized and established. Requirements for trailers and supporting telephone and internet services are presented in Technical Specification 01 52 11 - Temporary Field Offices and Structures (**Appendix B**).

- Electrical service will be obtained by coordinating with appropriate supplier(s). Requirements for obtaining electrical services and other utilities are presented in Technical Specification 01 51 05 - Temporary Utilities and Controls (**Appendix B**).
- First aid facilities will be provided and maintained for use by on-site personnel. Requirements for first aid facilities are presented in Technical Specification 01 52 16 – First-Aid Facilities (**Appendix B**).
- Portable sanitary services will be provided and maintained for use by on-site personnel. Requirements for portable sanitary services are presented in Technical Specification 01 52 19 – Sanitary Facilities (**Appendix B**).
- Submittals (in addition to the pre-mobilization submittals) will be prepared and provided to the Remediation Engineer for review and approval, as required by the Contract Documents.
- The Contractor will obtain all necessary local authorizations and permits, as outlined in Section 3.

5.5 Site Preparation and Access

During mobilization activities, the Contractor will also perform site preparation activities. Locations of the support facilities are to be proposed by the Contractor and must be located within the contractor support area provided on Design Drawing C-011 (**Appendix A**). Site preparation activities will generally consist of the following:

- Verifying site conditions and identifying, marking, and verifying the locations of aboveground and underground utilities, equipment, and existing structures and site features (e.g., manholes, outfalls, buildings), as necessary, to implement the remediation activities in accordance with Technical Specification 01 71 33 - Protection of Work and Property (**Appendix B**). Current site conditions (i.e., a site plan and approximate locations of currently known existing utilities) are shown on Design Drawings C-003 and C-004 (**Appendix A**). The Contractor will also be responsible for maintaining appropriate clearances from utilities (e.g., active overhead electrical lines). If the Contractor damages existing utilities, equipment, or structures, the Contractor will be responsible for notifying the utility company/municipality and fully repairing all damages. Repairs (if necessary) will be completed in accordance with all requirements of the utility company/municipality.
- Establishing survey control and work limits and completing pre-construction surveys as described in Section 5.1 and in accordance with Technical Specification 01 71 23 – Field Engineering (**Appendix B**)
- Installing temporary erosion, sediment, and turbidity controls in accordance with Design Drawings C-010 and C-501 (**Appendix A**), SWPPP (**Appendix F**), and Technical Specifications 01 51 05 - Temporary Utilities and Controls, 31 25 00 – Erosion Control and 35 80 00 – Turbidity Barriers and Monitoring (**Appendix B**) – Temporary erosion, sediment, and turbidity controls include, but are not limited to, silt fencing, straw bales (with and without liners), and the temporary river diversion system.
- Erecting project signage in accordance with Technical Specification 01 58 13 – Temporary Project Signage (**Appendix B**)
- Installing work zone air monitoring equipment (to be relocated, as appropriate, based on wind direction) as required by the CHASP
- Identifying safe and relevant locations to support installation of air monitoring equipment (to be relocated, as appropriate, based on wind direction) as specified by the CAMP (**Appendix G**)

- Improving site access via Suntru Street as shown on the Design Drawing C-012 (**Appendix A**)
- Tree removal and grubbing activities in accordance with Technical Specification 31 11 00 – Clearing and Grubbing (**Appendix B**). Tree removal and grubbing beyond that required to support site preparation for remedial activities is prohibited. Trees and shrubs will be removed only as necessary to complete the remedial construction activities and will be performed in accordance with permit requirements.
- Performing general site preparation to support staging of office trailers and the construction water treatment system (CWTS) and constructing/improving the foundation pads (e.g., for the CWTS and temporary sprung fabric structure)
- Constructing an imported material staging area and decontamination areas for equipment and personnel
- Providing and operating a pre-engineered vapor extraction system to maintain proper air handling and nuisance vapor elimination within the sprung fabric structure. The system will include two vessels containing 20,000 pounds of vapor carbon and capable of processing four air change-outs per hour via inline particulate filters. It will also include a vapor carbon filter system to remove dust and nitrous oxides prior to being released into the atmosphere. Additional details on the vapor extraction and treatment system are provided in Technical Specification 01 52 11 –Temporary Field Offices and Structures (**Appendix B**).
- Constructing a pre-fabricated sprung fabric structure, measuring approximately 132 feet by 180 feet to enclose the Upland Support Area for impacted material staging. The sprung fabric structure will include two 14-foot by 14-foot overhead doors for vehicles and two man-doors for entrance/egress for personnel. The structure will be constructed on a steel frame and will be installed on the prepared concrete slab located on the B+L Property. The prepared concrete slab will include installation of a geotextile demarcation layer over the existing surface. The Contractor will be responsible for such elements as replacing/repairing fabric panels, winterizing the structure, and repairing/replacing damage structure members throughout the remedial construction period.
- Constructing a containment pad area for the temporary CWTS. The Contractor will be responsible for replacing/repairing material the containment pad area throughout the remedial construction period.
- Constructing and testing the temporary CWTS as shown on Design Drawing C-504 and D-001 (**Appendix A**) and in accordance with Technical Specification 01 01 53 – Temporary Water Treatment and Management (**Appendix B**)

Refer to Design Drawings (**Appendix A**), Technical Specifications (**Appendix B**), and Suntru Street Improvement Memorandum (**Appendix N**) for additional information regarding site preparation.

5.6 Utility Decommissioning and Building Demolition

5.6.1 Utility Decommissioning

Prior to the start of intrusive activities at the Site, the Contractor will be required to coordinate with local utilities for the disconnection/abandonment of existing utilities within the limits of disturbance at the Site, as shown on Design Drawing C-008 (**Appendix A**). Utilities to be disconnected/abandoned include, but are not limited to the following:

- Underground electric

- Overhead electric and communication
- Natural gas
- Water supply
- Sanitary
- Stormwater

The existing Natural Gas Station and associated supply/distribution piping located at the Site are scheduled to be relocated by RG&E prior to the start of remedial construction.

5.6.2 Building Demolition

Demolition of existing buildings and associated foundations and concrete structures within the limits of the construction at the Site will be completed in accordance with Chapter 47A of the City of Rochester Code (Demolition Regulation Ordinance of the City of Rochester) and all applicable federal and state codes and regulations prior to implementation of remedial construction.

The Contractor will conduct the following pre-demolition activities prior to demolition of the structures:

- Universal waste/hazardous survey, abatement and disposal
- Asbestos containing material (ACM) survey, abatement and disposal
- Overhead and underground utility disconnects
- Removal and disposal of existing equipment and materials within the structures being demolished

Following completion of the pre-demolition activities, the Contractor will be responsible for demolition of the superstructure and foundations of the following, as indicated on Design Drawing C-009 (**Appendix A**):

- RG&E Laboratory
- Building 11
- Masonry building adjacent to Building 11
- Metal shed adjacent to Building 11
- Metal storage building
- Concrete structure adjacent to the Genesee River

In addition, demolition will include the removal/disposal of the existing office trailer and monitoring station trailer located southeast of Building 11. Following demolition, concrete and masonry debris will be sized and stockpiled for reuse as backfill on site.

Building demolition requirements are provided in Technical Specification 02 41 13 – Structure Demolition (**Appendix B**).

5.7 Construction Water Management and Treatment

The temporary CWTS will be designed to process influent originating from impacted groundwater and impacted surface water runoff originating from the processing pad and CWTS area. The CWTS design influent flowrate is 120 gpm.

The final CWTS process design and configuration is the responsibility of the Contractor. Based on available influent and potential indirect discharge criteria, the treatment concept may include:

- Weir-style frac tanks for coarse settling/solids removal and oil/water separation (OWS). Oil removal will be via an oil skimmer or manual removal (e.g., vacuum truck). Alternatively, the Contractor may consider a dedicated above-ground OWS with coalescing media.
- Influent holding/equalization. This may be accomplished via a single large-volume tank (e.g., Modu-Tank®) or multiple smaller volume vessels (e.g., frac tanks) hydraulically linked. This will allow attenuation of variable influent flows from the remedial action and facilitate short-term CWTS shutdowns (e.g., scheduled maintenance).
- Chemical coagulation and flocculation, followed by inclined plate or tube clarification. This process will affect target metals and suspended solids removal and protect downstream processes. Precipitated solids will be collected in a bottom-mounted hopper in the clarifier tank(s) and transferred to a holding tank(s). The Contractor will confirm the required treatment chemicals and dosing rates.
- Fine filtration (e.g., media filters) for suspended solids reduction upstream of the downstream filtration and adsorption processes
- Organoclay filtration to remove residual NAPL
- Granular activated carbon (GAC) adsorption to target VOCs/SVOCs
- Post-GAC fine filtration (e.g., bag filters) to function as a final polishing step for suspended solids reduction
- Effluent holding tanks to allow for temporary storage prior to discharge (e.g., analytical sampling) and to provide a backwash supply for the upstream filters and adsorbers

The treated effluent discharge will be through a new below-grade force main which will tie into the existing Monroe County Division of Pure Waters (MCPW) sanitary sewer along Bausch Street. The CWTS discharge capacity is based on the sanitary sewer allotment per discussions with MCPW.

The CWTS storage capacity was determined to be the total volume that would result from 24 hours of operating a 52 gpm groundwater dewatering system (76,000 gallons) plus the volume of contact water that would result from a 10-year, 24-hour (3.08 inches) storm landing on the 30,000 SF containment area for the construction water treatment plant (58,000 gallons) and the 60,500 SF processing pad (116,000 gallons).

CWTS requirements are provided in Technical Specification 02 72 00 – Construction Water Management (**Appendix B**).

5.8 Excavation Shoring and Support

Excavation shoring and support systems will be necessary to safely and effectively perform the excavation activities. Excavation shoring and support systems will include ISS gravity walls and traditional excavation support structures using sheet piles with bracing, tie-backs, and anchors.

The Contractor will utilize an ISS gravity wall as excavation support to facilitate the removal of soils from select areas:

- RG&E Former MGP Site (On-Site) Area: An ISS gravity wall will be installed along the perimeter of the RG&E Former MGP Site (On-Site) Area to provide excavation support to 10 feet bgs. Benching/sloping of surrounding soils would require the excavation (and handling and backfilling) of additional material (i.e., beyond that requiring removal per the Record of

Decision). The limits of benching/sloping would also result in encroachment on the nearby roadways, utilities, and structures.

- Near-River Soils Area: An ISS gravity wall will be installed in the northwest portion of the Near-River Soils Area to provide excavation support to 20 feet bgs (i.e., top of competent bedrock). As described above, benching/sloping would require the excavation of additional material not identified for removal.

The Contractor will utilize traditional excavation support technologies to facilitate the removal of soils from select areas:

- B+L Property (Off-Site) Area: Excavation depths in the B+L Property (Off-Site) Area will range from approximately 15 to 41 feet bgs (i.e., top of competent bedrock). The excavation depth to competent bedrock prevents the use of cantilevered steel sheet pile. Without significant embedment, internal excavation support will require bracing and anchoring. As previously described, benching/sloping would require the excavation of additional material not identified for removal and encroachment into the gorge wall.

The limits of excavation requiring excavation shoring and support are shown on Design Drawing C-019 (**Appendix A**), and the requirements are provided in with Technical Specification 31 50 00 – Excavation Support and Protection (**Appendix B**).

5.9 Excavation

The Contractor will remove soils and sediments from the limits shown on Design Drawings C-015 and C-016 (**Appendix A**). An estimated 180,700 CY and 315 CY (neat-line, in-situ) of soil and sediment, respectively, will be removed. The Contractor will be responsible for proposing excavation sequencing in the Contractor's Project Operations Plan submittal.

Excavation requirements are provided in Technical Specification 31 23 16 – Excavation (**Appendix B**).

5.10 Debris Removal

The former MGP structures at the Site included multiple gasholders, a purifying house, a retort house, oil tank, a generator and boiling house and other associated structures (Haley Aldrich 2021). As a result, subsurface obstructions related to the former MGP activities exist at the Site and at various depths. Additionally, historic fills of varying composition, such as rock and demolition debris, were placed on site.

Large obstructions and debris remaining in the subsurface are anticipated and may reduce efficiency during ISS treatment. Obstructions encountered during soil excavation that extends beyond the vertical limits of excavation will be documented, and the location and limits of the obstruction surveyed. Obstructions/debris encountered that are unable to be removed will be documented. Procedures to address obstructions will be provided in the CQAP) (**Appendix C**).

Debris and obstructions located within the soil removal and ISS treatment areas will be evaluated as part of the 95% RD Report submittal. The evaluation will include an in-depth review of boring logs documenting depths of refusal and material types encountered. Geologic cross-section figures will be prepared to illustrate the locations of anticipated obstructions.

5.11 ISS Treatment

ISS treatment will be implemented from approximately four feet bgs to approximately 30 feet bgs or competent bedrock. The limits and depths of ISS treatment are presented on Design Drawing C-017

(**Appendix A**). ISS treatment requirements are provided in Technical Specification 02 55 00 – ISS Construction (**Appendix B**).

The Contractor will be responsible for preparing an ISS Work Plan for submittal to the Remediation Engineer. The ISS Work Plan will describe the proposed construction equipment, procedures, and schedules for performing the ISS treatment. The ISS Work Plan will also detail the following components of the ISS treatment:

- Construction means and methods: List construction steps; handling of excess grout and spoils; layout; overlap control; and control of drainage, spills, and wastes. The Contractor should take into consideration known debris/obstructions at the Site and presence of residual NAPL in the proposed ISS area.
- Construction layout drawings: Identify the geometry, overlaps, volume, and dimensions of the cell overlapping pattern and the proposed ISS layout considering daily anticipated production rates, varying subsurface conditions across the Site, and overall cell mixing time to minimize re-molding of grout-soil mixing during initial curing. The proposed ISS cell layout will show the center point of each cell and/or the corner points of each cell including the overlap between adjacent columns/cells. The proposed ISS cell layout will include a table with point coordinates.
- Construction Quality Control (CQC) procedures: Describe all testing, sampling, reporting forms, methods, responsible persons, non-conformance procedures, and all other means to ensure the quality of the work.

5.12 Existing ISS Barrier Wall Grading

The Existing ISS Barrier Wall located adjacent to the Genesee River will require grading to meet NYSDEC site cover thickness requirements and final site grading. Specifically, the wall will require grading to accommodate a minimum of four feet of soil cover. Refer to Design Drawing C-017 (**Appendix A**) for extents of wall grading.

5.13 Material Handling and Management

Excavated soil, sediment, debris, and miscellaneous wastes generated during construction activities will be handled and disposed of/treated off site pursuant to applicable federal, state, and local regulations and in accordance with Technical Specification 02 61 15 – Handling and Disposal of Impacted Materials (**Appendix B**) and the Material Handling and Management Plan (**Appendix J**).

Preparation for on-site transportation to the Upland Support Area will include gravity dewatering within the remediation work areas. The Contractor will be responsible for determining the means and methods to achieve dewatering. Means and methods may include installing weep holes in excavator buckets, and/or draining bucket passes after active excavation.

On-site transportation will include the following:

- Use of lined, sealed, or otherwise watertight trucks when transporting excavated materials on site;
- Construction of access roads to provide stable access to and egress from remediation work areas to avoid excessive load shifting during transport; and
- Use of truck loading practices to avoid material spillage during on-site transport.

The tires of transport trucks that come into contact with impacted materials, (e.g., excavated soils, ISS swell materials, or construction water) will be cleaned in accordance with Section 5.14, Decontamination

Procedures and Technical Specification 02 51 00 – Decontamination Procedures (**Appendix B**), prior to transport outside of the active remediation area.

5.13.1 Material Stockpiling and Dewatering

Excavated soils and sediments will be stockpiled at the Upland Support Area. Chemical dewatering with a drying agent (e.g., Portland cement, cement kiln dust) will be performed as necessary, to meet the required moisture content for over-the-road transport (i.e., achievement of the U.S. Environmental Protection Agency [USEPA] "Paint Filter Test") and/or the requirements of the off-site treatment/disposal facility.

Attempts will be made to reduce the need for drying agents, such as blending drier material with other material that is more saturated. It is anticipated that solidification agents, if any, will be mixed at less than 10 percent by volume with the excavated soils to make the soil suitable for transport for off-site disposal. The Contractor may elect to perform a treatability test to support selection of the optimal drying agent and dosage rate prior to construction and/or modifying the drying agent and dosage rate during construction based on paint filter tests.

5.13.2 Waste Characterization and Disposal

Following chemical dewatering, the stockpiled material will be covered with polyethylene sheeting. Prior to load out, the stockpiled material will be sampled by the Contractor for waste characterization in accordance with the requirements of the selected disposal facility. Anticipated waste characterization parameters are provided in Technical Specification 02 61 15 – Handling and Disposal of Impacted Materials (**Appendix B**). Following receipt of waste characterization analytical results, stockpiled material will be loaded out in dump trailers for transportation to the selected disposal facility.

If any materials are impacted with visible NAPL, they will be considered conditionally exempt and treated by low temperature thermal desorption (LTTD) at an off-site disposal facility. Removed debris free of visible impacts (e.g., brick and concrete), will either be reused on site (e.g., placed within ISS treatment areas), if feasible, or be disposed of at an appropriate facility selected by RG&E. Non-visually impacted materials will be disposed of at a non-hazardous solid waste facility selected by RG&E.

Bills of lading will be prepared and provided to the waste hauler prior to shipment of non-hazardous materials. If hazardous materials require transport off site, shipping documentation will be prepared in accordance with Title 49 U.S. Code of Federal Regulations (CFR) Part 172; if hazardous waste requires transport off site, a manifest will be prepared in accordance with 40 CFR Part 262. A truck waste disposal log will be maintained to record each truck, waste material being carried, estimated weight, and disposal facility destination.

All trucks transporting material off site will be lined, covered, and equipped with sealed tailgates. Trucks used to haul material off site must have 6 NYCRR Part 364 transporter permits and contain the appropriate New York State Department of Transportation (NYSDOT) placarding for waste transport, as applicable. The beds of transport trucks loaded with Site materials will be properly covered and secured with polyethylene sheeting and tarps prior to leaving the Site. If required, odor and dust control measures will be conducted on transport trucks.

5.14 Decontamination

The Contractor will decontaminate (as necessary), within the constructed decontamination area, all personnel, equipment, and vehicles that come into contact with excavated materials. All construction vehicles leaving the Site (including vehicles that had been transporting clean fill) will be cleaned and/or decontaminated by the Contractor (as necessary) to prevent the tracking of soil off site.

At a minimum, the Contractor will decontaminate the Contractor's project equipment that comes in contact with removed soil materials (including, but not limited to, soil removal, transport, and blending equipment, trucks, liquid handling equipment, pumps, and hand tools) prior to demobilizing and prior to handling clean material, in accordance with Technical Specification 02 51 00 – Decontamination Procedures (**Appendix B**). The Contractor will perform decontamination activities until no visible soil, sediment, debris, or stains are present on the equipment surfaces (to the satisfaction of RG&E and/or the Remediation Engineer). Equipment, such as pumps, will be flushed using clean water and appropriate cleaning agents (as necessary) to the satisfaction of RG&E and/or the Remediation Engineer.

Unless otherwise directed by RG&E and/or the Remediation Engineer, any equipment to be removed from the Site by the Contractor will be subject to a final visual inspection by RG&E, the Remediation Engineer, and/or NYSDEC following cleaning. Precautions will be taken to limit contact between the equipment, personnel performing the cleaning activities, and any cleaning liquids that may accumulate in the decontamination area. The decontamination/wash area includes provisions for wash water collection, and any water generated during decontamination activities will be treated in accordance with Technical Specification 01 53 53 – Temporary Water Treatment System (**Appendix B**).

5.15 Site Cover

A site cover will be installed at the Site to allow for restricted residential use, which includes anticipated active recreation/use of the property as a state park, where the upper two feet of exposed surface soil exceeds the restricted residential use SCOs. The site cover 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. In near-river soils, the upper two feet will be of sufficient quality to maintain a vegetative layer and the demarcation layer will not include any fabric. Site cover material, including any imported fill, 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 will occur 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 limited to, pavement, concrete, paved surface parking areas, sidewalks, building foundations, and building slabs.

Where the site cover is required over the ISS treatment area, it will consist of a minimum of four feet of soil with the top two feet meeting the SCOs for restricted residential (active recreational) use. For areas where solidified material underlies the cover, the solidified material will serve as the demarcation layer. A site cover will not be used on the banks or within the floodplain of the Genesee River because ecological SCOs will be met through excavation and backfill.

A site cover is not required on the B+L Property since the excavation areas will be fully excavated to competent bedrock and backfill will meet unrestricted use SCOs.

The Contractor will install the site cover as provided in the limits shown on Design Drawings C-021 (**Appendix A**). Cover requirements are provided in Technical Specification 02 56 13 – Soil Cover Construction (**Appendix B**).

5.16 Site Restoration

5.16.1 Wetland Delineation Survey

Parsons completed a wetland delineation as part of a Waters of the U.S. Determination from August 14 through 16, 2023. No New York State Regulated Freshwater Wetlands or Adjacent Areas exist within the Site or its vicinity. The National Wetlands Inventory describes the Genesee River (from the High Falls area to approximately Middle Falls) as a riverine, lower perennial, unconsolidated bottom, permanently flooded

community (R2UBH). These are deep water systems with low gradients and slow velocity with a bottom made up of at least 25 percent cover of particles smaller than stones (mainly mud and sand), and a vegetative cover less than 30 percent (USFWS 2023). This condition exists when the Station 5 Hydroelectric Dam is operational; however, when the Tainter gates are open, much of the Genesee River in the vicinity of the Site is a relatively shallow, fast-moving water with significant cobble and bedrock exposures in the riverbed.

Several wetland determination plots were taken throughout the Site to investigate the presence/absence of unmapped wetlands. All plots presented as upland, and no unmapped wetlands were identified at the Site.

Additional details on the results of the wetland delineation are included in the Wetland Delineation and Habitat Assessment Report (**Appendix O**).

5.16.2 Ordinary High Water Mark Survey

The ordinary high water mark (OHWM) in this section of the Genesee River was delineated on August 29, 2024, by qualified field biologists under the supervision of a Professional Wetland Scientist, using field observations in accordance with USACE Regulatory Guidance Letter No. 05-05 (2005) and the National OHWM Field Delineation Manual for Rivers and Streams: Interim Version (USACE 2022). The OHWM at the Site varies between 389.68 feet and 393.02 feet (NAVD 88).

Additional details on the results of the OHWM delineation are included in the Wetland Delineation and Habitat Assessment Report (**Appendix O**).

5.16.3 Freshwater Mussel Survey

To ensure that populations of imperiled mussel species are not impacted by the remedy, a mussel survey will be conducted to determine if any imperiled mussel species are present at the Site. After NYSDEC approval of this RD Report, a mussel survey plan will be developed and submitted to NYSDEC, Region 8 for review/approval and issuance of a License to Collect and Possess for Freshwater Mussels. If the survey finds imperiled mussel species, a concurrent relocation site survey will be conducted, and a relocation plan developed. The relocation effort would be conducted to move imperiled mussel species to a safe location prior to the start of in-water work. The results of the mussel survey will remain valid for five years.

5.16.4 Vegetation Inventory Survey

A vegetation survey was conducted from August 14 to 16, 2023, by qualified field biologists to support the RD and associated restoration plan. The survey documented both woody and herbaceous species. During the survey, 358 trees representing 23 species were observed. More than half of the species observed were non-native, including tree of heaven (*Ailanthus altissima*), black locust (*Robinia pseudoacacia*), Norway maple (*Acer platanoides*), and Russian olive (*Elaeagnus angustifolia*). The most common native tree observed was box elder (*Acer negundo*), a weedy tree characteristic of disturbed and urban areas. Native trees that are characteristic of high-quality riparian ecosystems were also observed in low quantities, including eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), and American sycamore (*Platanus occidentalis*). In addition, native ash (*Fraxinus* sp.) was observed but will not be included in the restoration plan due to the prevalence of the Emerald Ash Borer in the area.

Shrubs, vines, and herbaceous species observed were generally poor quality and predominantly non-native. Additionally, the forested interior portions of the shoreline lack structural diversity in height (i.e., native shrubs of varying height and subcanopy trees), and the upland edge at the top of slope transitions from large trees to old field and grassland, lacking a layered transitional edge. The hard edge which transitions from large trees to weedy old field vegetation allows light intrusion into the subcanopy of the riparian forest and has resulted in dominance by invasive herbs and vines.

Due to the poor quality of the existing plant community, replicating existing conditions is not appropriate. The restoration planting plan proposes a suite of native species and layered edges, transitioning from native grassland, to shrubland, to riparian forest. The restoration planting plan will result in mature and higher quality habitat than the existing conditions provide.

Additional details on the results of the vegetation inventory are included in the Wetland Delineation and Habitat Assessment Report (**Appendix O**).

5.16.5 Restoration

Following remediation of the Site, the Genesee River shoreline and upland areas will be reconstructed to improve existing conditions. The existing shoreline consists of steep, manmade slopes, and loose stone. The restored shoreline will reduce the slope of the shoreline to the extent practicable and allow for the use of natural bank stabilization techniques for stabilization of riparian area in lieu of existing hard-armoring.

Planting zones were designed to create gradual transitions/layered edges between community types, increasing resilience to non-native and invasive species in the future. Four planting zones are proposed to form a dynamic and resilient community of native species, transitioning from grassland to shrub cover, to riparian forest, to dense shrub thicket. Selected plant species consist of fast-growing native species that will provide cover, shade, and habitat value, and are consistent with native riparian plant communities of the region. Use of natural shoreline armoring techniques is expected to mimic the functional benefits (e.g., bank stabilization, water filtration, and nutrient-loading reduction) of high-quality riparian buffer ecosystems. Soil materials were selected to provide adequate substrate for plant growth. Soil materials placed at the Site will meet applicable SCOs as required for the site cover.

Planting zones for the Site are outlined below:

- **Planting Zone A**

  Upland areas of the Site will be restored with a minimum of 6 inches of topsoil. Planting Zone A will be seeded with a conservation seed mix of native grass and forb species and cover crop.

- **Planting Zone B**

  Planting Zone B is located above the top of bank and overlies the ISS treatment areas. Planting Zone B will be restored with a minimum of 6 inches of topsoil and RECP. Planting Zone B will be a shrub-dominated transition area between grassland and riparian forest area. Three rows of shrub plantings will be installed above the top of slope at an 8-foot-on-center density. The planting row nearest to top of slope will be planted with Shrub Type 1, consisting of species selected for the tallest mature height. The second and third rows will be planted with Shrub Type 2 and Shrub Type 3 selected, respectively, for intermediate and shortest mature height. Planting Zone B will be seeded with a conservation seed mix of native grass, forb species and cover crop.

- **Planting Zone C**

  Shoreline areas located below the top of bank but above the 100-year base flood elevation will be restored with a minimum of two feet of topsoil placed over general fill or filter stone and stabilized with RECP. Planting Zone C will be a riparian forest which will be restored with a suite of native trees and shrubs at an 8-foot-on-center density. Planting Zone C will be seeded with a conservation seed mix of native grass, forb species and cover crop.

- **Planting Zone D**

  Stone revetment consisting of NYSDOT medium stone fill will be installed up to the 100-year return interval flood elevation to armor the shoreline as detailed in Section 5.16.6. Shoreline areas located below the base flood elevation and above the stone revetment will be restored with a

topsoil and medium stone fill mix. Native live stake plantings, consisting of willow (*Salix* sp.) and dogwood (*Cornus* sp.), will be installed in Planting Zone D at a 2-foot-on center density. Live stake plantings have been selected to create a riparian buffer consisting of a dense shrub thicket that will withstand high velocity flows.

Planting zones and details are presented on Design Drawings C-022 and C-024 (**Appendix A**). Restoration will be performed in accordance with Technical Specification 32 72 00 – Upland, Riparian and Streambed Restoration and Technical Specification 32 91.13 – Finish Grading, Topsoil, and Seeding (**Appendix B**).

The substrate restoration approach for areas below the OHWM will rely on natural processes to create and maintain the sediment condition appropriate for this stretch of the Genesee River. The highly variable water depths and flow velocities result in a dynamic equilibrium condition for the riverbed in which sediment is deposited during low-flow velocity conditions when the hydroelectric dam gates are closed, and sediment is eroded during high-flow velocity conditions when the hydroelectric gates are open. NYSDOT medium stone fill will be placed below the OHWM for riverbed substrate and provide a protective substrate against erosion and scour, while facilitating the opportunity for sediment accumulation and the subsequent suitable habitat for benthic organisms in the interstitial voids.

5.16.6 River Stone Revetment

HEC-RAS modeling performed as a component of the design (**Appendix L**) provided estimated Genesee River velocities and shear stresses in the removal areas for a range of flow events. Based on a graphical solution to the Isbash equation stone with a D_{50} value of nine inches was determined to be protective for high turbulence velocities resulting from a 50-year return interval flow event of 28,400 cfs (NRCS TS 14C, 2007). The surface restoration layer in areas below the 100-year return interval flood elevation will consist of NYSDOT medium stone fill (gradation with 50 to 100 percent of stone greater than 100 pounds [e.g., a cube with 10-inch sides]). Medium stone fill was selected because it is consistent with the size cobble that presently armors the shoreline, is locally available, and provides the necessary degree of scour protection. In select locations along the shoreline, material that was used to construct the in-water causeway will be placed during restoration to provide an added measure of scour protection and create an aesthetic observed elsewhere in the rock gorge. These select locations will be delineated as a part of the 95% RD Report submittal.

5.17 Environmental Wells

MNA and passive NAPL recovery will be performed for bedrock groundwater. Implementing MNA and NAPL recovery will restore overburden and bedrock groundwater quality and may attain Class GA Water Quality Standards over time. The MNA and NAPL recovery program will be implemented under the SMP that will outline the monitoring and maintenance requirements for the project.

5.17.1 Groundwater Monitoring Wells

As part of MNA program, periodic groundwater monitoring will be performed to evaluate the migration and natural attenuation of dissolved-phase contaminants. Additional groundwater monitoring wells will be installed, as needed, after the remedial action.

Groundwater monitoring wells will be installed in accordance with Technical Specification 33 11 53 – Well Construction (**Appendix B**).

5.17.2 NAPL Recovery Wells

As part of the MNA program, passive NAPL recovery wells will be installed after the remedial action and operated to remove potentially mobile petroleum or coal tar from the subsurface that may remain after the remedial action.

NAPL recovery wells will be installed in accordance with Technical Specification 33 11 53 – Well Construction (**Appendix B**).

5.17.3 Environmental Well Construction

The proposed number, depth, and spacing of the environmental wells to be installed at the completion of the remedial action is based on the soil boring data collected during the RI and PDI and the final constructed subsurface conditions (i.e., ISS monolith) of the Site. The proposed groundwater monitoring well locations will be selected based on the direction of groundwater flow, with locations placed to monitor the upgradient and downgradient conditions and to monitor for off-site migration of NAPL. The proposed NAPL recovery well locations will be selected to coincide with depressions in the bedrock surface and/or areas where NAPL was observed in soil borings.

NAPL accumulation rates will be monitored during the initial product removal events. Appropriate mitigation actions will be taken in the event that sufficient NAPL is observed to warrant concerns related to NAPL overtopping the sump. Potential mitigation measures include a higher frequency of bailing events, installation of absorbent sock during the interim period between regularly scheduled bailing events, or conversion to an automated collection system.

Locations and approximate spacing of the environmental wells will be determined in coordination with the NYSDEC and provided in the 95% RD Report.

5.18 Demobilization

Demobilization requirements are presented in Technical Specification 01 77 19 - Closeout Procedures (**Appendix B**). Demobilization activities are summarized below.

- Completion of “punch list” items, to be identified by RG&E and the Remediation Engineer
- Removal of support area(s), staging area(s), decontamination area(s), equipment, or material installed or staged outside of the area identified for Contractor use
- Removal and disposal of all impacted materials from the material stockpile areas including the decontamination/wash area(s)
- Removal and disposal of erosion and sediment control measures when the remedial activities are completed
- Transport of residual wastes (e.g., disposable equipment; personal protective equipment [PPE]; sampling equipment; cleaning residuals; sacrificial soil and liners from the material staging, and equipment decontamination areas) remaining at the completion of the remedial activities for off-site disposal in accordance with applicable rules and regulations
- Removal/disposal of project-related material, equipment, and support structures from the project area, as appropriate based on the work remaining to be completed the following season
- Preparation of required final field records and submittals and submission to the Remediation Engineer

6.0 GREEN REMEDIATION

Green remediation is the practice of considering all environmental effects of remedy implementation and incorporating options to minimize the environmental footprint of cleanup actions (NYSDEC 2010b). Green remediation concepts and techniques have been considered in this RD with the goal of improving sustainability of the cleanup to the extent feasible in the design, implementation, and site management of the remedy in accordance with DER-31. Major green remediation concepts have been considered and incorporated into RD as outlined below. An Environmental Footprint Analysis will be prepared for inclusion in the 95% RD Report (**Appendix P**).

6.1 Long-term Environmental Impacts of Treatment Technologies and Stewardship

The remedy includes the consideration of the environmental impacts of treatment technologies and remedy stewardship over the long-term. This consideration will be addressed with the following methods:

- Avoid unintended soil compaction by bounding project staging and support areas to areas where soil compaction is already likely (i.e., existing impervious areas, existing access roads);
- Use natural processes as long-term treatment technologies (i.e., MNA) and incorporate construction means and methods into long-term treatment technologies (i.e., ISS); and
- Integrate RD and remedy implementation with the aims of contemplated Site reuse in accordance with the City Local Waterfront Revitalization Program (LWRP) (City of Rochester 1990) and planned Site end-use which includes anticipated active recreation/use as a state park.

6.2 Greenhouse Gas and Other Emissions Reduction

The remedy includes the reduction of direct and indirect greenhouse gases and other emissions as presented in Technical Specification 01 35 00 – Green Remediation Practices (**Appendix B**) and as outlined below:

- Reduce vehicle idling in all vehicles, both on and off-road, and shut off vehicles when not in use for more than five minutes;
- Use ultra-low sulfur diesel in off-road vehicles, where possible;
- Replace or retrofit older engines or use newer efficient models in vehicles and equipment, where practicable, and maintain engines in accordance with manufacturers' standards; and
- Where possible, use locally manufactured materials (i.e., manufactured within 150 miles of the Site) in material sourcing and procurement to avoid unnecessary transportation emissions.

6.3 Energy Efficiency

Practices in energy efficiency will be implemented during the remedy and have been considered in long-term source removal as presented in Technical Specification 01 35 00 – Green Remediation Practices (**Appendix B**) and as outlined below:

- Use environmentally friendly products such as compact fluorescent lights or light-emitting diode (LED) lightbulbs in temporary facilities;
- Use environmentally friendly electronics, such as ENERGY STAR-rated products, in temporary facilities;

- Turn off lighting in temporary facilities when not occupied and maintain energy efficient temperature set-points in temporary facilities;
- Use efficiently-designed pumps for water treatment and management activities;
- Address long-term source removal using MNA, for which long-term sampling and source removal do not require direct electrical use for the operation of remedial systems; and
- Include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation as an element of construction for future on-site buildings to improve energy efficiency.

6.4 Resource and Materials Management and Conservation

Resources and materials will be conserved and efficiently managed during the remedy as outlined below:

- Reuse imported materials for water diversion barriers as backfill and restoration materials; and
- Reuse select existing concrete foundations at the Site.
    - Demolished foundation concrete will be resized with unacceptable debris (i.e., rebar) removed. The resized concrete will be incorporated into the soil stabilization wall and as site backfill, where appropriate.

6.5 Waste Reduction and Recycling

Waste reduction will be completed during the remedy by developing an on-site recycling program and by reusing acceptable site materials which would otherwise be disposed of and/or imported using the following methods:

- Implement an on-site recycling program during the remedy for personal consumables (i.e., paper, plastics, and aluminum);
- Use recycled-content material in temporary facilities and day-to-day site operations where practicable; and
- Reuse concrete debris and in-water causeway materials as site backfill.

6.6 Maximizing and Creating Habitat Value

Habitat will be maximized and completed during final site restoration activities as summarized below:

- The bed, banks and floodplain of the Genesee River will be restored in-kind to the extent possible using natural stream restoration design principles and with the goal of re-establishing habitat function; if present, restore submerged aquatic vegetation in the remediation area(s).
- A tree survey to document existing tree count, species, and associated diameter at breast height measurements was conducted to determine woody frequency vegetation and species value and to assist in restoration planning.
- Where a soil cover is used, the upper six inches of soil will be of sufficient quality to maintain a vegetative layer. Other materials and components may be substituted where such components already exist or are a component of the tangible property to be placed as part of site redevelopment (i.e., pavement, cement, paved surface parking areas, sidewalks, building foundations, and building slabs).

6.7 Green Communities and End-use Integration

The Site is located within the City waterfront area and is subject to the development policies outlined within the City's LWRP. Policy 1A of the LWRP identifies the Site as located within an underutilized waterfront area intended for restoration, revitalization, and redevelopment for recreational and other compatible uses (City of Rochester 1990). The end-use of the Site, as specified by the LWRP, is one in which water-enhanced and water-dependent entertainment and commercial/recreational use is planned.

The Site remedy was developed with the ultimate goal of fostering green and healthy communities and incorporating working landscapes to balance ecological, economic, and social goals. The LWRP policies and anticipated property end-use planning, which includes recreation use as a state park, was integrated into Site restoration and cover considerations.

6.8 Future Building Development

Building construction is not proposed at the Site as a part of the remedy. Should building construction be required at the Site, any future on-site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of constructions.

7.0 ENGINEERING CONTROLS AND INSTITUTIONAL CONTROLS

This section summarizes the proposed ECs and ICs to address the direct contact of soil and impacts to groundwater exposure pathways that will remain on site. ECs/ICs are required since impacted materials will remain at the Site. Additionally, in accordance with NYSDEC DER-10, a SMP will be prepared to specify the methods necessary to ensure compliance with the ECs and ICs required for the Site.

7.1 Engineering Controls

The remedy includes existing and proposed ECs for the Site. Existing and proposed ECs for the Site are listed below.

- Existing ECs:
    - Tar Well Removal IRM (2004-2005)
    - ISS Barrier Wall (2007-2008)
    - Slurry Wall (2007-2008)
    - NAPL Collection Trench (2007-2008)
- Proposed ECs:
    - Site cover
    - ISS monolith
    - NAPL monitoring/recovery wells

The site cover will serve as an EC to mitigate the potential impact via direct contact with ISS remedy and impact to groundwater exposure pathways for impacted soil to remain within the limits of the Site. The site cover is required to allow for restricted residential use of the Site and to protect the ISS component of the remedy. In the ISS areas, the function of this cover will also provide sufficient thermal protection of the solidified mass from seasonal freeze/thaw cycles and prevent contact with the ISS material. The site cover will consist of approximately 13.8 acres of soil cover.

Based on the limits of the proposed ISS monolith, the intended function of the NAPL Collection Trench is no longer necessary for a portion of the NAPL Collection Trench alignment. Consequently, that portion will be removed as part of the ISS treatment. The remaining portion of the NAPL Collection Trench outside of the limits of the ISS will remain in place for operation as originally intended. The ISS monolith will consist of approximately 6 acres beneath the 13.8 acres of site cover.

7.2 Institutional Controls

After completion of remedial construction activities, an environmental easement will be recorded with the Monroe County Clerk. The environmental easement for the controlled property will:

- Require the remedial party or Site owner to complete and submit to the NYSDEC a periodic certification of ICs and ECs in accordance with Part 375-1.8 (h)(3);
- Allow the use and development of the controlled property for restricted residential 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 treatment as determined by NYS or Monroe County Departments of Health; and

- Require compliance with the NYSDEC-approved SMP.

8.0 POST-REMEDIATION ACTIVITIES

Remaining impacts after completion of remedial construction will be addressed with MNA such that natural degradation of Site impacts can be monitored over time. This will support understanding the longevity of site-specific COCs and confirm that there is no significant change in the migration of Site COCs due to the remedy. The monitoring will cover aspects such as routine NAPL thickness gauging, groundwater level monitoring and groundwater sampling from a predefined list of groundwater wells for field and laboratory analyses, which will be defined in the SMP. The progress of natural attenuation will be reported annually for an indeterminant period and will be included in the Annual Periodic Review Report for the Site. If it appears that natural processes will not be sufficient to address residual contamination, additional active remediation may be proposed.

An IC in the form of an environmental easement will be imposed on the property requiring the site responsible party to submit to NYSDEC a periodic certification of ICs and ECs at the Site; designating potential uses of the Site following remediation; restricting the use of Site groundwater; and requiring compliance with an SMP approved by NYSDEC. The SMP will describe the specific ICs and ECs, ongoing monitoring (including MNA), and operation and maintenance at the Site.

8.1 Construction Completion Report

A CCR will be prepared upon completion of the remedial action that documents construction implementation and the creation of ICs and ECs.

The CCR will be prepared in accordance with NYSDEC DER-10 (NYSDEC 2010a) and the NYSDEC Generic Template for Final Engineering Reports (available on the NYSDEC website). At minimum, the CCR will present the following information:

- Description of the remediation activities, including variations, if any, from the NYSDEC-approved RD Report
- Record ("as-built") drawings, tables, and figures detailing the remediation activities completed and indicating that acceptance criteria were met
- Information and documentation regarding the final quantities and disposition of materials disposed of/treated off site during implementation of the remediation activities, including executed manifests and bills of laden
- Summaries of field observations, tests performed, laboratory samples collected, and monitoring results obtained during construction
- Summaries of problems and deficiencies encountered during construction, including recurring problems and/or deficiencies discovered
- Representative photographs taken during implementation of the remediation activities
- Copies of regulatory permits and other key regulatory agency correspondence related to the permits and permit compliance
- Certification statement signed and sealed by a Professional Engineer licensed in New York State

A draft CCR will be submitted to NYSDEC for review. Following receipt of NYSDEC comments, the CCR will be revised accordingly and a stamped/signed final version of the CCR will be submitted to NYSDEC.

8.2 Site Management Plan

An SMP will be prepared for the Site which will include the following:

- An IECP that identifies all use restrictions and ECs for the Site and details the steps and media-specific requirements necessary to ensure ICs/ECs remain effective and in place.
- An MMP to assess the performance and effectiveness of the remedy and to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of the physical components of the remedy.

8.2.1 Institutional and Engineering Control Plan

The IECP will present, but not be limited to, the following provisions to ensure Site controls remain effective:

- An Excavation Plan which details the provisions for management of future excavations/foundation removal in areas of remaining contamination and provides direction for re-installation/installation of the Site cover system.
- A provision to ensure no soil exceeding protection of groundwater concentrations will remain below stormwater retention basins or infiltration structures should Site redevelopment occur.
- A provision for the evaluation of the potential for soil vapor intrusion for any buildings developed on the Site and in off-site areas with Site-related contamination, including implementing actions recommended to address exposures related to soil vapor intrusion.
- A provision that should a building foundation or building slab on the Former MGP Site be removed in the future, a cover system consistent with that described in Section 5.15, above, will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable SCOs.
- A description of the environmental easement, including land use and groundwater use restrictions.
- Provisions for the management and inspection of identified ECs.
- Maintenance of Site access controls and NYSDEC notification.
- The steps necessary for the periodic reviews and certification of the ICs/ECs.

8.2.2 Monitoring and Maintenance Plan

An MMP will be prepared which will be used to assess the performance and effectiveness of the remedy. Components of the remedy to be monitored include the following:

- Monitoring of groundwater to assess the performance and effectiveness of the remedy;
- Periodic NAPL monitoring and recovery, and recovery well maintenance, as appropriate;
- Monitoring and maintenance of the site cover system to assess the performance and effectiveness of the remedy, erosion, settlement, or other disturbances;
- Monitoring of the riverbank to assess for NAPL seeps into sediment or the Genesee River, with contingencies to address this condition, as appropriate;
- A contingent technology if MNA is not proven effective in the long-term;
- A schedule of monitoring, maintenance, and frequency of submittals to the NYSDEC;
- Monitoring for vapor intrusion for any buildings developed on the Site, and in off-site areas with Site-related contamination, as may be required by the IECP discussed above; and
- Monitoring of remedial restoration success and repair actions, as needed.

9.0 PRELIMINARY PROJECT SCHEDULE

The project schedule is dependent on the NYSDEC approval of the RD Report and other factors such as permitting authorizations and stakeholder agreements. Parsons will develop a detailed construction schedule at the time of RD Report approval.

Approximated final design and construction project milestones and durations are identified in **Table 6**.

Table 6 - Preliminary Project Schedule

Milestone	Target Date and/or Duration
Submit 60% Design Package	4Q 2024
Submit 95% Design Package	2Q 2025
Finalize and Submit 100% Design Package	3Q 2025
Contractor Procurement	1Q 2026
Construction Execution	2Q 2026 to 2Q 2029

10.0 REFERENCES

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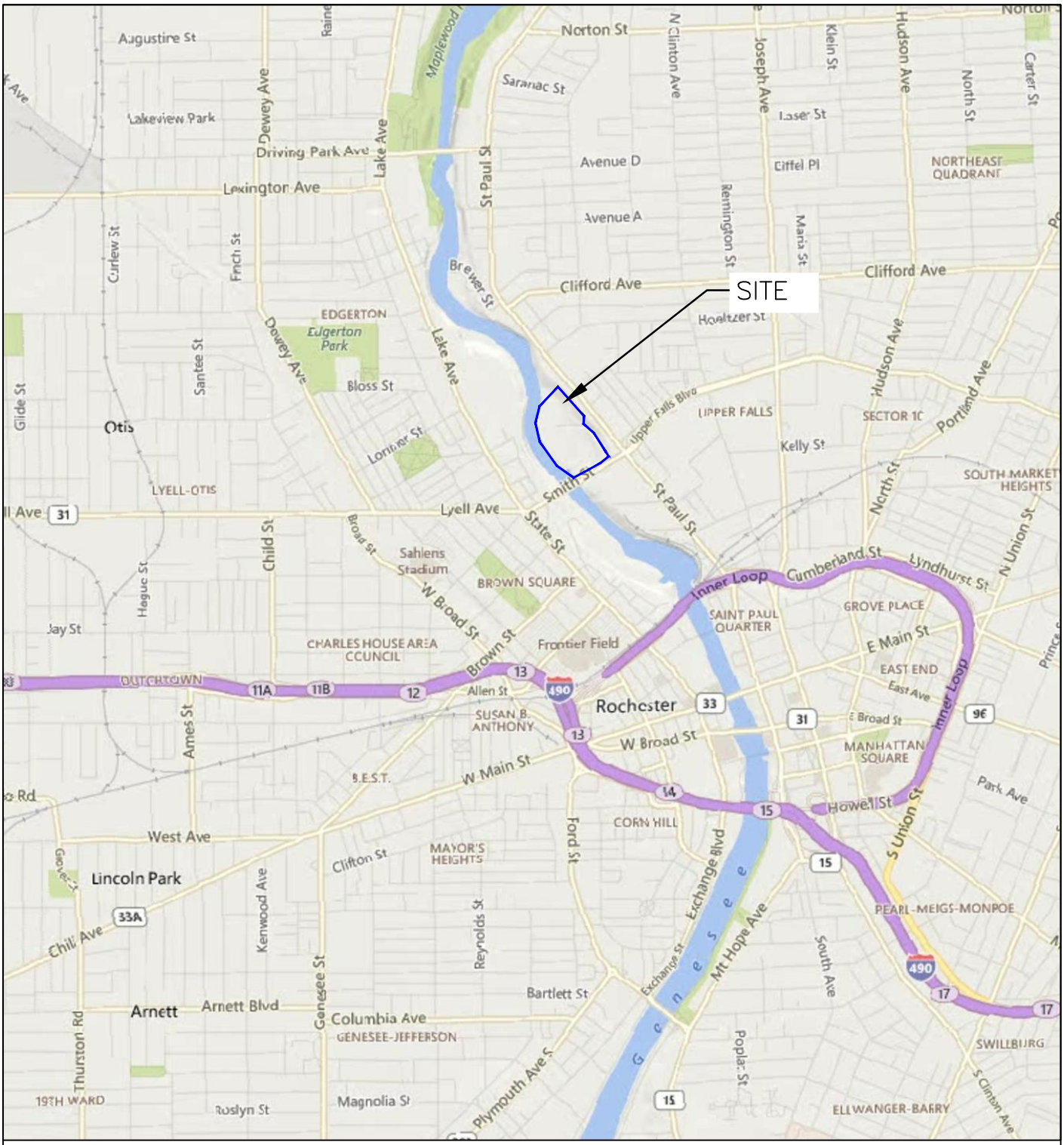
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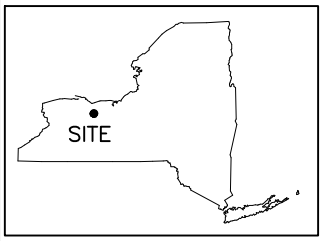
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FIGURES





NEW YORK STATE

43.16760° N
77.62034° W

FIGURE 1

East Station Former MGP Site No. 828204
Rochester Gas and Electric
Rochester, NY

SITE LOCATION MAP

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\FIGURES\PDI\FIGURE 1 – SLM.DWG
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TABLES

Table 1 Index of Standards, Criteria and Guidance (SCGs) for Investigation and Remediation of Inactive Hazardous Waste Disposal Sites	
Division of Environmental Remediation SCGs	
SCG Document	**Description**
Remedial Guidance and Policy Documents	Includes a listing of DER guidance.
6 NYCRR Part 364 - Waste Transporters	Waste transporter permit requirements
6 NYCRR Part 370 - Hazardous Waste Management System: General	Definitions of terms and general standards applicable to Parts 370-374 & 376
6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes	Hazardous waste determinations
6 NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities	Manifest system and record keeping, certain management standards
6 NYCRR Subpart 374-1 - Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities	Requirements for recyclable materials, hazardous waste burned for energy recovery, used oil burned for energy recovery, precious metal recovery, spent lead acid battery reclamation
6 NYCRR Subpart 374-2 - Standards for the Management of Used Oil	Regulates the management of used oil
6 NYCRR Subpart 373-2 - Final Status Standards for Owners and Operators of Hazardous Waste Treatment Storage and Disposal Facilities	Hazardous waste management standards (e.g., contingency plan; releases from SWMUs; closure/post-closure; container/management; tank management; surface impoundments; waste piles; landfills; incinerators; etc.)
6 NYCRR Subpart 373-3 - Interim Status Standards for Owners and Operators of Hazardous Waste Facilities	Similar to 373-2

6 NYCRR Part 375 - Environmental Remediation Programs	Requirements regarding remedial programs, private party programs, state funded programs, state assistance to municipalities
6 NYCRR Part 376 - Land Disposal Restrictions	Identifies hazardous waste restricted from land disposal defines land disposal

Division of Materials Management SCGs	
SCG Document	**Description**
6 NYCRR Part 360 - Solid Waste Management Facilities	Solid waste management facility requirements landfill closures; C&D landfill requirements; used oil; medical waste; etc.
6 NYCRR Subpart 373-4 - Facility Standards for the collection of household hazardous waste and hazardous waste from conditionally exempt small quantity generators	Hazardous waste management standards collection of household hazardous waste hazardous waste from conditionally. except small quantity generators

Division of Water SCGs	
SCG Document	**Description**
Technical and Operational Guidance Series (TOGS)	Includes a listing of DOW guidance including TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.
6 NYCRR Part 702.15(a), (b), (c), (d), (e) & (f)	Empowers NYSDEC to apply and enforce guidance where there is no promulgated standard
6 NYCRR Part 700-706 - NYSDEC Water Quality Regulations for Surface Waters and Groundwater	700 - Definitions, Samples and Tests; 701 - Classifications Surface Waters and Groundwaters; 702 - Derivation and Use of Standards and Guidance Values; 703 - Surface Water and Groundwater Quality Standards and Groundwater Effluent Standards

6 NYCRR Part 750-757 - Implementation of NPDES Program in NYS	Regulations regarding the State Pollutant Elimination Program (SPDES) program
Division of Fish and Wildlife and Marine Resources SCGs	
SCG Document	**Description**
Fish, Wildlife and Marine Resource Guide	Presents hazardous material guidance including Fish and Wildlife impact Analysis and the Technical Screening of Contaminated Sediments
6 NYCRR Part 182 - Endangered & Threatened Species of Fish & Wildlife	Lists endangered, threatened species and species of special concern, and prohibits taking except under permit
6 NYCRR Part 608 - Use and Protection of Waters	Protect certain classified streams permits for impoundments, structures, dredge, and fill
6 NYCRR Part 661 (Cp. 10) - Tidal Wetlands Land Use Regulations	Limit/preclude excavation, filling, regrading in vegetated tidal wetlands or portions of adjacent areas
6 NYCRR Part 663 - Freshwater Wetlands Permit Requirements	Procedural requirements for various activities in wetlands and adjacent areas and standards for permit issuance
6 NYCRR Part 664 - Freshwater Wetlands Maps and Classifications	Depicts and delineates freshwater wetlands
6 NYCRR Part 665 - Local Government Implementation of the Freshwater Wetlands Act & Statewide Minimum Land - Use Regulations for Freshwater Wetlands	Provides for optional local regulatory authority regarding use and development of freshwater wetlands
6 NYCRR Part 666 - Administration and Management of the Wild, Scenic and Recreational Rivers System in New York State Excepting the Adirondack Park	Procedural requirements for administration and management of the wild, scenic, and recreational rivers

Division of Environmental Permits SCGs	
SCG Document	**Description**
DEC Permits Guidance	Listing of guidance for permits
6 NYCRR Part 621 - Uniform Procedures	Permit processing requirements
Division of Air Resources SCGs	
SCG Document	**Description**
Air Guidance and Policy Documents	Includes a listing of DAR guidance including Air guide One - Guidelines for the Control of Toxic Ambient Air Contaminants
6 NYCRR Part 200 (200.6) - General Provisions	Prohibits contravention of AAQS or causes air pollution
6 NYCRR Part 201 - Permits and Registrations	Prohibits construction and/or operation without a permit and/or certificate
6 NYCRR Part 211 (211.1) - General Prohibitions	Prohibits emissions which are injurious to human, plant, or animal life or causes a nuisance
6 NYCRR Part 212 - Process Operations	Establishes control requirements
6 NYCRR Part 227-1 - Stationary Combustion Installations	Requirement for stationary combustion installations
6 NYCRR Part 231 - New Source Review in Non-attainment Areas and Ozone Transport Regions	Requirements for non-attainment areas and ozone transport regions
6 NYCRR Part 257 - Air Quality Standards	Applicable air quality standards

NYS Department of Health SCGs	
SCG Document	**Description**
10 NYCRR Part 5 - Public Water Supplies	Includes appendix 5-A Recommended Standards for Water Works and Appendix 5-B Standards for Water Wells.
Guidance for Evaluating Soil Vapor Intrusion in New York	For use in exposure assessments for vapor intrusion
Chemicals in Sports Fish and Game	Advisories of eating sportfish and game due to chemicals at levels of concern
10 NYCRR Part 170 - Sources of Water Supply	Protecting public water supplies
Health and Safety in the Home, Workplace or Outdoors	Includes guidance on indoor air, lead, radon, etc.
NYS Department of State SCGs	
SCG Document	**Description**
Consistency Reviews	Guidance to insure federal and state "actions" in coastal areas are consistent with Coastal Management Program
State Coastal Policies	Policies regarding development in coastal areas
Part 600 - Department of State, Waterfront Revitalization and Coastal Resources Act	"Coastal Area" includes Lakes Erie and Ontario, the St. Lawrence and Niagara Rivers, the Hudson River south of the federal dam at Troy, the East River, the Harlem River, the Kill van Kull and Arthur Kill, Long Island Sound, and the Atlantic Ocean, etc.

NYS Office of General Services	
SCG Document	**Description**
9 NYCRR Part 270 – Lands Underwater	Manages New York State interest in managing underwater lands and projects and structures constructed over lands
9 NYCRR Part 272 – License for Removal of Material from Lands Underwater	Similar to Part 270
U.S. Environmental Protection Agency SCGs	
SCG Document	**Description**
Laws, Policy and Guidance for Federal Superfund	Provides a listing of federal rules, regulations, and guidance for the Superfund
National Contingency Plan	Provides the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants
Waste Cleanup and Risk Assessment	Human health risk assessments
40 Code of Federal Regulations (CFR) Part 136 – Water Programs	Guidelines establishing test procedures for the analysis of pollutants
33 USC Section 1317 – Clean Water Act	Toxic and pretreatment effluent standards
OSHA SCGs	
SCG Document	**Description**
29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response	Health and Safety

U.S. Army Corp of Engineers SCGs	
SCG Document	**Description**
Protection of Wetlands	Minimize destruction, loss, or degradation of wetlands
33 USC 466 Section 404 – Clean Water Act	Control disturbances in wetlands
33 CFR Parts 320 - 330 – Regulatory Programs of the Corps of Engineers	Wetlands permits
United States Miscellaneous SCGs	
SCG Document	**Description**
16 USC 470 - National Historic Preservation Act	Determine if site may have significance, mitigate impacts

Monroe County SCGs	
SCG Document	**Description**
Monroe County, New York, Municipal Code Part IV, Section 235 – Environmental Quality Review Law	Incorporates environmental consideration into planning, review, and decision making
Monroe County, New York, Municipal Code Part IV, Section 343 – Sewer Use Law	Controls and provides for regulation of discharges into sanitary, storm and/or combined sewers of the publicly owned treatment works, storm drainage systems, and collection systems
Monroe County, New York, Municipal Code Part IV, Section 347 – Solid Waste Management Law	Regulates transportation and disposition of solid wastes

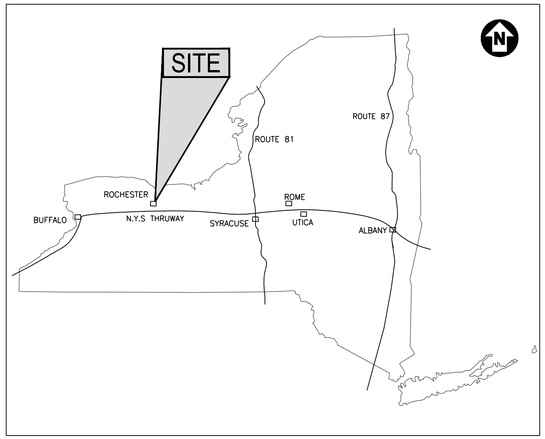
Monroe County, New York, Municipal Code Part IV, Section 377 – Freshwater Wetlands Protection Law	Regulates activity in freshwater wetlands and adjacent areas
Monroe County, New York, Municipal Code Part VI, Section 569, Article II – Sanitary Code of the Monroe County Health District, General Sanitation	Requirements for general sanitation including, but not limited to, sewage disposal, toilet facilities, water supplies, and nuisances
City of Rochester SCGs	
SCG Document	**Description**
Rochester, New York, Municipal Code Part I, Section 20 – Refuse Code	Regulates transportation and disposition of solid wastes
Rochester, New York, Municipal Code Part II, Section 39 – Building Code	Requirements for building (i.e., foundations, fences, electrical work, signs, demolition), demolition, zoning, construction, and stormwater pollution prevention
Rochester, New York, Municipal Code Part II, Section 47 – Demolition Regulation Ordinance	Requirements for total and partial structure demolition
Rochester, New York, Municipal Code Part II, Section 48 – Environmental Review Ordinance	Incorporates environmental consideration into planning, review, and decision making
Rochester, New York, Municipal Code Part II, Section 54 – Fire Prevention Code	Regulates storage, handling and use of hazardous materials, substances, and devices
Rochester, New York, Municipal Code Part II, Section 56 – Flood Damage Prevention	Controls filling, grading, dredging, or other activities which may increase flood damages
Rochester, New York, Municipal Code Part II, Section 59, The Health Ordinance, Article III – Nuisances and Sanitation	Controls nuisances and environmental hazards such as dust creation, waste deposition, and stagnant water
Rochester, New York, Municipal Code Part II, Section 75-10, Noise from construction activities	Restricts construction activity hours of operation and defines noise allowances

Rochester, New York, Municipal Code Part II, Section 104, Article I, Right-of-Way Code	Controls construction in the City right-of-way
Rochester, New York, Municipal Code Part II, Section 111, Article I, Traffic Ordinance	Regulates parking restrictions, vehicle weight and size, and road closures
Rochester, New York, Municipal Code Part II, Section 112, Waterfront Consistency Review Ordinance	Provides Local Waterfront Revitalization Program review
Rochester, New York, Municipal Code Part II, Section 120, Rochester Zoning Code	Regulates development and planning

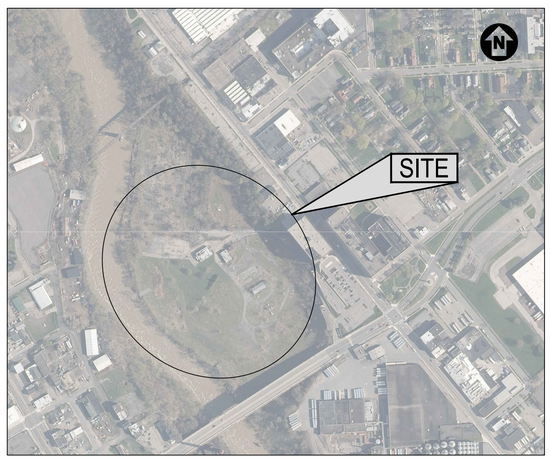
APPENDIX A
DESIGN DRAWINGS

60% REMEDIAL DESIGN
EAST STATION FORMER MGP SITE

ROCHESTER GAS AND ELECTRIC
ROCHESTER, NY



STATE VICINITY MAP



SITE LOCATION

DRAWING INDEX

DRAWING	REV	TITLE
GENERAL		
453121-G-001	A	TITLE SHEET, DRAWING INDEX, AND SITE LOCATION
453121-G-002	A	GENERAL LEGEND AND NOTES
453121-G-003	A	GENERAL LEGEND AND NOTES
CIVIL		
453121-C-001	A	HISTORICAL SITE PLAN - RG&E FORMER MGP SITE (ON-SITE)
453121-C-002	A	HISTORICAL SITE PLAN - B+L PROPERTY (OFF-SITE)
453121-C-003	A	EXISTING CONDITIONS - RG&E FORMER MGP SITE (ON-SITE)
453121-C-004	A	EXISTING CONDITIONS - B+L PROPERTY (OFF-SITE)
453121-C-005	A	PROJECT REMEDY OVERVIEW PLAN
453121-C-006	A	MONITORING WELL PROTECTION ABANDONMENT PLAN
453121-C-007	A	MONITORING WELL ABANDONMENT SCHEDULE
453121-C-008	A	UTILITIES ABANDONMENT PLAN
453121-C-009	A	BUILDING DEMO PLAN
453121-C-010	A	EROSION, SEDIMENTATION, AND TURBIDITY CONTROLS AND MONITORING PLAN
453121-C-011	A	SITE PREPARATION AND LAYOUT PLAN
453121-C-012	A	ACCESS IMPROVEMENT PLAN
453121-C-013	A	RESERVE
453121-C-014	A	RG&E FORMER MGP SITE (ON-SITE) SOIL REMOVAL PLAN
453121-C-015	A	RG&E FORMER MGP SITE (ON-SITE) SOIL REMOVAL SECTIONS
453121-C-016	A	B+L PROPERTY (OFF-SITE) SOIL REMOVAL PLAN AND SECTIONS
453121-C-017	A	ISS PLAN
453121-C-018	A	RIVER DIVERSION BARRIER PLAN
453121-C-019	A	SHORELINE EXCAVATION AND DREDGING PLAN
453121-C-020	A	NEAR RIVER SOILS AND SEDIMENT EXCAVATION PLAN AND SECTION
453121-C-021	A	RESERVE
453121-C-022	A	RESTORATION PLAN
453121-C-023	A	SITE RESTORATION SECTION
453121-C-024	A	SITE RESTORATION DETAILS
453121-C-501	A	EROSION, SEDIMENT, AND TURBIDITY CONTROL DETAILS
453121-C-502	A	PERIMETER WALL AND SUNTRU CONSTRUCTION DETAILS (RESERVED)
453121-C-503	A	MISC UTILITY DETAILS (RESERVED)
453121-C-504	A	CONSTRUCTION WATER TREATMENT SYSTEM AND FORCE MAIN DETAILS (RESERVED)
453121-C-505	A	ENVIRONMENTAL WELL DETAILS
453121-C-506	A	RESERVE
453121-D-001	A	PROCESS FLOW DIAGRAM CONSTRUCTION WATER TREATMENT SYSTEM

DRAFT

IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	MBB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/08/24	JL	MBB	MAD

DRAWN BY: JL	DATE: 11/08/24	SEAL: NOT FOR BIDDING OR CONSTRUCTION
CHECKED BY: MBB	DATE: 11/08/24	
APPROVED BY: MAD	DATE: 11/08/24	
PROJECT MGR.: ALB	DATE: 11/08/24	

PARSONS
OFFICE: 301 PLAINFIELD ROAD, SYRACUSE, NY 13212, (315) 451-9560

JOB: 453121
WBS: 05000

PROJECT TITLE: EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC
ROCHESTER, NEW YORK

DRAWING TITLE: TITLE SHEET, DRAWING INDEX
SITE VICINITY MAP, AND
SITE LOCATION

SCALE: NO SCALE

DRAWING NO.: 453121-G-001
REV.: B

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\GEN\453121-G001-COVER.DWG

GENERAL LEGEND:

- BOUNDARY LINE
- ADJOINER DEED LINE
- EASEMENT
- ROAD RIGHT-OF-WAY OR BOUNDS
- FORMER ROAD BOUNDS
- 400 — MAJOR CONTOUR
- 401 — MINOR CONTOUR
- OHE — OVERHEAD ELECTRIC
- OHC — OVERHEAD COMMUNICATION
- OHU — OVERHEAD UTILITIES
- CENTERLINE OF ROAD
- EDGE OF WATER AS SURVEYED ON JULY 12, 2023
- CHAIN LINK FENCE
- GAS — NATURAL GAS LINE
- W — WATERLINE
- COMM — COMMUNICATION LINE
- UGE — ELECTRIC LINE
- STORM/SANITARY PIPE
- GUIDE RAIL
- EDGE OF WOODS/BRUSH
- FF = 416.13' — FINISHED FLOOR
- UTILITY POLE
- GUY ANCHOR
- UTILITY POLE WITH LIGHT
- LIGHT POLE
- STREET LIGHT
- ELECTRIC MANHOLE
- TRAFFIC MANHOLE
- STORM MANHOLE
- CATCH BASIN
- SANITARY MANHOLE
- SANITARY CLEANOUT
- HYDRANT
- WATER VALVE
- PIV
- WATER MANHOLE
- WATER SHUTOFF
- GV — NATURAL GAS VALVE
- NATURAL GAS MARKER
- NATURAL GAS MANHOLE
- FOUND MONUMENT (AS NOTED)
- SET 5/8-INCH REBAR AND YELLOW PLASTIC CAP STAMPED "R. KOROSEC 050578" OR AS NOTED
- POINT NOT MONUMENTED
- (D) — DEEDED DISTANCE
- (M) — MEASURED DISTANCE
- (P) — PLATTED DISTANCE

ABBREVIATIONS:

OHWM	ORDINARY HIGH WATER MARK
TLM	TAR LIKE MATERIAL
NAPL	NON-AQUEOUS PHASE LIQUIDS
DNAPL	DENSE NON-AQUEOUS PHASE LIQUIDS
RECP	ROLLED EROSION CONTROL PRODUCT
LOD	LIMITS OF DISTURBANCE
OHC	OVERHEAD COMMUNICATION
OHE	OVERHEAD ELECTRIC
OHU	OVERHEAD UTILITIES
OHW	OVERHEAD WIRE
ESC	EROSION AND SEDIMENTATION CONTROLS (SILT FENCE OR FIBER ROLLS)
TC	TURBIDITY CURTAIN
W	WATERLINE
UGE	ELECTRIC LINE
COMM	COMMUNICATION LINE
GAS	NATURAL GAS LINE
LOW	LIMITS OF WORK
RG&E	ROCHESTER GAS & ELECTRIC
B+L	BAUSCH + LOMB

USE OF PLANS:

1. ONLY DESIGN DRAWINGS AND TECHNICAL SPECIFICATIONS INDICATING "ISSUED FOR CONSTRUCTION" SHALL BE USED FOR BIDDING AND/OR CONSTRUCTION PURPOSES. DESIGN DRAWINGS ARE INTENDED TO BE USED WITH THE TECHNICAL SPECIFICATIONS. UNLESS DESIGN DRAWINGS INDICATE "ISSUED FOR CONSTRUCTION", ROCHESTER GAS & ELECTRIC COMPANY (RG&E) AND ITS DESIGN ENGINEER NEITHER GUARANTEE THE ACCURACY OF THIS INFORMATION NOR CLAIM THIS INFORMATION IS NECESSARILY INDICATIVE OF CONDITIONS TO BE ENCOUNTERED.
2. THE CONTRACTOR SHALL SATISFY ALL CONDITIONS AFFECTING THE WORK BY PERSONAL INVESTIGATION, AND NEITHER THE INFORMATION PROVIDED, NOR THE INFORMATION DERIVED FROM MAPS OR DRAWINGS, NOR FROM THE DESIGN ENGINEER, RG&E OR THEIR AGENTS OR EMPLOYEES, SHALL ACT TO RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY HEREUNDER FROM FULFILLING ALL OF THE TERMS AND REQUIREMENTS OF THE CONTRACT DOCUMENTS.

GENERAL:

1. INFORMATION RELATED TO SUBSURFACE CONDITIONS SHOULD BE CONSIDERED APPROXIMATE AND SHALL NOT BE RELIED UPON AS A COMPLETE DEPICTION OF SITE CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, INCLUDING ABOVE-GRADE AND BELOW-GRADE FEATURES WHETHER OR NOT SHOWN ON THE DESIGN DRAWINGS OR OTHERWISE DESCRIBED IN THE CONTRACT DOCUMENTS. FAILURE TO VERIFY ALL EXISTING SITE CONDITIONS SHALL NOT ENTITLE THE CONTRACTOR TO ADDITIONAL COMPENSATION.
2. ALL LOCATIONS, INCLUDING PROPERTY LINES, ARE APPROXIMATE, REFLECT AVAILABLE INFORMATION, ARE PROVIDED FOR REFERENCE ONLY, AND ARE SUBJECT TO FIELD VERIFICATION BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL PROMPTLY NOTIFY THE REMEDIATION ENGINEER, UPON DISCOVERY, AND BEFORE CONDITIONS ARE FURTHER DISTURBED, OF PHYSICAL CONDITIONS AT THE SITE WHICH DIFFER MATERIALLY FROM THOSE INDICATED ON THE DESIGN DRAWINGS AND THE CONTRACT DOCUMENTS.
4. THE CONTRACTOR SHALL OBTAIN ALL FEDERAL, STATE, AND LOCAL PERMITS REQUIRED TO COMPLETE THE WORK UNLESS EXPLICITLY STATED OTHERWISE IN THE CONTRACT DOCUMENTS.
5. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF ANY ISSUED PERMITS AND ANY APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS. THE CONTRACTOR SHALL OBTAIN ALL FEDERAL, STATE, AND LOCAL PERMITS REQUIRED TO COMPLETE THE WORK UNLESS EXPLICITLY STATED OTHERWISE IN THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL GUIDELINES AND AS DIRECTED BY RG&E OR THEIR REPRESENTATIVES.
7. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW THE CONTRACT DOCUMENTS AND SUBMIT ANY DIFFERENCES OR DISCREPANCIES TO THE REMEDIATION ENGINEER IN WRITING FOR CLARIFICATION.
8. CONTRACTOR SHALL PROVIDE ALL SUBMITTALS AS IDENTIFIED IN THE CONTRACT DOCUMENTS.
9. ALL UNITS AND DIMENSIONS ARE IN FEET UNLESS NOTED OTHERWISE.

SAFETY:

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF PUBLIC BODIES HAVING JURISDICTION FOR THE SAFETY OF PERSONS OR PROPERTY OR TO PROTECT THEM FROM DAMAGE, INJURY, OR LOSS, INCLUDING, WITHOUT LIMITATION, THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (PL 91-596) AND UNDER SECTION 107 OF THE CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (PL 91-54) AND AMENDMENTS THERETO, THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS SET FORTH UNDER 29 CFR 1910 AND 29 CFR 1926. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND THE PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR THE SAFETY AND PROTECTION OF PERSONS AND PROPERTY AND SHALL COMPLY WITH ALL APPLICABLE RECOMMENDATIONS OF THE MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.
2. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL SAFETY PROGRAMS FOR THEIR EMPLOYEES, SUBCONTRACTORS, AND ANY OTHER PERSONS WHO MAY BE AFFECTED THEREBY. THIS INCLUDES THE PREPARATION OF A SITE-SPECIFIC CONTRACTOR HEALTH AND SAFETY PLAN (CHASP) PRIOR TO ANY WORK AT THE SITE IN ACCORDANCE WITH TECHNICAL SPECIFICATION 01 35 29 – CONTRACTOR HEALTH AND SAFETY PLAN. THE CONTRACTOR'S HASP SHALL BE DEVELOPED IN ACCORDANCE WITH APPLICABLE OSHA, FEDERAL, STATE AND LOCAL REGULATIONS.
3. THE CHASP SHALL RECOGNIZE THE UNIQUE HAZARDS SPECIFIC TO ACTIVITIES PERFORMED WITHIN, ADJACENT TO, OR IN THE VICINITY OF THE EXCAVATION/BACKFILL AREAS AND SHALL INCLUDE SPECIAL PRECAUTIONS AND CONTROLS THAT ARE TO BE IMPLEMENTED. OF ADDITIONAL NOTE AND EMPHASIS ARE THOSE ACTIVITIES THAT POTENTIALLY INVOLVE WORK WITHIN THE EXCAVATION AREA ONCE EXCAVATION/BACKFILL ACTIVITIES ARE INITIATED, AND THAT REQUIRE WORKER ACCESS INTO THE EXCAVATED AREA. THE CONTRACTOR SHALL CLEARLY IDENTIFY AND EVALUATE THE SPECIFIC TYPES OF ACTIVITIES THAT COULD INVOLVE WORKER ENTRY INTO THE EXCAVATION AREA, SPECIFIC INGRESS/EGRESS ROUTES AND PROVISIONS, PERSONNEL AND WORK AREA MONITORING, PERSONAL PROTECTION EQUIPMENT, COMMUNICATIONS, ETC.
4. THE MATERIALS SUBJECT TO HANDLING AS PART OF THE PROJECT CONTAIN HAZARDOUS CONSTITUENTS OR CHEMICALS AND SHOULD BE HANDLED IN ACCORDANCE WITH APPLICABLE REGULATIONS. THE CONTRACTOR SHALL DEVELOP AND IMPLEMENT APPROPRIATE HEALTH AND SAFETY MEASURES FOR ITS EMPLOYEES, SUBCONTRACTORS, AND SITE VISITORS, AND FOR THE PROTECTION OF THE ENVIRONMENT AND SURROUNDING COMMUNITY.
5. THE CONTRACTOR SHALL FURNISH AND INSTALL PROPER GUARDS FOR PREVENTION OF ACCIDENTS, AND PROVIDE ALL EXCAVATION SHORING/BRACING, SCAFFOLDING, SHIELDING, DUST/VAPOR/ODOR PROTECTION, MECHANICAL/ELECTRICAL PROTECTION, SPECIAL GROUNDING, SAFETY RAILINGS, BARRIERS, PROPER WORKING EQUIPMENT WITH FUNCTIONING SAFETY MECHANISMS (E.G., LIFT GATE WARNING SIGNALS), ALL SITE SAFETY SIGNAGE, OR OTHER SAFETY FEATURES REQUIRED. AS NEEDED, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SUFFICIENT LIGHT DURING NIGHT.
6. ALL EXCAVATION, TRENCHING, SHEETING, BRACING, AND RELATED WORK SHALL COMPLY WITH THE REQUIREMENTS OF TITLE 29 CODE OF FEDERAL REGULATIONS, PART 1926,650-652, (SUBPART P- EXCAVATIONS), OSHA SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION.

SURVEY:

1. HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983, 2011 ADJUSTMENT (NAD83/2011), PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (WEST ZONE).
2. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. RTK GNSS SURVEYING TECHNIQUES WERE UTILIZED TO DETERMINE COORDINATES AND ELEVATIONS OF THE ON-SITE HORIZONTAL AND VERTICAL CONTROL POINTS.
4. THE TOPOGRAPHIC AND PLANIMETRIC INFORMATION SHOWN HEREON IS BASED ON LOW ALTITUDE AERIAL LIDAR DATA AND COLORED DIGITAL AERIAL PHOTOGRAPHY ACQUIRED ON JULY 12, 2023 BY THEW ASSOCIATES LAND SURVEYORS. ADDITIONAL SUPPLEMENTARY SURVEY WAS COLLECTED ON OCTOBER 10, 2024.
5. THE TOPOGRAPHY SHOWN HEREON IS DERIVED FROM LIDAR DATA. THE ACCURACY OF THE TOPOGRAPHY DATA MEETS OR EXCEEDS THE 10-CM VERTICAL ACCURACY CLASS AS DEFINED BY THE AMERICAN SOCIETY OF PHOTOGRAMMETRY AND REMOTE SENSING (ASPRS) WHICH IS SUITABLE FOR GENERATING CONTOURS AT ONE-FOOT INTERVALS.
6. THE BOUNDARY INFORMATION IS BASED ON AN ACTUAL FIELD SURVEY PERFORMED BY BEAR LAND SURVEYING COMPLETED ON NOVEMBER 29, 2023.
7. THE REFERENCE CONTROL POINTS ARE AN ORANGE-CAPPED REBAR STAKE FLUSH WITH THE EXISTING GROUND SURFACE (NAVD88 ELEV. 414.19) AND A MAG NAIL (NAVD88 ELEV. 411.56).
8. STATIC GPS/GNSS SURVEYING TECHNIQUES AND DIFFERENTIAL LEVELING WERE UTILIZED TO ESTABLISH THE SEPARATION BETWEEN BARGE CANAL DATUM (BCD) AND NAVD88 AT THE UNITED STATES GEOLOGICAL SURVEY (USGS) SURFACE WATER GAUGE ID 04231600 IN THE GENESEE RIVER AT THE FORD STREET BRIDGE, APPROXIMATELY 2 MILES UPSTREAM FROM THE PROJECT. MEASURED AND CALCULATED ELEVATIONS AND DATUM SEPARATIONS WERE COMPARED IN CORRESPONDENCE WITH REPRESENTATIVES OF USGS AND FOUND TO AGREE.
9. CONTOURS AND ELEVATIONS SHOWN HEREON ARE REFERENCED TO NAVD88 ELEVATIONS. TO OBTAIN BCD ELEVATIONS, ADD 1.66 FEET TO THE ELEVATIONS SHOWN HEREON. TO OBTAIN THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) ELEVATIONS, ADD 0.58 FEET TO THE ELEVATIONS SHOWN HEREON.
10. BATHYMETRIC INFORMATION SHOWN HEREON WAS COLLECTED UTILIZING SINGLE BEAM ACOUSTIC SURVEYING TECHNIQUES FROM SEPTEMBER 25, 2023 THROUGH SEPTEMBER 26, SOUNDINGS MEET ACCURACY STANDARDS FOR NEW WORK AS SPECIFIED IN TABLE 3-1 OF THE UNITED STATES ARMY CORPS OF ENGINEERS HYDROGRAPHIC SURVEYING MANUAL (EM 1110-2-1003: NOVEMBER 30, 2013).
11. THE ORDINARY HIGH WATER MARK (OHWM) SHOWN HEREON WAS DELINEATED BY REPRESENTATIVES OF PARSONS ON AUGUST 29, 2024.

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DRAFT

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JL	MBB	MAD

DRAWN BY	JL	DATE	11/8/24
CHECKED BY	MBB	DATE	11/8/24
APPROVED BY	MAD	DATE	11/8/24
PROJECT MGR.	ALB	DATE	11/8/24

SEAL

NOT FOR BIDDING OR CONSTRUCTION

PARSONS

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 453121

WBS 05000

PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

GENERAL LEGEND AND NOTES

SCALE NO SCALE

DRAWING NO. 453121-G-002

REV. A

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\GEN\453121-G002-NOTES.DWG

SITE MANAGEMENT/PROJECT PERFORMANCE:

1. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, ACCESSORIES, AND APPURTENANCES NECESSARY TO COMPLETE THE WORK SHOWN ON THE DESIGN DRAWINGS AND PROVIDED IN THE TECHNICAL SPECIFICATIONS.
2. ALL WORK SHALL BE PERFORMED IN A NEAT AND ORDERLY MANNER, IN CONFORMANCE WITH INDUSTRY STANDARD PRACTICES, AND BY COMPETENT, EXPERIENCED PERSONNEL. MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH ALL CODES, REGULATIONS, AND REQUIREMENTS OF ALL APPLICABLE FEDERAL, STATE, LOCAL, AND OTHER PUBLIC OR PRIVATE AUTHORITIES.
3. THE CONTRACTOR IS RESPONSIBLE FOR THE CONTROL OF DUST, VAPORS, AND ODOR GENERATED DURING THE WORK. ODORS, VAPORS, AND DUST SHALL BE CONTROLLED AS NECESSARY TO MEET THE REQUIREMENTS OF THE COMMUNITY AIR MONITORING PLAN (CAMP) AND THE CHASP.
4. COMMUNITY AIR MONITORING SHALL BE PERFORMED BY THE REMEDIATION ENGINEER ON A CONTINUOUS BASIS DURING THE REMEDIAL CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH TECHNICAL SPECIFICATION – 01 35 49 – COMMUNITY AIR MONITORING PLAN. THE CONTRACTOR SHALL VERIFY THAT COMMUNITY AIR MONITORING IS BEING PERFORMED PRIOR TO INITIATING INTRUSIVE AND/OR POTENTIAL DUST-GENERATING ACTIVITIES (E.G., SITE PREPARATION, EXCAVATION, ETC.) EACH DAY.
5. THE CONTRACTOR SHALL MEET ALL NOISE ORDINANCES AND MAKE EVERY EFFORT TO MINIMIZE NOISE CAUSED BY CONSTRUCTION OPERATIONS. EQUIPMENT SHALL BE EQUIPPED WITH SILENCERS OR MUFFLERS DESIGNED TO OPERATE WITH THE LEAST POSSIBLE NOISE IN COMPLIANCE WITH FEDERAL, STATE, AND LOCAL NOISE ORDINANCES.
6. THE CONTRACTOR SHALL PERFORM AND MAINTAIN SURVEY CONTROL THROUGHOUT THE COURSE OF THE WORK IN ACCORDANCE WITH TECHNICAL SPECIFICATION 01 71 23 – FIELD ENGINEERING. SURVEY DOCUMENTATION OF PRE-CONSTRUCTION, POST-CONSTRUCTION, AND RESTORED CONDITIONS SHALL BE PREPARED AND CERTIFIED BY A NEW YORK STATE LICENSED PROFESSIONAL LAND SURVEYOR. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS AT PROJECT COMPLETION.
7. THE CONTRACTOR SHALL ESTABLISH, MAINTAIN, AND PROTECT THE PROJECT WORK LIMITS (INCLUDING EXCLUSION, CONTAMINATION REDUCTION, AND SUPPORT ZONES) IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS 01 51 05 – TEMPORARY UTILITIES AND CONTROLS AND 01 52 11 – TEMPORARY FIELD OFFICES AND STRUCTURES.
8. ALL WORK SHALL BE PERFORMED WITHIN THE PROJECT WORK LIMITS (I.E., LIMITS OF DISTURBANCE AND THE AREA DESIGNATED FOR CONTRACTOR USE). NO WORK SHALL BE PERFORMED BEYOND THE PROJECT WORK LIMITS WITHOUT PRIOR APPROVAL FROM RG&E OR THE REMEDIATION ENGINEER.
9. CONTRACTOR IS RESPONSIBLE TO MAINTAIN ACCESS TO ALL AREAS OF THE SITE DURING CONSTRUCTION.
10. CONSTRUCTION FENCING SHALL BE INSTALLED AROUND ACCESSIBLE PORTIONS OF ANY OPEN EXCAVATION.
11. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY TRAFFIC CONTROL MEASURES (E.G., FLAGGERS, SIGNS, CONES, ETC.) AND COORDINATING THE HAULING OF MATERIALS ON PUBLIC ROADWAYS. THE LOADING/UNLOADING OF MATERIALS AND EQUIPMENT WITHIN SMITH STREET IS PROHIBITED.
12. THE CONTRACTOR SHALL PREVENT TRACKING OF SOIL MATERIALS ONTO OFF-SITE AREAS. ANY SOIL MATERIALS ACCIDENTALLY TRACKED OR OTHERWISE SPILLED OR DROPPED ONTO OFF-SITE AREAS SHALL BE IMMEDIATELY CLEANED UP BY THE CONTRACTOR AT NO ADDITIONAL COST TO RG&E.
13. NO EXCAVATED MATERIALS OR SUPPLIES OF ANY KIND SHALL BE STORED ON PRIVATE OR PUBLIC PREMISES WITHOUT PRIOR APPROVAL FROM THE REMEDIATION ENGINEER.
14. EXISTING SITE FEATURES NOT SPECIFICALLY IDENTIFIED ON THE DESIGN DRAWINGS MAY REQUIRE REMOVAL BY THE CONTRACTOR IN ORDER TO FACILITATE CONSTRUCTION. THE REMOVAL OF SUCH FEATURES SHALL NOT BE PERFORMED WITHOUT PRIOR APPROVAL FROM THE REMEDIATION ENGINEER.
15. UPON COMPLETION OF CONSTRUCTION, THE WORK AREA SHALL BE LEFT IN A CLEAN, NEAT, AND ORDERLY CONDITION.

UTILITIES:

1. THE SUBSURFACE UTILITIES SHOWN HEREON ARE OF QUALITY LEVEL "B" AS DEFINED BY THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) IN THE "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". THE SUBSURFACE UTILITY INVESTIGATION WAS PERFORMED BY THEW ASSOCIATES LAND SURVEYORS ON JULY 24, 2023 UTILIZING RADIO FREQUENCY (RF) METHODOLOGIES. ELECTROMAGNETIC INTERFERENCE AND SUBSURFACE SOIL AND GROUNDWATER CONDITIONS IMPACT THE ABILITY TO IDENTIFY AND TRACE SUBSURFACE UTILITIES. THE SUBSURFACE UTILITIES SHOWN HEREON REPRESENT THE UTILITIES THAT WERE IDENTIFIED UTILIZING RF METHODOLOGIES. THE SUBSURFACE UTILITIES WERE NOT EXCAVATED TO CONFIRM THEIR PRESENCE, DEPTH, OR COMPOSITION.
2. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION AND/OR MAINTENANCE OF ABOVE-AND UNDERGROUND UTILITIES DURING CONSTRUCTION. THE LOCATION OF ALL ABOVE- AND UNDERGROUND UTILITIES SHALL BE VERIFIED IN THE FIELD PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL CONTACT UDIG NEW YORK ONE-CALL SYSTEM (811) AND ALL APPLICABLE UTILITY COMPANIES FOR LOCATION OF UNDERGROUND UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES FOR THE TEMPORARY REMOVAL, RELOCATION, AND REPLACEMENT OF ANY UTILITY POLES, GUY WIRES, UNDERGROUND UTILITIES, AND/OR OVERHEAD WIRES THAT FALL WITHIN THE LIMITS OF CONSTRUCTION, OR THAT MAY INTERFERE WITH THE WORK.
3. CONTRACTOR SHALL BEAR ALL COSTS AND RESPONSIBILITY FOR REPAIRS TO ANY ON-SITE AND/OR OFF-SITE FEATURES (UTILITIES, SIDEWALKS, ROADS, ETC.) AND/OR SURFACES DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES. ALL REPAIRS/REPLACEMENTS SHALL MEET OR EXCEED EXISTING CONDITIONS.
4. THE CONTRACTOR SHALL IMMEDIATELY REMOVE ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMITS OF WORK OR ONTO PUBLIC RIGHT OF WAYS.

TURBIDITY CONTROLS AND MONITORING:

1. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING, MAINTAINING, AND MONITORING TURBIDITY CONTROLS DURING ALL IN-WATER WORK (I.E., DURING ALL SEDIMENT AND NEAR-RIVER SOIL REMOVALS) IN ACCORDANCE WITH TECHNICAL SPECIFICATION 35 80 00 – TURBIDITY BARRIERS AND MONITORING.

ENVIRONMENTAL WELL ABANDONMENT/CONSTRUCTION:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABANDONING ENVIRONMENTAL WELLS IDENTIFIED IN THE DESIGN DRAWINGS IN ACCORDANCE WITH TECHNICAL SPECIFICATION 33 01 10.81 – GROUNDWATER MONITORING WELL ABANDONMENT.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTING NEW ENVIRONMENTAL WELLS IN ACCORDANCE WITH TECHNICAL SPECIFICATION 33 11 53 – WELL CONSTRUCTION.

DEMOLITION:

1. DEMOLITION INCLUDES ABOVE AND BELOW GROUND STRUCTURAL CONCRETE, FOUNDATIONS, METALS, MASONRY ATTACHMENTS, APPURTENANCES, PIPING, ELECTRICAL AND MECHANICAL EQUIPMENT, PAVING, CURBS, SIDEWALKS, FENCING, PIPING AND SIMILAR EXISTING FACILITIES WITHIN REMEDIATION AREAS IN ACCORDANCE WITH TECHNICAL SPECIFICATION 02 41 13 – STRUCTURE DEMOLITION.
2. THE CONTRACTOR SHALL CONDUCT A PRE-AND POST-CONSTRUCTION CONDITIONS SURVEYS AND VERIFICATION OF THE CONDITION OF EXISTING STRUCTURES AND FACILITIES TO BE MAINTAINED. THE PRE- AND POST-CONSTRUCTION CONDITIONS SURVEYS SHALL CONSIST OF PHOTOGRAPHS, AND A WRITTEN REPORT IN ACCORDANCE WITH TECHNICAL SPECIFICATION 02 21 00 – STRUCTURAL MONITORING AND SURVEYS.
3. THE CONTRACTOR SHALL SUBMIT A DEMOLITION PLAN THAT ADDRESSES METHODS, EQUIPMENT AND OPERATING SEQUENCES, INCLUDING, BUT, NOT LIMITED TO, COORDINATION FOR SHUT-OFF, CAPPING,TEMPORARY SERVICES, CONTINUATION OF UTILITY SERVICES AND OTHER APPLICABLE ITEMS TO ENSURE NO INTERRUPTION OF SERVICES.
4. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND INCIDENTALS AS INDICATED ON THE PLANS REQUIRED FOR DEMOLITIONS, MATERIAL SIZING AND MATERIAL REMOVAL AND DISPOSAL. WORK SHALL INCLUDE DEMOLITION ASSOCIATED WITH EXISTING STRUCTURES AND FACILITIES AND REMNANT SUBSURFACE STRUCTURES, PROCESS PIPING, AND FACILITIES.
5. THE CONTRACTOR SHALL DISPOSE OF ALL DEMOLITION MATERIALS AT A DISPOSAL FACILITY APPROVED BY RG&E.
6. THE CONTRACTOR SHALL PERFORM ALL DEMOLITION AND REMOVAL WORK TO PREVENT DAMAGE OR INJURY TO STRUCTURES ADJACENT FEATURES WHICH MAY RESULT FROM FALLING DEBRIS OR OTHER CAUSES, AND WHICH WILL INTERFERE WITH THE USE OF AND FREE AND SAFE PASSAGE TO AND FROM ADJACENT STRUCTURES.
7. THE CONTRACTOR SHALL ERECT AND MAINTAIN BARRIERS, LIGHTS, SHEDS, AND OTHER NECESSARY PROTECTIVE DEVICES.
8. THE CONTRACTOR SHALL SEGREGATE AND MANAGE ALL DEMOLISHED CONCRETE/ASPHALT. DEMOLISHED CONCRETE/ASPHALT SHALL BE DISPOSED OF AS C&D DEBRIS MATERIAL PROVIDED IT MEETS THE DISPOSAL FACILITIES ACCEPTANCE CRITERIA.

EXCAVATION SUPPORT:

1. THE CONTRACTOR SHALL SUBMIT EXCAVATION SUPPORT DESIGN, DRAWINGS, AND CALCULATIONS TO THE DESIGN ENGINEER FOR REVIEW AND COMMENT IN ACCORDANCE WITH TECHNICAL SPECIFICATION 31 50 00 – EXCAVATION SUPPORT AND PROTECTION. EXCAVATION SUPPORT SHALL NOT BE INSTALLED UNTIL THE CONTRACTORS DESIGN SUBMITTAL HAS BEEN REVIEWED AND ACCEPTED BY THE DESIGN ENGINEER AND RG&E. DRAWINGS AND CALCULATIONS IF REQUIRED FOR THE EXCAVATION SUPPORT DESIGN SHALL BE SIGNED AND SEALED BY A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER.
2. ALL EXCAVATION, TRENCHING, SHEETING, BRACING, AND RELATED ACTIVITIES SHALL FULLY COMPLY WITH THE REQUIREMENTS OF OSHA EXCAVATION SAFETY STANDARDS (29 CFR PART 1926).
3. THE SUBSURFACE SOILS ARE KNOWN TO CONTAIN REMNANT STRUCTURES, CONSTRUCTION DEBRIS, AND RUBBLE IN VARYING QUANTITIES AND SIZE ALONG WITH ABANDONED AND ACTIVE SUBSURFACE UTILITIES. THE DESIGN AND INSTALLATION OF THE EXCAVATION SUPPORT MEASURES SHALL CONSIDER THE PRESENCE OF THESE OBSTRUCTIONS.

EXCAVATION AND DEBRIS:

1. THE CONTRACTOR IS RESPONSIBLE FOR EXCAVATING SOILS FROM THE LIMITS AND TO THE EXTENTS IDENTIFIED ON THE DESIGN DRAWINGS IN ACCORDANCE WITH TECHNICAL SPECIFICATION 31 23 16 - EXCAVATION.

IN-SITU STABILIZATION/SOLIDIFICATION TREATMENT:

1. STABILIZATION OF SOILS SHALL BE PERFORMED IN ACCORDANCE WITH TECHNICAL SPECIFICATION 02 55 00 - ISS TREATMENT.

SITE RESTORATION:

1. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING SITE RESTORATION IN ACCORDANCE WITH THE REQUIREMENTS OF TECHNICAL SPECIFICATIONS 32 72 00 – UPLAND RIPARIAN STREAMBED RESTORATION AND 32 91 19.13 – FINISH GRADING, TOPSOIL, AND SEEDING.

SEQUENCE OF CONSTRUCTION:

1. PRIOR TO PROCEEDING WITH THE WORK, CONTRACTOR SHALL PREPARE AND SUBMIT A CONTRACTOR PROJECT OPERATION PLAN IN ACCORDANCE WITH TECHNICAL SPECIFICATION 01 15 00 – CONTRACTOR'S PROJECT OPERATION PLAN PRESENTING THE SEQUENCE OF CONSTRUCTION FOR THE REMEDIATION ENGINEER'S APPROVAL. THE FOLLOWING SEQUENCE OF WORK IS PROVIDED FOR GENERAL PLANNING PURPOSES ONLY AND IS NOT INCLUSIVE OF ALL WORK TO BE PERFORMED.
2. PRIOR TO MOBILIZATION TO THE SITE THE CONTRACTOR SHALL:
   - 2.1. OBTAIN ALL NECESSARY PERMITS.
   - 2.2. PREPARE AND SUBMIT ALL REQUIRED SUBMITTALS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
   - 2.3. PHOTOGRAPHICALLY DOCUMENT AND SURVEY EXISTING SITE CONDITIONS.
   - 2.4. VERIFY THE EXISTENCE AND LOCATION OF ALL UTILITIES WITHIN THE PROJECT WORK AREA.
3. MOBILIZATION.
4. PERFORM SITE PREPARATION ACTIVITIES:
   - 4.1. INSTALL ALL APPLICABLE EROSION AND SEDIMENTATION CONTROL MEASURES.
   - 4.2. CLEAR, GRUB, AND SCARIFY WORK AREAS TO PERFORM EXCAVATIONS.
   - 4.3. REMOVE FENCING, IF NECESSARY.
   - 4.4. CONSTRUCT TEMPORARY STAGING AND INSTALL TEMPORARY CONTROLS.
   - 4.5. IMPROVE SITE ACCESS ALONG SUNTRU STREET.
5. INSTALL EXCAVATION SUPPORT AND PROTECTION MEASURES.
6. PERFORM EXCAVATIONS.
7. PERFORM ISS TREATMENT.
8. INSTALL WATER DIVERSION SYSTEM AND TURBIDITY CONTROLS.
9. PERFORM NEAR-RIVER SOILS AND SEDIMENT REMOVALS.
10. DECONTAMINATE EQUIPMENT.
11. INSTALL SITE COVER SYSTEM.
12. PERFORM SITE GRADING.
13. PERFORM SITE RESTORATION.
14. DEMOBILIZATION.

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DRAFT

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JL	MBB	MAD

DRAWN BY: JL	DATE: 11/8/24	SEAL: NOT FOR BIDDING OR CONSTRUCTION
CHECKED BY: MBB	DATE: 11/8/24	
APPROVED BY: MAD	DATE: 11/8/24	
PROJECT MGR.: ALB	DATE: 11/8/24	

PARSONS
OFFICE: 301 PLAINFIELD ROAD, SYRACUSE, NY 13212, (315) 451-9560

JOB: 453121
WBS: 05000

PROJECT TITLE: EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC
ROCHESTER, NEW YORK

DRAWING TITLE: GENERAL LEGEND AND NOTES

SCALE: NO SCALE

DRAWING NO.: 453121-G-003
REV.: A

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\GEN\453121-G002-NOTES.DWG

SUNTRU STREET
BOTTOM OF BANK
POWER PLANT
AMMONIA LIQUOR STORAGE
NO. 39 OIL TANK
NO. 38 OIL TANK
SCRUBBERS
FORMER TAR WELL
CONDENSER HOUSE
WATER GAS PLANT
COAL BUNKER
PURIFIER TANKS
PURIFIER HOUSE
BIO-CELL
FORMER BLDG 11
BRICK BLDG
I-STORY FRMR LOCKER ROOM
OXIDE PURIFIER BEDs
OXIDE PURIFIER BEDs
STORAGE BUILDING
LAB
VAULT
DEHYDRATING TAR TANKS
CYANOGEN TOWER
AMMONIA TANKS
MACHINE SHOP
AMMONIA ROOM
LAB
RETORT HOUSE
GENERATOR HOUSE
CONDENSER
COAL BUNKER
TANKS
CONDENSER
CONDENSER
WASTE HEAT BOILERS
SURGE TANKS
COMBUSTION CHAMBERS
WASH BOX
WASTE HEAT BOILERS
CATALYST CHAMBER
METER HOUSE
LOCKER ROOM
LIGHT OIL/ AMMONIA SCRUBBERS
GOVERNOR HOUSE
400,000 cu. ft. Gas Holder #7
DRIP HOUSE
DRIP HOUSE
2,000,000 C.F. GAS HOLDER #9
1,000,000 CU. FT. GAS HOLDER #8
LIGHT OIL
DRIP PIT
DRIP PIT
OIL PUMP HOUSE
COOLING COILS (NO LONGER PRESENT)
LIGHT OIL PLANT (NO LONGER PRESENT)
PERCOLATOR HOUSE (NO LONGER PRESENT)
DRIP HOUSE
DRIP HOUSE
WASTE OIL TANKS
NAPHTHA TANK
GASOLINE TANK
5,000,000 cu. ft. GAS HOLDER #11
BUILDING FOUNDATIONS
OIL/NAPHTHA TANKS (NO LONGER PRESENT)
OIL/NAPHTHA TANKS (NO LONGER PRESENT)
FORMER PUMPHOUSE STRUCTURE (EXISTING)
GLASS STORAGE
FORMER BUILDING 12
FORMER BUILDING 51
FORMER BUILDING 51
1-STORY BRICK LAB
11" SEWER
PIT AREA
CONC FND
STM
GAS
W
MATCHLINE
Genesee River
BAUSCH MEMORIAL BRIDGE

LEGEND:

- GAS LINE
- FENCELINE
- PROPERTY BOUNDARY
- PAVEMENT EDGES
- SLUICE WAYS AND DRAINS
- FORMER STEAM LINE
- 11" SEWER LINE
- WATER LINES
- EXISTING FOUNDATION/FEATURES
- HISTORIC FOUNDATION/FEATURES
- RACEWAYS

NOTES:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. HISTORIC INFORMATION SHOWN IS APPROXIMATED.
3. CONTRACTOR SHALL ASSUME THAT SUBSURFACE FOUNDATIONS AND COMPONENTS OF HISTORIC STRUCTURES ARE PRESENT ON SITE.
4. SEE DRAWING 453121-C008 FOR BUILDING/FOUNDATION DEMOLITION PLAN.

DRAFT

50 25 0 50 100

SCALE: 1"=50'

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JR	MBB	MAD

DRAWN BY	JR	DATE	11/8/24
CHECKED BY	MBB	DATE	11/8/24
APPROVED BY	MAD	DATE	11/8/24
PROJECT MGR.	ALB	DATE	11/8/24

SEAL: NOT FOR BIDDING OR CONSTRUCTION

PARSONS

OFFICE
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(315) 451-9560

JOB 453121
WBS 05000

PROJECT TITLE
EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE
HISTORICAL SITE PLAN
RG&E FORMER MGP SITE
(ON-SITE)

SCALE: AS SHOWN

DRAWING NO. 453121-C-001

REV. A

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FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C001-C002-HISTORIC.DWG
PLOT DATE: 12/10/2024 2:22 PM PLOTTED BY: RUSSO, JILL [US-US]



DRAFT

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A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JR	MBB	MAD

DRAWN BY	JR	DATE 11/8/24
CHECKED BY	MBB	DATE 11/8/24
APPROVED BY	MAD	DATE 11/8/24
PROJECT MGR.	ALB	DATE 11/8/24

SEAL

NOT FOR BIDDING OR CONSTRUCTION

PARSONS
OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 453121

WBS 05000

PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

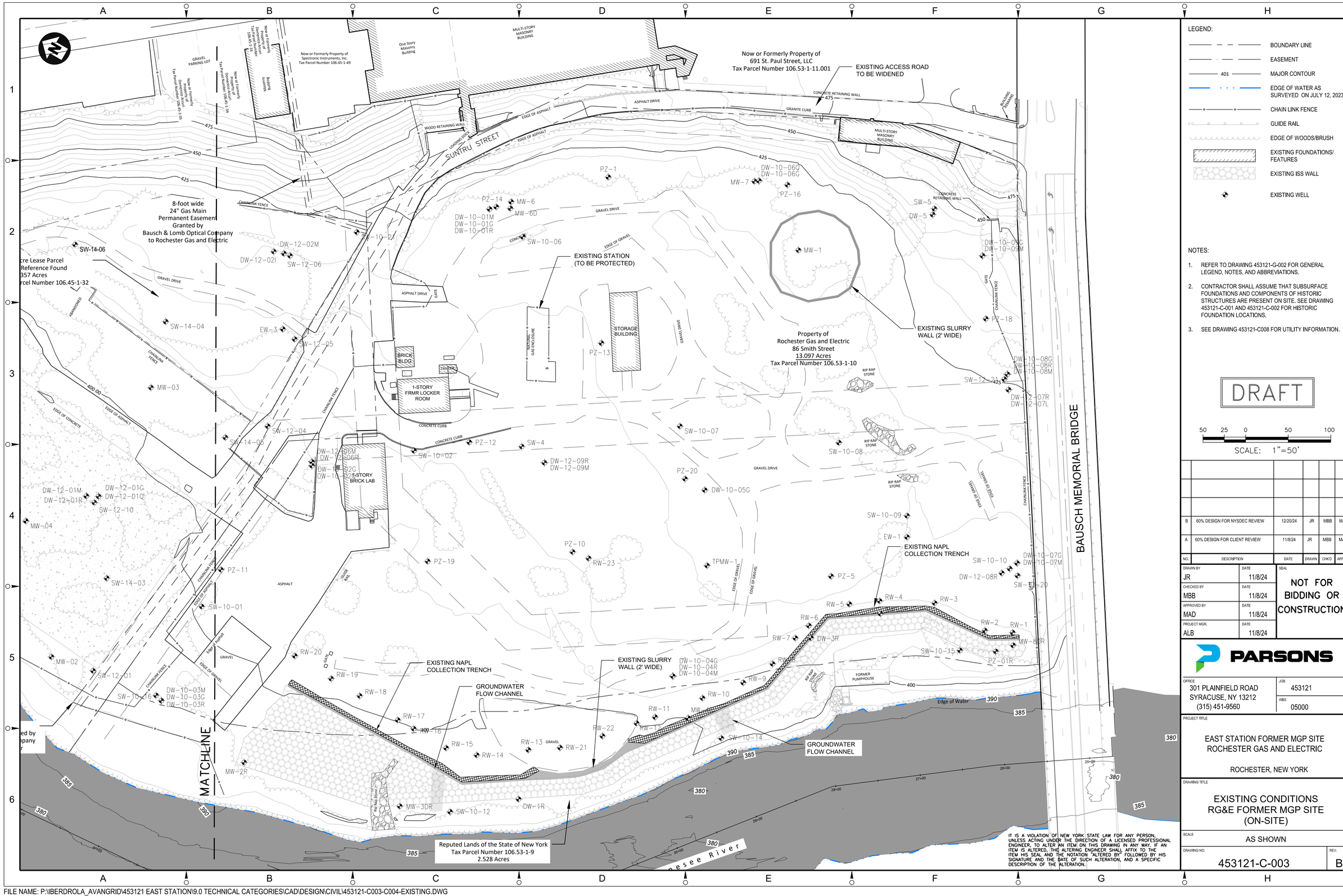
HISTORICAL SITE PLAN
B+L PROPERTY
(OFF-SITE)

SCALE: AS SHOWN

DRAWING NO. 453121-C-002

REV. A

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C001-C002-HISTORIC.DWG
PLOT DATE: 12/10/2024 2:23 PM PLOTTED BY: RUSSO, JILL [US-US]


Now or Formerly Property of
691 St. Paul Street, LLC
Tax Parcel Number 106.53-1-11.001
EXISTING ACCESS ROAD TO BE WIDENED
Now or Formerly Property of Spectronic Instruments, Inc. Tax Parcel Number 106.45-1-49
MULTI-STORY MASONRY BUILDING
One Story Masonry Building
GRAVEL PARKING LOT
SUNTRU STREET
WOOD RETAINING WALL
CONCRETE RETAINING WALL
GRANITE CURB
ASPHALT DRIVE
EDGE OF ASPHALT
LOADING DOCK
CHAINLINK FENCE
8-foot wide
24" Gas Main
Permanent Easement
Granted by
Bausch & Lomb Optical Company
to Rochester Gas and Electric
cre Lease Parcel
Reference Found
357 Acres
rcel Number 106.45-1-32
GRAVEL DRIVE
ABANDONED
EXISTING STATION (TO BE PROTECTED)
ASPHALT DRIVE
GATE
STORAGE BUILDING
MATERIAL GAS ENCLOSURE
BRICK BLDG
1-STORY FRMR LOCKER ROOM
CONCRETE CURB
Property of
Rochester Gas and Electric
86 Smith Street
13.097 Acres
Tax Parcel Number 106.53-1-10
EXISTING SLURRY WALL (2' WIDE)
RIP RAP STONE
400.00
EDGE OF CONCRETE
EDGE OF ASPHALT
3-STORY BRICK LAB
ASPHALT
GUIDE RAIL
EDGE OF GRAVEL
EDGE OF GRAVEL
GRAVEL
EXISTING NAPL COLLECTION TRENCH
EXISTING SLURRY WALL (2' WIDE)
GROUNDWATER FLOW CHANNEL
FORMER PUMPHOUSE
Edge of Water
MATCHLINE
Reputed Lands of the State of New York
Tax Parcel Number 106.53-1-9
2.528 Acres
Genesee River
BAUSCH MEMORIAL BRIDGE
TREWBRIDGE
PZ-1
PZ-10
PZ-11
PZ-12
PZ-13
PZ-14
PZ-16
PZ-18
PZ-19
PZ-20
PZ-5
PZ-01R
MW-1
MW-2R
MW-3DR
MW-04
MW-6
MW-6D
MW-7
MW-80R
DW-1R
DW-3R
SW-10-01
SW-10-02
SW-10-04
SW-10-05
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RW-23
TPMW-1
DW-10-01M
DW-10-01G
DW-10-01R
DW-10-03M
DW-10-03G
DW-10-03R
DW-10-04G
DW-10-04R
DW-10-04M
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DW-12-01M
DW-12-01R
DW-12-01G
DW-12-01Q
DW-12-02M
DW-12-02I
DW-12-06M
DW-12-06R
DW-12-08R
DW-12-09R
DW-12-09M
DW-2-07R
DW-2-07L
DW-12-02G
DW-12-02Q
SW-12-02
SW-12-07
SW-12-21
SW-5
DW-5
SW-10-16
MW-03
MW-02
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RW-58
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RW-60
RW-61
RW-62
RW-63

ST. PAUL ST.

Now or Formerly Property of Spectronic Instruments, Inc. Tax Parcel Number 106.45-1-49

Now or Formerly Property of Dominick Arcuri Tax Parcel Number 106.45-1-33

Now or Formerly Property of Dominick Arcuri Tax Parcel Number 106.45-1-34

Now or Formerly Property of Dominick Arcuri Tax Parcel Number 106.45-1-35

GRAVEL PARKING LOT

One Story Masonry Building

MULTI-STORY MASONRY BUILDING

Now or Formerly Property of O'Brien and Gere Property Development, Inc. Tax Parcel Number 106.45-1-36.2

ASPHALT PARKING LOT

WOOD RETAINING WALL

LOADING DOCK

SUNTRU STREET

EDGE OF ASPHALT

Now or Formerly Property of O'Brien and Gere Property Development, Inc. Liber 08671 - Page 491 Parcel C Tax Parcel Number 106.45-1-5.1

8-foot wide 24" Gas Main Permanent Easement Granted by Bausch & Lomb Optical Company to Rochester Gas and Electric

CHAINLINK FENCE

PZ-14 MW-6 MW-6D DW-10-01M DW-10-01G DW-10-01R SW-10-02 SW-12-02M DW-12-02I SW-12-06 SW-14-06

1.357 Acre Lease Parcel No Deed Reference Found 1.357 Acres Portion of Tax Parcel Number 106.45-1-32

GRAVEL DRIVE

ASPHALT DRIVE

GATE

ABANDONED

SW-14-04 EW-3 SW-12-05

BRICK BLDG

1-STORY FRMR LOCKER ROOM

NATURAL GAS ENCLOSURE

ABANDONED CONRAIL RAILROAD BRIDGE

DW-12-03M DW-12-03G MW-01

Property of Bausch and Lomb Optical Company 10 Bausch Street 8.830 Acres Tax Parcel Number 106.45-1-32

SW-14-01 MW-03

EDGE OF CONCRETE

EDGE OF ASPHALT

400.00

SW-12-04 SW-14-05

DW-12-05M DW-12-05R DW-10-02G DW-10-02R 2-STORY BRICK LAB

CONCRETE CURB

PZ-12 SW-10-02

SW-12-13

BROKEN CONCRETE PAD

Broken Concrete Pad

DW-12-01M DW-12-01R DW-12-01G DW-12-01D SW-12-10

MW-04 SW-14-02

Now or Formerly Property of City of Rochester Tax Parcel Number 106.37-3-15

Edge of Water

Tax Parcel Number 106.45-1-32

The boundary line for this parcel along the easterly side of the Genesee River is ambiguous. For the purpose of this survey, the boundary line shown is the edge of water as observed on July 12, 2023.

EDGE OF WATER

Genesee River

PZ-19

ASPHALT

CHAINLINK FENCE

EDGE OF ASPHALT

SW-14-03

PZ-11

SW-10-01

GUIDE RAIL

MW-02 SW-12-01

DW-10-03M DW-10-03G DW-10-03R SW-10-16

GRAVEL

EDGE OF GRAVEL

RW-20 RW-19 RW-18 RW-17 RW-16 RW-15 RW-14

EXISTING NAPL COLLECTION TRENCH

GROUNDWATER FLOW CHANNEL

20-foot wide Permanent Easement Granted by Bausch & Lomb Optical Company to The City of Rochester

MATCHLINE

MW-2R

Rip Rap Slope

MW-3DR SW-10-12

Reputed Lands of the State of New Y

IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

LEGEND:

- BOUNDARY LINE
- EASEMENT
- 401 MAJOR CONTOUR
- EDGE OF WATER AS SURVEYED ON JULY 12, 2023
- CHAIN LINK FENCE
- GUIDE RAIL
- EDGE OF WOODS/BRUSH
- EXISTING FOUNDATIONS/ FEATURES
- EXISTING ISS WALL
- EXISTING WELL

NOTES:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. CONTRACTOR SHALL ASSUME THAT SUBSURFACE FOUNDATIONS AND COMPONENTS OF HISTORIC STRUCTURES ARE PRESENT ON SITE. SEE DRAWING 453121-C-001 AND 453121-C-002 FOR HISTORIC FOUNDATION LOCATIONS.
3. SEE DRAWING 453121-C008 FOR UTILITY INFORMATION.

DRAFT

50 25 0 50 100

SCALE: 1"=50'

NO.	DESCRIPTION	DATE	DRAWN	CHKD	APPVD
B	60% ISSUED FOR NYSDEC REVIEW	12/20/24	JR	MBB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JR	MBB	MAD

DRAWN BY	JR	DATE 11/8/24
CHECKED BY	MBB	DATE 11/8/24
APPROVED BY	MAD	DATE 11/8/24
PROJECT MGR.	ALB	DATE 11/8/24

SEAL

NOT FOR BIDDING OR CONSTRUCTION

PARSONS

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 453121

WBS 05000

PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

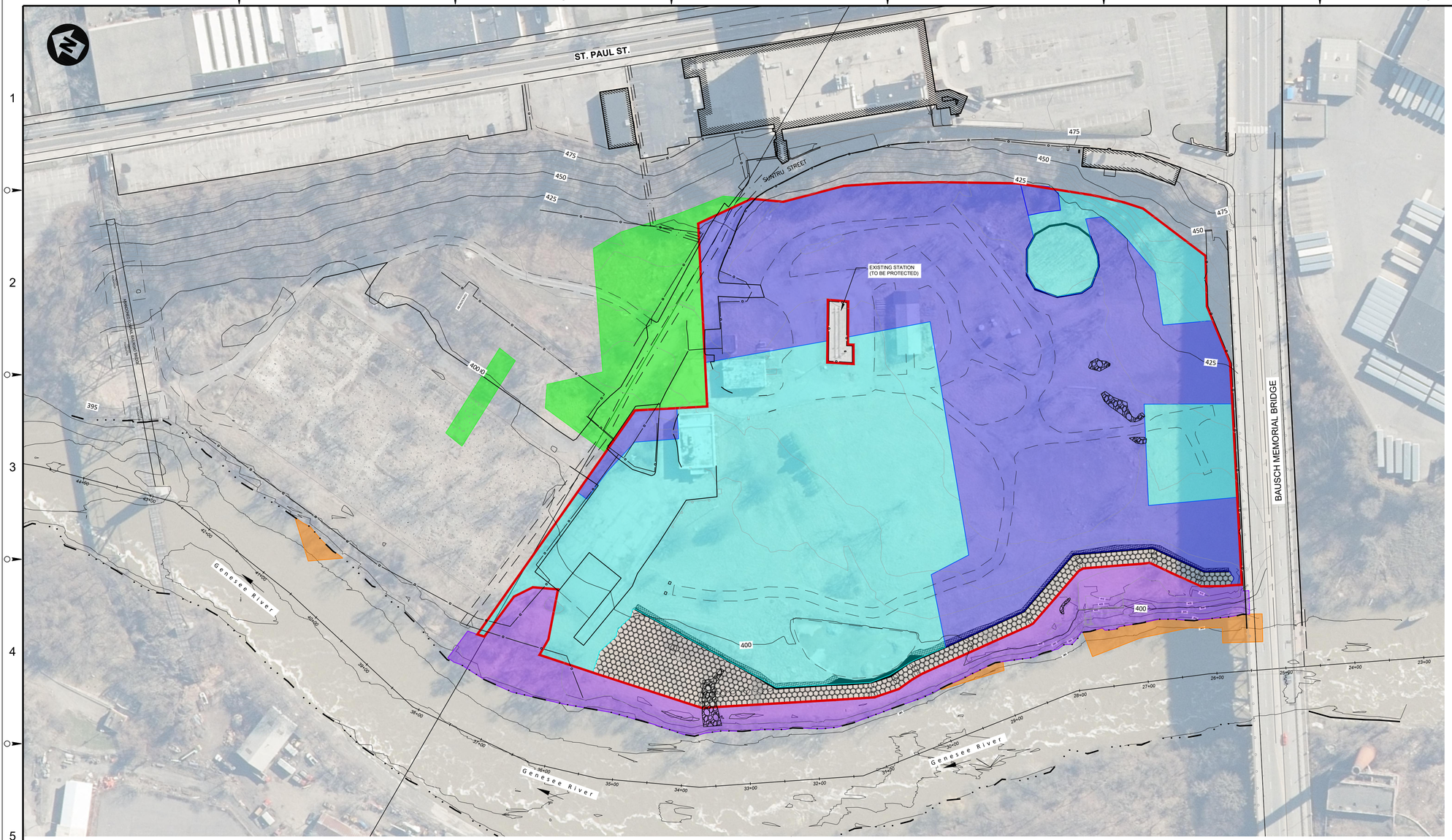
EXISTING CONDITIONS
B+L PROPERTY
(OFF-SITE)

SCALE AS SHOWN

DRAWING NO. 453121-C-004

REV. B

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C003-C004-EXISTING.DWG
PLOT DATE: 12/17/2024 1:13 PM PLOTTED BY: RUSSO, JILL [US-US]



RG&E FORMER MGP SITE (ON-SITE) AREA REMOVAL

1. SOIL REMOVAL TO A DEPTH OF 10 FEET BELOW GROUND SURFACE FOLLOWED BY ISS TO COMPETENT BEDROCK, AND PLACEMENT OF A MINIMUM FOUR FOOT THICK IMPORTED SOIL COVER.

B+L PROPERTY (OFF-SITE) AREA REMOVAL

1. SOIL REMOVAL TO COMPETENT BEDROCK.

NEAR-RIVER SOILS AREA REMOVAL

1. SOIL REMOVAL TO COMPETENT BEDROCK.

SEDIMENT AREA REMOVAL

1. SEDIMENT REMOVAL TO COMPETENT BEDROCK.

SOIL COVER ONLY AREA

1. PLACEMENT OF A MINIMUM TWO FOOT THICK IMPORTED SOIL COVER.

LIMITS OF SOIL COVER

1. LIMITS OF SOIL COVER PLACEMENT FOR THE FORMER MGP SITE (ON-SITE) AND SOIL COVER ONLY AREAS.

EXISTING ISS BARRIER WALL REMOVAL AREA

1. REMOVAL OF SOLIDIFIED MATERIAL TO A MINIMUM DEPTH OF FOUR FEET BELOW EXISTING GRADE.

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PROJECT REMEDY OVERVIEW PLAN NOTES:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL UPLAND AND IN-RIVER TEMPORARY EROSION, SEDIMENTATION, AND TURBIDITY CONTROLS THROUGHOUT REMEDIATION AND RESTORATION ACTIVITIES.
3. CONTRACTOR SHALL TAKE APPROPRIATE STEPS TO PROTECT THE STABILITY OF STRUCTURES IN AND AROUND THE REMEDIATION AREA.
4. THE CONTRACTOR SHALL PERFORM SEDIMENT AND SHORELINE REMOVALS WORKING FROM UPSTREAM TO DOWNSTREAM TO THE EXTENT PRACTICABLE.
5. AERIAL PROVIDED BY NYS GIS CLEARING HOUSE - DATED 2023.
6. THE HIGH PRESSURE GAS LINE AND REGULATOR ARE SCHEDULED TO REMAIN AND WILL BE IN SERVICE AT TIME OF CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE HIGH PRESSURE GAS LINE AND REGULATOR.

DRAFT

80 40 0 80 160

SCALE: 1"=80'

NO.	DESCRIPTION	DATE	DRAWN	CHKD	APPVD
B	60% DESIGN FOR NYSDEC REVIEW	11/8/24	JR	KEB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JR	KEB	MAD

DRAWN BY: JR	DATE: 11/08/24	SEAL: NOT FOR BIDDING OR CONSTRUCTION
CHECKED BY: KEB	DATE: 11/08/24	
APPROVED BY: MAD	DATE: 11/08/24	
PROJECT MGR.: ALB	DATE: 11/08/24	

PARSONS
OFFICE: 301 PLAINFIELD ROAD, SYRACUSE, NY 13212, (315) 451-9560

JOB: 453121
WBS: 05000

PROJECT TITLE: EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

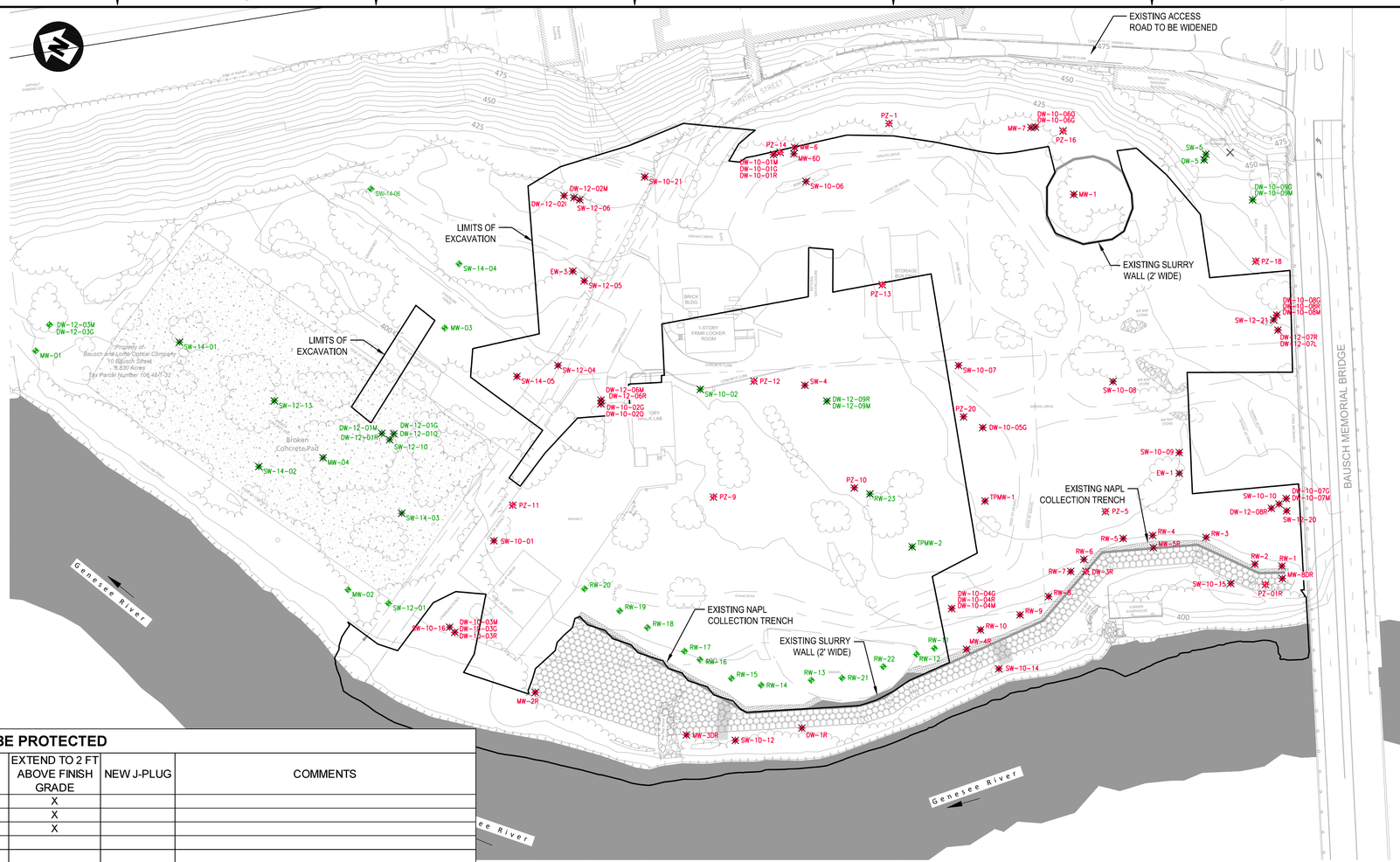
DRAWING TITLE: PROJECT REMEDY OVERVIEW PLAN

SCALE: AS SHOWN

DRAWING NO.: 453121-C-005

REV.: B

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C005_REMEDY_OVERVIEW.DWG
PLOT DATE: 12/17/2024 1:37 PM PLOTTED BY: RUSSO, JILL [US-US]



LEGEND:

- LIMITS OF EXCAVATION
- WELLS TO BE ABANDONED IN PLACE
- WELLS TO BE PROTECTED AND/OR REPAIRED

NOTE:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. CONTRACTOR MAY PROPOSE ADDITIONAL WELLS FOR ABANDONMENT TO FACILITATE PERFORMANCE OF WORK.

DRAFT

80 40 0 80 160

SCALE: 1"=80'

TO BE PROTECTED

WELL ID	EASTING	NORTHING	TYPE	CASING	EXTEND TO 2 FT ABOVE FINISH GRADE	NEW J-PLUG	COMMENTS
DW-5	1405703.6340'	1155453.7530'	STICK-UP	2" PVC	X		
DW-10-09G	1405691.0110'	1155378.8730'	STICK-UP	2" PVC	X		
DW-10-09M	1405690.8120'	1155378.6680'	STICK-UP	2" PVC	X		
DW-12-01G	1404927.5920'	1156136.3180'	STICK-UP	2" PVC			
DW-12-01M	1404920.8020'	1156148.9680'	STICK-UP	2" PVC			
DW-12-01Q	1404927.5920'	1156136.3180'	STICK-UP	2" PVC			
DW-12-01R	1404920.8020'	1156148.9680'	STICK-UP	2" PVC			
DW-12-03G	1404833.7270'	1156562.2700'	STICK-UP	2" PVC			
DW-12-03M	1404833.7270'	1156562.2700'	STICK-UP	2" PVC			
DW-12-09M	1405223.4690'	1155702.7980'	STICK-UP	2" PVC	X		
DW-12-09R	1405223.4690'	1155702.7980'	STICK-UP	2" PVC	X		
SW-5	1405710.5750'	1155455.4050'	STICK-UP	2" PVC	X		
MW-01	1404798.0000'	1156561.0000'	STICK-UP	1.5" PVC		X	PIEZOMETER; MAY HAVE BEEN PREVIOUSLY ABANDONED
MW-02	1404736.8000'	1156090.0000'	STICK-UP	1.5" PVC		X	PIEZOMETER
MW-03	1405069.0000'	1156146.9000'	STICK-UP	1.5" PVC		X	PIEZOMETER
MW-04	1404859.9000'	1156195.7000'	STICK-UP	1.5" PVC		X	PIEZOMETER
SW-10-02	1405159.1200'	1155842.3510'	STICK-UP	2" PVC	X	X	
SW-12-01	1404747.1110'	1156039.5260'	STICK-UP	2" PVC		X	
SW-12-10	1404918.8620'	1156136.9880'	STICK-UP	2" PVC			
SW-12-13	1404889.8800'	1156281.1080'	STICK-UP	2" PVC			
SW-14-01	1404893.9665'	1156415.8263'	STICK-UP	2" PVC			
SW-14-02	1404811.7892'	1156257.6490'	STICK-UP	2" PVC			
SW-14-03	1404849.2800'	1156079.9910'	STICK-UP	2" PVC			
SW-14-04	1405144.6764'	1156170.5972'	STICK-UP	2" PVC			
SW-14-06	1405169.8768'	1156308.0183'	STICK-UP	2" PVC			
RW-11	1405029.8850'	1155441.0130'	STICK-UP	8" PVC	X		RECOVERY WELL
RW-12	1405012.7770'	1155456.1610'	STICK-UP	8" PVC	X		RECOVERY WELL
RW-13	1404922.1470'	1155550.5950'	STICK-UP	8" PVC	X		RECOVERY WELL
RW-14	1404886.5900'	1155599.9680'	STICK-UP	8" PVC	X		RECOVERY WELL
RW-15	1404875.8090'	1155635.3190'	STICK-UP	8" PVC	X		RECOVERY WELL
RW-16	1404876.4110'	1155679.5860'	STICK-UP	8" PVC	X		RECOVERY WELL
RW-17	1404875.8470'	1155700.7960'	STICK-UP	8" PVC	X		RECOVERY WELL
RW-18	1404878.1020'	1155753.7970'	STICK-UP	8" PVC	X		RECOVERY WELL
RW-19	1404878.8660'	1155792.9300'	STICK-UP	8" PVC	X		RECOVERY WELL
RW-20	1404880.6630'	1155843.1330'	STICK-UP	8" PVC	X		RECOVERY WELL
RW-21	1404943.0030'	1155519.6840'	STICK-UP	6" PVC	X		RECOVERY WELL
RW-22	1404979.7290'	1155483.4000'	STICK-UP	6" PVC	X		RECOVERY WELL
RW-23	1405152.2880'	1155601.7570'	STICK-UP	6" PVC	X		RECOVERY WELL
TPMW-2	1405122.5100'	1155525.6320'	STICK-UP	2" PVC	X		

WELL ABANDONMENT PROCEDURE MATRIX

PROCEDURE NUMBER	ABANDONMENT PROCEDURE	APPLICABLE TO:
1	CONTRACTOR SHALL FULLY REMOVE WELL CASING AND APPURTENANCES DURING REMEDIATION.	OVERBURDEN WELLS WITHIN EXCAVATION
2	CONTRACTOR SHALL OVER DRILL PRIOR TO REMEDIATION OR OTHER SITE DISTURBANCES THAT COULD RESULT IN DAMAGE TO THE WELL. GROUT AND RESTORE AT SURFACE.	OVERBURDEN WELLS OUTSIDE EXCAVATION. BEDROCK PVC WELLS (NO STEEL CASING) BOTH INSIDE AND OUTSIDE OF EXCAVATION.
3	GROUT WELL IN ACCORDANCE WITH CP-43. EMPLACE GROUT TO JUST ABOVE BEDROCK SURFACE. CUT CASING AT BEDROCK AND RESTORE SURFACE.	OPEN HOLE (STEEL CASING) BEDROCK WELLS WITHIN EXCAVATION.
4	GROUT WELL IN ACCORDANCE WITH CP-43 . EMPLACE GROUT TO 5 FT. BGS. CUT CASING AT 5 FT. BGS. AND RESTORE TO SURFACE.	OPEN HOLE (STEEL CASING) BEDROCK WELLS OUTSIDE EXCAVATION

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NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	KBB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/08/24	JR	KBB	MAD

DRAWN BY	JR	DATE	11/08/24
CHECKED BY	KB	DATE	11/08/24
APPROVED BY	MAD	DATE	11/08/24
PROJECT MGR.	ALB	DATE	11/08/24

SEAL

NOT FOR BIDDING OR CONSTRUCTION

PARSONS

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 453121

WBS 05000

PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

MONITORING WELL PROTECTION ABANDONMENT PLAN

SCALE: AS SHOWN

DRAWING NO. 453121-C-006

REV. B

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C006-C007-MW-REMOVAL.DWG
PLOT DATE: 12/17/2024 1:54 PM PLOTTED BY: RUSSO, JILL [US-US]

TO BE ABANDONED

WELL ID	EASTING	NORTHING	TYPE	FORMATION SCREENED	SURFACE COMPLETION	CASING	SCREENED OR OPEN HOLE	DEPTH TO BEDROCK (FT)	SCREEN INTERVAL (FT)	TOTAL DRILLING DEPTH (FT)	DRILLING METHOD/ DIAMETER	WELL WITHIN EXCAVATION AREA?	ABANDONMENT PROCEDURES	COMMENTS
DW-1R	1404866.3700'	1155531.5560'	BEDROCK	IRONDEQUOIT LIMESTONE	STICK-UP	2" PVC	SCREENED	16.5	23.5-33.5	33.5	4" HSA/WATER ROTARY	YES	3	
DW-3R	1405201.8290'	1155328.8840'	BEDROCK	IRONDEQUOIT LIMESTONE	STICK-UP	2" PVC	SCREENED	18.2	20.4-27.4	29.2	4" HSA/WATER ROTARY	YES	3	
DW-10-01G	1405449.1430'	1155907.4550'	BEDROCK	GRIMSBY SANDSTONE	STICK-UP	2" PVC	SCREENED	26	141-151	171	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-01M	1405449.3670'	1155907.3830'	BEDROCK	MAPLEWOOD SHALE	STICK-UP	2" PVC	SCREENED	26	96-106	171	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-01R	1405449.2770'	1155907.7120'	BEDROCK	REYNALES LIMESTONE	STICK-UP	2" PVC	SCREENED	26	80-90	171	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-02G	1405084.0620'	1155937.4470'	BEDROCK	GRIMSBY SANDSTONE	STICK-UP	2" PVC	SCREENED	25.1	127-137	156	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-02Q	1405084.2620'	1155937.4730'	BEDROCK	QUEENSTON SHALE	STICK-UP	2" PVC	SCREENED	25.1	146-156	156	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-03G	1404757.0350'	1155952.8270'	BEDROCK	GRIMSBY SANDSTONE	STICK-UP	2" PVC	SCREENED	15.8	116-126	151.1	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-03M	1404756.6450'	1155952.9070'	BEDROCK	MAPLEWOOD SHALE	STICK-UP	2" PVC	SCREENED	15.8	71-81	151.1	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-03R	1404756.8110'	1155952.5580'	BEDROCK	REYNALES LIMESTONE	STICK-UP	2" PVC	SCREENED	15.8	55-65	151.1	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-04G	1405081.9710'	1155446.2259'	BEDROCK	GRIMSBY SANDSTONE	STICK-UP	2" PVC	SCREENED	28	134-144	163	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-04M	1405081.6010'	1155445.9778'	BEDROCK	MAPLEWOOD SHALE	STICK-UP	2" PVC	SCREENED	28	91-101	163	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-04R	1405081.8811'	1155445.8400'	BEDROCK	REYNALES LIMESTONE	STICK-UP	2" PVC	SCREENED	28	72-82	163	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-05G	1405289.8480'	1155523.7700'	BEDROCK	GRIMSBY SANDSTONE	STICK-UP	2" PVC	SCREENED	30	146-156	174.5	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-06G	1405636.0160'	1155649.8230'	BEDROCK	GRIMSBY SANDSTONE	STICK-UP	2" PVC	SCREENED	32.5	149-159	181.2	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-06Q	1405636.0060'	1155650.0960'	BEDROCK	QUEENSTON SHALE	STICK-UP	2" PVC	SCREENED	32.5	170.5-180.5	181.2	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-07G	1405399.2030'	1155163.3270'	BEDROCK	GRIMSBY SANDSTONE	STICK-UP	2" PVC	SCREENED	76	144-154	173.8	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-07M	1405398.9020'	1155163.3470'	BEDROCK	MAPLEWOOD SHALE	STICK-UP	2" PVC	SCREENED	76	106-116	173.8	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-08G	1405585.1470'	1155284.0630'	BEDROCK	GRIMSBY SANDSTONE	STICK-UP	2" PVC	SCREENED	28.5	156-166	191	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-08M	1405585.1060'	1155283.8180'	BEDROCK	MAPLEWOOD SHALE	STICK-UP	2" PVC	SCREENED	28.5	115-125	191	10.25" ID HSA / 3.78" HQ	YES	3	
DW-10-08R	1405585.3640'	1155283.9770'	BEDROCK	REYNALES LIMESTONE	STICK-UP	2" PVC	SCREENED	28.5	100-110	191	10.25" ID HSA / 3.78" HQ	YES	3	
DW-12-02I	1405279.4050'	1156101.8510'	BEDROCK	IRONDEQUOIT LIMESTONE	STICK-UP	2" PVC	SCREENED	32	35-42	178	10.25" ID HSA / 3.78" HQ	YES	3	
DW-12-02M	1405283.3450'	1156090.3710'	BEDROCK	MAPLEWOOD SHALE	STICK-UP	2" PVC	SCREENED	32	90-105	178	10.25" ID HSA / 3.78" HQ	YES	3	
DW-12-06R	1405087.9350'	1155939.6980'	BEDROCK	REYNALES LIMESTONE	STICK-UP	2" PVC	SCREENED	16	59-69	93	10.25" ID HSA / 3.78" HQ	YES	3	
DW-12-06M	1405087.9350'	1155939.6980'	BEDROCK	MAPLEWOOD SHALE	STICK-UP	2" PVC	SCREENED	16	79-89	93	10.25" ID HSA / 3.78" HQ	YES	3	
DW-12-07I	1405578.1460'	1155278.3580'	BEDROCK	IRONDEQUOIT LIMESTONE	STICK-UP	2" PVC	SCREENED	26	55.4-65.4	94.5	10.25" ID HSA / 3.78" HQ	YES	3	
DW-12-07R	1405578.1460'	1155278.3580'	BEDROCK	REYNALES LIMESTONE	STICK-UP	2" PVC	SCREENED	26	82.5-92.5	94.5	10.25" ID HSA / 3.78" HQ	YES	3	
DW-12-08R	1405379.8150'	1155173.0960'	BEDROCK	REYNALES LIMESTONE	STICK-UP	2" PVC	SCREENED	70	88-98	100	10.25" ID HSA / 3.78" HQ	YES	3	
SW-4	1405226.6310'	1155735.3380'	OVERBURDEN	ALLUVIUM	STICK-UP	2" PVC	SCREENED	-	9-14	16.5	3.25" HSA	NO	2	EXISTING WELL IS DAMAGED
SW-10-01	1404876.1970'	1155966.7900'	OVERBURDEN	FILL, ALLUVUIM	FLUSH MOUNT	STEEL ROADWAY BOX	SCREENED	14	4.5-14.5	15	4.25" HSA	NO	2	MAY HAVE ALREADY BEEN ABANDONED
SW-10-06	1405440.4680'	1155857.2820'	OVERBURDEN	FILL, ALLUVUIM	STICK-UP	4" PVC	SCREENED	20.3	5-22	24	4.25" HSA	YES	1	
SW-10-07	1405340.1820'	1155586.5090'	OVERBURDEN	FILL, ALLUVUIM	STICK-UP	4" PVC	SCREENED	20	10-20	24.9	4.25" HSA	YES	1	
SW-10-08	1405416.7400'	1155415.1990'	OVERBURDEN	FILL, ALLUVUIM	STICK-UP	4" PVC	SCREENED	15.2	6-16	18	4.25" HSA	YES	1	
SW-10-09	1405382.4240'	1155303.0520'	OVERBURDEN	ALLUVIUM	STICK-UP	4" PVC	SCREENED	24.5	16-26	28	4.25" HSA	YES	1	
SW-10-10	1405388.8920'	1155167.6110'	OVERBURDEN	ALLUVIUM	STICK-UP	4" PVC	SCREENED	23	14.4-24.5	32	4.25" HSA	YES	1	
SW-10-12	1404813.344'	1155593.773'	OVERBURDEN	FILL	STICK-UP	2" PVC	SCREENED	-	7-17	19	4.25" HSA	YES	1	
SW-10-14	1405047.3030'	1155361.2810'	OVERBURDEN	FILL	STICK-UP	4" PVC	SCREENED	17.5	8-18	20	4.25" HSA	YES	1	
SW-10-15	1405276.6520'	1155170.2480'	OVERBURDEN	FILL	STICK-UP	4" PVC	SCREENED	21.6	12-22	24	4.25" HSA	YES	1	
SW-10-16	1404759.034'	1155961.052'	OVERBURDEN	FILL	STICK-UP	2" PVC	SCREENED	-	4.6-14.6	16.6	4.25" HSA	YES	1	
SW-10-21	1405347.8320'	1156028.8010'	OVERBURDEN	ALLUVIUM	FLUSH MOUNT	ROADWAY BOX	SCREENED	29	19.8-29.8	31.8	4.25" HSA	YES	1	MAY HAVE ALREADY BEEN ABANDONED
SW-12-04	1405098.2640'	1156005.5880'	OVERBURDEN	ALLUVIUM	FLUSH MOUNT	ROADWAY BOX	SCREENED	11.3	4.0-14	16	4.25" HSA	YES	1	
SW-12-05	1405202.5450'	1156029.2600'	OVERBURDEN	ALLUVIUM	STICK-UP	4" GALVANIZED STEEL	SCREENED	18	12.0-22	24	4.25" HSA	YES	1	
SW-12-06	1405284.6250'	1156082.8910'	OVERBURDEN	ALLUVIUM	STICK-UP	4" GALVANIZED STEEL	SCREENED	32	22.0-32	34	4.25" HSA	YES	1	
SW-12-20	1405386.3750'	1155155.4960'	OVERBURDEN	ALLUVIUM	STICK-UP	4" GALVANIZED STEEL	SCREENED	70.5	58-68	75.5	4.25" HSA	YES	1	
SW-12-21	1405578.3060'	1155284.3780'	OVERBURDEN	ALLUVIUM	STICK-UP	4" GALVANIZED STEEL	SCREENED	-	15.8-25.8	27.5	4.25" HSA	YES	1	
SW-14-05	1405061.9411'	1156041.9777'	OVERBURDEN	OVERBURDEN	STICK-UP	2" PVC	SCREENED	-	3.7-13.7	15.7	-	NO	2	
EW-1	1405360.7600'	1155290.5200'	OVERBURDEN	FILL	STICK-UP	6" PVC	SCREENED	-	15.2-22.8	24	HOLLOW STEM AUGER	YES	1	EXTRACTION WELL
EW-3	1405205.8500'	1156047.1100'	OVERBURDEN	FILL	STICK-UP	6" PVC	SCREENED	-	8-28	28	HOLLOW STEM AUGER	NO	2	EXTRACTION WELL
TPMW-1	1405214.4530'	1155477.0600'	OVERBURDEN	FILL	STICK-UP	2" PVC	SCREENED	25	15-25	27.2	4" HSA/WATER ROTARY	YES	1	
MW-1	1405588.6340'	1155569.3480'	OVERBURDEN	FILL	STICK-UP	2" PVC	SCREENED	-	13-23	23.3	4.25" HOLLOW STEM AUGER	NO	2	MAY HAVE ALREADY BEEN ABANDONED
MW-2R	1404742.6030'	1155832.0740'	OVERBURDEN	ISS	STICK-UP	2" PVC	SCREENED	6.5	10.5-15.5	17.7	4.25" HOLLOW STEM AUGER	NO	2	
MW-3DR	1404789.4310'	1155648.2100'	BEDROCK	GREY LIMESTONE	STICK-UP	2" PVC	SCREENED	16.8	23.2-33.2	35.2	4.25" HOLLOW STEM AUGER	YES	3	
MW-4R	1405048.2050'	1155406.7880'	OVERBURDEN	ISS	STICK-UP	2" PVC	SCREENED	7	11.1-16.1	18.3	4.25" HOLLOW STEM AUGER	YES	1	
MW-5R	1405267.2890'	1155272.6460'	BEDROCK	ROCHESTER SHALE	STICK-UP	2" PVC	SCREENED	17	19.5-29.5	31	4.25" HOLLOW STEM AUGER	YES	3	
MW-6	1405469.2280'	1155889.7820'	OVERBURDEN	FILL, ALLUVUIM	STICK-UP	2" PVC	SCREENED	-	9-21	23.68	4.25" HOLLOW STEM AUGER	YES	1	
MW-6D	1405462.1120'	1155886.6840'	BEDROCK	SHALE	STICK-UP	2" PVC	SCREENED	21.5	26.5-41.5	41.5	6.25" HOLLOW STEM AUGER	YES	3	
MW-7	1405632.8590'	1155654.4940'	OVERBURDEN	FILL	STICK-UP	2" PVC	SCREENED	-	16.5-26.5	31.2	4.25" HOLLOW STEM AUGER	YES	1	
MW-8DR	1405312.9740'	1155119.1570'	BEDROCK	ROCHESTER SHALE	STICK-UP	2" PVC	SCREENED	24	27-37	38.8	4" HSA/WATER ROTARY	NO	4	
RW-1	1405325.7090'	1155127.1390'	BEDROCK	BEDROCK	STICK-UP	8" PVC	SCREENED	-	-	23.63	-	YES	3	RECOVERY WELL WITH "T" CONNECTION IN TRENCH
RW-2	1405311.4200'	1155156.5960'	BEDROCK	BEDROCK	STICK-UP	8" PVC	SCREENED	-	-	23.17	-	YES	3	RECOVERY WELL WITH "T" CONNECTION IN TRENCH
RW-3	1405309.8560'	1155223.7100'	BEDROCK	BEDROCK	STICK-UP	8" PVC	SCREENED	-	-	20.46	-	YES	3	RECOVERY WELL WITH "T" CONNECTION IN TRENCH
RW-4	1405279.7500'	1155280.8290'	BEDROCK	BEDROCK	STICK-UP	8" PVC	SCREENED	-	-	20.27	-	YES	3	RECOVERY WELL WITH "T" CONNECTION IN TRENCH
RW-5	1405258.7540'	1155309.8300'	BEDROCK	BEDROCK	STICK-UP	8" PVC	SCREENED	-	-	17.81	-	YES	3	RECOVERY WELL WITH "T" CONNECTION IN TRENCH
RW-6	1405213.0430'	1155338.3250'	BEDROCK	BEDROCK	STICK-UP	8" PVC	SCREENED	-	-	18.1	-	YES	3	RECOVERY WELL WITH "T" CONNECTION IN TRENCH
RW-7	1405192.5390'	1155344.8550'	BEDROCK	BEDROCK	STICK-UP	8" PVC	SCREENED	-	-	20.4	-	YES	3	RECOVERY WELL WITH "T" CONNECTION IN TRENCH
RW-8	1405152.9710'	1155352.7960'	BEDROCK	BEDROCK	STICK-UP	8" PVC	SCREENED	-	-	17.13	-	YES	3	RECOVERY WELL WITH "T" CONNECTION IN TRENCH
RW-9	1405116.5970'	1155371.6230'	BEDROCK	BEDROCK	STICK-UP	8" PVC	SCREENED	-	-	18.09	-	YES	3	RECOVERY WELL WITH "T" CONNECTION IN TRENCH
RW-10	1405077.0060'	1155403.9570'	BEDROCK	BEDROCK	STICK-UP	8" PVC	SCREENED	-	-	17.52	-	YES	3	RECOVERY WELL WITH "T" CONNECTION IN TRENCH
PZ-01R	1405296.3971'	1155133.0154'	OVERBURDEN	ISS	STICK-UP	2" PVC	SCREENED	9	15.1-20.1	22.3	HSA	NO	2	
PZ-1	1405551.3540'	1155805.5370'	OVERBURDEN	ALLUVIUM	STICK-UP	1" PVC	SCREENED	-	12.5-17.5	22.46	3.25" HSA	YES	1	PIEZOMETER
PZ-5	1405276.0920'	1155344.6610'	OVERBURDEN	OVERBURDEN	STICK-UP	1" PVC	SCREENED	-	UNKNOWN	20.95	DRIVEPOINT GEOPROBE	YES	1	PIEZOMETER; MAY HAVE ALREADY BEEN ABANDONED
PZ-9	1405054.5450'	1155763.6330'	OVERBURDEN	OVERBURDEN	STICK-UP	1" PVC	SCREENED	-	UNKNOWN	15.29	DRIVEPOINT GEOPROBE	NO	2	PIEZOMETER; MAY HAVE ALREADY BEEN ABANDONED
PZ-10	1405149.1660'	1155621.7130'	OVERBURDEN	OVERBURDEN	STICK-UP	1" PVC	SCREENED	-	UNKNOWN	19.16	DRIVEPOINT GEOPROBE	NO	2	PIEZOMETER; MAY HAVE ALREADY BEEN ABANDONED
PZ-11	1404924.7270'	1155968.8480'	OVERBURDEN	OVERBURDEN	FLUSH MOUNT	1" PVC	SCREENED	-	UNKNOWN	14.35	DRIVEPOINT GEOPROBE	NO	2	PIEZOMETER; MAY HAVE ALREADY BEEN ABANDONED
PZ-12	1405200.2600'	1155791.2660'	OVERBURDEN	OVERBURDEN	STICK-UP	1" PVC	SCREENED	-	UNKNOWN	16.08	DRIVEPOINT GEOPROBE	NO	2	PIEZOMETER
PZ-13	1405378.3570'	1155715.1250'	OVERBURDEN	OVERBURDEN	STICK-UP	1" PVC	SCREENED	-	UNKNOWN	15.61	DRIVEPOINT GEOPROBE	YES	1	PIEZOMETER
PZ-14	1405455.3430'	1155901.9240'	OVERBURDEN	OVERBURDEN	STICK-UP	1" PVC	SCREENED	-	UNKNOWN	21.13	DRIVEPOINT GEOPROBE	YES	1	PIEZOMETER
PZ-16	1405648.6570'	1155618.8910'	OVERBURDEN	OVERBURDEN	STICK-UP	1" PVC	SCREENED	-	UNKNOWN	30.8	DRIVEPOINT GEOPROBE	NO	2	PIEZOMETER; MAY HAVE ALREADY BEEN ABANDONED
PZ-18	1405628.7240'	1155338.4210'	OVERBURDEN	OVERBURDEN	STICK-UP	1" PVC	SCREENED	-	UNKNOWN	35.22	DRIVEPOINT GEOPROBE	NO	2	PIEZOMETER; MAY HAVE ALREADY BEEN ABANDONED
PZ-20	1405289.4390'	1155550.3210'	OVERBURDEN	OVERBURDEN	STICK-UP	1" PVC	SCREENED	-	UNKNOWN	17.62	DRIVEPOINT GEOPROBE	YES	1	PIEZOMETER; MAY HAVE ALREADY BEEN ABANDONED

NOTES:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. REFER TO DRAWING 453121-C-007A FOR WELL ABANDONMENT PROCEDURE MATRIX.

DRAFT

IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	KBB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/08/24	JR	KBB	MAD

DRAWN BY: JR	DATE: 11/08/24	SEAL: NOT FOR BIDDING OR CONSTRUCTION
CHECKED BY: KB	DATE: 11/08/24	
APPROVED BY: MAD	DATE: 11/08/24	
PROJECT MGR.: ALB	DATE: 11/08/24	

PARSONS
OFFICE: 301 PLAINFIELD ROAD, SYRACUSE, NY 13212, (315) 451-9560

JOB: 453121
WBS: 05000

PROJECT TITLE: EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC
ROCHESTER, NEW YORK

DRAWING TITLE: MONITORING WELL ABANDONMENT SCHEDULE

SCALE: NO SCALE

DRAWING NO.: 453121-C-007

REV.: B

EXISTING ACCESS ROAD TO BE WIDENED

EXISTING STATION (TO BE PROTECTED)

EXISTING SLURRY WALL (2' WIDE)

EXISTING NAPL COLLECTION TRENCH

EXISTING SLURRY WALL (2' WIDE)

EXISTING NAPL COLLECTION TRENCH

1 SUNTRU STREET

BAUSCH MEMORIAL BRIDGE

STORAGE BUILDING

BRICK BLDG

1-STORY FRMR LOCKER ROOM

1-STORY BRICK LAB

FORMER PUMPHOUSE

Genesee River

IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

LEGEND:

- BOUNDARY LINE
- OHE — OVERHEAD ELECTRIC
- OHC — OVERHEAD COMMUNICATION
- OHU — OVERHEAD UTILITIES
- EDGE OF WATER AS SURVEYED ON JULY 12, 2023
- CHAIN LINK FENCE
- GAS — NATURAL GAS LINE
- W — WATERLINE
- COMM — COMMUNICATION LINE
- UGE — ELECTRIC LINE
- STORM/SANITARY PIPE
- GUIDE RAIL
- EDGE OF WOODS/BRUSH
- CUT/CAP UNDERGROUND UTILITY
- DISCONNECT/REMOVE ABOVE GROUND UTILITY
- TO BE RELOCATED BY OTHERS

NOTE:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.

DRAFT

50 25 0 50 100

SCALE: 1"=50'

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	MBB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JR	MBB	MAD

DRAWN BY	JR	DATE	11/8/24
CHECKED BY	MBB	DATE	11/8/24
APPROVED BY	MAD	DATE	11/8/24
PROJECT MGR.	ALB	DATE	11/8/24

SEAL: NOT FOR BIDDING OR CONSTRUCTION

PARSONS
OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 453121

WBS 05000

PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

UTILITIES ABANDONMENT PLAN

SCALE: AS SHOWN

DRAWING NO. 453121-C-008

REV. B

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C008-UTILITIES.DWG
PLOT DATE: 12/18/2024 1:38 PM PLOTTED BY: RUSSO, JILL [US-US]

NOTES:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. DEMOLITION INCLUDES ABOVE- AND BELOW-GROUND STRUCTURAL CONCRETE, METALS, MASONRY ATTACHMENTS, APPURTENANCES, PIPING, ELECTRICAL AND MECHANICAL EQUIPMENT, PAVING, CURBS, SIDEWALKS, FENCING, PIPING, AND SIMILAR EXISTING FACILITIES WITHIN REMEDIATION AREAS IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATION 02 41 16, STRUCTURE DEMOLITION.
3. THE CONTRACTOR SHALL COMPLY WITH FEDERAL, STATE, AND LOCAL DEMOLITION, HAULING, AND DISPOSAL REGULATIONS. IN ADDITION TO THE REQUIREMENTS OF THE "CONTRACT CLAUSES," SAFETY REQUIREMENTS SHALL CONFORM WITH ANSI A10.6, "DEMOLITION OPERATIONS - SAFETY REQUIREMENTS" AND REQUIREMENTS STATED IN SPECIFICATION 01 35 29, CONTRACTOR'S HEALTH AND SAFETY PLAN.
4. THE CONTRACTOR SHALL COMPLY WITH REGULATIONS IN FORCE AT ALL TIMES TO PREVENT POLLUTION OF AIR AND WATER.
5. THE CONTRACTOR SHALL COMPLETE A UNIVERSAL WASTE/HAZARDOUS SUBSTANCES SURVEY IN ACCORDANCE WITH TECHNICAL SPECIFICATION 02 41 16, STRUCTURE DEMOLITION.
6. THE CONTRACTOR SHALL COMPLETE AN ASBESTOS CONTAINING MATERIAL SURVEY IN ACCORDANCE WITH SPECIFICATION 02 41 16, STRUCTURE DEMOLITION.
7. THE CONTRACTOR SHALL ASSUME ALL SITE UTILITIES ARE ENERGIZED UNTIL TESTING IS PERFORMED TO PROVE OTHERWISE.
8. PRIOR TO DEMOLITION, THE CONTRACTOR SHALL DISCONNECT, CUT, CAP OR SEAL AND ABANDONING IN-PLACE ABOVE- AND BELOW-GRADE UTILITIES INCLUDING, BUT NOT LIMITED TO GAS, ELECTRIC, WATER, SANITARY AND STORM WATER THAT PROVIDE SERVICE TO THE STRUCTURES BEING DEMOLISHED.
9. CONTRACTOR SHALL SUBMIT A DEMOLITION PLAN AND MATERIALS HANDLING PLAN IN ACCORDANCE WITH SPECIFICATION 02 41 16, STRUCTURE DEMOLITION.
10. CONTRACTOR SHALL ERECT AND MAINTAIN BARRIERS, LIGHTS, SHEDS, AND OTHER NECESSARY PROTECTIVE DEVICES.
11. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND INCIDENTALS AS INDICATED ON THE DESIGN DRAWINGS AND TECHNICAL SPECIFICATION REQUIRED FOR DEMOLITIONS, MATERIAL SIZING, AND MATERIAL REMOVAL AND DISPOSAL WORK SHALL INCLUDE DEMOLITION ASSOCIATED WITH EXISTING STRUCTURES AND FACILITIES, PROCESS PIPING, AND FACILITIES.
12. THE CONTRACTOR SHALL PERFORM ALL DEMOLITION AND REMOVAL WORK TO PREVENT DAMAGE OR INJURY TO ADJACENT STRUCTURES WHICH MAY RESULT FROM FALLING DEBRIS OR OTHER CAUSES, AND WHICH WILL INTERFERE WITH THE USE OF AND FREE AND SAFE PASSAGE TO AND FROM ADJACENT STRUCTURES.
13. WHERE PAVEMENT DEMOLITION IS REQUIRED, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO PROTECT AND PREVENT DAMAGE TO ADJACENT STRUCTURES AND PAVEMENTS TO REMAIN. LIMITS OF PAVEMENT DEMOLITION SHALL BE PERFORMED IN A NEAT, STRAIGHT LINE BY SAWCUTTING.

DRAFT

50 25 0 50 100

SCALE: 1"=50'

DEMOLITION SCHEDULE

BUILDING/STRUCTURE DESCRIPTION	MATERIALS OF CONSTRUCTION	APPROXIMATE AREA (SF)
2-STORY FORMER LABORATORY	CMU	8,200
BUILDING 11 - 1-STORY FORMER LOCKER ROOM	MASONRY W/ BRICK FAÇADE	2,600
1-STORY MASONRY BUILDING	MASONRY W/ BRICK FAÇADE	500
STORAGE BUILDING - 1-STORY W/ MEZZANINE	STEEL W/ CONCRETE FOUNDATION	3,800
UTILITY SHED	STEEL W/ CONCRETE FOUNDATION AND PONY WALL	75
OFFICE TRAILER	WOOD FRAMED STEEL	200
MONITORING STATION TRAILER	ENCLOSED STEEL TRAILER	60
PUMP STATION	REINFORCED CONCRETE VAULT AND INTAKE STRUCTURE	750

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	MBB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JR	MBB	MAD

DRAWN BY: JR	DATE: 11/8/24
CHECKED BY: MBB	DATE: 11/8/24
APPROVED BY: MAD	DATE: 11/8/24
PROJECT MGR.: ALB	DATE: 11/8/24

SEAL: NOT FOR BIDDING OR CONSTRUCTION

PARSONS
OFFICE: 301 PLAINFIELD ROAD, SYRACUSE, NY 13212, (315) 451-9560

JOB: 453121
WBS: 05000

PROJECT TITLE: EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC
ROCHESTER, NEW YORK

DRAWING TITLE: BUILDING DEMOLITION PLAN

SCALE: AS SHOWN

DRAWING NO.: 453121-C-009

REV.: B

IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C009-FOUNDATIONS-REMOVAL.DWG
PLOT DATE: 12/18/2024 1:41 PM PLOTTED BY: RUSSO, JILL [US-US]

LEGEND:

- TURB-1 — TURBIDITY MONITORING LOCATION
- TURBIDITY CURTAIN
- ESC — EROSION AND SEDIMENTATION CONTROLS
- LOD — LIMITS OF DISTURBANCE
- STABILIZED CONSTRUCTION ACCESS

NOTES:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES AND ABBREVIATIONS.
2. FOR WORK TASKS PERFORMED PRIOR TO INSTALLATION OF THE DIVERSION BARRIER, THE CONTRACTOR MAY MODIFY THE LAYOUT OF THE TEMPORARY TURBIDITY CURTAIN ALIGNMENT.
3. THE CONTRACTOR SHALL INSTALL THE UPSTREAM TURBIDITY MONITOR AT THE ABANDONED PIPE BRIDGE FOUNDATION PIER LOCATED NEAR THE CENTERLINE OF THE RIVER UPSTREAM OF THE BAUSCH MEMORIAL BRIDGE.
4. THE CONTRACTOR SHALL INSTALL THE DOWNSTREAM TURBIDITY MONITOR AT THE ABANDONED CONRAIL RAILROAD BRIDGE FOUNDATION PIER LOCATED NEAR THE CENTERLINE OF THE RIVER AT THE NORTHERN END OF THE B+L PROPERTY. THE LOCATION OF THE RAILROAD BRIDGE FOUNDATION PIER IS APPROXIMATED.
5. CONTRACTOR RESPONSIBLE FOR PROVIDING EROSION AND SEDIMENTATION CONTROLS IN ACCORDANCE WITH TECHNICAL SPECIFICATION 31 25 00 - EROSION CONTROL FOR ANY CONTRACTOR SUPPORT AREAS CONTRACTOR IDENTIFIES FOR PROJECT USE.
6. POST REMEDIATION EROSION CONTROLS ARE PRESENTED ON THE RESTORATION PLAN SHEET 453121-C-022.

DRAFT

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
A	60% DESIGN FOR CLIENT REVIEW	11/08/24	JL	KB	MAD

DRAWN BY	JL	DATE	11/08/24
CHECKED BY	KB	DATE	11/08/24
APPROVED BY	MAD	DATE	11/08/24
PROJECT MGR.	ALB	DATE	11/08/24

SEAL

NOT FOR BIDDING OR CONSTRUCTION

PARSONS

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 453121

WBS 05000

PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

EROSION, SEDIMENT, AND TURBIDITY CONTROLS AND MONITORING PLAN

SCALE: AS SHOWN

DRAWING NO. 453121-C-010

REV. A

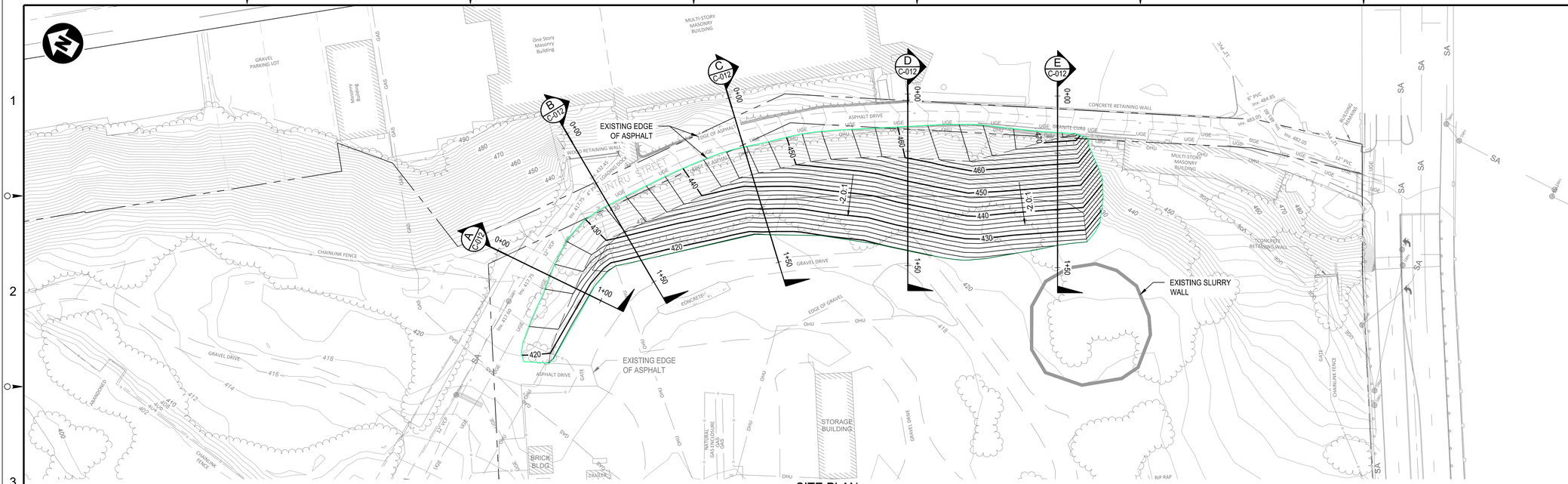
80 40 0 80 160

SCALE: 1"=80'

IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

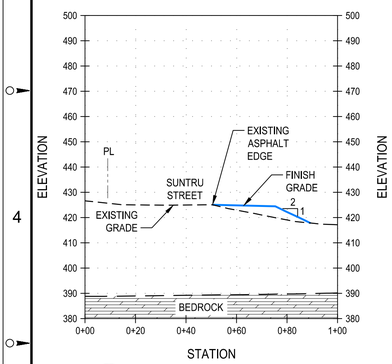
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PLOT DATE: 12/18/2024 1:42 PM PLOTTED BY: RUSSO, JILL [US-US]


ST. PAUL ST.
LIMITS OF DISTURBANCE
ACCESS ROAD
ELECTRICAL DISTRIBUTION PAD
LIMITS OF DISTURBANCE
CONTRACTOR SUPPORT AREA
R80'
ACCESS ROAD
R30'
CONSTRUCTION WATER TREATMENT AREA (100' X 100')
Broken Concrete Pad (NOTE 2)
Genesee River
EXISTING NAPL COLLECTION TRENCH
LIMITS OF DISTURBANCE
BAUSCH MEMORIAL BRIDGE
Genesee River
Genesee River
Edge of Water
Edge of Water
Edge of Water



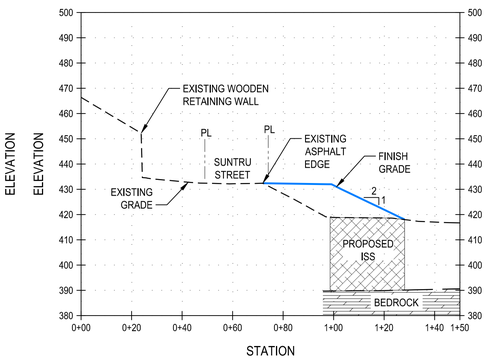
SITE PLAN

SCALE: 1"=50'-0"



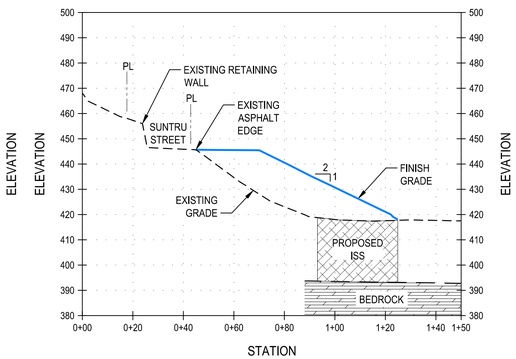
A C-012 CROSS SECTION A

HORIZONTAL AND VERTICAL SCALE: 1" = 30'



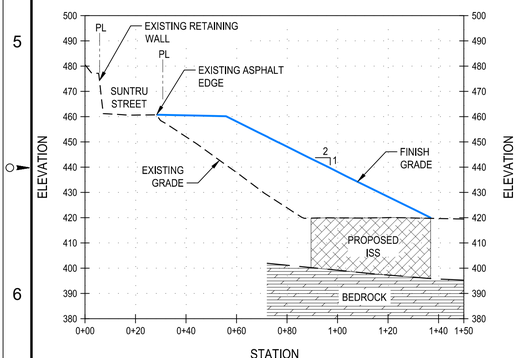
B C-012 CROSS SECTION B

HORIZONTAL AND VERTICAL SCALE: 1" = 30'



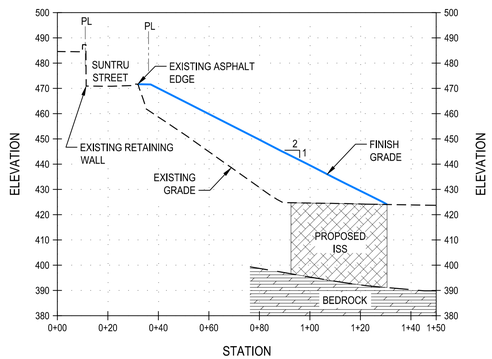
C C-012 CROSS SECTION C

HORIZONTAL AND VERTICAL SCALE: 1" = 30'



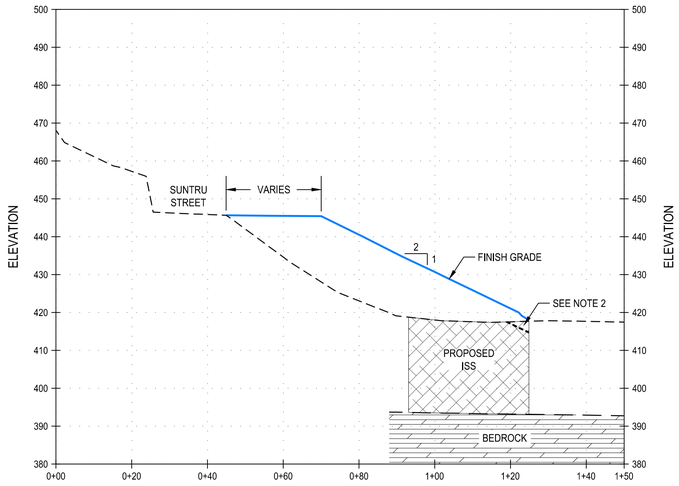
D C-012 CROSS SECTION D

HORIZONTAL AND VERTICAL SCALE: 1" = 30'



E C-012 CROSS SECTION E

HORIZONTAL AND VERTICAL SCALE: 1" = 30'



TYPICAL SUNTRU FILL DETAIL

SCALE: NONE

LEGEND:

440 PROPOSED MAJOR CONTOUR

PROPOSED MINOR CONTOUR

NOTES:

1. REFER TO DRAWINGS 453121-G-002 FOR GENERAL LEGEND, NOTES AND ABBREVIATIONS.
2. CONTRACTOR SHALL REMOVE STABILIZED SOIL WITHIN FOUR FEET OF FINISH GRADE PRIOR TO PLACING BACKFILL MATERIALS.

DRAFT

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NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	MBB	MAD
A	60% DESIGN FOR AGENCY REVIEW	11/08/24	JN	MBB	MAD

DRAWN BY	JN	DATE	11/08/24
CHECKED BY	MBB	DATE	11/08/24
APPROVED BY	MAD	DATE	11/08/24
PROJECT MGR.	ALB	DATE	11/08/24

SEAL

NOT FOR BIDDING OR CONSTRUCTION

PARSONS

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 453121

WBS 05000

PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

ACCESS IMPROVEMENT PLAN

SCALE: AS SHOWN

DRAWING NO. 453121-C-012

REV. B

50 25 0 50 100
SCALE: 1"=50'

30 15 0 30 60
SCALE: 1"=30'

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C012-ACCESS IMPROVEMENT.DWG
PLOT DATE: 12/10/2024 2:45 PM PLOTTED BY: RUSSO, JILL [US-US]

EXISTING ACCESS ROAD

SUNTRU STREET

CONCRETE RETAINING WALL

EXISTING SLURRY WALL (2' WIDE)

EXISTING STATION (NOT BEING REMOVED)

EXISTING NAPL COLLECTION TRENCH

EXISTING SLURRY WALL (2' WIDE)

EXISTING NAPL COLLECTION TRENCH

BAUSCH MEMORIAL BRIDGE

B C-014

C C-014

D C-014

A C-015

E C-014

Genesee River

LEGEND:

- EXISTING SITE CONTOURS (450)
- BEDROCK CONTOURS (450)
- ON-SITE EXCAVATION (0-10 FEET BGS)
- SOIL COVER ONLY AREA (FOUNDATIONS TO REMAIN)
- OFF-SITE EXCAVATION (0-24 FEET BGS, UP TO COMPETENT BEDROCK)
- EMBANKMENT SUPPORT ISS (0-24 FEET BGS, UP TO COMPETENT BEDROCK)
- PERIMETER GRAVITY WALL ISS (0-24 FEET BGS, UP TO COMPETENT BEDROCK)
- REMEDIAL ISS (10 FEET BGS TO COMPETENT BEDROCK)
- EXISTING ISS WALL REMOVAL (4 FEET BGS)
- SHEETING/EXCAVATION SUPPORT

NOTE:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. FOLLOWING COMPLETION OF EXCAVATION, ISS, AND BACKFILING, THE TOP 4 FEET OF THE PERIMETER GRAVITY WALL WILL BE REMOVED AND BACKFILLED TO SUPPORT SOIL COVER THICKNESS REQUIREMENTS.

DRAFT

50 25 0 50 100

SCALE: 1"=50'

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	KBB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/08/24	RS	KBB	MAD

DRAWN BY	RS	DATE	11/08/24
CHECKED BY	KBB	DATE	11/08/24
APPROVED BY	MAD	DATE	11/08/24
PROJECT MGR.	ALB	DATE	11/08/24

SEAL

NOT FOR BIDDING OR CONSTRUCTION

PARSONS

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 453121

WBS 05000

PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

RG&E FORMER MGP SITE
(ON-SITE)
SOIL REMOVAL PLAN

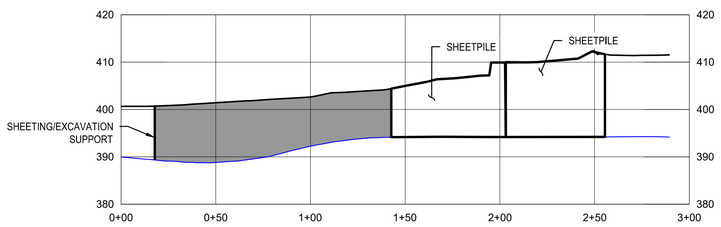
SCALE: AS SHOWN

DRAWING NO. 453121-C-014

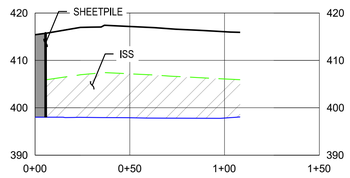
REV. B

IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

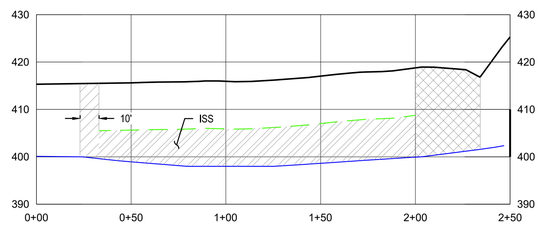
FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C014-16-REMOVAL PLAN & SECTIONS.DWG
PLOT DATE: 12/19/2024 10:16 AM PLOTTED BY: RUSSO, JILL [US-US]



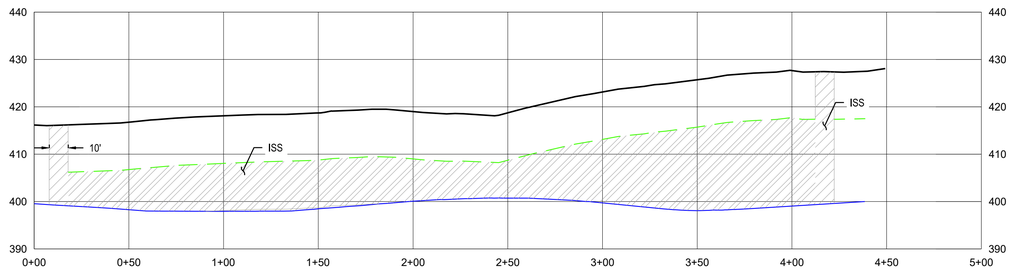
A SECTION
C-014 NOT TO SCALE



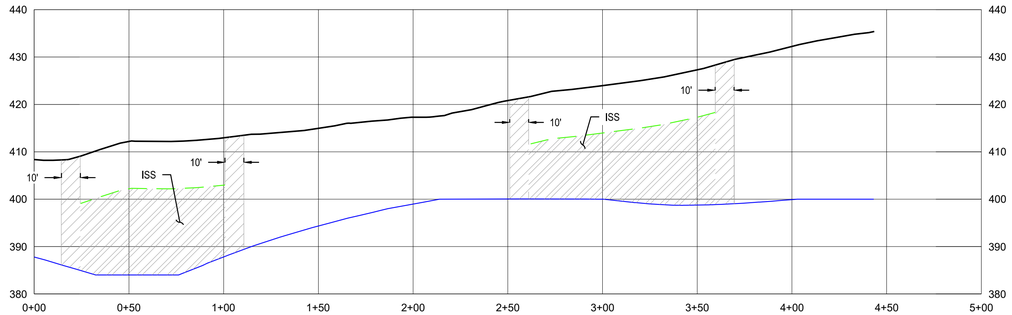
B SECTION
C-014 NOT TO SCALE



C SECTION
C-014 NOT TO SCALE



D SECTION
C-014 NOT TO SCALE



E SECTION
C-014 NOT TO SCALE

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LEGEND:

- EXISTING GRADE (SURVEY)
- TOP OF BEDROCK
- PROPOSED EXCAVATION
- OFF-SITE EXCAVATION (0-24 FEET BGS, UP TO COMPETENT BEDROCK)
- EMBANKMENT SUPPORT ISS (0-24 FEET BGS, UP TO COMPETENT BEDROCK)
- PERIMETER GRAVITY WALL ISS (0-24 FEET BGS, UP TO COMPETENT BEDROCK)
- REMEDIAL ISS (10 FEET BGS TO COMPETENT BEDROCK)

NOTE:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.

DRAFT

50 25 0 50 100
SCALE: 1"=50'

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	KEB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/08/24	RS	KEB	MAD

DRAWN BY: RS	DATE: 11/08/24	SEAL: NOT FOR BIDDING OR CONSTRUCTION
CHECKED BY: KEB	DATE: 11/08/24	
APPROVED BY: MAD	DATE: 11/08/24	
PROJECT MGR.: ALB	DATE: 11/08/24	

PARSONS
OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB: 453121
WBS: 05000

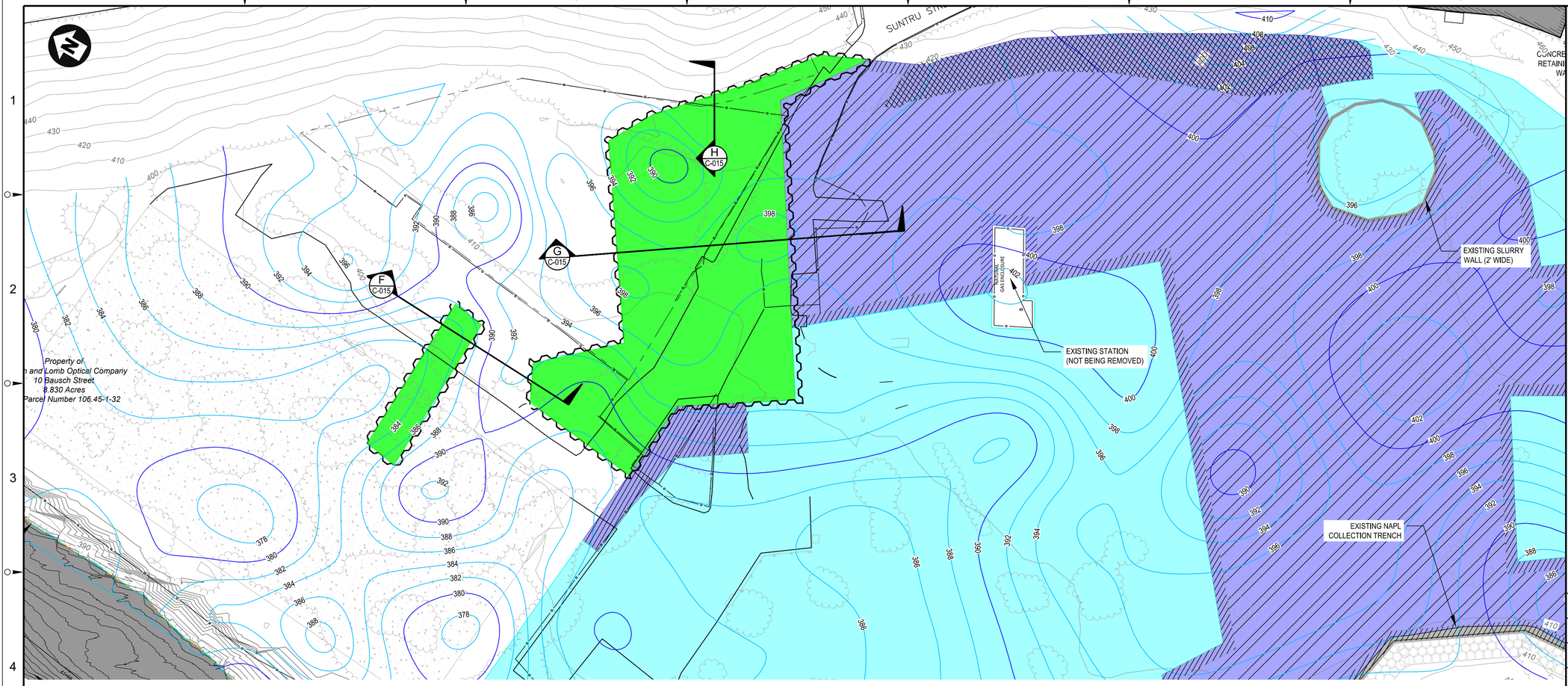
PROJECT TITLE
EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC
ROCHESTER, NEW YORK

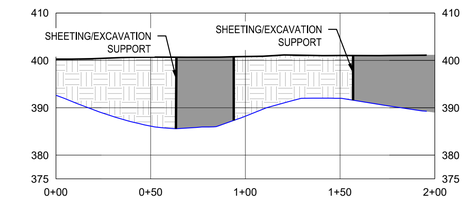
DRAWING TITLE
RG&E FORMER MGP SITE
(ON-SITE)
SOIL REMOVAL SECTIONS

SCALE: AS SHOWN

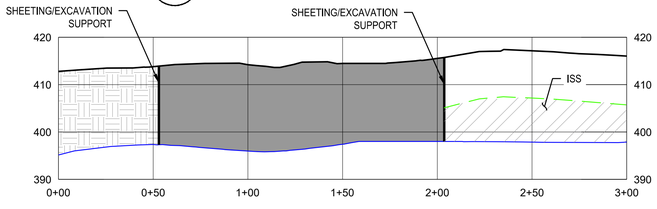
DRAWING NO.: 453121-C-015
REV.: B

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C014-16-REMOVAL PLAN & SECTIONS.DWG
PLOT DATE: 12/19/2024 10:28 AM PLOTTED BY: RUSSO, JILL [US-US]

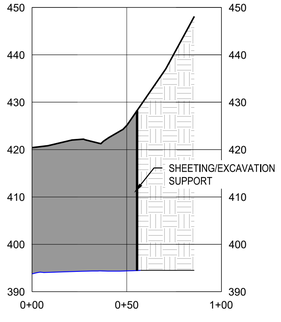




F C-015 SECTION
NOT TO SCALE



G C-015 SECTION
NOT TO SCALE



H C-015 SECTION
NOT TO SCALE

LEGEND:

- EXISTING SITE CONTOURS
- BEDROCK CONTOURS
- OFF-SITE EXCAVATION (0-24 FEET BGS, UP TO COMPETENT BEDROCK)
- SHEETING/EXCAVATION SUPPORT

SECTION LEGEND:

- EXISTING GRADE (SURVEY)
- TOP OF BEDROCK
- PROPOSED EXCAVATION
- B+L PROPERTY (OFF-SITE) EXCAVATION (0-24 FEET BGS, UP TO COMPETENT BEDROCK)
- B+L PROPERTY (OFF-SITE) EXISTING GROUND TO REMAIN IN PLACE

NOTE:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.

DRAFT

50 25 0 50 100

SCALE: 1"=50'

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	KEB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/08/24	RS	KEB	MAD

DRAWN BY	RS	DATE	11/08/24
CHECKED BY	KEB	DATE	11/08/24
APPROVED BY	MAD	DATE	11/08/24
PROJECT MGR.	ALB	DATE	11/08/24

SEAL

NOT FOR BIDDING OR CONSTRUCTION

PARSONS
OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 453121

WBS 05000

PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

B+L PROPERTY (OFF-SITE)
SOIL REMOVAL PLAN
AND SECTIONS

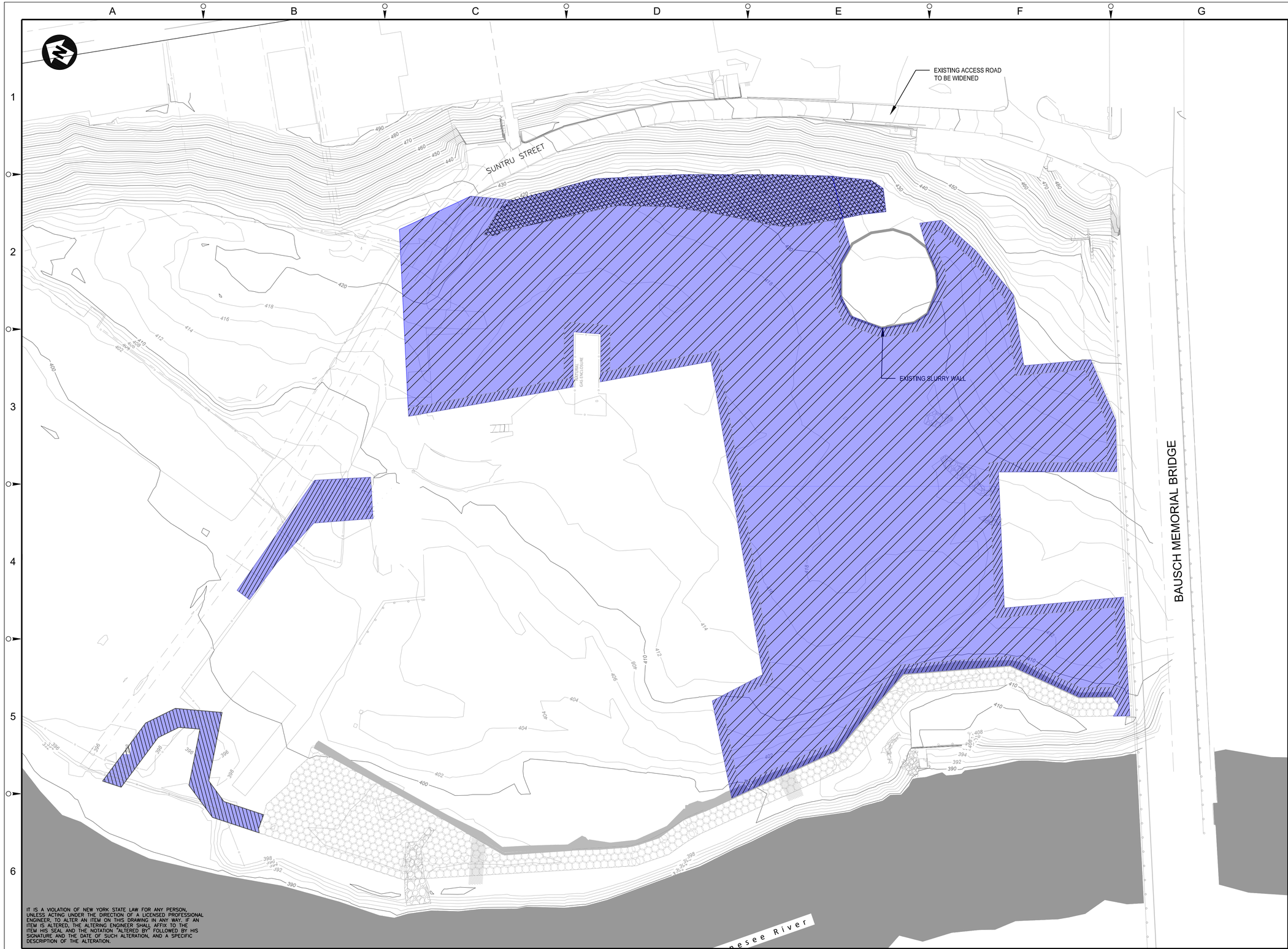
SCALE: AS SHOWN

DRAWING NO. 453121-C-016

REV. B

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FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C014-16-REMOVAL PLAN & SECTIONS.DWG
PLOT DATE: 12/19/2024 10:31 AM PLOTTED BY: RUSSO, JILL [US-US]



LEGEND:

- LIMITS OF ISS
- EMBANKMENT SUPPORT ISS (0-24 FEET BGS, UP TO COMPETENT BEDROCK)
- PERIMETER GRAVITY WALL ISS (0-24 FEET BGS, UP TO COMPETENT BEDROCK)
- REMEDIAL ISS (10 FEET BGS TO COMPETENT BEDROCK)

NOTES:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. REFER TO TECHNICAL SPECIFICATION 02 55 00 - ISS CONSTRUCTION FOR ISS TREATMENT REQUIREMENTS.

DRAFT

50 25 0 50 100

SCALE: 1"=50'

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	MBB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JR	MBB	MAD

DRAWN BY	JR	DATE	11/8/24
CHECKED BY	MBB	DATE	11/8/24
APPROVED BY	MAD	DATE	11/8/24
PROJECT MGR.	MBB	DATE	11/8/24

SEAL

NOT FOR BIDDING OR CONSTRUCTION

PARSONS

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 453121

WBS 05000

PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

ISS PLAN

SCALE

AS SHOWN

DRAWING NO. 453121-C-017

REV. B

IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C017-ISS PLAN.DWG
PLOT DATE: 12/19/2024 10:39 AM PLOTTED BY: RUSSO, JILL [US-US]



LEGEND:

- 450 — EXISTING SITE CONTOURS
- 450 — RIVER DIVERSION CONTOURS
- D50 STONE GREATER THAN 4 FT

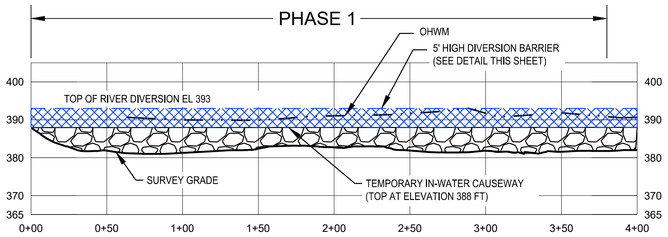
NOTES:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. FOR THE DIVERSION BARRIER ALIGNMENT SHOWN ON THIS DRAWING, THE TOP ELEVATIONS WERE ESTABLISHED TO PROTECT THE BARRIERS FROM OVERTOPPING DURING FLOW EVENTS OF 17,500 CFS. THE CONTRACTOR SHALL MAINTAIN COMMUNICATION WITH THE RG&E HYDRO GROUP AND MONITOR WEATHER CONDITIONS TO PROACTIVELY STABILIZE/PROTECT CONTAMINATED MATERIALS WHEN OVERTOPPING FLOWS ARE EXPECTED.
3. TO MINIMIZE THE TIME THAT THE RIVER IS CONSTRICTED AT THE UPSTREAM END OF THE WORK AREA, THE CONTRACTOR SHALL INSTALL THE DIVERSION BARRIER IN PHASES SO AS TO MINIMIZE THE TIME THAT THE DIVERSION BARRIER SECTION LABELED AS "PHASE 1" IS IN PLACE.

DRAFT

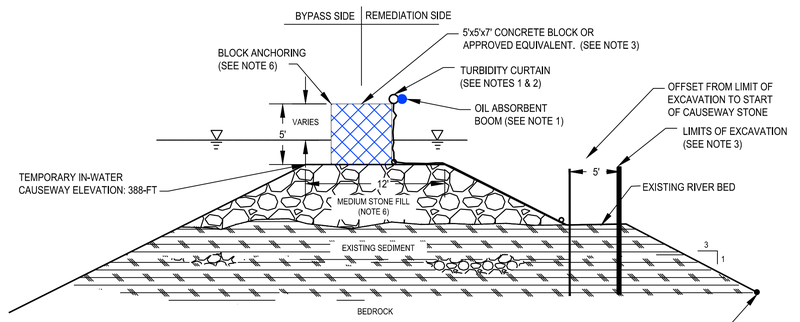
50 25 0 50 100

SCALE: 1"=50'



PHASE 1 RIVER DIVERSION PROFILE

HORIZONTAL SCALE = 1" = 50'-0"
VERTICAL SCALE = 1" = 10'-0"

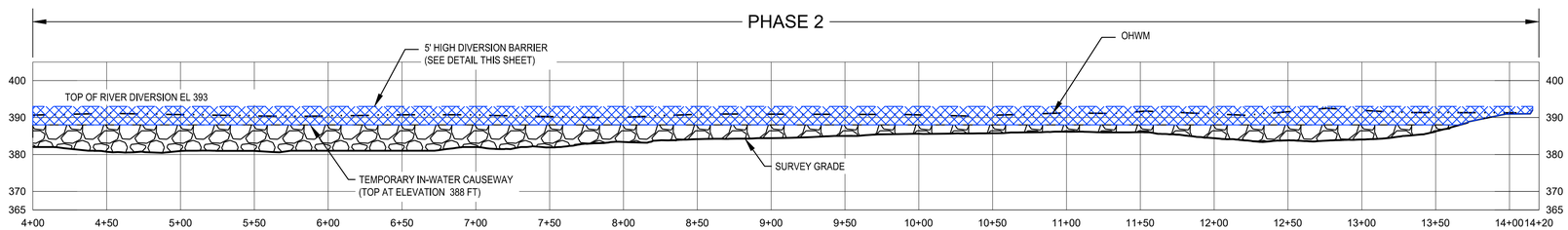


DIVERSION BARRIER DETAIL

SCALE: NOT TO SCALE

DIVERSION BARRIER NOTES:

1. DURING REMEDIATION THE CONTRACTOR SHALL DEPLOY TURBIDITY CURTAIN AND OIL BOOM TO PREVENT STONE USED FOR THE IN-WATER CAUSEWAY FROM BECOMING CONTAMINATED.
2. THE DIVERSION BARRIER SHALL BE INSTALLED TO THE TOP ELEVATIONS SHOWN ON THIS DRAWING.
3. CONCRETE BLOCKS (OR EQUAL E.G., JERSEY BARRIERS) USED FOR THE DIVERSION BARRIER SHALL BE PLACED TO HAVE UNIFORM CONTACT WITH THE SUBGRADE. THE DIVERSION BARRIER WITHIN THE REMEDIATION AREAS SHALL BE OFFSET A SAFE DISTANCE FROM THE LIMITS OF EXCAVATION TO AVOID THE BLOCKS BEING UNDERMINED DURING SEDIMENT REMOVAL.
4. CONTRACTOR SHALL SEQUENCE AND PERFORM SEDIMENT REMOVAL TO MAINTAIN STABILITY OF THE RIVER DIVERSION SYSTEM.
5. CONTRACTOR SHALL USE STONE WITH A D50 GREATER THAN 4FT TO ARMOR SELECT AREAS OF THE IN-WATER CAUSEWAY. UPON COMPLETION OF REMEDIATION THE CONTRACTOR SHALL REUSE STONE FROM THE DIVERSION BARRIER FOR RESTORATION.
6. THE CONTRACTOR SHALL CONNECT/ANCHOR EACH CONCRETE DIVERSION BLOCK TO EACH OTHER SO THAT BLOCKS CANNOT MOVE INDEPENDENTLY. BLOCK ANCHORING SHALL BE INSTALLED CONCURRENT WITH CONSTRUCTION OF THE DIVERSION BARRIER AND MAINTAINED FOR THE DURATION OF IN-WATER WORK. THE CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN AN ANCHORING SYSTEM THAT PROVIDES A MINIMUM BLOCK-TO-BLOCK CONNECTION THAT IS EQUAL TO TWICE THE WEIGHT OF THE HEAVIEST BLOCK USED FOR THE RIVER DIVERSION.



PHASE 2 RIVER DIVERSION PROFILE

HORIZONTAL SCALE = 1" = 50'-0"
VERTICAL SCALE = 1" = 10'-0"

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'VD
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	KEB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JR	KEB	MAD

DRAWN BY	JR	DATE 11/8/24
CHECKED BY	KEB	DATE 11/8/24
APPROVED BY	MAD	DATE 11/8/24
PROJECT MGR.	ALB	DATE 11/8/24

SEAL: NOT FOR BIDDING OR CONSTRUCTION

PARSONS

OFFICE: 301 PLAINFIELD ROAD, SYRACUSE, NY 13212, (315) 451-9560

JOB: 453121

WBS: 05000

PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

RIVER DIVERSION BARRIER PLAN

SCALE: AS SHOWN

DRAWING NO.: 453121-C-018

REV.: B

IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C018-C019-C020-SEDIMENT.DWG
PLOT DATE: 12/18/2024 12:11 PM PLOTTED BY: RUSSO, JILL [US-US]

LEGEND:

450 EXISTING SITE CONTOURS

PROPOSED SHORELINE EXCAVATION CONTOURS 450

NOTES:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. CONTRACTOR SHALL PERFORM SEDIMENT REMOVALS TO COMPETENT BEDROCK IN SEDIMENT REMOVAL AREAS 1 AND 2. CONTRACTOR SHALL PERFORM SEDIMENT REMOVALS TO TWO FEET IN SEDIMENT AREA 3.
3. LIMITS OF SEDIMENT REMOVAL INCLUDE SEDIMENT SLOUGH ESTIMATED AT A 3:1 (H:V) SLOPE.
4. CONTRACTOR SHALL PERFORM SEDIMENT REMOVALS SAFELY AND AVOID UNDERMINING THE DIVERSION BARRIER MEDIUM STONE FILLING.
5. WHEN THE DOWNSTREAM HYDROELECTRIC DAM IS OPERATING, THE WATER SURFACE ELEVATION WILL BE APPROXIMATELY 390 FEET (NAVD88) AND IT WILL NOT BE PRACTICABLE TO DEWATER THE REMEDIATION AREA. THE CONTRACTOR MAY PERFORM SEDIMENT AND SHORELINE REMOVALS IN THE WET PROVIDED SUITABLE TURBIDITY CONTROLS ARE IN PLACE TO DIVERT FLOW AROUND THE REMEDIATION AREA AND PREVENT IMPAIRMENT TO THE GENESEE RIVER. SEE DRAWING 453121-C-018 FOR ADDITIONAL INFORMATION.
6. WHEN SHORELINE AND SEDIMENT REMOVAL IS PERFORMED IN THE WET, THE CONTRACTOR MAY NOT REMOVE ANY OF THE ENVIRONMENTAL CONTROLS (E.G., DIVERSION BARRIER, TURBIDITY CURTAIN, OIL BOOM) UNTIL THE WATER WITHIN THE ACTIVE REMOVAL AREA IS FREE OF SHEEN AND SUSPENDED SOLID THAT WOULD CAUSE A VISIBLE CONTRAST WITH RECEIVING WATERS. FOLLOWING AN OVERTOPPING EVENT, WHEN THERE IS NO VISIBLE SHEEN OR TURBIDITY THAT WOULD CREATE A CONTRAST WITH RECEIVING WATERS, THE CONTRACTOR MAY PUMP STANDING WATER TO A DEPTH OF ONE FOOT ABOVE RIVERBED, AND DISCHARGE TO THE GENESEE RIVER. WHEN DISCHARGING TO THE GENESEE RIVER THE CONTRACTOR SHALL PROVIDE MEASURES TO PREVENT CAUSING EROSION/SCOUR OF THE RIVERBED. WHEN THE MAXIMUM DEPTH OF STANDING WATER WITHIN THE REMEDIATION AREA IS LESS THAN ONE FOOT DEEP, POSSESSES VISIBLE SHEEN, TURBIDITY, OR HAS BEEN IN CONTACT WITH IMPACTED SEDIMENTS DURING REMOVAL ACTIVITIES, THIS WATER SHALL BE COLLECTED AND TREATED AT THE CONSTRUCTION WATER TREATMENT SYSTEM.

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	KEB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JR	KEB	MAD

DRAWN BY	JR	DATE	11/8/24
CHECKED BY	KEB	DATE	11/8/24
APPROVED BY	MAD	DATE	11/8/24
PROJECT MGR.	ALB	DATE	11/8/24

SEAL: NOT FOR BIDDING OR CONSTRUCTION

PARSONS
OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 453121
WBS 05000

PROJECT TITLE
EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC
ROCHESTER, NEW YORK

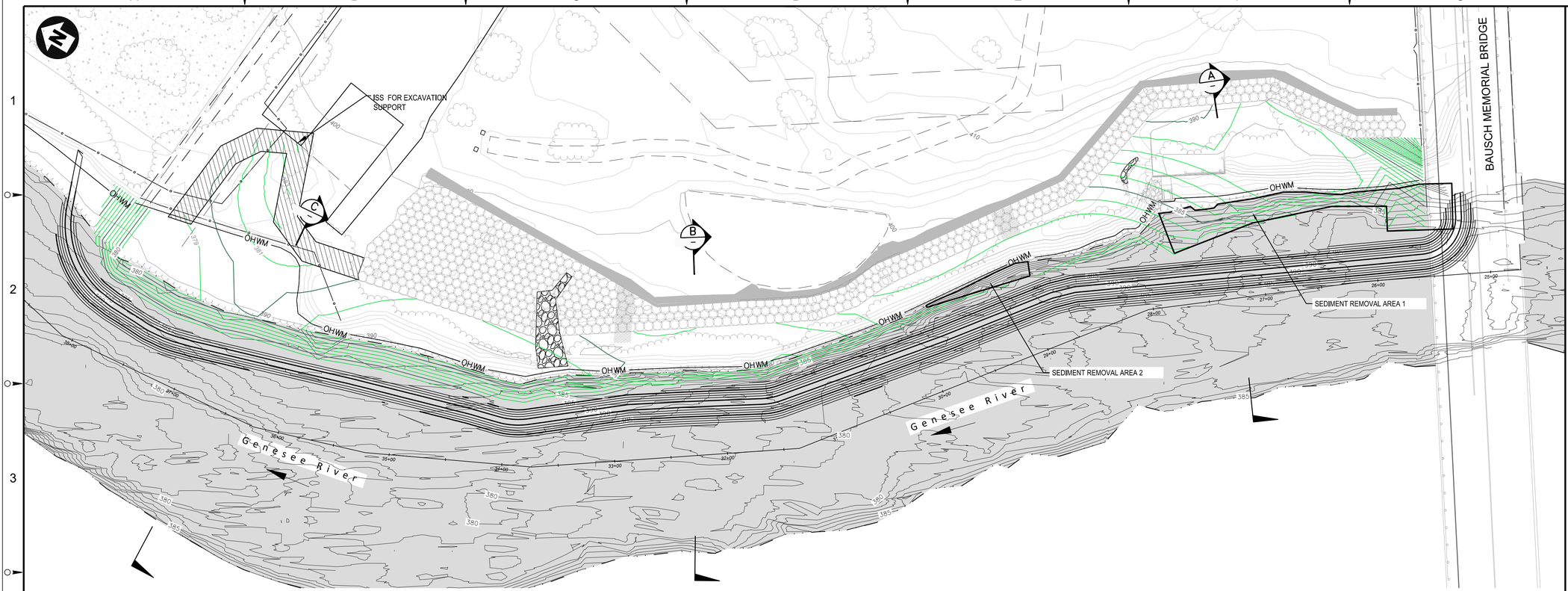
DRAWING TITLE
SHORELINE EXCAVATION AND DREDGING PLAN

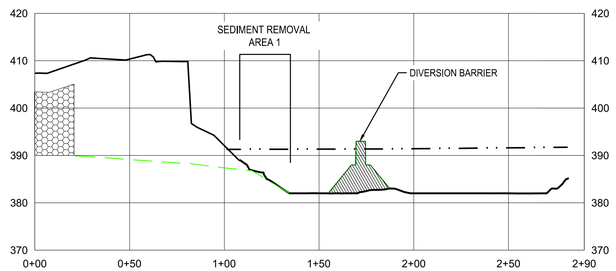
SCALE: AS SHOWN

DRAWING NO. 453121-C-019 REV. B

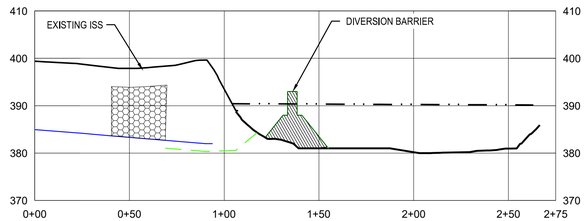
IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C018-C019-C020-SEDIMENT.DWG
PLOT DATE: 12/19/2024 10:45 AM PLOTTED BY: RUSSO, JILL [US-US]

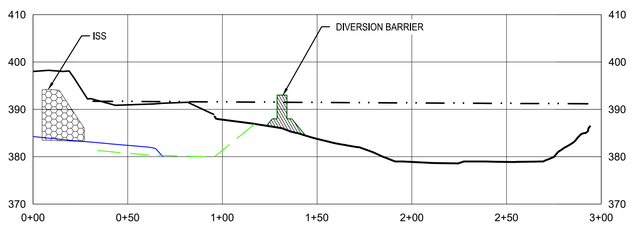




A SECTION
NOT TO SCALE



B SECTION
NOT TO SCALE



C SECTION
NOT TO SCALE

LEGEND:

- 450 — EXISTING SITE CONTOURS
- 450 — PROPOSED SHORELINE EXCAVATION CONTOURS
- 450 — RIVER DIVERSION CONTOURS

SECTION LEGEND:

- EXISTING GRADE (SURVEY)
- TOP OF BEDROCK
- RIVER SURVEY GRADE
- PROPOSED EXCAVATION
- OHWM

NOTE:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.

DRAFT

50 25 0 50 100

SCALE: 1"=50'

NO.	DESCRIPTION	DATE	DRAWN	CHKD	APP'VD
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	KEB	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JR	KEB	MAD

DRAWN BY: JR	DATE: 11/8/24	SEAL: NOT FOR BIDDING OR CONSTRUCTION
CHECKED BY: KEB	DATE: 11/8/24	
APPROVED BY: MAD	DATE: 11/8/24	
PROJECT MGR.: ALB	DATE: 11/8/24	

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SYRACUSE, NY 13212
(315) 451-9560

JOB: 453121
WBS: 05000

PROJECT TITLE:
EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC
ROCHESTER, NEW YORK

DRAWING TITLE:
NEAR RIVER SOILS AND SEDIMENT EXCAVATION PLAN AND SECTIONS

SCALE: AS SHOWN

DRAWING NO.: 453121-C-020

REV.: B

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FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C018-C019-C020-SEDIMENT.DWG
PLOT DATE: 12/18/2024 12:54 PM PLOTTED BY: RUSSO, JILL [US-US]

LEGEND:

- FINISH GRADE
- OHWM — ORDINARY HIGH WATER MARK
- PROJECTED 100-YR FLOOD (SEE NOTE 4)
- LOD — LIMITS OF DISTURBANCE
- LIMITS OF SOIL COVER
- REVETMENT
- NEW ASPHALT

PLANTINGS:

- ZONE A
- ZONE B
- ZONE C
- ZONE D

NOTES:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. CONTRACTOR RESPONSIBLE TO RESTORE ANY AREAS, EXCLUDING CONCRETE PAD ON B + L PROPERTY USED WITHIN LIMITS OF DISTURBANCE WITH ZONE A RESTORATION.
3. 100-YR FLOODPLAIN SHOWN IS BASED ON PROJECTING THE SITE AVERAGE FEMA-FIRM 100-YR FLOOD ELEVATION ONTO FINISHED GRADE CONTOUR ELEVATIONS. FEMA NATIONAL FLOOD HAZARD LAYER FIRMETTE DATA DOWNLOADED FROM NFHL WEB SERVICES PROVIDED BY FEMA ON 10/17/2024.

80 40 0 80 160

SCALE: 1"=80'

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	JM	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JR	JM	MAD

DRAWN BY: JR	DATE: 11/08/24	SEAL: NOT FOR BIDDING OR CONSTRUCTION
CHECKED BY: JM	DATE: 11/08/24	
APPROVED BY: MAD	DATE: 11/08/24	
PROJECT MGR.: ALB	DATE: 11/08/24	

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301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB: 453121
WBS: 05000

PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

RESTORATION PLAN

SCALE: AS SHOWN

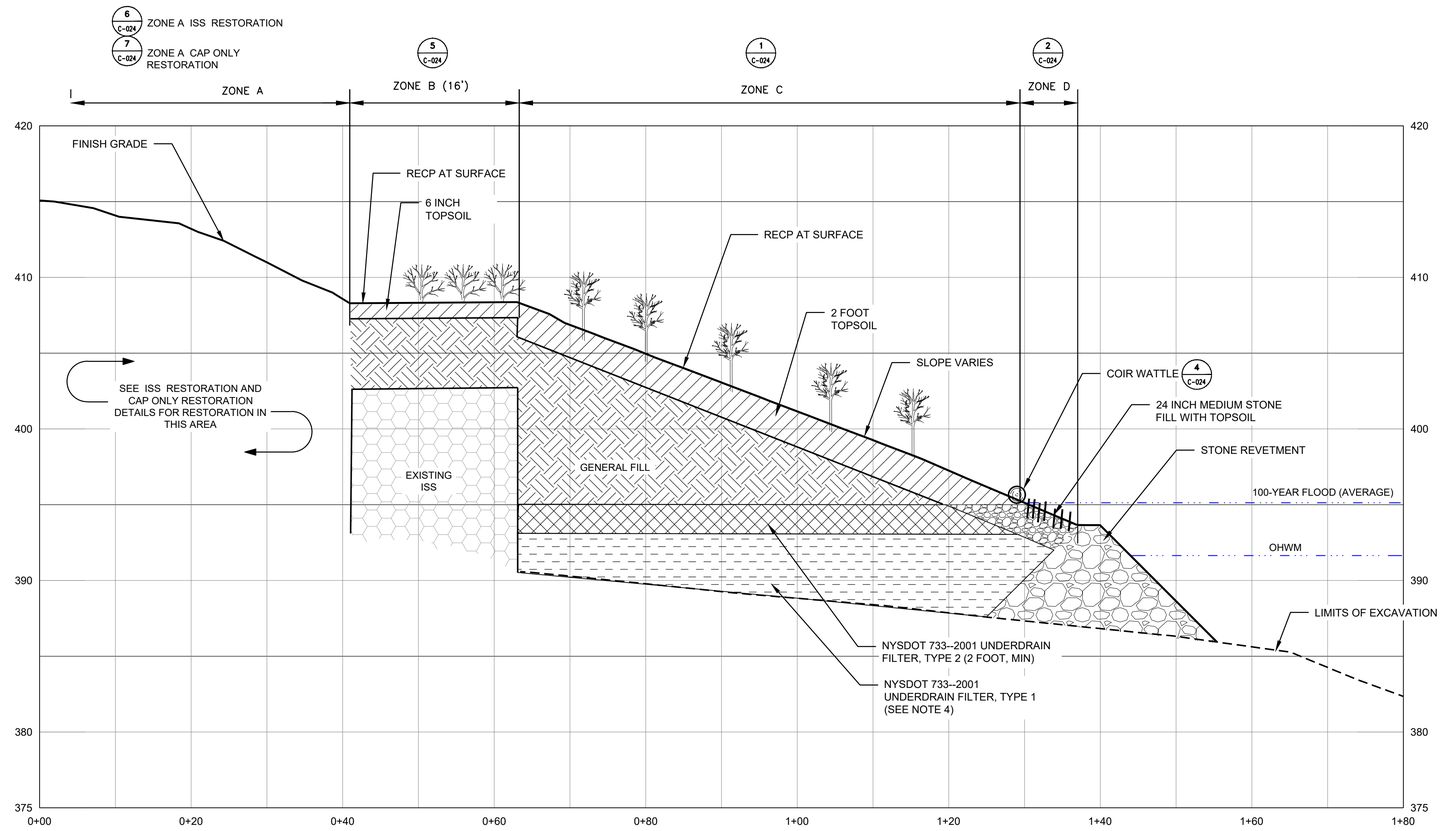
DRAWING NO.: 453121-C-022

REV.: B

DRAFT

IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C022-C023-RESTORATION-PLANTING.DWG
PLOT DATE: 12/10/2024 5:15 PM PLOTTED BY: RUSSO, JILL [US-US]



A C-022 TYPICAL RESTORATION SECTION
NOT TO SCALE

NOTES:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. TREE AND SHRUB LOCATIONS ARE APPROXIMATE AND WILL BE FIELD FIT BASED ON SITE CONDITIONS.
3. REFER TO TECHNICAL SPECIFICATIONS 32 72 00 - UPLAND RIPARIAN STREAMBED RESTORATION AND 32 91 19.13 - FINISH GRADING, TOPSOIL, AND SEEDING FOR FURTHER INFORMATION ON PLANTINGS AND SEEDING.
4. NYSDOT 733-2001 UNDERDRAIN FILTER, TYPE 1 SHALL BE PLACED TO A TOP ELEVATION THAT IS SIX INCHES BELOW THE TOP ELEVATION OF THE STONE REVETMENT.

DRAFT

IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

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B	60% DESIGN FOR NYSDEC REVIEW	12/20/24	JR	JM	MAD
A	60% DESIGN FOR CLIENT REVIEW	11/8/24	JR	JM	MAD

DRAWN BY: JR	DATE: 11/08/24	SEAL: NOT FOR BIDDING OR CONSTRUCTION	
CHECKED BY: JM	DATE: 11/08/24		
APPROVED BY: MAD	DATE: 11/08/24		
PROJECT MGR.: ALB	DATE: 11/08/24		

PARSONS
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301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB: 453121
WBS: 05000

PROJECT TITLE
EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

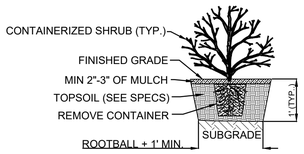
ROCHESTER, NEW YORK

DRAWING TITLE
SITE RESTORATION SECTION

SCALE: AS SHOWN

DRAWING NO.: 453121-C-023
REV.: B

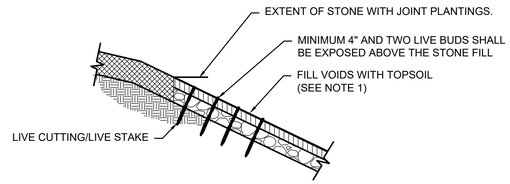
FILE NAME: P:\IBERDROLA_AVANGRID\453121 EAST STATION\9.0 TECHNICAL CATEGORIES\CAD\DESIGN\CIVIL\453121-C022-C023-RESTORATION-PLANTING.DWG
PLOT DATE: 12/18/2024 1:09 PM PLOTTED BY: RUSSO, JILL [US-US]



NOTES:

1. TREE AND SHRUB PLANTING SHALL BE #1 OR #2 SIZE PER PLANTING PLAN AND SPECIFICATIONS.
2. COMPLETELY REMOVE CONTAINER AND LOOSEN ROOTBALL PRIOR TO BACKFILLING.

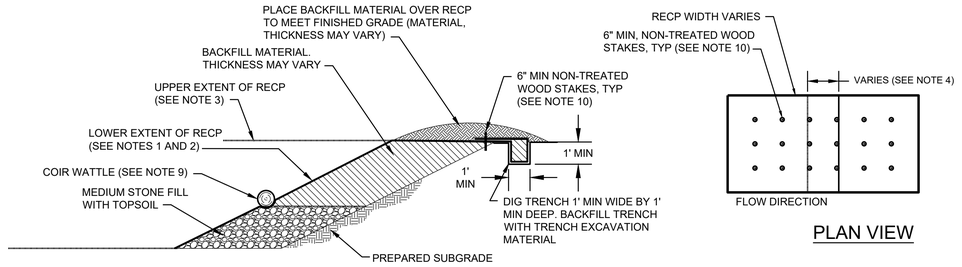
1 / C-022 — ZONES B&C TREE AND SHRUB PLANTING (TYP)
NOT TO SCALE



NOTES:

1. SIX INCHES OF TOPSOIL WILL BE PLACED OVER FILTER STONE IN ZONE D. LIVE STAKES SHALL BE PLANTED THROUGH THE TOPSOIL AND IN TO THE FILTER STONE, AT A MINIMUM OF 12 INCHES DEEP.
2. INSTALL LIVE CUTTINGS/LIVE STAKES 2 FEET ON CENTER, OR AS DIRECTED BY REMEDIATION ENGINEER.
3. CARE SHALL BE TAKEN NOT TO DAMAGE THE LIVE CUTTINGS/LIVE STAKES DURING INSTALLATION. THOSE DAMAGED SHALL BE LEFT IN PLACE AND SUPPLEMENTED WITH AN INTACT LIVE CUTTING/LIVE STAKE.
4. LIVE STAKES SHALL BE A MINIMUM OF 18 INCHES IN OVERALL LENGTH.
5. A PILOT HOLE IS REQUIRED TO ENSURE THAT THE LIVE CUTTING/LIVE STAKE IS NOT DAMAGED WHEN DRIVEN THROUGH THE STONE FILL. ACCESS SHALL BE MADE THROUGH THE USE OF A DIBBLE BAR, OR SIMILAR TOOL TO WORK AN OPENING THROUGH THE ROCK LAYER.

2 / C-022 — ZONE D STONE WITH JOINT PLANTINGS (TYP)
NOT TO SCALE



ELEVATION VIEW

PLAN VIEW

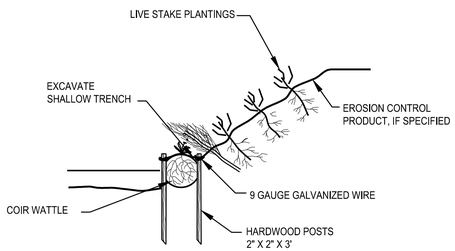
NOTES:

1. RECP MAY BE INSTALLED LONGITUDINALLY ON THE BANK PARALLEL TO THE FLOW DIRECTION, HORIZONTAL SEAMS WILL NOT BE ALLOWED. WHERE THE BANK GEOMETRY DOES NOT ALLOW THE RECP TO BE PLACED FROM THE LOWER EXTENT TO THE UPPER EXTENT WITHOUT HORIZONTAL SEAMS INSTALL RECP IN VERTICAL STRIPS AND OVERLAP SEAMS SUCH THAT THE UPSTREAM SECTION OVERLAYS THE DOWNSTREAM SECTION.
2. START RECP INSTALLATION AT THE UPPER LIMIT OF THE MEDIUM STONE FILL WITH TOPSOIL.
3. CONTINUE RECP INSTALLATION UP SLOPE UNTIL EXISTING HARD FEATURES ARE ENCOUNTERED OR SLOPES. ARE FLATTER THAN 3H:1V
4. OVERLAP SEAMS A MINIMUM OF 2'-0".
5. SURFACE SHALL BE REASONABLY SMOOTH, FREE OF ROCKS, CLODS, STICKS AND GRASS PRIOR TO APPLICATION.
6. FOR SEEDED AREAS, APPLY SEED PRIOR TO PLANTING.
7. FOR PLANTED AREAS, INSTALL RECP PRIOR TO PLANTING.
8. LAY RECP LOOSELY AND STAKE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS TO MAINTAIN DIRECT CONTACT WITH THE SOIL.
9. FOLLOWING INSTALLATION OF TOPSOIL AND RECP, INSTALL A 6" DIAMETER COIR WATTLE OVER RECP AT THE UPPER LIMITS OF THE RECP. STAKE AND SECURE THE COIR WATTLE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS
10. STAKES SHALL BE NON-TREATED WOOD.
11. RECP SHALL CONSIST OF 100% BIODEGRADABLE MATERIALS AND NO PHOTODEGRADABLE POLYPROPYLENE OR OTHER PLASTIC COMPONENT SHALL BE CONTAINED IN ANY PART OF THE PRODUCT.

3 / - — ROLLED EROSION CONTROL PRODUCT (RECP) (TYP)
NOT TO SCALE

NOTES:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. REFER TO SECTION 32 72 00 - UPLAND, RIPARIAN AND STREAMBED RESTORATION FOR PLANTING ZONE RESTORATION PLAN.

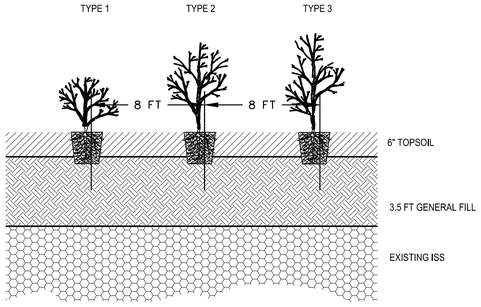


CONSTRUCTION SPECIFICATIONS

NOTES:

1. EXCAVATE A SHALLOW TRENCH BEHIND REVETMENT AND AT THE BASE OF PLANTING AREA D.
2. PLACE THE ROLL IN THE TRENCH AND ANCHOR WITH 2" x 2" POSTS PLACED ON BOTH SIDES OF THE ROLL AND SPACED LATERALLY ON 2' TO 4' CENTERS. TRIM THE TOP OF THE POSTS EVEN WITH THE EDGE OF THE ROLL, IF NECESSARY.
3. NOTCH THE POSTS AND TIE TOGETHER, ACROSS THE ROLL, WITH 9 GAUGE GALVANIZED WIRE OR 1/8" DIAMETER BRAIDED NYLON ROPE.
4. PLACE SOIL EXCAVATED FROM THE TRENCH BEHIND THE ROLL AND HAND TAMP. PLANT WITH WOODY VEGETATION AS SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS. VEGETATION SHALL BE PLACED IMMEDIATELY ADJACENT TO THE ROLL TO PROMOTE ROOT GROWTH INTO THE FIBER.
5. COIR WATTLE SHALL CONSIST OF 100% BIODEGRADABLE MATERIALS AND NO PHOTODEGRADABLE POLYPROPYLENE OR OTHER PLASTIC COMPONENT SHALL BE CONTAINED IN ANY PART OF THE PRODUCT.

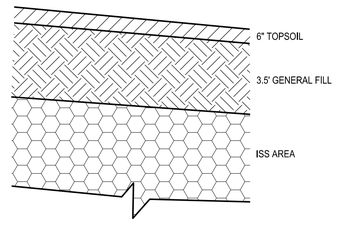
4 / C-023 — COIR WATTLE DETAIL
NOT TO SCALE



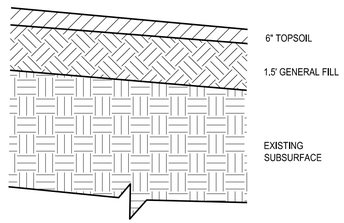
NOTE:

1. SHRUB TYPES 1, 2, AND 3 SHALL BE PLANTED IN ROWS OFFSET 8 FEET THE SHORELINE. THE ROWS SHALL BE SPACED 8 FEET APART, AND PERPENDICULAR TO THE SHORELINE.

5 / C-022 — ZONE B SHRUB PLANTING (TYP)
NOT TO SCALE



6 / C-023 — ZONE A ISS RESTORATION AREA
NOT TO SCALE



7 / C-023 — ZONE A CAP ONLY RESTORATION AREA
NOT TO SCALE

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CHECKED BY	JM	DATE	11/08/24
APPROVED BY	MAD	DATE	11/08/24
PROJECT MGR.	ALB	DATE	11/08/24

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(315) 451-9560

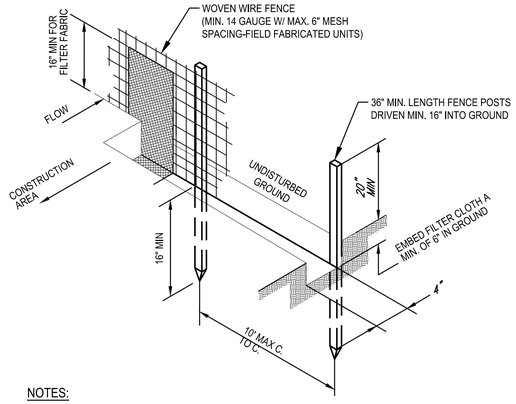
JOB 453121
WBS 05000

PROJECT TITLE
EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC
ROCHESTER, NEW YORK

DRAWING TITLE
SITE RESTORATION DETAILS

SCALE: AS SHOWN

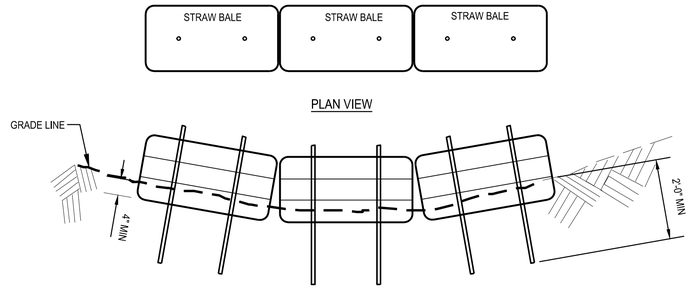
DRAWING NO. 453121-C-024
REV. A



NOTES:

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

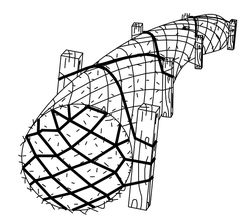
1 / C-010 SILT FENCE DETAIL
NOT TO SCALE



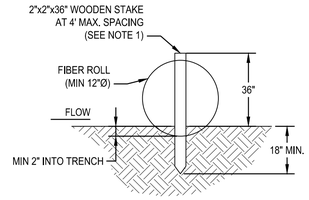
NOTES:

1. FOR EACH STRAW BALE, DRIVE 2 #5 REBARS, STEEL PICKETS OR 2"X2" WOODEN STAKES INTO GROUND. ANGLE FIRST STAKE TOWARD PREVIOUSLY PLACED BALE.
2. THE USE OF HAY BALES IS NOT PERMITTED.
3. STRAW BALES TO BE STACKED IN A SINGLE ROW AND EMBEDDED IN THE SOIL TO A MIN. 4" DEPTH.
4. ALL BALES ARE TO BE SECURELY BOUND WITH WIRE OR STRING.
5. SCATTER LOOSE STRAW OVER THE AREA IMMEDIATELY UPSLOPE FROM THE SEDIMENT PROTECTION FILL GAPS BETWEEN BALES WITH LOOSE STRAW.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SEDIMENT BARRIERS IN A SATISFACTORY CONDITION UNTIL FINAL ACCEPTANCE OF WORK.

2 / – STRAW BALE SEDIMENT BARRIER DETAIL
NOT TO SCALE



TYPICAL ANCHORAGE OF FIBER ROLL

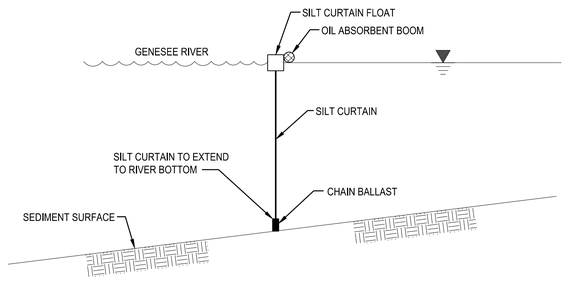


EMBEDMENT DETAIL

NOTES:

1. ALTERNATE IS TWO (2) 2"x2"x36" WOODEN STAKES ON SIDES OF FIBER ROLL WITH NYLON/POLYESTER/HEMP ROPE HOLDING ROLL DOWN.
2. FIBER ROLL SHALL BE MADE OF COIR (COCONUT FIBER), STRAW, EXCELSIOR, OR OIL ABSORBENT GEOSYNTHETIC. THE MATERIAL SHALL BE ENCASED IN A NETTING OF JUTE, NYLON, OR BURLAP UNLESS THE MATERIAL HAS INHERENT STRUCTURAL STABILITY.
3. SHALL CONSIST OF 100% BIODEGRADABLE MATERIALS AND NO PHOTODEGRADABLE POLYPROPYLENE OR OTHER PLASTIC COMPONENT SHALL BE CONTAINED IN ANY PART OF THE PRODUCT.
4. ON PAVED OR COMPACTED GRAVEL SURFACES, THE FIBER ROLL CAN BE PLACED IN INTIMATE CONTACT WITH THE SURFACE WITHOUT TRENCHING. REBAR DRILLED INTO THE PAVEMENT OR SAND/GRAVEL BAGS/TUBES (40 LB. MIN.) MAY BE SUBSTITUTED FOR THE WOODEN STAKES.
5. FIBER ROLL ENDS SHALL BE BUTTED OR OVERLAPPED TO PREVENT GAPS.

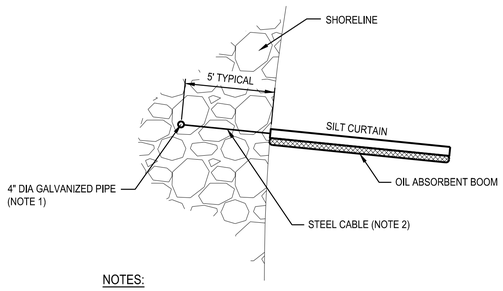
3 / C-010 FIBER ROLL
NOT TO SCALE



NOTES:

1. SILT CURTAIN ANCHORS NOT SHOWN FOR CLARITY. CONTRACTOR TO ANCHOR THE SILT CURTAIN TO SEDIMENT SURFACE EVERY 100 FT FROM TOP OF CURTAIN.

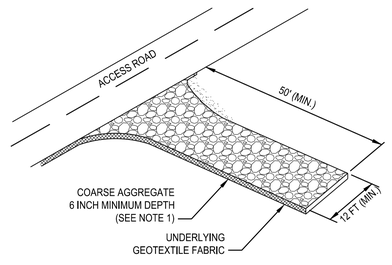
4 / – TYPICAL TURBIDITY CURTAIN DETAIL
NOT TO SCALE



NOTES:

1. 4" GALVANIZED PIPE TO BE DRIVEN DOWN TO A MINIMUM DEPTH OF 4'-0", WITH AN EXTENSION ABOVE GRADE OF 5'-0". IF SITE CONSTRAINTS MAKE DRIVING 4" GALVANIZED PIPE IMPRACTICABLE THE CONTRACTOR MAY USE 5'x5'x7" CONCRETE DIVERSION BLOCKS TO ANCHOR SILT CURTAIN.
2. STEEL CABLE SHALL BE 1/2" 6x7 STANDARD COARSE LAID WIRE ROPE, WITH A MINIMUM BREAKING STRENGTH OF 18,000 LBS.

5 / C-010 TYPICAL TURBIDITY CURTAIN ANCHORING SYSTEM
NOT TO SCALE



NOTE:

1. CONTRACTOR SHALL SAWCUT AND REMOVE EXISTING ASPHALT AS NEEDED TO INSTALL STABILIZED CONSTRUCTION ACCESS.

6 / C-010 STABILIZED CONSTRUCTION ACCESS
NOT TO SCALE

NOTE:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.

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CHECKED BY	JD	DATE	11/08/24
APPROVED BY	MAD	DATE	11/08/24
PROJECT MGR.	ALB	DATE	11/08/24

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301 PLAINFIELD ROAD
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JOB: 453121
WBS: 05000

PROJECT TITLE
EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

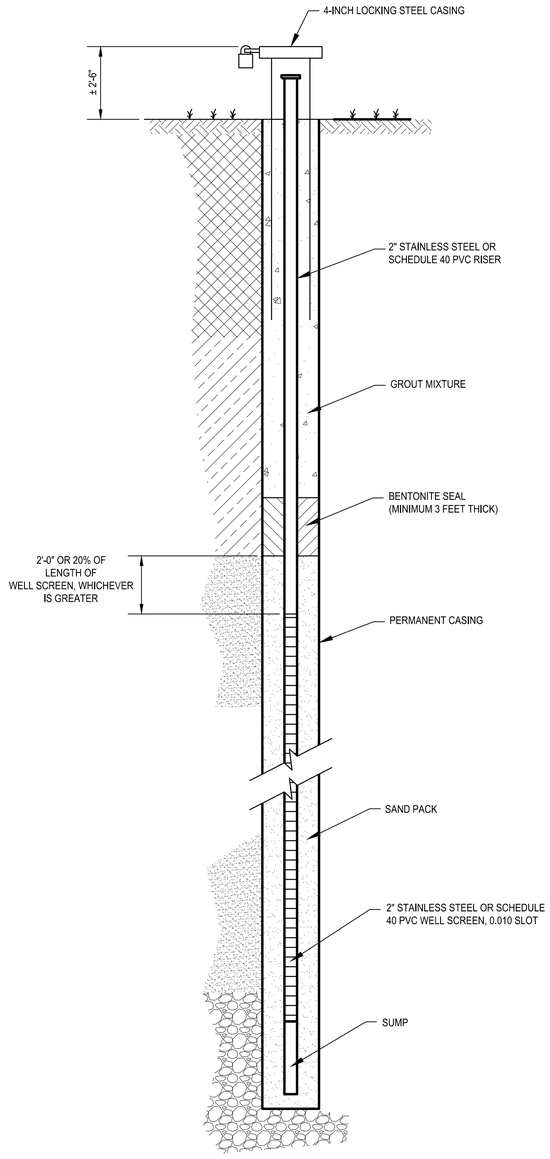
ROCHESTER, NEW YORK

DRAWING TITLE
EROSION, SEDIMENT, AND TURBIDITY CONTROL DETAILS

SCALE: NOT TO SCALE

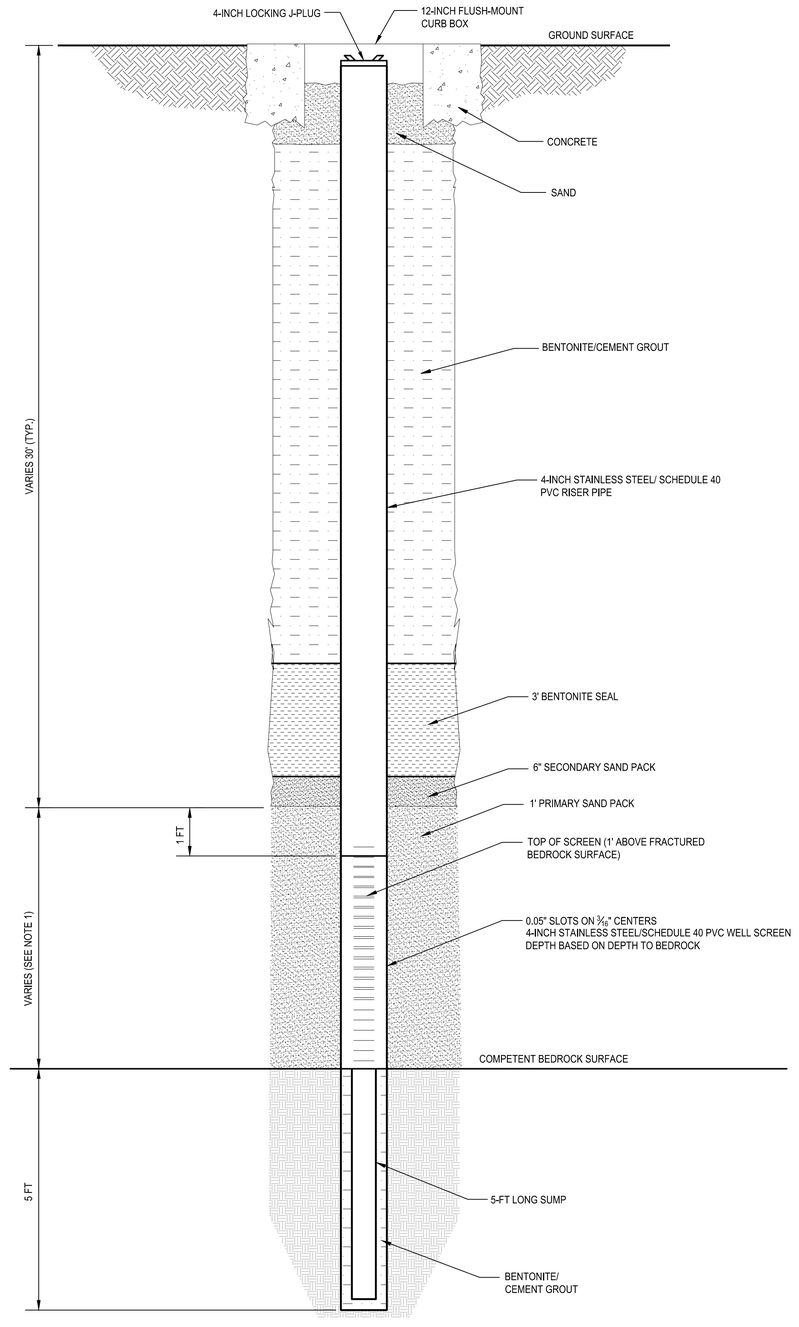
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REV.: A

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PLOT DATE: 12/18/2024 1:57 PM PLOTTED BY: RUSSO, JILL [US-US]



TYPICAL MONITORING WELL DETAIL

NOT TO SCALE



TYPICAL DNAPL COLLECTION WELL DETAIL

NOT TO SCALE

NOTES:

1. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.
2. REFER TO TECHNICAL SPECIFICATION 33 11 53-WELL CONSTRUCTION FOR ENVIRONMENTAL WELL CONSTRUCTION REQUIREMENTS AND MATERIALS OF CONSTRUCTION.
3. BASED ON HISTORIC SITE INVESTIGATIONS BEDROCK MAY BE OVERLAIN WITH 5 FT OR MORE OF FRACTURED BEDROCK. DURING INSTALLATION COMPETENT BEDROCK SHALL BE THE ELEVATION OF AUGER REFUSAL AS DETERMINED BY THE REMEDIATION ENGINEER.
4. ENVIRONMENTAL WELLS IDENTIFIED TO BE PROTECTED THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

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CHECKED BY	MBB	DATE	11/08/24
APPROVED BY	MAD	DATE	11/08/24
PROJECT MGR.	ALB	DATE	11/08/24

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(315) 451-9560

JOB 453121

WBS 05000

PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

ENVIRONMENTAL WELL DETAILS

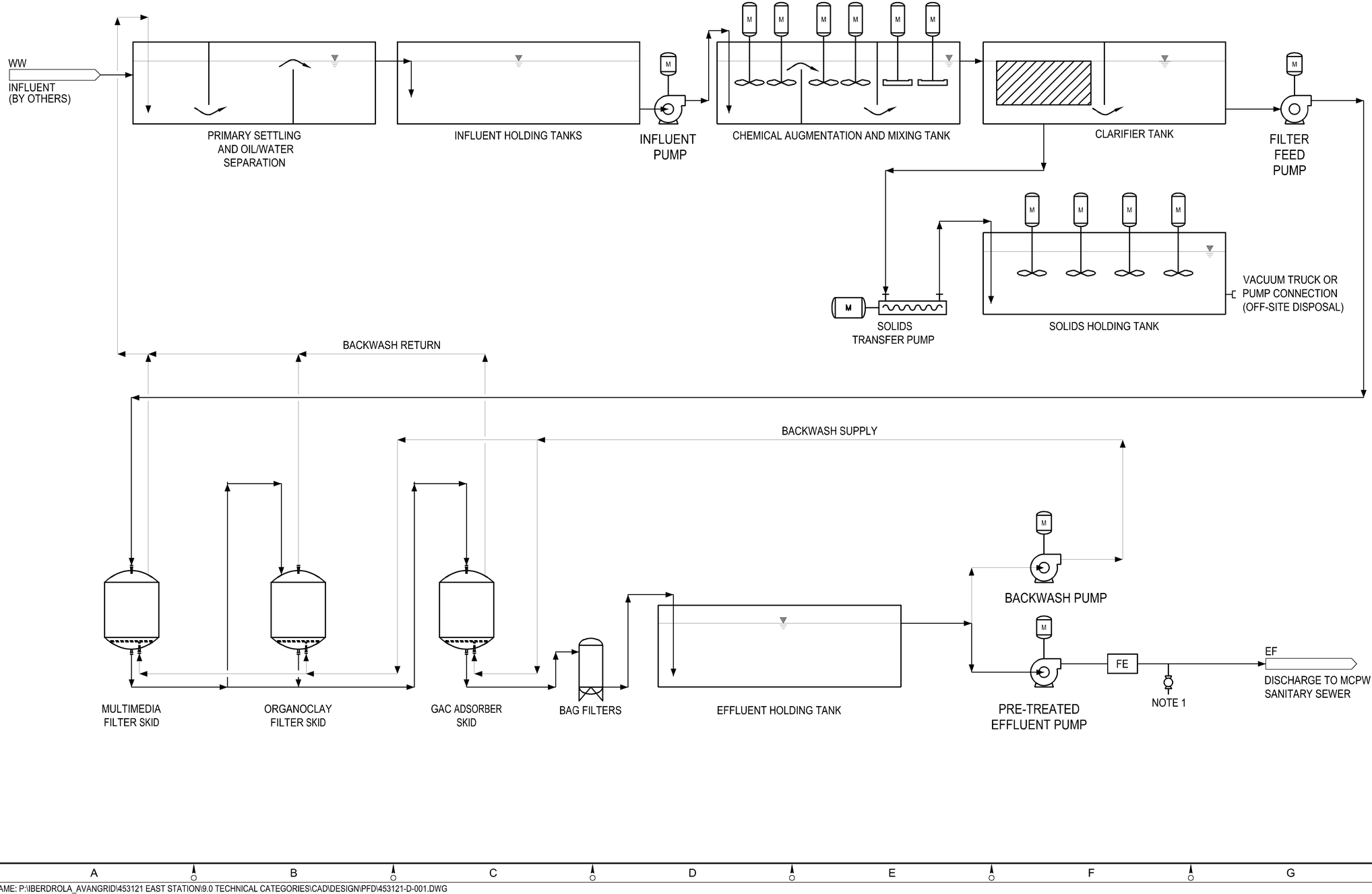
SCALE

NOT TO SCALE

DRAWING NO. 453121-C-505

REV. A

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PLOT DATE: 12/18/2024 1:58 PM PLOTTED BY: RUSSO, JILL [US-US]



NOTES:

1. COMPLIANCE SAMPLING POINT.
2. REFER TO DRAWING 453121-G-002 FOR GENERAL LEGEND, NOTES, AND ABBREVIATIONS.

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PROJECT TITLE

EAST STATION FORMER MGP SITE
ROCHESTER GAS AND ELECTRIC

ROCHESTER, NEW YORK

DRAWING TITLE

PROCESS FLOW DIAGRAM
CONSTRUCTION WATER
TREATMENT SYSTEM

SCALE: NONE

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REV.: A

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APPENDIX B
TECHNICAL SPECIFICATIONS

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SPECIFICATIONS
REMEDIAL DESIGN
EAST STATION FORMER MGP SITE

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01 26 00	Contract Modification Procedures
01 29 76	Progress Payment Procedures
01 31 13	Project Coordination
01 31 19.13	Pre-Construction Conference
01 31 19.23	Progress Meetings
01 32 16	Construction Progress Schedule
01 32 26	Construction Progress Reporting
01 33 00	Document Submittal Procedure
01 35 00	Green Remediation Practices
01 35 23	Safety Requirements
01 35 29	Contractor's Health and Safety Plan
01 35 43.13	Environmental Procedures for Hazardous Materials
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01 51 05	Temporary Utilities and Controls
01 51 41	Temporary Pumping
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01 55 13	Temporary Off-Site Access Roads and Parking
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31 25 14	Geotextiles and Rolled Erosion Control Products
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DIVISION 32 – EXTERIOR IMPROVEMENTS

32 12 16	Paving and Resurfacing
32 31 13	Chain Link Fences and Gates
32 72 00	Upland, Riparian, and Streambed Restoration
32 91 19.13	Finish Grading, Topsoil, and Seeding

DIVISION 33 – UTILITIES

33 01 10.81	Groundwater Monitoring Well Abandonment
33 05 33.36	HDPE Pipe
33 11 53	Well Construction

DIVISION 35 – WATERWAY AND MARINE CONSTRUCTION

35 80 00	Turbidity Barriers and Monitoring

Matt DeGracia, PE
New York State Professional Engineer
License No. 089571

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SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

1.01 IDENTIFICATION

A. The Work shall be performed at the East Station Former MGP Site (Site; NYSDEC Site Number 828204) at Suntru Street, Rochester, Monroe County, New York.

1.02 CONTRACT DOCUMENTS

A. Requirements of the work are contained in the Contract Documents, and include cross-references herein to published information, which is not necessarily bound therewith.

B. Included in the general contract are the following tasks: general construction; removal of underground structures; installation of temporary near-shore water diversion structures; construction water management and treatment; soil/sediment excavation, dewatering and solidification; off-site disposal/treatment; *in situ* soil stabilization and solidification (ISS) treatment; site restoration; and all other operations and work required to complete the remedial construction in accordance with the intent of the Contract Documents.

1.03 SITE BACKGROUND

A. The Former MGP Site is located at Suntru Street, Rochester, Monroe County, New York. The Site is located within the Genesee River Gorge. The Site is relatively flat with the gorge wall rising to the east and the Genesee River to the west. The majority of the site is open space with four Rochester Gas and Electric (RG&E) buildings located in the northern portion of the parcel. These buildings are no longer occupied. A high-pressure gas main is located in the central portion of the site and a natural gas regulator station is located in the northeastern quadrant. The Site is approximately 13.4 acres and is bounded to the north by property owned by Bausch and Lomb (B+L), to the west by a 2.25-acre parcel owned by New York State along the Genesee River, to the east by Suntru Street and the gorge wall, and to the south by the Bausch Street Bridge. A beverage brewing facility operates south of the Bausch Street Bridge on the eastern side of the Genesee River. Further east and west lie commercial and industrial properties beyond which are residential properties.

B. The B+L Property located immediately north of the Former MGP Site covers approximately 7.8 acres and is currently vacant and free of buildings except for some concrete floor slabs and a few sub-slab vaults and basement areas on the western half of the parcel. The B+L Property is gently graded with a raised, uneven area of soil piles in the southeast portion of the property (a former remediation biopile installed by B+L to treat petroleum-impacted soil) and a steep, four to eight foot (ft) high embankment and retaining wall in the western portion of the property along the Genesee River. The Former MGP Site and B+L Property are separated by a chain link fence, locking gates, and Suntru Street.

C. The East Station MGP operated from approximately 1872 to 1952. Manufactured gas was received the West Station MGP which piped it crossed the Genesee River to store and distribute from the East Station MGP. Following the MGP storage and distribution operations, the Site performed catalytic reforming processing until 1976. The Site is currently vacant, and most Site structures have been demolished except for small ancillary buildings in the northern portion.

D. Beginning in 1986, several environmental investigations have been conducted at the Site, including a preliminary site review (Morrison-Knudsen Engineers, Inc. 1986), a site

investigation (Atlantic Environmental Services, Inc. 1993), Focused Remedial Investigation (RI [Ish, Inc. and Meta Environmental, Inc. 2000), sediment investigation (GEI Consultants, Inc. 2010), RI (Haley & Aldrich 2015), and a pre-design investigation (PDI [Parsons 2023]). These investigations have noted impacts from contaminants related to historical MGP operations within soils and groundwater at the Site and near-shore sediments adjacent to the Site, including the presence of Dense Non-Aqueous Phase Liquid (DNAPL) seeps along the riverbanks. Semi-volatile organic compounds (SVOCs) and metals, polycyclic aromatic hydrocarbons (PAHs), lead, and arsenic, have been noted in excess of unrestricted use and restricted-residential use soil cleanup objectives (SCOs; NYSDEC 2006) in surface soils. These constituents along with volatile organic compounds (VOCs) (i.e., benzene, toluene, ethylbenzene, and xylene [BTEX]), mercury, and cyanide have been noted in exceedance of unrestricted and protection of groundwater SCOs in subsurface soils. Both overburden and bedrock groundwater at the Site have exhibited concentrations of VOCs (i.e., BTEX) and SVOCs (i.e., PAHs) in excess of groundwater standards. Near shore sediments in the Genesee River have exhibited concentrations of PAHs and metals in excess of sediment standards.

E. Work related to this contract is regulated under joint application permit conditions established with the United States Army Corps of Engineers (USACE) Nationwide Permit No. 38 and NYSDEC 401 Water Quality Certification.

1.04 SUMMARY OF WORK

A. The work consists of furnishing all labor, materials, supervision, equipment, and services necessary to complete the scope of work detailed in the Contract Documents. The work includes, but is not limited to, the following:

1. Preparation of CONTRACTOR plans;
2. Mobilization to the Site and installation of temporary facilities and equipment;
3. Health and safety;
4. Performing preconstruction topographic and bathymetric surveys to document preconstruction grades and conditions;
5. Performing structural monitoring and surveying to document and establish baselines for preconstruction structural conditions;
6. Installation of erosion and sedimentation control devices;
7. Clearing and grubbing of the work areas, as indicated by the Design Drawings;
8. Collection and relocation of mussels (if required) prior to dredging;
9. Suntru Street improvement
10. Temporary access road construction;
11. Installation of construction water treatment/processing/staging pads;
12. Building/structure demolition
13. Utility abandonments
14. Installation and operation of turbidity control and monitoring systems;
15. Installation of temporary near-shore water diversion structures and/or berms;
16. Excavation, dewatering, and stabilization of approximately 98,700 cubic yards (cy) and 33,400 cy of grossly contaminated soils from the Former MGP Site and B+L Property, respectively;
17. ISS of approximately 197,300 cy of grossly contaminated soils on the Former MGP Site

18. Dredging, dewatering, and stabilization of approximately 2,500 cy of sediment exceeding NYSDEC Class C Sediment Guidance Values (NYSDEC 2014) for PAHs (35 ppm) from the Genesee River;
19. Treatment of construction water to specified discharge criteria, and discharge to the Monroe County Pure Waters publicly owned treatment works (POTW) sanitary sewer located northeast of the Site on St. Paul Street; in accordance with the Sewer Use Law of Monroe County and the Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.) (Monroe County 2020);
20. Characterization, transportation, and off-site disposal/or treatment of excavated sediment and soil;
21. Installation of monitoring and NAPL recovery wells;
22. Installation of an upland site cover system, where necessary;
23. Restoration of disturbed areas: and
24. Demobilization.

1.05 USE OF SITE

The CONTRACTOR shall limit use of the premises to the Work indicated.

A. Use of the Site: Confine operations at the Site to the areas permitted. Portions of the Site beyond areas on which work is indicated are not to be disturbed.

B. Keep existing driveways and entrances serving the premises clear and available at all times. Do not use for parking or storage of materials.

C. Do not encumber the Site with materials or equipment. Confine stockpiling of materials and location of storage sheds to the areas indicated or as directed by the REMEDIATION ENGINEER.

D. Lock automotive type vehicles and other mechanized or motorized construction equipment when parked and unattended. Do not leave vehicles or equipment unattended with the motor running or ignition key in place.

1.06 PROJECT AND SITE CONDITIONS

A. The CONTRACTOR shall carefully examine the Site to determine the full extent, nature, and location of work required to conform to the Contract Documents. The CONTRACTOR shall bring any inaccuracies or discrepancies between the Contract Documents to the REMEDIATION ENGINEER's attention in order to clarify the exact nature of the work to be performed.

1.07 NOTIFICATIONS

A. The CONTRACTOR shall notify the REMEDIATION ENGINEER at any time during the completion of works if non-aqueous phase liquid (NAPL), drums, tanks, or other unanticipated sources of contamination are encountered.

1.08 SITE SECURITY

A. The CONTRACTOR shall submit a list of personnel prior to the work to expedite access to the Site. Personnel attempting to enter the Site without prior submission will have to wait at the gate until the CONTRACTOR is contacted to allow them onsite.

1.09 WORK HOURS

A. Work hours shall normally be 7:00 AM to 3:30 PM (8-hr day) or 7:00 AM to 5:30 PM (10-hr day) from Monday through Friday. Advance permission must be requested and received from REMEDIATION ENGINEER to work outside of these hours or on Saturday and Sunday.

1.10 ACCESS ROADS

A. The CONTRACTOR shall utilize existing paved roads on the Site property, where possible, to access the work. The speed limit while on the site property is 10 miles per hour.

B. If the CONTRACTOR proposes to construct temporary access roads into the excavation areas, other then what is indicated on the design drawings, the CONTRACTOR shall submit a design for the construction of the roads prior to the work. Information regarding the existing soils is provided with the bid documents.

1.11 SIGNS

A. The CONTRACTOR shall post the work zone with signs reading "Warning, Hazardous Work Area, Do Not Enter Unless Authorized." Warning signs shall be posted at a minimum of every 100 feet along the work area.

1.12 PHOTOGRAPHS

A. The CONTRACTOR will be allowed to take photographs of work at the Site. The CONTRACTOR shall make the photographs available to the REMEDIATION ENGINEER and provide electronic copies as requested.

B. The REMEDIATION ENGINEER shall take photographs to document the work for the Final Report.

1.13 WARRANTY

A. The CONTRACTOR shall provide a 1-year warranty on all work (materials, labor, and all incidentals) from date of acceptance, except where greater warranty periods are specified in the Contract Documents. Date of acceptance shall be the date upon which the work has been installed, tested, and operated and meets the intent of the contract documents.

1.14 REFERENCES

A. Monroe County. 2020. Monroe County, New York, Municipal Code. Adopted by the County Legislature of the County of Monroe Sept. 5, 1979 as L.L. No. 1-1979 and includes legislation adopted through Sept. 08, 2020. Available at: https://www.ecode360.com/MO0860. Accessed October 2024.

B. NYSDEC. 2006. Subpart 375-6: Remedial Program Soil Cleanup Objectives. Available at: https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375.pdf

C. NYSDEC. 2014. Screening and Assessment of Contaminated Sediment. Division of Fish, Wildlife, and Marine Resources, Bureau of Habitat. June 24. Available at: https://www.dec.ny.gov/docs/fish_marine_pdf/screenasssedfin.pdf

END OF SECTION

SECTION 01 15 00

CONTRACTOR'S PROJECT OPERATIONS PLAN

PART 1 - GENERAL

1.01 WORK INCLUDED

A. CONTRACTOR shall prepare and submit to OWNER, REMEDIATION ENGINEER, and the New York State Department of Environmental Conservation (NYSDEC), a Project Operations Plan (POP) in accordance with this Section.

B. POP shall clearly describe CONTRACTOR's proposed means, methods, and sequence of construction operations, and shall demonstrate compliance with the Contract Documents.

1.02 POP SUBMITTAL

A. CONTRACTOR's POP shall address and include the following:

1. CONTRACTOR's Organizational Structure: Specific chain of command and overall responsibilities of CONTRACTOR personnel. Include the following:
    a. Name and general functions and responsibilities of the following:
        1) Project Manager.
        2) Field Superintendent.
        3) Site Health and Safety Officer.
        4) Project Emergency Coordinator.
        5) Field Engineer.
        6) Foreman.
        7) Equipment operators and laborers.
        8) Others as appropriate.
    b. Designation of CONTRACTOR personnel that will reside at the Site for the duration of the Project.
2. Work Schedule: Proposed workdays and work hours. Include copy of CONTRACTOR's initial Progress Schedule, prepared in accordance with Section 01 32 16 – Construction Progress Schedule.
3. List of major construction equipment.
4. List of major Subcontractors and Suppliers. Include name, role, and contact information for the following:
    a. Surveyor.
    b. Suppliers and sources of offsite fill and aggregates.
    c. Treatment, disposal, and recycling facilities.
    d. Others as appropriate.
5. Written description of the general sequence and scope of the following:
    a. Mobilization and site preparation.

b. Site access controls and security.

c. Site access improvements.

d. Structural monitoring and surveying.

e. Utility clearance, mark-out, and verification.

f. Erosion and sediment control.

g. Odor, vapor, and dust control.

h. Clearing and grubbing.

i. Turbidity and sheen control and monitoring.

j. Diversion barrier construction.

k. Demolition and removal of above- and underground structures.

l. In-situ soil stabilization and solidification (ISS).

m. Sediment and soil removal, including material handling, transportation, and staging approach.

n. Excavation support and dewatering.

o. Backfilling and grading.

p. Site cover placement.

q. Material dewatering.

r. Water treatment.

s. Waste management.

t. Installation of monitoring and recovery wells.

u. Site restoration.

v. Demobilization.

6. Access and Site Preparation Plan: Prepare plan describing means and methods for accessing the Work Area and supporting the Work. At a minimum, include the following:

   a. Proposed access strategy.

   b. Proposed support area strategy, including office and sanitary facilities.

7. Sediment Removal and Backfilling Plan: Prepare plan describing means and methods for sediment removal and backfilling. At a minimum, include the following:

   a. Proposed survey procedures.

   b. Proposed sediment removal and backfilling procedures.

   c. List of proposed equipment for sediment removal and backfilling Work. Where different procedures or equipment will be used for different types of material or at different locations at the Work Area, indicate where each procedure and equipment item will be used.

   d. Planned sequence of sediment removal and backfilling operations.

e. Detailed schedule of sediment removal and backfilling Work in accordance with the accepted Progress Schedule.

8. Materials Handling Plan and Waste Management Plan: In accordance with Section 02 41 13 – Site Demolition, Section 02 61 15 – Handling and Disposal of Impacted Materials and Section 31 23 16 – Excavation.

9. Water Quality Management Plan: In accordance with Section 31 23 16 – Excavation.

10. Nuisance Controls and Management Plan: In accordance with Section 01 76 50 – Nuisance Controls, Management and Corrective Measures.

11. Temporary Pumping System Plan: In accordance with Section 01 51 41 – Temporary Pumping.

12. Construction Water Treatment Plan: In accordance with Section 01 53 53 – Temporary Water Treatment System.

13. Special Instrumentation Installation Plan: In accordance with Section 02 21 00 – Structural Monitoring and Surveys.

14. Sheet Piling Installation Plan: In accordance with Section 31 50 00 – Excavation Support and Protection.

15. Turbidity Barrier and Monitoring Plan: In accordance with Section 35 80 00 – Turbidity Barriers and Monitoring.

16. Site Utilization Plan: Site plan showing the proposed location and layout of the following:

    a. Temporary facilities (i.e., sanitary, first-aid, parking/storage, water treatment, containment systems, etc.).

    b. Temporary access roads and parking areas.

    c. River access/staging area.

    d. Equipment storage and fueling area(s).

    e. Temporary decontamination area(s). Clearly identify location and size of each.

    f. Temporary containment area(s). Clearly identify location and size of each.

17. Quality Control Work Plan, including:

    a. Quality Control Work Plan for construction water management and treatment: In accordance with Section 02 72 00 – Construction Water Management.

    b. Quality Control Work Plan for earthwork: In accordance with Section 31 00 00 – General Earthwork.

    c. Quality Control Work Plan for dredging and excavation: In accordance with Section 31 23 16 – Excavation.

B. Submit POP to OWNER, REMEDIATION ENGINEER, and NYSDEC seven days prior to pre-construction conference, or 30 days prior to CONTRACTOR's scheduled mobilization to the Site.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. This Section includes administrative and procedural requirements for the following:
   a. Requests for interpretation.
   b. Clarification notices.
   c. Minor changes in the Work and Field Orders.
   d. Work Change Directives.
   e. Proposal requests.
   f. Change Order requests.
   g. Change Orders.

B. Submit contract modification documents to DESIGN ENGINEER.

C. Retain at CONTRACTOR's office and at the Site a complete copy of each Contract modification document and related documents, and DESIGN ENGINEER's response.

1.02 REQUESTS FOR INTERPRETATION

A. General:

1. Submit requests for interpretation to obtain clarification or interpretation of the Contract Documents. Report conflicts, errors, ambiguities, and discrepancies in the Contract Documents using requests for interpretation.
2. Do not submit request for interpretation when other form of communication is appropriate, such as submittals, requests for substitutions or "or equals," notices, ordinary correspondence, or other form of communication. Improperly prepared or inappropriate requests for interpretation will be returned without response or action.
3. Submit written requests for interpretation to DESIGN ENGINEER. CONTRACTOR and OWNER may submit requests for interpretation.

B. Procedure:

1. Submit one original (may be electronic) of each request for interpretation. Submit each request for interpretation with separate letter of transmittal.
2. DESIGN ENGINEER will provide timely review of requests for interpretation. Allow minimum 48 to 72 hours for review and response.
3. DESIGN ENGINEER will maintain a log of all requests for interpretation. A copy of the log will be provided upon request.

4. DESIGN ENGINEER will provide written response to each request for interpretation. One copy of DESIGN ENGINEER's response will be distributed to:

   a. CONTRACTOR.

   b. REMEDIATION ENGINEER.

   c. OWNER.

5. If DESIGN ENGINEER requests additional information to make an interpretation, provide information requested within 10 days, unless DESIGN ENGINEER allows additional time, via correspondence referring to request for interpretation number.

6. If CONTRACTOR or OWNER believes that a change in the Contract Price or Contract Times or other change to the Contract is required, notify DESIGN ENGINEER in writing before proceeding with the Work associated with the request for interpretation.

C. Submit each request for interpretation on the request for interpretation form included with this Section, or other form acceptable to DESIGN ENGINEER.

1. Number each request for interpretation using a two-digit sequential number. First request for interpretation will be "01".

2. In space provided on form, describe the interpretation requested. Provide additional sheets as necessary. Include text and sketches as required in sufficient detail for DESIGN ENGINEER's response.

3. When applicable, request for interpretation shall include CONTRACTOR's recommended resolution.

1.03 CLARIFICATION NOTICES

A. General:

1. Clarification notices provide clarification or interpretation of conflicts, errors, ambiguities, and discrepancies in the Contract Documents that are identified by the DESIGN ENGINEER.

2. Clarification notices do not change the Contract Price or Contract Times, and do not alter the Contract Documents.

3. Clarification notices, when required, will be initiated and issued by the DESIGN ENGINEER as correspondence with additional information as required.

B. Procedure:

1. One copy of each written clarification notice (may be electronic) will be distributed to:

   a. CONTRACTOR.

   b. REMEDIATION ENGINEER.

   c. OWNER.

2. If CONTRACTOR or OWNER believes that a change in the Contract Price or the Contract Times or other change to the Contract is required, notify DESIGN ENGINEER in writing before proceeding with the Work associated with clarification notice.

3. If clarification notice is unclear, submit request for interpretation.

1.04 MINOR CHANGES IN THE WORK AND FIELD ORDERS

A. General:

1. Field Orders authorize minor variations in the Work, but do not change the Contract Price or Contract Times.
2. Field Orders, when required, will be initiated and issued by REMEDIATION ENGINEER on the Field Order form included with this Section, or other form acceptable to REMEDIATION ENGINEER.
3. REMEDIATION ENGINEER will maintain a log of all Field Orders issued.

B. Procedure:

1. One copy of each Field Order (may be electronic) will be distributed to:
   a. CONTRACTOR.
   b. OWNER.
2. If CONTRACTOR or OWNER believes that a change in the Contract Price or the Contract Times or other change to the Contract is required, immediately notify DESIGN ENGINEER in writing before proceeding with the Work associated with the Field Order.
3. If Field Order is unclear, submit request for interpretation.

1.05 WORK CHANGE DIRECTIVES

A. General:

1. Work Change Directives, when required, order additions, deletions, or revisions to the Work.
2. Work Change Directives do not change the Contract Price or Contract Times but is evidence that the parties to the Contract expect that the change ordered or documented by the Work Change Directive will be included in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.
3. Work Change Directives, when required, will be initiated and issued by the REMEDIATION ENGINEER on the Work Change Directive form included with this Section, or other form acceptable to the OWNER and REMEDIATION ENGINEER.

B. Procedure:

1. Work Change Directive signed by the OWNER and REMEDIATION ENGINEER will be furnished to the CONTRACTOR (may be electronic), who shall promptly sign Work Change Directive and, within five days of receipt, return to the REMEDIATION ENGINEER.
2. Signed Work Change Directives will be distributed as follows:
   a. CONTRACTOR: One original.
   b. OWNER: Two originals.
   c. REMEDIATION ENGINEER: One original.

3. When required by the REMEDIATION ENGINEER, document the Work performed under each separate Work Change Directive. For each day, document the following in a format acceptable to REMEDIATION ENGINEER:
    a. Number and type of workers employed, and hours worked.
    b. Equipment used, including manufacturer, model, and year of equipment, and number of hours for each.
    c. Materials used.
    d. Receipts for and descriptions of materials and equipment incorporated into the Work.
    e. Invoices and labor and equipment breakdowns for Subcontractors and Suppliers.
    f. Other information required by OWNER or REMEDIATION ENGINEER.
4. Submit documentation to REMEDIATION ENGINEER as a Change Order request.

1.06 PROPOSAL REQUESTS

A. General:
1. Proposal requests are for requesting the effect on the Contract Price and the Contract Times and other information relative to contemplated changes in the Work.
2. Proposal requests do not authorize changes or variations in the Work, and do not change the Contract Price or Contract Times, or terms of the Contract.
3. Proposal requests may be initiated by REMEDIATION ENGINEER or OWNER.
4. Proposal requests will be issued on the proposal request form included with this Section, or other form acceptable to OWNER and REMEDIATION ENGINEER.

B. Procedure:
1. One copy of each signed proposal request will be furnished to CONTRACTOR, with one copy each distributed to:
    a. OWNER.
    b. REMEDIATION ENGINEER.
2. Submit request for interpretation to clarify conflicts, errors, ambiguities, and discrepancies in proposal request.
3. Upon receipt of proposal request, CONTRACTOR shall prepare and submit a Change Order request, in accordance with this Section, for the proposed Work described in the proposal request.

1.07 CHANGE ORDER REQUESTS

A. General:
1. Submit written Change Order request to REMEDIATION ENGINEER in response to each proposal request, and when CONTRACTOR believes a change in the Contract Price or Contract Times, or other change to the terms of the Contract is required.

B. Procedure:

1. Submit to REMEDIATION ENGINEER one original (may be electronic) of each Change Order request with accompanying documentation. Submit each Change Order request with separate letter of transmittal.

2. When REMEDIATION ENGINEER requests additional information to render a decision, submit required information within five days of receipt of REMEDIATION ENGINEER's request, unless REMEDIATION ENGINEER allows more time. Submit the required information via correspondence that identifies the Change Order request number.

3. Upon completing review, one copy of REMEDIATION ENGINEER's written response, if any, will be distributed to:

   a. CONTRACTOR.

   b. OWNER.

   c. REMEDIATION ENGINEER.

4. If Change Order request is recommended for approval by REMEDIATION ENGINEER and approved by OWNER, a Change Order will be issued.

C. Each Change Order request shall be submitted on the Change Order request form included with this Section, or other form acceptable to OWNER and REMEDIATION ENGINEER.

1. Number each Change Order request using a two-digit sequential number. First Change Order request will be "01."

2. In space provided on the form:

   a. Describe the scope of each proposed change. Include text and sketches on additional sheets as required to provide detail sufficient for REMEDIATION ENGINEER's review and response. If the proposed change is submitted in response to a proposal request, write in as scope, "In accordance with Proposal Request No." followed by the proposal request number. Provide written clarifications, if any, to scope of change.

   b. Provide justification for each proposed change. If the proposed change is submitted in response to a proposal request, write in as justification, "In accordance with Proposal Request No." followed by the proposal request number.

   c. List the total change in the Contract Price and Contract Times for each proposed change.

3. Unless otherwise directed by REMEDIATION ENGINEER, attach to the Change Order request detailed breakdowns of pricing (Cost of the Work and CONTRACTOR's fee), including:

   a. List of Work tasks to accomplish the change.

   b. For each task, labor cost breakdown including labor classification, total hours per labor classification, and hourly cost rate for each labor classification.

   c. Construction equipment and machinery to be used, including manufacturer, model, and year of manufacture, and number of hours for each.

d. Detailed breakdown of materials and equipment to be incorporated into the Work, including quantities, unit costs, and total cost, with Supplier's written quotations.

e. Breakdowns of the Cost of the Work and fee for Subcontractors, including labor, construction equipment and machinery, and materials and equipment incorporated into the Work, other costs, and Subcontractor fees.

f. Breakdown of other costs eligible, in accordance with the General Conditions.

g. Other information required by REMEDIATION ENGINEER.

h. CONTRACTOR's fees applied to eligible CONTRACTOR costs and eligible Subcontractor costs.

1.08 CHANGE ORDERS

A. General:

1. Change Orders will be recommended by REMEDIATION ENGINEER and signed by OWNER and CONTRACTOR, to authorize additions, deletions, or revisions to the Work, or changes to the Contract Price or Contract Times.

2. Change Orders will be issued on the Change Order form included with this Section or other form acceptable to OWNER and REMEDIATION ENGINEER.

B. Procedure:

1. Change Order will be furnished to CONTRACTOR (may be electronic), who shall promptly sign Change Order and, within five days of receipt, return to REMEDIATION ENGINEER.

2. REMEDIATION ENGINEER will sign each original Change Order and forward them to OWNER.

3. After approval and signature by OWNER, signed Change Orders will be distributed as follows:

a. CONTRACTOR: One original.

b. OWNER: Two originals.

c. REMEDIATION ENGINEER: One original.

PART 2– PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 ATTACHMENTS

A. The attachments listed below, which follow after the "End of Section" designation, are part of this Section:

1. Attachment A: Request for interpretation form (one page).

2. Attachment B: Field Order form (one page).

3. Attachment C: Work Change Directive form (two pages).

4. Attachment D: Proposal request form (one page).

5. Attachment E: Change Order request form (two pages).
6. Attachment F: Change Order form (two pages).

END OF SECTION

ATTACHMENT A
RG&E
EAST STATION FORMER MGP SITE
CITY OF ROCHESTER, MONROE COUNTY, NEW YORK

REQUEST FOR INTERPRETATION NO. _____

Contractor: _____ Purchase Order No.: _____

Date Transmitted: _____ Date Received: _____

Date Response Requested: _____ Date Response Transmitted: _____

Subject: _____

Reference(s): _____
Specification Section(s) Drawing(s) / Note(s) / Detail(s)

Interpretation Requested:

Signature: _____ Date: _____

Engineer's Response:

Signature: _____ Date: _____

END OF REQUEST FOR INTERPRETATION

ATTACHMENT B
RG&E
EAST STATION FORMER MGP SITE
CITY OF ROCHESTER, MONROE COUNTY, NEW YORK

FIELD ORDER NO. _____

Contractor: _____ Purchase Order No.: _____

Date Issued: _____ Effective Date: _____

Subject: _____

Reference(s): _____
Specification Section(s) Drawing(s) / Note(s) / Detail(s)

Attention:

Contractor is hereby directed to promptly execute this Field Order for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, please notify Engineer immediately and before proceeding with this Work.

Description:

Attachments:

Issued by Engineer:

Signature: _____ Date: _____

Receipt Acknowledged by Contractor:

Signature: _____ Date: _____

END OF FIELD ORDER

ATTACHMENT C
RG&E
EAST STATION FORMER MGP SITE
CITY OF ROCHESTER, MONROE COUNTY, NEW YORK

WORK CHANGE DIRECTIVE NO. _____

Contractor:_____ Purchase Order No.: _____

Date Issued:_____ Effective Date: _____

Contractor is directed to proceed promptly with the following change(s):

Item No.	Description

Scope of Work:

Attachments:

Purpose for Work Change Directive:

Authorization for the Work described herein to proceed on the basis of Cost of the Work due to:

☐ Non-agreement on pricing of proposed change.

☐ Necessity to expedite Work described herein prior to agreeing to changes in Contract Price and Contract Times.

Estimated Change in Contract Price and Contract Times:

Contract Price:

$_____ ☐ Increase ☐ Decrease ☐ No Change

Contract Times:

_____Days ☐ Increase ☐ Decrease ☐ No Change

Recommended for Approval by Engineer:

Signature:_____Date: _____

Authorized by OWNER:

Signature:_____Date: _____

Receipt Acknowledged by Contractor:

Signature:_____Date: _____

END OF WORK CHANGE DIRECTIVE

ATTACHMENT D
RG&E
EAST STATION FORMER MGP SITE
CITY OF ROCHESTER, MONROE COUNTY, NEW YORK

PROPOSAL REQUEST NO. _____

Contractor: _____ Purchase Order No.: _____

Date: _____

Subject: _____

Please submit a complete Change Order request for the proposed modifications described below. If the associated Change Order request is approved, a Change Order will be issued to authorize adjustment to the scope of the Work. This proposal request is not a Change Order, Work Change Directive, or an authorization to proceed with the proposed Work described below.

Scope of Proposed Work:

Requested by Engineer:

Signature: _____ Date: _____

END OF PROPOSAL REQUEST

ATTACHMENT E
RG&E
EAST STATION FORMER MGP SITE
CITY OF ROCHESTER, MONROE COUNTY, NEW YORK

CHANGE ORDER REQUEST NO. _____

Contractor: _____ Purchase Order No.: _____

Date: _____ Submitted in Response to Proposal Request No.: _____

Subject: _____

Scope of Work:

Attach and list supporting information as required.

Justification:

`

Changes in Contract Price and Contract Times:

For Contract Price, when requested by Engineer, attach detailed cost breakdowns for Contractor and Subcontractors, Supplier quotations, and other information required. For the Contract Times, state increase, decrease, or no change to Contract Times for Substantial Completion, readiness for final payment, and Milestones, if any. If increase or decrease, state specific number of days for changes to the Contract Times.

The following changes are proposed to the Contract Price and Contract Times:

Description	Contract Price (dollars)	Contract Times (days)	
		Substantial	Final
1.	$		
2.	$		
Total This Change Order Proposal:	**$**		

Changes to Milestones (if any): _____

The adjustment proposed is the entire adjustment to the Contract to which Contractor believes it is entitled as a result of the proposed change.

Requested by Contractor:

Signature:_____Date: _____

END OF CHANGE ORDER REQUEST

ATTACHMENT F
RG&E
EAST STATION FORMER MGP SITE
CITY OF ROCHESTER, MONROE COUNTY, NEW YORK

CHANGE ORDER NO. _____

Contractor:_____Purchase Order No.: _____

Date Issued:_____Effective Date: _____

The Contract Documents are modified as follows upon execution of this Change Order:

Description:

Attachments:

Change in Contract Price:

A. Original Contract Price: $_____

B. ☐ Increase ☐ Decrease ☐ No Change

from previously approved Change Order Nos. ___ to __: $_____

C. Contract Price prior to this Change Order (Lines A+B): $_____

D. ☐ Increase ☐ Decrease ☐ No Change

of this Change Order: $_____

E. Contract Price incorporating this Change Order (Lines C+D): $_____

Change in Contract Times:

A. Original Contract Times ☐ Working days ☐ Calendar days:

Substantial Completion (days or date): _____
Ready for Final Payment (days or date): _____

B. ☐ Increase ☐ Decrease ☐ No Change

from previously approved Change Order Nos._ to _:

Substantial Completion (days or date): _____
Ready for Final Payment (days or date): _____

C. Contract Times prior to this Change Order (Lines A+B):

Substantial Completion (days or date): _____
Ready for Final Payment (days or date): _____

Recommended for Approval by Engineer:

Signature:_____ Date: _____

Accepted by OWNER:

Signature:_____ Date: _____

Accepted by Contractor:

Signature:_____ Date: _____

END OF CHANGE ORDER

SECTION 01 29 76

PROGRESS PAYMENT PROCEDURES

PART 1 - GENERAL

A. Scope:

1. This Section includes administrative and procedural requirements for the CONTRACTOR's requests for progress payments.

1.01 PROGRESS PAYMENTS

A. General:

1. Applications for Payment shall be submitted on a form acceptable to OWNER and REMEDIATION ENGINEER.

B. Procedure:

1. Review with REMEDIATION ENGINEER the proposed quantities and Work to be included in each progress payment. Application for Payment shall cover only the quantities and Work recommended by the REMEDIATION ENGINEER.

2. Submit to the OWNER and the REMEDIATION ENGINEER complete Application for Payment and other documents to accompany the Application for Payment.

C. Each request for progress payment shall include:

1. Completed Application for Payment form, including summary/signature page, progress estimate sheets, and stored materials summary. Progress estimate sheets shall have the same level of detail as the Schedule of Values.

   a. Documentation of work completed in accordance with the Contract Documents measurements and payments. Costs for which progress payment is requested and for which documentation acceptable to REMEDIATION ENGINEER is not submitted will not be eligible for payment.

2. Listing of Subcontractors and Suppliers:

   a. Submit not less than monthly updated listing of all Subcontractors and Suppliers known to CONTRACTOR, whether or not such entities have a contract directly with CONTRACTOR. Include name, contact person, contact information, brief description of work/services supplied, and approximate date(s) of work/services supplied.

3. Partial Release or Reduction of Retainage:

   a. For each Application for Payment where CONTRACTOR requests partial release or reduction of retainage in any amount (other than request for final payment), submit with associated progress payment request consent of surety to partial release or reduction of retainage, duly completed by CONTRACTOR and surety.

   b. For payment requests that include reduction in or payment of retainage in an amount greater than that required by the Contract Documents, obtain the OWNER's concurrence for partial release or reduction in retainage prior to submitting such Application for Payment.

4. Requirements for request for final payment are specified in the Section 01 77 19 – Closeout Procedures.

1.02 SUBMITTALS

A. Informational Submittals: Submit the following:

1. An example invoice for review by the OWNER, to ensure that the invoice conforms with the OWNER's standards.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 31 13

PROJECT COORDINATION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. This Section includes general requirements for coordinating construction operations on the Project.

1.02 COORDINATION

A. Coordinate the Work, including testing agencies, whether hired by CONTRACTOR, OWNER, or others, Subcontractors, Suppliers, and others with whom coordination is necessary, in accordance with this Section, to complete the Work in accordance with the Contract Documents.

B. Cooperate with and coordinate the Work with other contractors, utility service companies, OWNER's employees working at the Site, and other entities working at the Site, in accordance with Section 01 11 00 – Summary of Work.

C. Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.

D. Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of CONTRACTOR's Progress Schedule.

2. Installation and removal of temporary utilities, facilities, and controls.

3. Delivery and processing of submittals.

4. Progress meetings.

5. Startup and adjustment of systems.

6. Project closeout activities.

E. Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials in accordance with Section 01 35 00 – Green Remediation. Coordinate use of temporary utilitiesto minimize waste in accordance with Section 01 35 00 – Green Remediation.

F. Maintain sufficient competent personnel, equipment, and supplies at the Site for preparing layout drawings, coordination drawings, and record documents. With the Contract Documents and Shop Drawings, use such coordination drawings as tools for coordinating the Work of various trades. Where

such coordination drawings are to be prepared by Subcontractors, ensure that each Subcontractor maintains required personnel and facilities at the Site.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 31 19.13

PRE-CONSTRUCTION CONFERENCE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. A pre-construction conference will be held prior to each construction season/ mobilization for the Project. CONTRACTOR shall attend the conference and be prepared to discuss all items on the agenda.

2. REMEDIATION ENGINEER will distribute an agenda, preside at conference, and prepare and distribute minutes to all conference participants and others as requested.

B. Purpose of conference is to designate responsible personnel, establish working relationships, discuss preliminary schedules submitted by CONTRACTOR, and review administrative and procedural requirements for the Project. Matters requiring coordination will be discussed and procedures for handling such matters will be established.

C. Date, Time, and Location: Conference will be held within 20 days after the Contract Times start to run and before Work starts at the Site, unless otherwise specified by the OWNER and agreed to by the CONTRACTOR. OWNER will establish the date, time, and location of conference and will notify the interested and involved parties.

D. Prior to the conference, the CONTRACTOR shall submit the following preliminary schedules:

1. Preliminary Progress Schedule.

2. Preliminary Schedule of Submittals.

E. CONTRACTOR shall provide information required and contribute appropriate items for discussion. CONTRACTOR shall bring to the conference the following, with sufficient number of copies for each attendee:

1. Preliminary Progress Schedule.

2. Preliminary Schedule of Submittals.

3. List of emergency contact information for CONTRACTOR's project manager, field superintendent, site health and safety officer, field engineer, and foreman.

1.02 ATTENDANCE

A. Representatives present for each entity shall be qualified and authorized to act on that entity's behalf.

B. Attendance:

1. CONTRACTOR:

a. Project Manager.

b. Field Superintendent.

c. Site Health and Safety Officer.

d. Field engineer.

e. Foreman.

f. Representatives of other Subcontractors and Suppliers if needed for the discussion of a particular agenda item.

2. OWNER.

3. REMEDIATION ENGINEER.

4. DESIGN ENGINEER

5. New York State Department of Environmental Conservation and New York State Department of Health, if available.

6. Others as appropriate or as requested by OWNER, CONTRACTOR, or REMEDIATION ENGINEER.

1.03 PRELIMINARY AGENDA

A. Safety Moment

B. Procedural and Administrative:

1. Personnel and Teams:

a. Designation of roles and responsible personnel.

b. Limitations of authority of personnel, including personnel who will sign Contract modifications and make binding decisions.

c. List of proposed Subcontractors and Suppliers.

d. Authorities having jurisdiction.

2. Procedures for communication and correspondence.

3. Copies of Contract Documents and availability.

4. The Work and Scheduling:

a. Scope of Work.

b. Contract Times, including Milestones (if any).

c. Phasing and sequencing.

d. Preliminary Progress Schedule.

e. Critical path activities.

f. Working hours.

5. Safety:

a. Responsibility for safety.

b. Designation of CONTRACTOR's safety representative.

c. Identification of Project Emergency Coordinator.

d. Emergency procedures and accident reporting.

e. Emergency contact information.

f. Impact of Project on public safety.

6. Permits.

7. Coordination:

a. Project coordination.

b. Progress meetings.

8. Products and Submittals:
   a. Preliminary Schedule of Submittals.
   b. Shop Drawings, Samples, and other submittals.
   c. Product options, “or equals”, and substitutions.
9. Contract Modification Procedures:
   a. Requests for interpretation.
   b. Clarification notices.
   c. Field Orders.
   d. Proposal requests.
   e. Change Order proposals.
   f. Work Change Directives.
   g. Change Orders.
10. Payment:
   a. Progress payment procedures.
   b. Taxes.
   c. Retainage.
11. Testing and inspections.
12. Record documents.
13. Preliminary Discussion of Contract Closeout:
   a. Procedures for Substantial Completion.
   b. Contract closeout requirements.
   c. Correction period.
   d. Duration of bonds and insurance.

C. Site Mobilization:
1. Field offices and staging areas.
2. Temporary facilities and utilities.
3. Access to staging/processing area, access roads, and parking.
4. Access to soil/sediment removal areas.
5. Access to barrier wall repair areas and restrictions.
6. Maintenance and protection of traffic.
7. Use of premises.
8. Work done by others during Project duration.
9. Protection of existing property.
10. Site Security Measures.

11. Temporary Controls:
    a. Erosion and sediment control.
    b. Storm water control.
    c. Odor, vapor, and dust control.
    d. Noise control.
    e. Turbidity controls.
    f. Pollution control.
12. Temporary fencing.
13. Storage of materials and equipment.
14. Reference points and benchmarks; surveys and layouts.
15. Site maintenance and housekeeping during the Project, including cleaning and removal of trash and debris.
16. Soil/Sediment removal and handling.
17. Waste Handling and Transportation Procedures.
18. Site Cover installation.
19. Restoration.

D. General discussion and questions.

E. Next meeting.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 31 19.23

PROGRESS MEETINGS

PART 1 - GENERAL

1.01 IDENTIFICATION

A. Scope:

1. Progress meetings will be held on a regular basis throughout the Project. CONTRACTOR shall attend each progress meeting and be prepared to discuss in detail all items on the agenda.

2. REMEDIATION ENGINEER will preside at progress meetings and will prepare and distribute agenda and minutes of progress meetings to all meeting participants and others as requested.

B. Date and Time:

1. Progress Meetings: Every week on a day and time agreeable to OWNER, REMEDIATION ENGINEER, DESIGN ENGINEER, and CONTRACTOR.

2. Daily Safety and Coordination meetings: Daily meetings will be attended by the CONTRACTOR's representative(s), the REMEDIATION ENGINEER, the OWNER (as necessary), and other parties to be on Site during the day to discuss day-to-day operations, daily schedule, health and safety issues, CONTRACTOR coordination issues, and general project status.

3. Pre-Final Inspection: A pre-final inspection (punch list) meeting will be held at the substantial completion of the remedial construction activities each construction season/mobilization. Participants in the meeting will include the CONTRACTOR, the OWNER, the REMEDIATION ENGINEER, the DESIGN ENGINEER, and New York State Department of Environmental Conservation (NYSDEC). The meeting will be scheduled by the REMEDIATION ENGINEER. As part of the meeting, a pre-final site inspection will be conducted by the OWNER, the REMEDIATION ENGINEER, the DESIGN ENGINEER, and NYSDEC.

4. Project Closeout Meeting: A project close-out meeting will be held at the end of each construction season/mobilization for the remedial construction activities. Participants in the meeting will include the CONTRACTOR, the OWNER, the REMEDIATION ENGINEER, the DESIGN ENGINEER, and NYSDEC. The meeting will be scheduled by the REMEDIATION ENGINEER. As part of the meeting, a final site inspection will be conducted by the OWNER, the REMEDIATION ENGINEER, the DESIGN ENGINEER, and NYSDEC. The inspection will be conducted in accordance with Section 01 77 19 – Closeout Procedures.

5. Other Meetings: As required.

C. Location: CONTRACTOR's field office at the Site or other location mutually agreed upon by OWNER, REMEDIATION ENGINEER, and CONTRACTOR.

D. Handouts: CONTRACTOR shall bring to each progress meeting a minimum of five copies of each of the following:

1. List of Work accomplished since the previous progress meeting.

2. Up-to-date Progress Schedule.

3. Up-to-date Schedule of Submittals.

4. Detailed "look-ahead" schedule of Work planned for the next two weeks, with specific starting and ending dates for each activity, including shutdowns, deliveries of important materials and equipment, Milestones (if any), and important activities affecting OWNER, the Project, and the Site.

1.02 ATTENDANCE

A. Representatives present for each entity shall be qualified and authorized to act on that entity's behalf.

B. Attendance:

1. CONTRACTOR:

a. Project Manager.

b. Site Superintendent.

c. Site Health and Safety Officer.

d. Field engineer.

e. Foreman.

f. Representatives of other Subcontractors and Suppliers when needed for the discussion of a particular agenda item.

2. OWNER.

3. REMEDIATION ENGINEER.

a. Project Manager

b. Construction Manager

4. DESIGN ENGINEER.

5. NYSDEC and New York State Department of Health, if available.

6. Others as appropriate or as requested by OWNER, CONTRACTOR, or REMEDIATION ENGINEER.

1.03 PRELIMINARY AGENDA

A. Review, comment, and amendment (if required) of minutes of previous progress meeting.

B. Safety and safe work practices.

C. Status of permits, as applicable.

D. Results of community air monitoring and turbidity monitoring performed since previous progress meeting.

E. Review of progress since previous progress meeting.

F. Planned progress through next progress meeting.

G. Review of Progress Schedule:

1. Contract Times, including Milestones (if any).

2. Critical path.
3. Schedules for fabrication and delivery of materials and equipment.
4. Issues potentially affecting the Contract Times, including Milestones (if any).
5. Corrective measures, if required, to achieve Contract Times, including Milestones (if any).

H. Submittals:

1. Status of critical submittals.
2. Review of Schedule of Submittals and REMEDIATION ENGINEER's submittal log.

I. Field observations, problems, and conflicts.

J. Quality standards, testing, and inspections.

K. Coordination between parties.

L. Site management issues, including access, security, temporary controls, maintenance and protection of traffic, and housekeeping.

M. Punch list status, as applicable.

N. Other business.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. The CONTRACTOR shall prepare, submit, maintain, and update Progress Schedules in accordance with this Section, unless otherwise accepted by the OWNER.

2. The OWNER's acceptance of the Progress Schedule, and comments or opinions concerning the activities in the Progress Schedule shall not control the CONTRACTOR's independent judgment relative to the means, methods, techniques, sequences, and procedures of construction. The CONTRACTOR is solely responsible for complying with the Contract Times.

3. If the Progress Schedule reflects completion date(s) different than the Contract Times, the Contract Times are not thereby voided, nullified, or affected. The Contract Times govern. Where the Progress Schedule reflects completion date(s) that are earlier than the Contract Times, OWNER may accept such Progress Schedule with CONTRACTOR to specifically understand that no Claim for additional Contract Times or additions to the Contract Price shall be brought against OWNER resulting from CONTRACTOR's failure to complete the work by the earlier date(s) indicated on the accepted Progress Schedule.

B. Factors Affecting the Progress Schedule:

1. In preparing the Progress Schedule, take into consideration submittal requirements and submittal review times, time for fabricating and delivering materials and equipment, work by subcontractors, availability and abilities of workers, availability of construction equipment, weather conditions, restrictions in operations at the Site and coordination with the OWNER's operations, if any, and other factors that have the potential to affect completion of the work within the Contract Times.

2. Comply with sequencing requirements, if any, indicated in the Contract Documents.

1.02 SUBMITTALS

A. Informational Submittals:

1. Preliminary Progress Schedule: Submit preliminary Progress Schedule in accordance with this Section.

2. Initial Progress Schedule: After making revisions in accordance with OWNER's and/or REMEDIATION ENGINEER's comments on the preliminary Progress Schedule, submit Initial Progress Schedule in accordance with this Section.

3. Progress Schedule Updates:

a. Submit updated Progress Schedule at each progress meeting. Bring to meeting the minimum number of copies specified in Section 01 31 19.23 – Progress Meetings.

b. Submit each updated Progress Schedule with letter of transmittal complying with requirements of Section 01 33 00 – Document Submittal Procedure and specifically indicating the following:

1) Listing of activities and dates that have changed since the previous Progress Schedule submittal.

2) Discussion of problems causing delays, anticipated duration of delays, and proposed countermeasures.

3) Completed activities, if any, and the anticipated and actual durations of each.

c. If the Progress Schedule remains unchanged from one progress meeting to the next, submit a written statement to that effect.

4. Look-Ahead Schedules: Submit two-week look-ahead schedule at each progress meeting.

5. Recovery Schedules: Submit in accordance with this Section.

1.03 PROGRESS SCHEDULES

A. Format:

1. Type: Gantt chart prepared using Microsoft Project 2020 or later edition, Primavera P6, or similar scheduling software.

2. Sheet Size: 22 inches by 34 inches, unless otherwise accepted by OWNER.

3. Time Scale: Indicate first date of each work week.

4. Organization:

a. Group deliveries of materials and equipment into a separate sub-schedule that is part of the Progress Schedule.

b. Group construction into a separate sub-schedule (that is part of the Progress Schedule) by activity.

c. Group Work by Subcontractors into a separate sub-schedule (that is part of the Progress Schedule) by activity.

d. Group critical activities that dictate the rate of progress (the “critical path”) into a separate sub-schedule that is part of the Progress Schedule. Clearly indicate the critical path on the Progress Schedule.

e. Organize each sub-schedule by Specification Section or payment item number.

5. Activity Designations: Indicate title and related Specification Section or payment item number.

B. Content:

1. At a minimum, the following major work items should be included, with appropriate subtasks included as necessary, in the general sequence listed below:

a. Mobilization

b. Site Preparation

c. Erosion and Sedimentation Controls Installation

d. Geotechnical, Structural, and Turbidity Instrumentation Installation

e. Vegetation removal

f. Utility removal

g. Foundation and Building Demolition

h. Temporary River Diversion Installation

i. Soil Excavation – On-Site

j. Soil Excavation – Off-Site

k. Near River Soil Excavation

l. Sediment Dredging

m. ISS Construction

n. Site Cover System Construction

o. Site Restoration

p. NAPL Recovery Well Installation

q. Demobilization.

2. Progress Schedules shall also indicate the following:

a. Dates for shop-testing

b. Delivery dates for materials and equipment to be incorporated into the Work

c. Dates for beginning and completing each phase of the Work by activity and by trade

d. Dates for start-up, check-out, and field-testing

e. Dates corresponding to the Contract Times, and planned completion date associated with each Milestone (if any), Substantial Completion, and readiness for final payment

C. Progress Schedule Updates: Update Progress Schedule on a bi-weekly basis (i.e., every two weeks) and to reflect changes to the Contract Times, if any.

1.04 RECOVERY SCHEDULES

A. General:

1. When updated Progress Schedule indicates that the ability to comply with the Contract Times falls two or more weeks behind schedule, and there is no excusable delay (e.g., severe weather), Change Order, or Work Change Directive to support an extension of the Contract Times, CONTRACTOR shall prepare and submit a Progress Schedule demonstrating CONTRACTOR's plan to accelerate the work to achieve compliance with the Contract Times ("recovery schedule") for OWNER's acceptance.

2. Submit recovery schedule within three days after submittal of updated Progress Schedule where need for recovery schedule is indicated.

B. Implementation of Recovery Schedule:

1. At no additional cost to OWNER, do one or more of the following: furnish additional labor, provide additional construction equipment, provide suitable materials, employ additional work shifts, expedite procurement of materials and equipment to be incorporated into the Work, and other measures necessary to complete the Work within the Contract Times.
2. Upon acceptance of recovery schedule by OWNER, incorporate recovery schedule into the next Progress Schedule update.

C. Lack of Action: CONTRACTOR's refusal, failure, or neglect to take appropriate recovery action, or to submit a recovery schedule, shall constitute reasonable evidence that CONTRACTOR is not prosecuting the work or separable part thereof with the diligence that will ensure completion within the Contract Times.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 32 26

CONSTRUCTION PROGRESS REPORTING

PART 1 - GENERAL

1.01 IDENTIFICATION

A. Scope:

1. CONTRACTOR shall prepare and submit construction progress reports (i.e., daily construction reports, field condition reports) in accordance with this Section.

2. REMEDIATION ENGINEER shall prepare and submit daily construction reports in accordance with this Section.

1.02 SUBMITTALS

A. Informational Submittals:

1 Daily Construction Reports: Submit in accordance with Article 1.03 of this Section.

2 Field Condition Reports: Submit in accordance with Article 1.04 of this Section.

1.03 DAILY CONSTRUCTION REPORTS

A. Prepare daily construction reports throughout the Project. Include in each report, at a minimum, the following:

1. CONTRACTOR's name.

2. OWNER's name.

3. Project name.

4. Site name and location.

5. Date and day of the week.

6. High and low temperatures and general weather conditions.

7. Representative photographs of work performed (a minimum of four per day, including date, time, location, and description of photograph).

8. River conditions/elevation.

9. Extent of in-water diversion structure installed that day.

10. Total extent of in-water diversion structure installed to date.

11. Extent of in situ stabilization (ISS) installed that day.

12. Extent of ISS installed to date.

13. Volume of material removed/placed that day.

14. Total volume removed/placed to date.

15. Daily production rate (sediment/soil removed and backfill placed).

16. Overall production rate to date (sediment/soil removed and backfill placed).

17. Unusual conditions encountered during sediment/soil removal, including large debris

encountered.

18. Results of progress surveys.
19. Major equipment and materials installed as part of the Work.
20. Volume of treated water that day.
21. Volume of treated water to date.
22. Waste shipments.
23. Meter readings, monitoring results and deficiencies/exceedances if any.
24. Work performed, including field quality control measures and testing.
25. Number of CONTRACTOR employees at the Site.
26. Number of employees at the Site for each Subcontractor.
27. Breakdown of employees by trades.
28. Major construction equipment used.
29. Material and equipment deliveries.
30. Services connected and disconnected.
31. Equipment or system tests and startups.
32. Stoppages, delays, shortages, and losses.
33. Accidents. Comply with accident reporting requirements of Section 01 35 29 – Contractor's Health and Safety Plan.
34. Emergency procedures.
35. Meetings and significant decisions.
36. Orders and requests of authorities having jurisdiction.
37. Change Orders received and implemented.
38. Work Change Directives received and implemented.
39. Field Orders received and implemented.
40. Request for Interpretation and clarifications submitted.
41. Other instructions received from OWNER, REMEDIATION ENGINEER, or DESIGN ENGINEER.

B. Submit daily construction reports to REMEDIATION ENGINEER by 10 a.m. the next working day after the day covered in the associated report. Daily report shall be signed by responsible member of CONTRACTOR's staff, such as CONTRACTOR's project manager, field superintendent, field engineer, or foreman designated by CONTRACTOR as having authority to sign daily reports.

1.04 FIELD CONDITION REPORTS

A. Immediately upon discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

B. Submit field condition reports to DESIGN ENGINEER with request for interpretation, prepared

in accordance with Section 01 26 00 – Contract Modification Procedures.

1.05 REMEDIATION ENGINEER'S DAILY CONSTRUCTION REPORTS

A. REMEDIATION ENGINEER shall prepare daily construction reports throughout the Project. Include in each report, at a minimum, the following:

1. Date.
2. Project name.
3. Site name and location.
4. Data on weather conditions, including temperature, cloud cover, and precipitation.
5. Work start and end times.
6. Work stoppages (including reason for stoppage, i.e., weather, equipment malfunction).
7. CONTRACTOR's:
    a. Manpower (i.e., number of workers).
    b. Equipment.
    c. Materials delivered or removed from Site.
8. Chronological description of work in progress.
9. Health and safety issues.
10. Testing preformed onsite and results, if collected on Site.
11. Record of pertinent communications with onsite parties, outside companies, regulatory agencies, or consultants regarding construction activities.
12. Documentation of problems or deficiencies noted during construction and corrective action employed by CONTRACTOR.
13. Representative photographs of work performed including date, time, location and description of photograph.

B. REMEDIATION ENGINEER shall submit daily construction reports to OWNER by 5 p.m. the next working day after the day covered in the associated report or at on an alternate reduced schedule, if requested by the OWNER.

PART 2– PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 33 00

DOCUMENT SUBMITTAL PROCEDURE

PART 1 - GENERAL

1.01 SUMMARY

A. The purpose of this Section is to define the roles and responsibilities of the CONTRACTOR, REMEDIATION ENGINEER, DESIGN ENGINEER and OWNER in the submittal process and to present the procedures for review, approval, and final disposition of CONTRACTOR submittals during the construction phase.

B. This specification applies to all incoming or outgoing documentation originated by the CONTRACTOR throughout the duration of the project.

1.02 DEFINITIONS

A. The following definitions apply to this section:

1. CONTRACTOR – Construction Team, Subcontractor, or Supplier
2. OWNER – Rochester Gas and Electric
3. REMEDIATION ENGINEER – Responsible party-representative of the REMEDIATION ENGINEER
4. DESIGN ENGINEER – Certifying engineer of the remedial design responsible for providing engineering support to OWNER, CONTRACTOR, and REMEDIATION ENGINEER

B. General definitions:

1. Document – Any technical drawings, specifications, data sheets, manuals, calculations, etc., received from the CONTRACTOR including electronic media such as CD-ROM, email file attachments, etc.
2. Document Control Coordinator – Employee of REMEDIATION ENGINEER responsible for the receipt, coordination, and status reporting, of CONTRACTOR documentation.
3. Procurement Manager – Employee of REMEDIATION ENGINEER responsible for distributing request for proposal and supporting documentation packages.
4. Website Administrator – Employee of REMEDIATION ENGINEER responsible for providing access to the software programs, assisting with questions, and maintaining the websites.
5. Prints/Copies – The documents submitted will be distributed for REMEDIATION ENGINEER/DESIGN ENGINEER/OWNER review.
6. Reproducible – Unbound document available for use in duplication.
7. Electronic Copy – Files and attachments sent electronically via email or uploaded to the Project Collaboration Portal shall be in **PDF, XLSX, DOCX**, formatting, unless otherwise requested.

1.03 SUBMITTAL REQUIREMENTS

A. General: The submittal of all documentation will include:

1. Dimensions and calculations are to be in standard units

2. Language Requirements: English

3. All documents must be numbered appropriately (See Paragraph 1.05.B)

4. Submittals shall include a document transmittal form

B. Documents shall contain sufficient information to enable the DESIGN ENGINEER/REMEDIATION ENGINEER/OWNER to provide adequate review.

C. Project Management and Documentation Software

1. Project Collaboration Portal/SharePoint Site/Project Website – The DESIGN ENGINEER, REMEDIATION ENGINEER and CONTRACTOR may utilize, as appropriate, a Microsoft SharePoint Site which is accessible through the internet and allows for uploading and downloading of files while working in the field. Documents uploaded by the CONTRACTOR will not be accessible by any other group other than the DESIGN ENGINEER, REMEDIATION ENGINEER and OWNER. If outside parties are required to review the documents, then the files will be transferred appropriately.

2. Project Software Access

a. The CONTRACTOR must receive permission from the Website Administrator to access the Project Website. Permission will be assigned based on the intended use and activity of the CONTRACTOR.

b. The CONTRACTOR will receive an email from the Website Administrator that provides a username, password, and appropriate instructions for access.

D. All submittals shall be labeled with the submittal number which shall also be included on the Document Transmittal Form.

1.04 SUBMITTAL PROCEDURES

A. The CONTRACTOR shall email or upload the required documents to the Project Collaboration Portal and work with the Document Control Coordinator for proper requirements.

B. The Document Control Coordinator will distribute the submittal documents to the DESIGN ENGINEER/REMEDIATION ENGINEER/OWNER for appropriate management, engineering/ design, and project control document review.

C. Incomplete or inadequate submittals will be returned without review.

D. Following the DESIGN ENGINEER/REMEDIATION ENGINEER/OWNER document review, the Document Control Coordinator shall return the submittal with the disposition based on the review.

1. The Document Control Coordinator will upload the submittal response to the Project Collaboration Portal.

2. The Document Control Coordinator will notify the CONTRACTOR that the submittal has been reviewed via email.

3. The DESIGN ENGINEER/REMEDIATION ENGINEER will provide a disposition to each reviewed submittal.

a. Action Submittals: Each submittal will be given one of the following dispositions:

1) No Exceptions

2) Exceptions as Noted

3) Revise and Resubmit

4) Rejected/Resubmit

5) Proceed With Work

b. Informational Submittals:

1) Each submittal will be given one of the following dispositions:

a) Accepted: Information included in submittal conforms to the applicable requirements of the Contract Documents and is acceptable. No further action by CONTRACTOR is required relative to this submittal, and the Work covered by the submittal may proceed, and products with submittals with this disposition may be shipped or operated, as applicable.

b) Not Accepted: Submittal does not conform to applicable requirements of the Contract Documents and is not acceptable. Revise submittal and re-submit to indicate acceptability and conformance with the Contract Documents.

2) The following types of Informational Submittals, when acceptable to REMEDIATION ENGINEER, will not receive a written response from REMEDIATION ENGINEER. Disposition as "Accepted" will be recorded in REMEDIATION ENGINEER's submittal log. When submittals of the following are not acceptable, REMEDIATION ENGINEER will provide written response to CONTRACTOR:

a) Safety data sheets.

b) Manifests and other shipping documents.

c) Delivery tickets.

d) Compaction testing reports.

e) Concrete testing reports.

f) Manufacturer's instructions.

c. Closeout Submittals: Dispositions and meanings are the same as specified for Informational Submittals. When acceptable, Closeout Submittals will not receive a written response from REMEDIATION ENGINEER. Disposition as "Accepted" will be recorded in REMEDIATION ENGINEER's submittal log. When Closeout Submittal is not acceptable, REMEDIATION ENGINEER will provide written response to CONTRACTOR.

d. Maintenance Material Submittals: Dispositions and meanings are the same as specified for Informational Submittals. When acceptable, Maintenance Material Submittals will not receive a written response from REMEDIATION ENGINEER. Disposition as "Accepted" will be recorded in REMEDIATION ENGINEER's submittal log. When Maintenance Material Submittal is not acceptable, REMEDIATION ENGINEER will provide written response to CONTRACTOR, and CONTRACTOR is responsible for costs associated with transporting and handling of maintenance materials until compliance with the Contract Documents is achieved.

4. If comments or revisions are provided by the REMEDIATION ENGINEER, the Document Control Coordinator shall return redlined submittals showing changes, and/or comments to the CONTRACTOR either electronically or on hardcopy, as appropriate for the document submittal.

5. A document transmittal shall be included identifying disposition, comments, and include the statement "*Action taken hereon does not supersede requirements of applicable design drawings, specifications, orders, codes or regulations, or relieve the Contractor or Supplier from responsibility for errors or omissions.*"

6. The CONTRACTOR shall resubmit revised documents when the "Resubmit" disposition is indicated. The CONTRACTOR shall not proceed with work unless the "Proceed with Work" disposition is indicated.

1.05 TRANSMITTAL PROCEDURES

A. The CONTRACTOR shall include a document transmittal form with the submittal.

B. Document transmittal forms must include:

1. The REMEDIATION ENGINEER's project number, the CONTRACTOR's contract number, and reference for the submittal (i.e., specification number, drawing number, health safety requirements).

2. The transmittal will also include a statement indicating that the document(s) provided for review meet all requirements of the Contract Documents or will explicitly indicate exceptions and/or substitutions.

1.06 REVIEW PROCEDURE

A. The CONTRACTOR shall be required to submit all documentation in accordance with the agreed dates. CONTRACTOR is responsible for planning the work and providing the submittals allowing for the review and resubmittal time frames listed below without causing delays in the work.

B. The DESIGN ENGINEER/REMEDIATION ENGINEER/OWNER shall review the documentation within two (2) weeks following the submittal.

C. The CONTRACTOR shall have one (1) week to revise and make any necessary comments. The CONTRACTOR may request additional revision time if needed based on the extent of comments. The REMEDIATION ENGINEER/OWNER must acknowledge and confirm extension in writing to the CONTRACTOR.

D. The DESIGN ENGINEER/REMEDIATION ENGINEER/OWNER shall have one (1) week to review and return any resubmitted documents.

E. Subsequent reviews and resubmittals will follow the guideline of a one (1) week review cycle.

F. At the request of the New York State Department of Environmental Conservation (NYSDEC), CONTRACTOR submittals will be made available for NYSDEC review.

1.07 REQUEST FOR INFORMATION

A. The CONTRACTOR may request additional information/clarification from the DESIGN ENGINEER through a Request for Information (RFI) process and submittal of the RFI Form.

B. The CONTRACTOR shall email or upload a completed RFI form to the Project Collaboration Portal and notify the DESIGN ENGINEER/REMEDIATION ENGINEER/OWNER and Document Control Coordinator via email.

C. RFI Forms shall be numbered sequentially (see 01 26 00 – Contract Modification Procedure).

1. Example: RFI-01; RFI-02.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

Attachment 1 – Example Contractor Submittal Log

ATTACHMENT 1
EXAMPLE CONTRACT SUBMITTAL LOG

Submittal No.	Specification / Document Reference	Specification Title	Submittal Description	Submittal Type	Date Received	Status/Date	Notes
	Section 01 11 00	Summary of Work	Project Staffing List Design for construction of temporary roads	Informational Action			
	Section 01 15 00	Remediation Contractor's Project Operations Plan	Remediation Contractor's Project Operations Plan (POP) (see specification for requirements)	Action			
	Section 01 26 00	Contract Modification Procedures	Contractor modifications (as needed)	-			
	Section 01 29 76	Progress Payment Procedures	Example invoice	Informational			
	Section 01 31 19.13	Pre-Construction Conference	Preliminary Progress Schedule Preliminary Schedule of Submittals Emergency Contact List	Informational Informational Informational			
	Section 01 32 16	Construction Progress Schedule	Preliminary Progress Schedule Initial Progress Schedule Progress Schedule Updates (as needed) Look-Ahead Schedules Recovery Schedules	Informational Informational Informational Informational Informational			
	Section 01 32 26	Construction Progress Reporting	Daily Construction Reports Field Condition Reports (as needed)	Informational Informational			
	Section 01 35 00	Green Remediation Practices	Form A - Summary of Green Remediation Metrics	Informational			
	Section 01 35 23	Safety Requirements	Emergency Contact List (same as for Section 01 31 19.13) Citations, if any Work Permits, as needed	Informational Informational Informational			
	Section 01 35 29	Contractor's Health and Safety Plan	Contractor's Site-Specific Health and Safety Plan Job Safety Analysis (JSA) submittals for each action required for work not covered in the SSHASP Daily Health and Safety Reports Accident Reports, if any Qualifications Statements for SSHASP preparer and Safety Officer (SO) Training certificates	Informational Informational Informational Informational Informational Informational			
	Section 01 35 43.13	Environmental Procedures for Hazardous Materials	Information on hazardous materials proposed for use at the Site (see specification for requirements) Information on hazardous materials generated at the Site (see specification for requirements) Copies of permits for storage, handling, use, tranport, and disposal of hazardous materials Other documents required for the Hazardous Materials Management Program (HMMP), as needed Hazardous Materials Communication Plan (may be included in CHASP, see specification for requirements) Emergency/Spill Response Plan (may be included in CHASP, see specification for requirements)	Informational Informational Informational Informational Informational Informational			
	Section 01 41 26	Stormwater Pollution Prevention Plan and Permit	Stormwater Permit Certification Statement Stormwater Inspection Reports Qualifications Statements for SWPPP inspector	Informational Informational Informational			
	Section 01 51 05	Temporary Utilities and Controls	Shop drawings of all staging areas	Action			
	Section 01 51 41	Temporary Pumping	Schedule for temporary pumping Temporary Pumping System Plan (may be included in POP, see specification for requirements)	Informational Informational			
	Section 01 52 11	Temporary Field Offices and Structures	Field Office Submittal (see specification for requirements)	Action			

ATTACHMENT 1
EXAMPLE CONTRACT SUBMITTAL LOG

Submittal No.	Specification / Document Reference	Specification Title	Submittal Description	Submittal Type	Date Received	Status/Date	Notes
	Section 01 53 53	Temporary Water Treatment System	Construction Water Treatment Plan (may be included in POP, see specification for requirements)	Action			
			Daily and monthly water treatment system operation and maintenance records and reports	Informational			
			Results for effluent sampling and analysis	Informational			
			Permit required for Monroe County Pure Waters Sewer Use	Informational			
	Section 01 55 13	Temporary Off-Site Access Roads and Parking	Permits required for right-of-way work and/or road closure	Informational			
	Section 01 58 13	Temporary Project Signage	Shop drawings of temporary project signage (see specification for requirements)	Informational			
	Section 01 71 23	Field Engineering	Survey certificates, as needed	Informational			
			Daily Construction Reports (same as for Section 01 32 36)	Informational			
			Survey Data, Drawings and Deliverables (see specification for requirements)	Informational			
			Qualifications Statements for field engineer and surveyor (see specification for requirements)	Informational			
	Section 01 76 50	Nuisance Controls, Management, and Corrective Measures	Nuisance Controls and Management Plan (may be included in POP, see specification for requirements)	Action			
			Summary of general nuisance management practices (see specification for requirements)	Informational			
			Product Data for odor/vapor mitigation agents	Informational			
	Section 01 77 19	Closeout Procedures	Removal documentation	Informational			
			Truck volume counts and measurement summary	Informational			
	Section 01 78 39	Project Record Documents	Record Documents (see specification for requirements)	Closeout			
	Section 02 21 00	Structural Monitoring and Surveys	Structural inspection documentation (see specification for requirements)	Action			
			Deflection, settlement, and vibration monitoring documentation (see specification for requirements)	Informational			
			Instrument and Monitoring Installation Report (see specification for requirements)	Informational			
			Daily vibration and deflection monitoring reports	Informational			
	Section 02 41 13	Structure Demolition	Hazardous Substances Abatement and Disposal Plan (may be included with Demolition & Materials Handling Plan)	Action			
			ACM Abatement and Disposal Plan (may be included with Demolition & Materials Handling Plan)	Action			
			Demolition and Materials Handling Plan	Action			
	Section 02 51 00	Decontamination Procedures	Proposed methods of decontamination	Informational			
			Safety Data Sheets for all cleaning solutions	Informational			
	Section 02 55 00	In-Situ Stabilization/Solidification Construction	Solidification Contractor qualifications	Informational			
			Name and qualifications for third-party geotechnical testing laboratory	Informational			
			Flowable fill mix design and geotechnical results	Action			
			Pilot-Scale Study Work Plan	Action			
			Full Scale Implementation Work Plan	Action			
			Quality Control Plan for In-Situ Stablization/Solidification (ISS)	Action			
			Daily records for ISS work	Informational			
			Completion Report for ISS work	Informational			
	Section 02 56 13	Soil Cover Construction	Results of all laboratory testing	Informational			
			Sources of imported materials and material certification	Informational			
			Results of compaction testing	Informational			

ATTACHMENT 1
EXAMPLE CONTRACT SUBMITTAL LOG

Submittal No.	Specification / Document Reference	Specification Title	Submittal Description	Submittal Type	Date Received	Status/Date	Notes
	Section 02 61 15	Handling and Disposal of Impacted Materials	Drying agent manufacturer's product data	Action			
			Materials Handling Plan (may be included in POP, see specification for requirements)	Action			
			Waste Management Plan (may be included in POP, see specification for requirements)	Action			
			Waste Transporter Permits	Informational			
			Disposal Records	Informational			
			Weekly waste tracking summary report	Informational			
	Section 02 72 00	Construction Water Management	Construction water management procedures (see specification for requirements)	Informational			
			Shop drawings and details for treatment system (same as for 01 53 53)	Action			
			Name and qualifications of Independent Testing Laboratory	Informational			
			Test results for construction water (same as for 01 53 53)	Informational			
			Quality Control Work Plan for construction water management and treatment (may be included in POP)	Informational			
	Section 31 00 00	General Earthwork	Proposed methods for earthwork construction	Action			
			Quality Control Work Plan for earthwork (may be included in POP)	Action			
			Borrow Source Characterization Report	Action			
			Representative samples of import materials	Action			
			Delivery tickets	Informational			
	Section 31 05 19.16	Geomembranes for Earthwork	Written certification of minimum test values for geomembranes	Informational			
			Manufacturer's standard warranty for geomembranes	Informational			
			Results of QC tests conducted by manufacturer	Informational			
			Written certification that field-delivered geomembrane has not been damaged	Informational			
			HDPE/LLDPE lot and roll number of field-delivered material	Informational			
	Section 31 11 00	Clearing and Grubbing	Proposed limits of clearing	Informational			
			Proposed methods for managing clearing and grubbing wastes	Informational			
	Section 31 23 16	Excavation	Materials Handling Plan (same as for 02 61 15, see specification for requirements)	Action			
			Contigency plan for hazardous conditions (as part of SSHASP)	Action			
			Water Quality Management Plan (may be included in POP, see specification for requirements)	Action			
			Quality Control Work Plan for dredging/excavation work (may be included in POP)	Action			
			Fiber-reinforced shotcrete or alternative mix design and geotechnical results (if required)	Action			
			Topographic and bathymetric survey data	Informational			
	Section 31 25 00	Erosion Control	Product Data for ESC components	Informational			
			Description of construction ESC measures (included in Materials Handing Plan)	Informational			
			Schedule for ESC measures (included in overall construction schedule)	Informational			
	Section 31 25 14	Geotextiles and Rolled Erosion Control Products	Manufacturer's information for geotextiles (see specification for requirements)	Informational			
			Samples of sewn seams	Informational			

ATTACHMENT 1
EXAMPLE CONTRACT SUBMITTAL LOG

Submittal No.	Specification / Document Reference	Specification Title	Submittal Description	Submittal Type	Date Received	Status/Date	Notes
	Section 31 37 00	Stone Materials	Name and location of material sources	Informational			
			Certification that materials meet specification requirements	Informational			
	Section 31 50 00	Excavation Support and Protection	Shop drawings for bracing and shoring	Action			
			Design calculations for bracing and shoring	Action			
	Section 32 12 16	Paving and Resurfacing	Product data for asphalt mix	Informational			
			Test results for asphalt thickness and density testing	Informational			
			Qualifications Statements for asphalt production facility, testing laboratory, and installer	Informational			
			Delivery tickets	Informational			
	Section 32 31 13	Chain Link Fences and Gates	Shop drawings for fencing, gate(s), and fabric	Action			
			Permits required for fencing	Informational			
	Section 32 72 00	Upland, Riparian, and Streambed Restoration	Topsoil source (same as for 32 91 19.13)	Informational			
			Conservation seed vendors certificate (same as for 32 91 19.13)	Informational			
			Plant stock supplier certificate	Informational			
			Planting Plan (see specification for requirements)	Action			
	Section 32 91 19.13	Finish Grading, Topsoil, and Seeding	Topsoil source information	Informational			
			Conservation seed vendors certificate	Informational			
			Data concerning hydroseeding equipment (if used)	Informational			
			Manufacturer's product data for fertilizer	Informational			
			Written statement giving location of mulch source	Informational			
			Manufacturer's product data for temporary erosion control matting	Informational			
			Name and qualification statements for installer subcontractors, if used	Informational			
			Manufacturer's certifications (see specification for requirements)	Informational			
	Section 33 05 33.36	HDPE Pipe	List of materials and suppliers for HDPE pipe	Informational			
			Origin and identification for resin	Informational			
			Certification that materials meet specification requirements	Informational			
			Documentation/Qualifications for HDPE pipe joining personnel	Informational			
	Section 35 80 00	Turbidity Barriers and Monitoring	Daily turbidity monitoring reports	Informational			
			Turbidity Barrier and Monitoring Plan (may be included in POP, see specification for requirements)	Action			
			Material specifications for turbidity barrier components	Informational			
			Anchor weight spacing for turbidity barriers	Informational			

SECTION 01 35 00

GREEN REMEDIATION PRACTICES

PART 1 - GENERAL

1.01 SUMMARY

A. Work includes, to the extent practicable, special environmental "Green" remediation practices related to reducing waste generation; energy usage; emissions including greenhouse gases (GHGs), nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter, and hazardous air pollutants (HAPs); water usage; and land and ecosystem disturbance.

B. The CONTRACTOR shall implement green remediation practices in the performance of the requirements of the Work to maximize to the extent practicable: sustainability, reduce energy and water usage, promote carbon neutrality, promote industrial materials reuse and recycling, and protect and preserve land resources.

C. The CONTRACTOR shall utilize concepts and techniques presented in the New York State Department of Environmental Conservation (NYSDEC) Program Policy DER-31/Green Remediation, August 11, 2010.

D. The CONTRACTOR shall implement, to the extent practicable, practices and procedures to meet the environmental performance goals of the OWNER consistent with NYSDEC Program Policy DER-31/Green Remediation. In general, such practices and procedures shall include, but are not limited to:

1. Reducing direct and indirect GHG and other emissions;
2. Increasing energy efficiency and minimizing use of non-renewable energy;
3. Conserving and efficiently managing natural resources such as soil, water and habitat;
4. Reducing waste, increasing recycling and increasing reuse of materials;
5. Maximizing the reuse of land and the recycling of on-site materials; and
6. Applying green remediation concepts, such as foregoing energy consuming operations.

E. Specifically, CONTRACTOR shall consider inclusion of the following provisions:

1. Beneficially reuse materials that would otherwise be considered a waste (e.g., crushed clean concrete as base or fill).
2. Use of renewable energy and/or the purchase of renewable energy credits (RECs) or a combination of the two techniques to offset electricity demand at the site.
3. Reduce vehicle idling. All vehicles, both on and off road (including construction equipment) shall be shut off when not in use for more than 5 minutes, consistent with 6 NYCRR Part 217 Motor Vehicle Emissions, Subpart 217-3 Idling Prohibition For Heavy Duty Vehicles.
4. Cover soil, as approved by the REMEDIATION ENGINEER, rather than spraying with water.
5. Establish minimally invasive and well-designed traffic patterns for on-site activities to reduce impacts to land and ecosystems.

F. CONTRACTOR shall be aware of the OWNER'S policy to utilize, as approved by the OWNER, recycled content materials, locally manufactured materials and low-emitting materials.

G. CONTRACTOR shall ensure, to the extent practicable, that the requirements related to the goals of the OWNER and as defined in the Contract Documents, are implemented to the fullest extent.

1.02 DEFINITIONS:

A. Green Remediation Definitions

1. Renewable energy sources include solar, wind, hydropower, geothermal, biomass, and biogas.

2. Locally manufactured shall mean manufactured within 150 miles of the work.

3. Recovered materials shall be waste materials and by-products that have been recovered from solid waste, but does not include materials and by-products generated from, and commonly reused within, an original manufacturing process.

1.03 ENVIRONMENTAL GOALS

A. The CONTRACTOR, to the extent practicable, shall:

1. Minimize the amount of waste generated from the site and maximize the use of recycling/reuse facilities for disposal of the waste to the extent practicable and as approved by the REMEDIATION ENGINEER.

2. Maximize the use of energy derived from a renewable source.

3. Minimize on and off-site fuel combustion.

4. Minimize use of water.

5. Minimize disturbance to land and ecosystems.

1.04 SUBMITTALS

A. Form A – Summary of Green Remediation Metrics

1. Consistent with NYSDEC Program Policy DER-31/Green Remediation requirements, the CONTRACTOR shall complete Form A - Summary of Green Remediation Metrics, in its entirety and sign the certification as to its accuracy.

2 The CONTRACTOR shall submit properly completed Form A to REMEDIATION ENGINEER at least once per calendar year.

1.05 QUALITY ASSURANCE

A. Environmental Project Management and Coordination:

1. CONTRACTOR shall designate an employee who shall be responsible for implementation of green remediation elements, coordinate work of subcontractors and suppliers; instruct workers relating to environmental issues; ensure that green remediation metrics are collected; and oversee Project environmental goals.

1.06 REFERENCES

A NYSDEC. 2010. NYSDEC Program Policy DER-31/Green Remediation, August 11, 2010.

PART 2 - PRODUCTS

A. CONTRACTOR shall use environmentally preferable products, where appropriate and as approved by the REMEDIATION ENGINEER, including, but not limited to:

1. Compact Fluorescent Lights (CFL) or LED
2. Environmentally friendly electronics (e.g., ENERGY STAR)
3. Items composed of recovered materials

PART 3 - EXECUTION

A. The CONTRACTOR shall, to the extent practicable:

1. Set up on-site recycling program for CONTRACTOR generated wastes.
2. Minimize equipment engine idling.
3. Utilize properly sized equipment.
4. Minimize emissions during site work (i.e., replace or retrofit older engines or use newer efficient models).
5. Practice engine maintenance in accordance with manufacturers' standards and properly train operators to run equipment efficiently.
6. Sequence work to minimize double-handling of materials.
7. Provide locally made materials that are composed of recovered materials to the maximum amount practicable.
8. Provide materials that generate the least amount of pollution during mining, manufacturing, transport, installation, use and disposal.
9. Maintain office trailer heating and cooling systems at efficient set points.
10. Avoid materials that contain ozone-depleting chemicals (e.g., chlorofluorocarbons [CFCs] or hydrochlorofluorocarbons [HCFCs]) and that emit potentially harmful volatile organic compounds (VOCs).
11. Employ construction practices that minimize the generation of excessive dust and combustion by-products.
12. Minimize use of scarce, irreplaceable and endangered resources.
13. Contain and reuse water on-site, to the extent practicable, as approved by the REMEDIATION ENGINEER.
14. Reduce impact to land and ecosystems, to the extent practicable.

END OF SECTION

Form A

Summary of Green Remediation Metrics

Site Name: _____ Site Code: _____ Operable Unit: _____
Address: _____ City: _____
State: _____ Zip: _____ County: _____

Contract Period From: _____ To: _____
Reporting Period From: _____ To: _____ Is this a Final Report? Yes ☐ No ☐

3.1 PREPARER'S NAME: _____ PHONE NO.: _____
PREPARER'S AFFILIATION: _____ COMPANY CODE: _____
CONTRACT NO. _____

Materials & Waste Generation: Quantify the materials used or consumed and the management of waste generated on-site.

	Current Reporting Period (Include Units)	Total to Date (Include Units)
Materials Brought to the Site		
• Topsoil		
• Fill		
• Silt Fence		
• Silt Logs		
• Aggregate Base Course		
• Geotextile		
• Solidification Additives		
• Activated carbon		
• Other:		
• Other:		
• Other:		
• Other:		
• Other:		
• Other:		
• Other:		
Total Wastes Generated On-Site		
• Remedy Generated Waste		
• Contractor Generated Waste		
• Other:		
• Other:		
• Other:		
• Other:		
• Other:		
• Other:		

Provide a description of any implemented waste reduction programs appropriate for this project in the space provided on the certification page.

Recycled and Bio-Based Content in Imported Products and Materials: Quantify all materials and products imported to the site, including cost of materials/dollar values. Provide total percentages of recycled and bio-based of products and materials.

List Products and Materials Below	Total $ Value Provided	Total Percent of Recycled Content	Total Percent of Bio-based Content

Provide additional descriptions, as necessary, in the space provided on certification page.

Solid Waste Disposal and Diversion: Quantify all solid wastes generated, and indicate whether material was disposed or diverted for recycling or reuse.

Solid Waste Material	Date	Disposed or Diverted	Volume (Ton or CY)	Disposal/Recycling Facility Name	Comments (if not diverted, state why)
TSCA Contaminated Sediment					
Non-TSCA Contaminated Sediment					
Cleared Vegetation					
Spent Granular Activated Carbon					
Monitoring Well Removal Debris					
Other:					
Other:					
Other:					
Other:					
Other:					
Other:					

Provide descriptions in the space provided on the certification page of all wastes that were redirected for recycling or reuse. Indicate full names and addresses of facilities.

3.2 **ENERGY USAGE:** QUANTIFY THE AMOUNT OF ENERGY USED ON-SITE AND PORTION OF THAT VOLUNTARILY DERIVED FROM RENEWABLE ENERGY SOURCES.

	Current Reporting Period (KWh)	Total to Date (KWh)
Total electricity usage		
Of that total amount, provide quantity:		
• Derived from renewable source (i.e., solar, wind)		
• Other:		

Provide descriptions in the space provided on the certification page of all reported energy use reduction programs appropriate to this project, including use of electricity derived from renewable sources.

3.3 **WATER USAGE:** QUANTIFY THE VOLUME OF WATER USED ON-SITE FROM DIFFERENCE SOURCES.

	Current Reporting Period (Gallons)	Total to Date (Gallons)
Total quantity of water used on-site		
Of that total amount, provide the quantity obtained from:		
• Public potable water supply		
• Surface water		
• On-site treated groundwater		
• Reclaimed treated water		
• Collected or diverted storm water		
• Re-Injected groundwater		
• Other:		
• Other:		

Provide descriptions in the space provided on the certification page of any reported water use reduction programs applied. Please note if reused/injected groundwater is pre-treated.

3.4 **EMISSIONS:** QUANTIFY THE DISTANCE TRAVELED FOR DELIVERY OF SUPPLIES AND REMOVAL OF WASTE.

	Current Reporting Period (Miles)	Total to Date (Miles)
Off-site mobile fuel combustion		
Other:		

Provide descriptions in the space provided on the certification page of practices such as use of local vendors within 150 miles of the site and on-site stationary fuel use reduction programs.

3.5 QUANTIFY THE NUMBER OF HOURS THAT DIESEL AND OTHER EQUIPMENT WITH THE POTENTIAL TO EMIT HAZARDOUS AIR POLLUTANTS (HAPS) OR GREENHOUSE GAS (GHG) EMISSIONS WAS OPERATED ON-SITE.

	Current Reporting Period (Hours)	Total to Date (Hours)
On-site diesel excavation/construction equipment usage		
Other on-site processes generating emissions		
Other:		

Quantify the VOC emissions from active remediation systems on-site.

	Current Reporting Period (lbs VOCs emitted)	Total to Date (lbs VOCs emitted)
Operating soil remediation equipment		
Operating groundwater remediation equipment		
Other:		

Provide descriptions in the space provided on the certification page of the type of equipment used, rating, emission control devices used and other means to reduce emissions.

3.6 **LAND AND ECOSYSTEM:** QUANTIFY THE AMOUNT OF LAND AND/OR ECOSYSTEMS DISTURBED BY CONSTRUCTION AND THE AREA OF LAND AND/OR ECOSYSTEMS RESTORED TO A NATURAL CONDITION.

	Current Reporting Period (Acres)	Total to Date (Acres)
Total land area disturbed		
Total land area restored		
Increase in area for storm water infiltration (vs pre-disturbed conditions)		
Increase in area of native species plantings (vs pre-disturbed conditions)		
Other:		

Quantify the amount of land and/or ecosystems remediated.

	Current Reporting Period (Acres)	Total to Date (Acres)
Total area of land impacted by contamination		
Total area of land remediated to unrestricted use		
Total area of land remediated to other future site use		

Additional Comments on Green Remediation Programs Implemented: *Provide descriptions in the space provided of other green remediation practices performed during the project.*

Descriptions of green remediation programs reported above (Attach additional sheet if needed)
Materials and Products Imported:
Waste Generation:

Descriptions of green remediation programs reported above (Attach additional sheet if needed)
Recycled and Bio-Based Content in Imported Products and Materials:
Solid Waste Disposal and Diversion:
Energy Use:
Water Use:
Emissions:
Land and Ecosystem:
Other:

CERTIFICATION BY CONTRACTOR
I, _____ (**Name**) do hereby certify that I am _____ (**Title**) of the Company/Corporation herein referenced and contractor for the work described in the foregoing application for payment. According to my knowledge and belief, all items and amounts shown on the face of this application for payment are correct, all work has been performed and/or materials supplied, the foregoing is a true and correct statement of the contract account up to and including the last day of the period covered by this application. _____ _____ **Date** **Contractor**

SECTION 01 35 23

SAFETY REQUIREMENTS

PART 1 - GENERAL

1.01 IDENTIFICATION

A. Scope:

1. This Section augments the requirements elsewhere in the Contract Documents regarding CONTRACTOR's responsibilities for safety and protection and includes requirements for CONTRACTOR's safety representative and other safety requirements applicable to the Project.

2. CONTRACTOR shall provide labor, materials, tools, equipment, training, certifications, protective measures, and incidentals shown, specified, and comply with CONTRACTOR's obligations under the Contract for safety and protection of personnel and property.

3. CONTRACTOR shall comply with the requirements of Rochester Gas and Electric Corporation's (RG&E) CONTRACTOR Safety Requirements (latest edition). RG&E's CONTRACTOR Safety Requirements is a mandatory document that contains expectations and requirements applicable to all contractors, subcontractors, contracted services, and vendors. RG&E's Contractor Safety Requirements document is a binding and integral part of the Contract.

4. Operations in the Genesee River are under the control of RG&E and must be performed in accordance with RG&E's River Communication Protocol (most recent version).

B. Coordination:

1 When multiple CONTRACTORS are working at the Site, CONTRACTOR shall communicate to each other, subcontractors, the OWNER, REMEDIATION ENGINEER, and other entities working at the Site those elements of CONTRACTOR's safety program with which such other entities are to comply.

1.02 TERMINOLOGY

A. The following words or terms are not defined but, when used in this Section, have the following meaning:

1 "Confined spaces" are areas on or about the Site as defined in 29 CFR 1910.146(b), 29 CFR 1926.21(b)(6), and other Laws and Regulations. Confined spaces include, but are not limited to storage tanks, process vessels, bins, boilers and similar spaces; ventilation or exhaust ducts and stacks; manholes, underground utility vaults and chambers, sewers, pipelines, tunnels; and open-topped spaces greater than 4 feet deep, such as pits, tubs, vaults, and vessels.

2 "Entry permit" means the written or printed document provided by the employer of personnel entering permit-required confined space, to allow and control entry into permit- required confined space and that contains the information specified in 29 CFR 1926.146(f), and other Laws and Regulations.

3. "Permit-required confined space" means confined space as defined in 29 CFR 1926.146(b) and other Laws and Regulations, and that has one or more of the following characteristics:

   a. Contains or has potential to contain a hazardous atmosphere.

   b. Contains material that has potential for engulfing an entrant.

   c. Has internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or floors, or by floor that slopes downward and tapers to a smaller cross-section.

   d. Contains other recognized serious safety or health hazard.

4. "Hot work permit" means the written authorization of employer of personnel entering a confined space to perform operations, such as riveting, welding, cutting, burning, and heating, capable of providing a source of ignition.

1.03 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with Laws and Regulations related to protecting personnel working in or entering confined spaces, including:

   1. Code of Federal Regulations (CFR), Title 29, Part 1910, Occupational Safety and Health Standards.

   2. CFR, Title 29, Part 1926, Safety and Health Regulations for Construction.

B. Qualifications:

   1. CONTRACTOR's Safety Representative shall meet the requirements in Section 01 35 29 – Contractor's Health and Safety Plan.

1.04 SUBMITTALS

A. Informational Submittals: Submit the following:

   1. Emergency contact information, in accordance with Article 1.07 of this Section.

   2. Citations:

      a. Copies of safety citations from authorities having jurisdiction and insurance companies, submitted within 24 hours of CONTRACTOR's receipt of such citations.

   3. Work Permits, as needed:

      a. Hot Work Permits

      b. Digging/Excavation Permits

      c. Confined Space Entry Permits

1.05 WORK REQUIREMENTS

A. CONTRACTOR shall implement a safe work policy on the Project and establish a goal of minimizing or eliminating hazards to personnel, process, equipment, environment, and the general public.

B. Confined space entry shall comply with 29 CFR 1910.146, 29 CFR Subpart AA.

1.06 SAFETY REPRESENTATIVE RESPONSIBILITIES

A. General:

1. CONTRACTOR's safety representative shall be at the Site full-time when Work is in progress. When CONTRACTOR employs multiple shifts, furnish more than one safety representative as necessary.

2. CONTRACTOR's safety representative shall have no other duties on the Project except those directly related to safety. Safety representative shall not be CONTRACTOR's project manager, field engineer, superintendent, or other supervisory personnel working on the Project.

3. CONTRACTOR's safety representative shall have appropriate space at the Site to maintain and keep available safety records, up-to-date copies of pertinent safety Laws and Regulations, Material Data Sheets, CONTRACTOR's site-specific health and safety plan (HASP), copies of the OWNER's health and safety requirements with which CONTRACTOR shall comply, and the Site safety plan including information concerning foreseeable emergency conditions, and emergency contact information as required in Article 1.07 of this Section.

B. CONTRACTOR's safety representative's responsibilities include:

1. Duties and responsibilities in accordance with the Contract Documents.

2. CONTRACTOR's safety representative shall coordinate with CONTRACTOR's "competent person" required under Laws and Regulations.

3. CONTRACTOR's safety representative shall attend pre-construction conference in accordance with Section 01 31 19.13 – Pre-Construction Conference and progress meetings in accordance with Section 01 31 19.23 – Progress Meetings.

4. Schedule and conduct safety meetings and safety training programs as required by Laws and Regulations, CONTRACTOR's HASP, and good safety practices. Advise REMEDIATION ENGINEER prior to the time and place of such meetings. Invite the OWNER's personnel to meetings. Instruct CONTRACTOR's employees (and Subcontractors, Suppliers with personnel at the Site, and others for whom CONTRACTOR is responsible) on recognition of hazards; observance of precaution; contents of the CONTRACTOR's HASP and other safety programs with which employees shall comply; and use of personal protective equipment (PPE) and safety equipment.

5. Determine that operators of specific construction equipment (and permanent equipment used for construction operations) are qualified by training and experience before such personnel are allowed to operate such equipment.

6. Develop and implement emergency response procedures, including names, locations, and contact telephone numbers for emergency services and medical assistance as indicated in requirements for the emergency contact list in Article 1.07 of this Section.

7. Post appropriate notices regarding health and safety Laws and Regulations at locations at the Site and CONTRACTOR's office that afford maximum exposure to personnel.

8. Post appropriate instructions and warning signs in regard to all hazardous areas and hazardous conditions that cannot be eliminated. Identification of such areas shall be based on experience, site surveillance, and severity of the associated hazard. Signage shall not be used in place of appropriate workplace controls.

9. Ascertain via personal inspection that safety Laws and Regulations and safety program requirements are enforced. Make inspections not less than once per work shift to ensure that machines, tools, and equipment are in a safe operating condition; and that all work areas are free of hazards to the extent practicable. Implement necessary and timely corrective actions to eliminate unsafe acts and unsafe conditions. Submit to REMEDIATION ENGINEER daily copy of findings resulting from inspection using inspection checklist forms established in CONTRACTOR's HASP.

10. Submit to REMEDIATION ENGINEER copies of safety citations from authorities having jurisdiction and insurance companies within 24 hours of CONTRACTOR's receipt of such citations.

11. Provide appropriate orientation to employees, visitors, Subcontractors, and Supplier personnel at the Site.

12. Perform all related tasks necessary to achieve the highest degree of safety that the nature of the Work allows.

1.07 EMERGENCY CONTACT INFORMATION

A. CONTRACTOR shall submit list of emergency contact information for 24-hour use throughout the Project. Emergency contact information shall be updated and kept current throughout the Project. If personnel or contact information change, furnish updated emergency contact information list at the next progress meeting.

B. CONTRACTOR's list of emergency contact information shall include:

1. CONTRACTOR's project manager's office, field office, and cellular telephone numbers.

2. CONTRACTOR's Site superintendent's office, field office, and cellular telephone numbers.

3. CONTRACTOR's foreman's field office and cellular telephone numbers.

4. CONTRACTOR's safety representative's office, field office, and cellular telephone numbers.

5. Major Subcontractors' and Suppliers' office and cellular telephone numbers of project manager and foreman (when applicable).

C. Additional Emergency Contact Information:

1. The OWNER's project managers: office and cellular telephone numbers.

2. REMEDIATION ENGINEER's project manager's office and cellular telephone numbers.

3. REMEDIATION ENGINEER's project engineer's office and cellular telephone numbers.

4. REMEDIATION ENGINEER's onsite representative's field office and cellular telephone numbers.

5. Utility companies' 24-hour contact telephone number(s), including gas, water, sewer, oil, telephone, cable television/telecommunications, and other companies or concerns having utilities in the vicinity of the Work.

6. Highway and street owners' 24-hour telephone number(s).

7. Emergency telephone numbers, including: "Emergency: Dial 911", and seven-digit telephone numbers for the hospital, ambulance, police, and fire department nearest to the Site. Furnish names of each of these institutions.

8. Other involved entities as applicable.

D. Include with list of emergency contact information an 8.5-inch by 11-inch map showing route from the Site to the nearest hospital.

1.08 SAFETY EQUIPMENT

A. General:

1. CONTRACTOR shall provide proper safety and rescue equipment, adequately maintained and readily available, for any foreseeable contingency.

2. Such equipment shall include, at a minimum, items such as fire extinguishers and first-aid equipment in accordance with Section 01 52 16 – First-Aid Facilities. If confined space or elevated work is anticipated, such equipment shall also include safety ropes and harnesses, fall-prevention devices, stretchers, water safety devices, oxygen breathing apparatus, resuscitators, gas detectors, oxygen deficiency indicators, combustible gas detectors, fire extinguishers and first-aid equipment, and similar equipment.

3. Keep safety equipment in protected areas. Check safety equipment at scheduled intervals.

4. Temporary First-Aid Facilities: Provide and maintain in accordance with Section 01 52 16 – First-Aid Facilities.

B. Safety Equipment Log:

1. Maintain a log indicating the person who checked the equipment, when equipment was checked, and that equipment was acceptable.

2. Update equipment log not less-often than monthly.

3. Include in safety representative's onsite records copies of equipment calibration records.

C. Provide replacement safety equipment when primary safety equipment is unavailable due to use or when undergoing maintenance.

D. PPE:

1. All persons entering the work areas shall wear appropriate PPE required for that particular area.

2. Remove from the Site any person failing to comply with this or any other safety requirement.

3. At a minimum, REMEDIATION ENGINEER will furnish for REMEDIATION ENGINEER's employees and consultants, protective helmets (hard hats), safety eyewear, reflective clothing, appropriate footwear, and hearing protection. CONTRACTOR shall furnish other/specialty equipment required, if any.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 35 29

CONTRACTOR'S HEALTH AND SAFETY PLAN

PART 1 - GENERAL

1.01 DESCRIPTION

A. The CONTRACTOR shall comply with all applicable laws, ordinances, rules, regulations, and orders for public bodies having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss, including, without limitation, the Department of Labor Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Administration (OSHA) of 1970 (PL 91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-54) and amendments thereto. The CONTRACTOR shall comply with the requirements set forth under 29 CFR 1910 and 29 CFR 1926. The CONTRACTOR shall comply with all applicable recommendations of the Manual of Accident Prevention in Construction of the Associated General Contractors of America.

B. Operations in the Genesee River are under the control of Rochester Gas and Electric Corporation (RG&E) and must be performed in accordance with RG&E's River Communication Protocol (most recent version).

C. Scope:

1. CONTRACTOR shall prepare and maintain a written, Site-specific, CONTRACTOR's health and safety plan (CHASP), and conduct all construction activities in safe manner that avoids:

   a. Injuries to employees, Subcontractors, and other persons with an interest at or near the Site;

   b. Employee exposures to health hazards above occupational limits established by Laws or Regulations and American Conference of Governmental Industrial Hygienists (ACGIH), and Nuclear Regulatory Commission (NRC), as applicable;

   c. Exposure of the public to air contaminants above levels established for public exposure by the U.S. Environmental Protection Agency (USEPA), New York State Department of Environmental Conservation (NYSDEC), New York State Department of Health (NYSDOH), and by other authorities having jurisdiction at the Site;

   d. Significant increases in concentrations of contaminants in soil, water, or sediment near the Site; or

   e. Violations of OSHA Regulations, or other Laws or Regulations.

2. The CONTRACTOR is solely responsible and liable for the health and safety of all onsite personnel and any off-site community potentially impacted by the remediation.

3. This section describes the minimum health and safety requirements for this project including the requirements for the development of a written Site-specific CHASP. All onsite workers must comply with the requirements of the CHASP. The CHASP must comply with all applicable federal, state, and local regulations protecting human health and the environment from the hazards posed by activities during this Site remediation. The CHASP is a required deliverable for this project. The CHASP will be reviewed by the REMEDIATION ENGINEER. The CONTRACTOR will resubmit the CHASP, addressing all review comments from the REMEDIATION ENGINEER. The CONTRACTOR shall not

initiate onsite work in contaminated areas until an acceptable CHASP addressing all comments has been developed.

4. Consistent disregard for the provision of these health and safety specifications shall be deemed just and sufficient cause for immediate stoppage of work and/or termination of the Contract or any Subcontract without compromise or prejudice to the rights of the OWNER or the REMEDIATION ENGINEER.

5. The safety and health of the public and project personnel and the protection of the environment will take precedence over cost and schedule considerations for all project work. Any additional costs will be considered only after the cause for suspension of operations is addressed and work is resumed. The REMEDIATION ENGINEER's on-site representative and the CONTRACTOR's Superintendent will be kept appraised, by the Safety Officer, of conditions which may adversely affect the safety and health of project personnel and the community. The REMEDIATION ENGINEER may stop work for health and safety reasons. If work is suspended for health and/or safety reasons, it shall not resume until approval is obtained from the REMEDIATION ENGINEER. The cost of work stoppage due to health and safety is the responsibility of the CONTRACTOR under this Contract.

1.02 QUALITY ASSURANCE

A. Qualifications:

1. Preparer of CHASP:

a. Engage a Certified Industrial Hygienist (CIH), accredited by the American Board of Industrial Hygiene, or Certified Safety Professional certified by the Board of Certified Safety Professionals, to prepare or supervise preparation of CHASP. The CIH must have a minimum of two years of experience in hazardous waste site remediations or related industries and have a working knowledge of federal and state occupational health and safety regulations.

b. CHASP preparer shall be thoroughly familiar with: (i) Laws and Regulations and industry standards of safety and protection relating to health and safety pertaining to the Work; (ii) the requirements of the Contract Documents relative to health, safety, and protection; (iii) health and safety hazards associated with the Work and appropriate protections therefor; and (iv) CONTRACTOR's and OWNER's safety programs.

c. Submit preparer's qualifications with CHASP.

2. Safety Officer:

a. Engage a certified industrial hygienist, accredited by the American Board of Industrial Hygiene, or safety professional certified by the Board of Certified Safety Professionals, to manage, oversee, and enforce CONTRACTOR's health and safety program at the Site, and ensure compliance with CHASP and applicable Laws and Regulations during the Project. The designated Safety Officer (SO) must have, at a minimum, five years of experience in the remediation of hazardous waste sites or related field experience. The SO must have formal training in health and safety and be conversant with federal and state regulations governing occupational health and safety. The SO must be certified in CPR and first aid and have experience and training in the implementation of personal protection and air monitoring programs. The SO must have "hands-on" experience with the operation and maintenance of real-

time air monitoring equipment.

b. CONTRACTOR's safety representative shall be present at the Site at all times when Work is being performed and shall be dedicated solely to the supervision of CONTRACTOR's health and safety program.

c. Responsibilities include, but are not necessarily limited to, the following:

1) Supervising the implementation of CHASP.

2) Providing health and safety orientation training to CONTRACTOR's employees, Subcontractors, and Site visitors.

3) Attending pre-construction conference, progress meetings, and other Project meetings, as required.

4) Preparing and maintaining health and safety records and statistics.

5) Leading and documenting daily job safety briefings.

6) Preparing and submitting incident reports in accordance with Article 1.06 of this Section.

7) Leading incident investigations on CONTRACTOR's behalf.

8) Preparing and submitting daily health and safety field reports in accordance with Article 1.07 of this Section.

3. Health and Safety Technicians:

a. Any Health and Safety Technician (HST) must have one year of hazardous waste site or related experience and be knowledgeable of applicable occupational health and safety regulations. The HST must be certified in CPR and first aid. The HST will be under direct supervision of the SO during on-site work. The HST must be familiar with the operations, maintenance and calibration of monitoring equipment used in this remediation. An HST will be assigned to each work crew or task in potentially hazardous areas.

B. Regulatory Requirements: Laws and Regulations applying to the Work under this Section include, but are not limited to:

1. 29 CFR 1904 (OSHA), Recording and Reporting Occupational Injuries and Illnesses.
2. 29 CFR 1910 (OSHA), Occupational Safety and Health Standards.
3. 29 CFR 1926 (OSHA), Safety and Health Regulations for Construction.
4. 49 CFR 171.8, Transportation, Definitions and Abbreviations.
5. 40 CFR 261.3, 264, and 265, Resource Conservation and Recovery Act (RCRA).
6. 6 NYCRR 371, Identification and Listing of Hazardous Wastes.
7. 6 NYCRR 375, Environmental Remediation Programs.
8. 12 NYCRR 23, Protection in Construction, Demolition, and Excavation Operations.
9. 16 NYCRR 753, Protection of Underground Facilities.
10. 17 NYCRR 32, Oil Spill Prevention and Control – Actions to be Taken in Case of Discharge.
11. 12 NYCRR 59, Workplace Safety and Loss Prevention Program.

12. 12 NYCRR 57, High Voltage Proximity.

13. 12 NYCRR 61 Occupational Licensing and Certification.

1.03 SUBMITTALS

A. Informational Submittals:

1. CHASP, in accordance with this Section. Submit within times indicated in Article 1.04 of this Section.

2. Job safety analyses (JSA) submittals for each action required for the Work that is not covered in CHASP.

3. Reports:

   a. Daily Health and safety reports: submit in accordance with Article 1.07 of this Section.

   b. Accident reports: submit in accordance with Article 1.06 of this Section.

4. Qualifications Statements:

   a. Qualifications for CHASP preparer and SO, including copy of valid, applicable certifications.

5. Submit the following valid training certificates:

   a. Initial 40-hour HAZWOPER training

   b. Initial 24-hour HAZWOPER training

   c. 8-hour HAZWOPER supervisor training

   D. Annual 8-hour HAZWOPER refresher training

1.04 CHASP AND JSA SUBMITTALS

A. Timing of Submittals:

1. Submit CHASP the sooner of seven days prior to pre-construction conference, or 30 days prior to CONTRACTOR's scheduled mobilization at the Site.

2. Do not perform Work at the Site until written CHASP has been accepted by REMEDIATION ENGINEER.

3. When an element of the Work or work activity is not covered by the CHASP, prepare, and submit a JSA and obtain REMEDIATION ENGINEER's acceptance of JSA before performing the work activity or activities covered by such JSA.

4. Delays in the Work Associated with Submittal or Review of CHASP and JSAs:

   a. Notwithstanding other provisions of the Contract Documents, changes in the Contract Price or Contract Times will not be authorized due to delay by CONTRACTOR in developing, submitting, revising, or obtaining acceptance of the CHASP.

B. Limitations of REMEDIATION ENGINEER's Review of CHASP and JSAs:

1. REMEDIATION ENGINEER's review and acceptance of CHASP and JSAs (if any) will be only to determine if the topics covered in CHASP comply with the Contract Documents and specific requirements of safety documents referenced therein (such as OWNER's safety programs, if any).

2. REMEDIATION ENGINEER's review and acceptance will not extend to safety measures, means, methods, techniques, procedures of construction, or whether representations made in the CHASP and JSAs (if any) comply with Laws and Regulations, or standards of good practice.

3. CONTRACTOR's responsibility for safety and protection at the Site shall be as indicated in the Contract Documents. Nothing associated with REMEDIATION ENGINEER's review or acceptance of CHASP or JSAs will create or imply any obligation by the REMEDIATION ENGINEER to oversee or become, in any way, responsible for CONTRACTOR's safety obligations under the Contract Documents.

1.05 CONTRACTOR'S HEALTH AND SAFETY PROGRAM

A. General:

1. Known prior use(s) of the Site are indicated.

2. Presence of Constituents of Concern (if any), where known to OWNER and REMEDIATION ENGINEER, are indicated in the reports and drawings.

3. Each employer working at the Site shall develop and implement a written CHASP for their employees and other individuals for whom such employer is responsible.

4. When applicable (including when the Site includes one or more Hazardous Environmental Conditions), CHASP shall comply with 29 CFR 1904, 29 CFR 1910, 29 CFR 1926, and other Laws and Regulations.

5. Include in the CHASP requirements for complying with OWNER's Site-specific hazard/emergency response plans, if any. During the Project, comply with OWNER's hazard/emergency response plans.

6. Include in the CHASP requirements for a Hazard Communication Program as required for the project scope.

7. The CHASP is a deliverable product of this project. The REMEDIATION ENGINEER will review and comment on the CHASP. Agreed upon responses to all comments will be incorporated into the final copy of the CHASP. The CHASP shall govern all work performed for this contract. The CHASP shall address, at a minimum, the items in accordance with 29 CFR 1910.120(l)(2).

B. Location:

1. Retain at the Site a copy of complete CHASP, JSAs (if any), and related information.

2. Retain copy of CHASP, JSAs (if any), and related information at CONTRACTOR's project office.

3. Throughout the Project, update as necessary all copies of CHASP, JSAs, and related information.

4. Copies of CHASP, JSAs, and other related information shall be made available to CONTRACTOR's employees, Subcontractors, Suppliers, OWNER, and REMEDIATION ENGINEER immediately upon request.

C. CHASP Content: CHASP shall address and include the following:

1. Address safety and health hazards of each phase of operations at the Site, including tasks to be performed adjacent to or on the water, and shall include requirements and procedures for employee protection.

2. CONTRACTOR's organizational structure and other information required by Paragraph 1.05.D of this Section.

3. Site description, history and comprehensive work plan.

4. Job safety and health risk or hazard analysis for each task and operation found in the work plan, including tasks to be performed adjacent to or on the water.

5. Employee training assignments including copies of OSHA 40-hour, 24-hour supervised field activities, 8-hour supervisors, and 8-hour refresher training certificates for each CONTRACTOR and Subcontractor employee assigned to the Project. Include initial training requirements for Site workers and supervisors, exceptions to initial training requirements, Site briefings for visitors and workers, and refresher training requirements.

6. Personal protective equipment (PPE) to be used by employees for each task and activity performed, including PPE selection criteria, Site- and task-specific PPE ensembles, including U.S. Coast Guard-approved (Type I or II) personal flotation device for when working in close proximity to water deeper than 4 feet, training in the use of PPE, respiratory protection, hearing conservation, and PPE maintenance and storage.

7. Medical Surveillance Requirements: Medical clearance certificates for all CONTRACTOR and Subcontractor employees assigned to the Project. Provisions of the Site medical surveillance program, communication protocols between the Site, physicians, and workers, and medical recordkeeping procedures. The physical examination shall also include but not be limited to the following minimum requirements:

    a. Complete blood profile (pre- and post-work);

    b. Blood chemistry to include chloride, CO2, potassium, sodium, BUN, glucose, globulin, total protein, albumin, calcium, cholesterol, alkaline phosphatase, triglycerides, uric acid, creatinine, total bilirubin, phosphorous, lactic dehydrogenase, SGPT, SGOT;

    c. Urine analysis (pre- and post-work);

    d. "Hands on" physical examination to include a complete evaluation of all organ systems including any follow-up appointments deemed necessary in the clinical judgement of the examining physician to monitor any chronic conditions or abnormalities;

    e. Electrocardiogram;

    f. Chest X-ray (if recommended by examining physician in accordance with good medical practice);

    g. Pulmonary function;

    h. Audiometry - To be performed by a certified technician, audiologist, or physician. The range of 500 to 8,000 hertz should be assessed.

    i. Vision screening - Use a battery (TITMUS) instrument to screen the individual's ability to see test targets well at 13 to 16 inches and at 20 feet. Tests should include an assessment of muscle balance, eye coordination, depth perception, peripheral vision, color discrimination, and tonometry.

    j. Tetanus booster shot (if no inoculation has been received within the last five years); and

k. Complete medical history.

8. Exposure Monitoring Program: Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment.

   a. Monitoring procedures to detect the presence of hazardous substances.

   b. Monitoring procedures to determine worker exposures to hazardous substances and physical hazards.

   c. Action level and required responses for known and expected hazardous substances and physical hazards.

9. Site control measures, including procedures for:

   a. Preventing trespassing;

   b. Preventing unqualified or unprotected workers from entering restricted areas;

   c. Preventing "tracking" of contaminants out of the Site;

   d. Maintaining log of employees at the Site and visitors to the Site;

   e. Communicating routes of escape and gathering points.

   f. Ensuring safe handling of Constituents of Concern during the Work, including excavating, handling, loading, and transporting activities. Include procedures for ensuring safety when working in or in proximity to Hazardous Environmental Conditions,

   g. Delineating "hot"/exclusion (e.g., contaminated), "cold"/contamination reduction, and support zones;

   h. Locating personnel and equipment decontamination zones; and

   i. Decontamination.

   j. First aid facilities including fully equipped first aid station, and routine replenishment of supplies.

   k. Sanitary facilities including potable drinking water, washing facilities, and portable toilets.

   l. The CONTRACTOR shall be responsible for maintaining a log of security incidents and visitor access granted.

   m. The CONTRACTOR shall require all personnel having access to the project Site to sign-in and sign-out and shall keep a record of all Site access.

   n. All approved visitors to the Site shall be briefed by the SO on safety and security, provided with temporary identification and safety equipment, and escorted throughout their visit.

   o. Site visitors shall not be permitted to enter the hazardous work zone unless approved by the REMEDIATION ENGINEER.

   p. Project Site shall be posted, "Warning Hazardous Work Area, Do Not Enter Unless Authorized," and access restricted by the use of a snow fence or equal at a minimum. Warning signs shall be posted at a minimum of every 100 feet.

10. Heat stress prevention program.

11. Decontamination Program, in accordance with Section 02 51 00 – Decontamination Procedures:

    a. Location and type of temporary decontamination facilities.

    b. General and specific decontamination procedures for personnel and PPE.

    c. General and specific decontamination procedures for equipment and vehicles.

    d. Disposal of residual waste from decontamination.

    e. Decontamination of equipment and materials.

    f. Monitoring procedures used to evaluate the effectiveness of decontamination.

12. Emergency Response Plan: Plan for safe and effective responses to emergencies, including necessary PPE and other equipment.

    a. Potential emergencies that may occur at the Site.

    b. Pre-emergency planning.

    c. On-site emergency response equipment, materials, and PPE.

    d. Emergency Maps: Evacuation routes, gathering points, and route to nearest hospital.

    e. Emergency roles and responsibilities.

    f. Emergency alerting and evacuation procedures for Site personnel.

    g. Procedures for notifying, and list of emergency contact information for:

        1) Emergency responders, including fire officials, ambulance service, poison control, police, and local hospitals.

        2) Authorities having jurisdiction.

        3) OWNER and REMEDIATION ENGINEER.

        4) CONTRACTOR's project manager, Site superintendent, SO, and foreman.

        5) Other entities, as required.

    h. Emergency response procedures.

    i. Emergency decontamination, medical treatment, and first-aid.

    j. Emergency response training.

13. Community Protection Plan consisting of the following:

    a. Develop, as part of this CHASP, a Community Protection Plan (CPP). The CPP shall outline those steps to be implemented to protect the health and safety of surrounding human population and the environment.

    b. Air Monitoring consistent with Section 01 35 49 – Community Air Monitoring Plan and DER-10 requirements.

    c. Off-Site Spill Response consisting of the following:

1) Produce as part of the CHASP a Spill Response Plan, also coordinated with local officials, in case of an off-site spill of either liquid or solid wastes. The plan shall include transportation routes and times, as well as the minimum requirements set forth in the Subpart titled "On-Site Spill Containment Plan." The driver shall be supplied with Material Safety Data Sheets (MSDSs), a 24-hour emergency phone number, and instructions for reporting emergencies to local agencies and the Site.

14. Spill containment program. Comply with Section 01 35 43.13 – Environmental Procedures for Hazardous Materials.

15. Requirements for complying with Section 01 35 43.13 – Environmental Procedures for Hazardous Materials.

16. Requirements for a Hazard Communication Program as required for the project scope. The program shall include the following, at a minimum:

a. Orientations that include the details of the project hazard communication plan.

b. Determination of training needs and coordination of training for affected employees.

c. Providing the regulatory expertise to ensure that activities are conducted in compliance with the applicable codes, standards, and regulations, and ensuring that JSAs are performed.

d. Contractor will identify and address chemical safety issues during site inspections and JSAs, assist and oversee the designated personnel in conducting a hazardous substance inventory, maintaining SDSs, and labeling, review the need for further assessment of SDS for hazardous chemicals, exchange hazard communication documentation with subcontractors, and coordinate hazard communication training.

D. CONTRACTOR's Organizational Structure:

1. Organizational structure portion of the CHASP shall refer to or incorporate information on specific chain of command and specify the overall responsibilities of supervisors and employees, and shall include the following:

a. Name and contact information for CONTRACTOR's "competent person(s)" for various work-related activities.

b. Name and contact information for CONTRACTOR's safety representative.

c. Designation of general supervisor who has responsibility and authority to direct operations involving handling of Constituents of Concern and work in or near Hazardous Environmental Conditions.

c. Other personnel required for operations involving Constituents of Concern and Hazardous Environmental Conditions and emergency response, and general functions and responsibilities of each.

d. Lines of authority, responsibility, and communication.

2. Review and update organizational structure as necessary to reflect current status of work activities on the Project and status of personnel.

E. Work Plan:

1. Comprehensive work plan portion of CHASP shall refer to or incorporate information on the following:

a. Tasks and objectives of work activities, onsite operations, and logistics and resources necessary to achieve such tasks and objectives.

b. Anticipated activities and CONTRACTOR's normal operating procedures.

c. Personnel and equipment requirements for implementing the work plan.

1.06 INCIDENT REPORTING AND INVESTIGATION

A. Immediately notify OWNER and REMEDIATION ENGINEER of all incidents that:

1. Result in bodily injury, illness, and property damage.

2. Affect the environment.

3. Involve the public.

B. Comply with 29 CFR 1904.29, including using OSHA Forms 300, 300A, and 301 (or equivalent) to document all accidents that result in bodily injury.

C. Submit Iberdrola's Incident and Accident Report to Owner and REMEDIATION ENGINEER in accordance with Iberdrola's Contractor Safety Requirements (latest edition).

D. Accident Report Submittals:

1. Submit copies of completed accident reports to OWNER and REMEDIATION ENGINEER within 24 hours of the accident. Include in each report the following:

a. Date, time, and location of incident.

b. Names of all Site personnel involved in or affected by incident.

c. Description of incident and activities being performed when incident occurred.

d. Medical treatment administered, if any.

e. Nature and seriousness of injury or damage.

2. By the tenth day of each month, submit monthly summary of accident reports from the prior month. Monthly summary report shall indicate for each accident the root cause and descriptions of corrective actions to reduce the probability of similar accidents.

3. Submit to OWNER and REMEDIATION ENGINEER a copy of all accident and health or safety hazard reports received from OSHA or other authority having jurisdiction within 24 hours of CONTRACTOR's receipt.

D. Based upon results of accident investigation, modify the CHASP as required by changing tasks or procedures to prevent reoccurrence of accident.

E. Post current copy of CONTRACTOR's OSHA 300A report, Summary of Work-related Injuries and Illnesses, at conspicuous place at the Site during period of February 1 through April 30 of each year.

1.07 DAILY HEALTH AND SAFETY FIELD REPORTS

A. Submit to OWNER and REMEDIATION ENGINEER daily health and safety field reports signed by CONTRACTOR's safety representative.

B. Content of CONTRACTOR's Daily Health and Safety Field Reports: Reports shall include, but not necessarily be limited to, the following:

1. Weather conditions.
2. Delays encountered in construction.
3. Acknowledgment of deficiencies noted along with corrective actions taken on current and previous deficiencies.
4. Daily health and safety air monitoring results (when air monitoring is performed).
5. Documentation of instrument calibrations performed.
6. New hazards encountered.
7. PPE utilized.
8. Description of problems, real or anticipated, encountered during the Work that should be brought to attention of OWNER and REMEDIATION ENGINEER and notification of deviations from planned Work shown in previously submitted daily health and safety field report(s).
9. Deviations from planned Work described in previously-submitted daily health and safety field report(s).

1.08 RECORDS

A. Retain at the Site complete and accurate health and safety records for all CONTRACTOR and Subcontractor employees assigned to the project. Records shall include, at a minimum, the following:

1. Valid training certificates:
   a. Initial 40-hour HAZWOPER training.
   b. Initial 24-hour HAZWOPER training.
   c. 8-hour HAZWOPER supervisor training.
   d. Annual 8-hour HAZWOPER refresher training.
   e. 10-hour construction safety training.
   f. First-aid/CPR training.
   g. Other training required by CHASP.
2. Valid medical clearance certificates.
3. Valid respirator fit test certificates.
4. Incident reports, prepared in accordance with Article 1.06 of this Section.
5. Daily health and safety field reports, prepared in accordance with Article 1.07 of this Section.
6. Other records required by Laws and Regulations.

B. Keep records up-to-date throughout the project.

C. CONTRACTOR's SO shall meet at least monthly with OWNER and REMEDIATION ENGINEER to review CONTRACTOR's health and safety records and verify compliance with this Section.

D. Retain at an off-site location complete health and safety records as outlined under Article 1.08.A. of this Section for a period of no less than three years after completion of Site work, unless a longer period is required by a regulatory agency. The CONTRACTOR shall explain the recordkeeping and document retention program. At a minimum, the CONTRACTOR's recordkeeping and document retention program shall describe the following:

1. The information recorded for inspection, audit, and incident investigation findings.
2. How inspection, audit, and incident investigation findings are accessed and preserved, and how corrective actions are tracked to closure, and how closure records are accessed and preserved.
3. The information contained in training records
4. How training records are accessed and preserved.
5. The information contained in industrial hygiene and medical monitoring records.
6. How industrial hygiene and medical monitoring records are accessed and preserved.
7. How compliance programs and other programmatic documents (including safety data sheets) are accessed and preserved.

1.09 STANDARD OPERATING PROCEDURES

A. The following are Standard Operating Procedures (SOPs) that should be employed as part of the H&S program:

1. Footwear used on Site will be covered by rubber over boots or booties when entering or working in the Exclusion Zone area or Contamination Reduction Zone. Boots or booties will be washed with water and detergents to remove dirt and contaminated soil/sediment before leaving the Exclusion Zone or Contamination Reduction Zone.
2. The CONTRACTOR will ensure that all project personnel shall have vision or corrected vision to at least 20/40 in one eye.
3. Eating, drinking, chewing gum or tobacco, smoking, etc., will be prohibited in the hazardous work zones and neutral zones.
4. No alcohol, firearms, or drugs (without prescriptions) will be allowed on Site at any time.
5. All personnel who are on medication should report it to the SO who will determine whether or not the individual will be allowed to work and in what capacity. The SO may require a letter from the individual's personal physician stating what limitations (if any) the medication may impose on the individual.
6. The CONTRACTOR shall provide all equipment and personnel necessary to monitor and control air emissions. The determination of the proper level of protection for each task and safety equipment shall be the responsibility of the CONTRACTOR. These task specific levels of protection shall be stated in the CHASP.
7. The CONTRACTOR shall provide a portable decontamination station, commonly referred to as a "Boot Wash" facility for each hazardous work zone requiring decontamination for project personnel. These facilities shall be constructed to contain spent wash water, contain a reservoir of clean wash water, a power supply to operate a pump for the wash water, a separate entrance and exit to the decontamination platform, with the equipment being mobile, allowing easy transport from one hazardous work zone to the next. All such wash water shall be disposed of at the

dewatering facility. An appropriate detergent such as trisodium phosphate shall be used.

8. The CONTRACTOR shall provide full decontamination facilities at all hazardous zones. Decontamination facilities must be described in detail in the CHASP.

9. Contaminated clothing, used respirator cartridges, and other disposable items will be put into drums/containers for transport and proper disposal in accordance with applicable requirements.

10. All equipment and material used in this project shall be thoroughly washed down in accordance with established federal and state procedures before it is removed from the project. The CONTRACTOR will certify, in writing, that each piece of equipment has been decontaminated prior to removal from the Site.

11. All Site personnel have stop work authority at any time if unsafe conditions are noted.

12. The following master telephone list will be completed and prominently posted at the field office. At minimum, the list will have telephone numbers of all project personnel, emergency services including hospital, fire, police, and utilities. In addition, two copies with telephone numbers are to be given to the OWNER for emergency reference purposes.

Emergency Service	Telephone Number
Fire Department	911
Police Department	911
Ambulance	911
Hospital/Emergency Care Facility (Strong Memorial Hospital Emergency Dept.)	(585) 275-4551
Poison Control Center	(800) 222-1222
RGE Contact	(585) 450-7957
Parsons Contact	(315) 451-9560
NYSDEC Central Office - Work Hours	(518) 402-9814
NYSDEC Regional Office	(585) 226-5353
Monroe County Dept. of Health	(585) 753-5555
New York State Dept. of Health - Albany	(518) 402-7500
New York State Dept. of Health - Region	(585) 423-8100

PART 2 – NOT USED

PART 3 – NOT USED

END OF SECTION

SECTION 01 35 43.13

ENVIRONMENTAL PROCEDURES FOR HAZARDOUS MATERIALS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. CONTRACTOR shall provide all labor, materials, equipment, tools, and incidentals necessary to comply with environmental procedures for Hazardous Materials

2. CONTRACTOR shall develop, implement, and maintain throughout the Project a hazardous materials management program (HMMP) as part of the Site specific CONTRACTOR's Health and Safety Plan (CHASP) in accordance with Laws and Regulations.

3. Hazardous Materials brought to Site by CONTRACTOR: Transport, handle, store, label, use, and dispose of in accordance with this Section, other applicable provisions of the Contract Documents, and Laws and Regulations.

4. Hazardous Materials Generated by CONTRACTOR:

   a. Materials containing Hazardous Materials shall be properly handled, stored, labeled, transported and disposed of by CONTRACTOR in accordance with Laws and Regulations, and this Section.

   b. If CONTRACTOR will generate or has generated materials containing Hazardous Materials at the Site, obtain a USEPA identification number listing CONTRACTOR's name and address of the Site as generator of the Hazardous Materials. Obtain identification number from state environmental agency or similar authority having jurisdiction at the Site. Submit identification number within time frame specified in Article 1.04 of this Section.

   c. CONTRACTOR shall be responsible for identifying, analyzing, profiling, transporting, and disposing of Hazardous Materials generated by CONTRACTOR.

5. Fines or civil penalties levied against OWNER for violations committed at the Site by CONTRACTOR, and costs to OWNER (if any) associated with cleanup of a Hazardous Environmental Condition created by CONTRACTOR shall be paid by CONTRACTOR.

B. Enforcement of Laws and Regulations:

1. Interests of OWNER are that accidental spills and emissions, Site contamination, and injury of personnel at and near the Site are to be avoided.

2. When OWNER is aware of suspected violations, OWNER will notify CONTRACTOR, and authorities having jurisdiction if OWNER reasonably concludes that doing so is required by Laws or Regulations.

3. Responsibilities regarding Laws and Regulations shall be in accordance with the General Conditions, as may be modified by the Supplementary Conditions.

1.02 DEFINITIONS

A. The following terms are defined for this Section and supplement the terms defined in the General Conditions:

1. Hazardous Material: Material, whether solid, semi-solid, liquid, or gas, that, if not stored or used properly, may cause harm or injury to persons through inhalation, ingestion, absorption or injection, or that may negatively impact the environment through use or discharge of the material on the ground, in water (including groundwater), or to the air. Hazardous Material includes, but is not limited to, chemicals, Asbestos, Hazardous Waste, polychlorinated biphenyls (PCBs), Petroleum, Radioactive Material, and which is or becomes listed, regulated, or addressed pursuant to the following:

   a. Comprehensive Environmental Response, Compensation, and Liability Act, 42 United States Code (USC) §§ 9601 et seq. ("CERCLA").

   b. Hazardous Materials Transportation Act, 49 USC §§ 1801 et seq.

   c. Resource Conservation and Recovery Act, 42 USC §§ 6901 et seq. ("RCRA").

   d. Toxic Substances Control Act, 15 USC §§ 2601 et seq.

   e. Clean Water Act, 33 USC §§ 1251 et seq.

   f. Clean Air Act, 42 USC §§ 7401 et seq.

   g. Any other Law or Regulation regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

1.03 QUALITY ASSURANCE

A. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:

1. 29 CFR 1910, Occupational Safety and Health Standards.
2. 29 CFR 1926, Safety and Health Regulations for Construction.
3. 40 CFR 261.3, 264, and 265, Resource Conservation and Recovery Act (RCRA).
4. 49 CFR 171.8, Transportation, Definitions and Abbreviations.
5. 6 NYCRR 364, Waste Transporter Permits.
6. 6 NYCRR 371, Identification and Listing of Hazardous Wastes.
7. 6 NYCRR 372, Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities.
8. 6 NYCRR 375, Environmental Remediation Programs.
9. 17 NYCRR 32, Oil Spill Prevention and Control – Actions to be Taken in Case of Discharge.

1.04 SUBMITTALS

A. Informational Submittals: Submit the following to the entity(ies) specified for each:

1. Hazardous Materials (including Chemicals) Proposed for Use at the Site:

a. Content:

1) Current (dated within the past two years) material safety data sheets (MSDS) in accordance with 29 CFR 1910.1200 (OSHA Hazard Communication Standard).

2) Manufacturer of material or equipment containing such substance.

3) Supplier (if different than manufacturer).

4) Container size(s) and number of containers proposed to be at the Site.

5) Minimum and maximum volume of material intended to be stored at the Site.

6) Description of process or procedures in which Hazardous Materials will be used at the Site.

b. Furnish the information required above in sufficient time to obtain OWNER's acceptance not later least three days before bringing Hazardous Materials to the Site.

2. Material Containing Hazardous Materials Generated at the Site:

a. Submit for each Hazardous Materials generated at the Site identification number, analysis results, and number and size of storage containers at the Site.

b. Furnish such information within not less than 48 hours after CONTRACTOR's receipt of analytical results.

3. Permits:

a. Submit copies of permits for storing, handling, using, transporting, and disposing of materials containing Hazardous Materials, obtained from authorities having jurisdiction.

4. Other Documents required for the HMMP: Submit to REMEDIATION ENGINEER and/or OWNER's environmental representative the requested documents within 72 hours of CONTRACTOR's receipt of such request. HMMP documents may include emergency/ spill response plan, communication plan, and other documents.

1.05 HAZARDOUS MATERIALS MANAGEMENT

A. Obtain REMEDIATION ENGINEER and/or OWNER's environmental representative's acceptance before bringing to the Site each material containing Hazardous Material(s).

B. Communication Plan (may be included in CHASP):

1. CONTRACTOR shall develop a communication plan relative to materials containing one or more Hazardous Materials.

2. MSDS Notebooks:

a. At minimum, maintain at the Site two notebooks containing: 1) Inventory of materials containing Hazardous Material(s) (including all chemicals), and 2) Current (dated within the past two years) material safety data sheets (MSDS) for all materials being used to accomplish the Work, whether or not defined as Hazardous Material(s).

b. Keep one notebook in CONTRACTOR's field office at the Site; keep second notebook at location acceptable to REMEDIATION ENGINEER.

c. Keep notebooks up-to-date as materials are brought to and removed from the Site.

C. Emergency/Spill Response Plan (may be included in CHASP): Develop, implement, and maintain an emergency/spill response plan, for each Hazardous Materials or each class/group of material containing Hazardous Material(s), as applicable. At minimum, response plan shall include the following:

1. Procedures, instructions and reporting requirements in the event of an unforeseen leak, spill, or other release containing a substance regulated under State or local laws and/or a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302;

2. Procedures for notifying, and contact information for: authorities having jurisdiction, emergency responders, OWNER, REMEDIATION ENGINEER, the public as applicable, and other entities as required.

3. Response coordination procedures between CONTRACTOR, OWNER, and others as appropriate.

4. Site plan showing proposed location of Hazardous Materials storage area and location of spill containment/response equipment, and location of storm water drainage inlets and drainage routes, including storm sewers, ditches and swales, and surface waters.

5. Description of Hazardous Materials handling and spill response training provided to CONTRACTOR's and Subcontractors' employees, in accordance with 29 CFR 1926.21(b) and other Laws and Regulations.

6. List of materials and equipment to be made available onsite for containment and potential cleanup of spilled materials;

7. Means and methods to prevent, control and clean spills of materials stored onsite or on barges; and

8. Means and methods to clean up soils and/or water contaminated due to malfunction of construction water treatment systems (e.g., overflow or spills).

D. Storage of Materials Containing Hazardous Materials and Storage of Non-Hazardous Materials:

1. Vessels containing materials with Hazardous Material(s) shall bear applicable hazard diamond(s).

2. Provide NYSDOT-compliant storage containers for petroleum products.

3. Container Labeling:

a. Properly label each container of consumable materials, whether or not classified as containing Hazardous Material(s).

b. Stencil CONTRACTOR's name and, as applicable, Subcontractor's name, on each vessel containing Hazardous Material(s) and, for non-hazardous materials, on each container over five-gallon capacity. Containers shall bear securely-attached label clearly identifying contents. Label containers that are filled from larger containers.

c. If OWNER becomes aware of unlabeled containers at the Site, REMEDIATION ENGINEER and/or OWNER's environmental representative will so advise CONTRACTOR. Properly label container(s) within one hour of receipt of such notice from OWNER or remove container from the Site.

4. To greatest extent possible, store off-Site materials containing Hazardous Material(s) until required for use in the Work.

E. Area for Storing Materials Containing a Hazardous Material

1. Maintain designated storage area for materials containing a Hazardous Material. Storage area shall include secondary containment to prevent release of spilled or leaking substances. Storage area shall include barriers to prevent vehicles from colliding with storage containers and shall include protection from environmental factors such as weather.

2. Provide signage in accordance with Laws and Regulations, clearly identifying the storage area.

F. Not less than monthly, CONTRACTOR's safety representative shall meet with the REMEDIATION ENGINEER and/or OWNER's environmental representative to review CONTRACTOR's HMMP documents, procedures, and inspect storage areas and the Site in general, to verify compliance with this Section.

PART 2 – PRODUCTS

A. The CONTRACTOR shall maintain a spill response kit onsite at all times (including all vessels) of sufficient size to contain and absorb the capacity of the largest fuel or hydraulic fluid tank of CONTRACTOR -provided equipment.

B. The CONTRACTOR shall furnish appropriate materials for controlling and cleaning spills from material storage containers.

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 35 49

COMMUNITY AIR MONITORING PLAN

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. REMEDIATION ENGINEER shall provide all labor, materials, equipment, services, and incidentals as specified and required to perform community air monitoring on a continuous basis during all ground-intrusive Work and/or dust-generating Work, as required by the Project's Community Air Monitoring Plan (CAMP). The CAMP is part of the Contract Documents. Community air monitoring includes:

    a. Real-time air monitoring for total volatile organic compounds (TVOCs) and particulate matter less than 10 micrometers in diameter (PM10).

    b. Periodic monitoring for manufactured gas plant (MGP)-related odors.

2. CONTRACTOR shall provide all labor, materials, equipment, services, and incidentals as specified and required to implement any required response actions to air monitoring exceedance(s), if necessary, in accordance with the Project CAMP.

3. Each air monitoring station and meteorological station shall be equipped with a telemetry package to allow for real-time management of community air monitoring data by office-based personnel.

B. Coordination:

1. Coordinate requirements of this Section with requirements for odor, vapor, and dust control in the Contract Documents.

1.02 TERMINOLOGY

A. The following words or terms are not defined but, when used in this Section, have the following meaning:

1. "Dust-generating Work" means any Work with the potential to generate dust. Examples of dust-generating Work include, but are not limited to, the following:

    a. Handling removed material and fill material

    b. Intrusive Work

2. "Intrusive Work" means any Work performed below the existing level of the ground or sediment surface, or that involves the disturbance of existing earth, regardless of quantity. Examples of ground-intrusive Work include, but are not limited to, the following:

    a. Installation of erosion and sediment controls and other site preparation activities

    b. Material removal and handling

    c. Backfilling and grading

    d. Site restoration

3. "Perimeter of work area" means the limits of exclusion zone.

4. "Work area" means any area where ground-intrusive Work or dust-generating Work is being performed.

1.03 QUALITY ASSURANCE

A. Qualifications:

1. Air Monitoring Technician:

a. REMEDIATION ENGINEER's air monitoring technician shall have a minimum of three years direct construction safety or environmental monitoring experience, and appropriate health and safety training in accordance with Laws and Regulations.

b. REMEDIATION ENGINEER's air monitoring technician shall be present at the Site at all times when dust-generating or intrusive Work is being performed and shall be dedicated solely to the implementation of the CAMP.

c. Responsibilities include, but are not necessarily limited to, the following:

1) Installing the meteorological monitoring system.

2) Selecting upwind and downwind monitoring locations and setting up air monitoring stations on a daily basis.

3) Calibrating air monitoring equipment on a daily basis, or other frequency recommended by the manufacturer.

4) Coordinating equipment maintenance and repairs.

5) Monitoring meteorological conditions throughout the workday and relocating air monitoring stations as necessary and appropriate.

6) Performing routine inspections of air monitoring stations to verify proper function.

7) Performing periodic perimeter checks of the work area to monitor for MGP-related odors.

8) Removing air monitoring stations and downloading TVOC and PM10 data at the end of each workday.

9) Managing a database of TVOC, PM10, and meteorological data at the Site and documenting the general site activities ongoing each day during monitoring.

10) Attending progress meetings and other Project meetings, as required.

11) Preparing and submitting daily air monitoring reports in accordance with Article 1.05 of this Section.

12) Preparing and submitting exceedance reports in accordance with Article 1.06 of this Section.

13) Preparing and submitting daily odor monitoring logs in accordance with Article 1.07 of this Section.

14) Notifying the OWNER and CONTRACTOR personnel when alert or action levels are exceeded at downwind monitoring locations, and when MGP-related odors are noted at the perimeter of the work area.

B. Regulatory Requirements:

1. Comply with applicable provisions and recommendations of the New York State Department of Environmental Conservation (NYSDEC) Technical Guidance for Site Investigation and Remediation (DER-10).

1.04 SUBMITTALS

A. Informational Submittals:

1. Reports:

a. Daily Air Monitoring Reports: REMEDIATION ENGINEER shall submit in accordance with Article 1.05 of this Section, or at a reduced frequency if requested by the OWNER.

b. Exceedance Reports: REMEDIATION ENGINEER shall submit in accordance with Article 1.06 of this Section.

2. Submit community air monitoring and weather data in accordance with Article 1.08 of this Section.

1.05 DAILY AIR MONITORING REPORTS

A. Prepare daily air monitoring reports throughout the Project. Include in each report, at a minimum, the following:

1. CONTRACTOR's name
2. OWNER's name
3. REMEDIATION ENGINEER's name
4. Project name
5. Site name and location
6. The following for each day that community air monitoring is performed:

a. Date and day of the week

b. General location and brief description of work performed at the Site

c. Daily average concentration of TVOCs and PM10 for each air monitoring station

d. Daily maximum 15-minute time-weighted average (TWA) concentration of TVOCs and PM10 for each air monitoring station

e. All 15-minute readings recorded for the day and any instantaneous readings used for decision purposes.

f. Exceedances (if any) of the alert or action levels specified in Paragraph 3.01.B and 3.01.C of this Section. Provide the following:

1) Time, location, and 15-minute TWA concentration (above background) of exceedance

2) Copy of action level exceedance report (if any), prepared in accordance with Article 1.06 of this Section

g. Site plan showing approximate locations of upwind and downwind air monitoring stations at the Site and predominant wind direction for the day. Note if air monitoring stations were relocated during the day.

h. Copy of daily odor monitoring log, prepared in accordance with Article 1.07 of this Section.

B. REMEDIATION ENGINEER will distribute daily air monitoring reports within three business days after the day covered in the associated report to:

1. OWNER
2. CONTRACTOR
3. NYSDEC
4. New York State Department of Health (NYSDOH)
5. Others as appropriate

1.06 ACTION LEVEL EXCEEDANCE REPORTS

A. Prepare an exceedance report whenever the action levels specified in Paragraph 3.01.C of this Section are exceeded. Include in each report the following:

1. CONTRACTOR's name.
2. OWNER's name.
3. REMEDIATION ENGINEER's name.
4. Project name.
5. Site name and location.
6. Date, day of the week, and time of exceedance.
7. General location and brief description of work being performed at time of exceedance.
8. Weather conditions at time of exceedance.
9. For each air monitoring station, 15-minute TWA concentration of TVOCs and PM10 at time of exceedance.
10. Source or cause of exceedance, if known.
11. Corrective actions taken or to be taken in response to exceedance.
12. Date and time verbal and/or written notification was provided to NYSDEC.

B. Submit exceedance reports. REMEDIATION ENGINEER will distribute exceedance reports within 24 hours after exceedance to:

1. OWNER
2. CONTRACTOR
3. NYSDEC
4. NYSDOH
5. Others as appropriate

1.07 DAILY ODOR MONITORING LOG

A. Prepare daily odor monitoring logs throughout the Project. Include in each daily log, at a minimum, the following:

1. CONTRACTOR's name
2. OWNER's name
3. Project name
4. Site name and location
5. Date and day of the week
6. Weather conditions
7. Site activity at the time of the perimeter check
8. Time and outcome of each perimeter check
    a. Note the presence or absence of MGP-related odors at the perimeter of the work area.
    b. Identify the general location(s) along the work area perimeter where MGP-related odors are noticed.
9. Time and outcome of any odor complaints from the public.

B. Submit daily odor monitoring logs in daily air monitoring report submittal in accordance with Article 1.05 of this Section.

1.08 DATA MANAGEMENT

A. Maintain a database of TVOC, PM10, and meteorological data files at the Site.

1. Index TVOC and PM10 data files by date, station number, station location (upwind or downwind), and data type (TVOC or PM10).
2. Index meteorological data files by date.

B. Back up data files to remote server or portable hard drive on a weekly or more frequent basis.

C. Submit TVOC, PM10, and meteorological data files on a monthly basis throughout the Project. Label each disc with the following information:

1. Dates covered
2. OWNER's name
3. Project name
4. Site name and location

PART 2 – PRODUCTS

2.01 PERIMETER AIR MONITORING SYSTEM

A. System Description:

1. Provide complete, integrated perimeter air monitoring system consisting of the following:

a. Portable air monitoring stations, each capable of measuring real-time ambient air concentrations of TVOCs and PM10, logging air monitoring data, and alerting Site personnel if alert levels or action levels are exceeded.

b. One portable meteorological monitoring system capable of measuring wind speed, wind direction, relative humidity, dry bulb temperature, and barometric pressure, and displaying and logging weather data.

B. Air Monitoring Stations:

1. Photoionization Detectors: Direct-reading, data-logging photoionization detector with 10.6 eV lamp. Provide one of the following for each air monitoring station:

   a. MiniRAE 3000 by RAE Systems

   b. Or equal

2. Aerosol Photometers: Direct-reading, data-logging aerosol monitor. Provide one of the following for each air monitoring station:

   a. DustTrak II Aerosol Monitor Model 8530 by TSI, Inc.

   b. Or equal

3. Telemetry Package: Netronix Thiamis Telemetry Modem (or equivalent) and appurtenances

4. Spare Equipment: Provide and retain at the Site, or make available within 24 hours, the following:

   a. Spare photoionization detectors and aerosol photometers to allow for uninterrupted monitoring in the event of equipment damage or malfunction.

   b. Spare batteries for each photoionization detector and aerosol photometer to allow for continuous real-time monitoring and data-logging for a period of not less than 12 hours.

5. Environmental Enclosures and Mounting Tripods: Provide portable, weather-tight enclosure and compatible mounting (survey) tripod for each air monitoring station. Environmental enclosures shall provide proper operating conditions for photoionization detectors and aerosol photometers.

6. Alarms and Wireless Alert System: Provide for each air monitoring station audible and visible alarms and wireless alert system capable of alerting air monitoring technician in real-time (via handheld radio, cell phone, etc.) if alert or action levels are exceeded.

7. Accessories: Provide equipment calibration kits, sampling inlets, data management software, and other accessories recommended by the equipment manufacturers for the intended application.

C. Meteorological Monitoring System:

1. Product and Manufacturer: Provide one of the following:

   a. Wireless Vantage Pro2 by Davis Instruments

   b. Or equal

2. Telemetry Package: Netronix Thiamis Telemetry Modem (or equivalent) and appurtenances

3. Accessories: Provide the following:

   a. WeatherLink data logger and software suite by Davis Instruments, or equal

   b. Mounting Pole Kit by Davis Instruments, or equal

   c. Other accessories recommended by equipment manufacturer for the intended application

PART 3 – EXECUTION

3.01 REAL-TIME AIR MONITORING FOR TVOCS AND PM10

A. Air Monitoring Stations:

1. Installation:

   a. Deploy air monitoring stations at the start of each workday before any ground-intrusive Work or dust-generating Work is initiated.

      1) Position, at a minimum, one air monitoring station at the upwind perimeter of the Site and three air monitoring stations at the downwind perimeter of the Site (four air monitoring stations total). Determine and designate upwind and downwind air monitoring stations based on predominant wind direction, and nature and location of Work to be performed. As needed or required by the REMEDIATION ENGINEER, position additional station(s) in the immediate vicinity of excavation/work areas to perform localized air monitoring.

         a) Set alarm levels on real-time TVOC and PM10 monitoring equipment to respond to 15-minute TWA concentrations at or above the action levels specified in Paragraph 3.01.C of this Section.

         b) Ensure that community air monitoring is being performed before initiating ground- intrusive Work or dust-generating Work.

   b. Monitor wind direction throughout the day per Article 3.02 and adjust locations of air monitoring stations if wind direction shifts more than 60 degrees from original upwind direction. Document original upwind and downwind air monitoring stations, and any changes made to monitoring locations during the day.

2. Protection:

   a. Protect air monitoring stations from damage due to construction operations, weather, and vandalism.

   b. Immediately remove from service and replace at REMEDIATION ENGINEER's expense damaged equipment.

3. Removal:

   a. Remove air monitoring stations at the end of each workday, and only after all ground-intrusive Work or dust-generating Work has been completed for the day.

b. Download TVOC and PM10 data from air monitoring stations at the end of each day.

B. Alert Levels and Response:

1. Alert Levels:

a. TVOCs: 15-minute TWA concentration at downwind air monitoring station of 2.5 parts per million (ppm) above background (upwind) 15-minute TWA concentration.

b. PM10: 15-minute TWA concentration at any one (or more) downwind air monitoring station of 100 micrograms per cubic meter ($\mu g/m^3$) above average background (upwind) 15-minute TWA concentration, or visible dust observed leaving the work area.

2. Response: Implement the following if alert levels are exceeded:

a. Notify CONTRACTOR.

b. Identify potential source(s) of the exceedance.

c. CONTRACTOR shall continue Work and employ additional odor, vapor, and/or dust controls (depending on the reason for the alert) to abate emissions in accordance with Section 01 51 05 – Temporary Utilities and Controls and Section 01 76 50 – Nuisance Controls, Management, and Corrective Measures.

d. Evaluate and, if necessary and appropriate, modify construction techniques.

C. Action Levels and Response:

1. Action Levels:

a. TVOCs: 15-minute TWA concentration at downwind air monitoring station of 5 ppm above background (upwind) 15-minute TWA concentration but less than 25 ppm 15-minute TWA concentration.

b. PM10: 15-minute TWA concentration at downwind air monitoring station of 150 $\mu g/m^3$ above background (upwind) 15-minute TWA concentration.

2. Response: Implement the following if action levels are exceeded:

a. CONTRACTOR shall stop all Work and REMEDIATION ENGINEER shall immediately notify OWNER. OWNER or REMEDIATION ENGINEER will notify the NYSDEC project manager by telephone or e-mail within two hours after the exceedance.

b. REMEDIATION ENGINEER shall continue monitoring and CONTRACTOR shall employ additional odor, vapor, and dust controls to abate emissions in accordance with Section 01 51 05 – Temporary Utilities and Controls and Section 01 76 50 – Nuisance Controls, Management, and Corrective Measures.

c. Identify the source or cause of the exceedance.

d. CONTRACTOR shall evaluate and, if necessary and appropriate, modify construction techniques.

e. REMEDIATION ENGINEER shall prepare exceedance report in accordance with Article 1.06 of this Section.

f. Work shall not resume until 15-minute TWA concentrations are below the action levels. If the 15-minute TWA concentration of TVOCs exceeds 25 ppm 15-minute TWA concentration, work shall not resume until authorized by OWNER.

3.02 METEOROLOGICAL MONITORING

A. During work hours, monitor meteorological conditions throughout the day and relocate air monitoring stations as necessary and appropriate per Article 3.01.A.

3.03 PERIODIC MONITORING FOR MGP-RELATED ODORS

A. Perimeter Checks:

1. During work hours, perform periodic walks around the entire perimeter of the work area to monitor for MGP-related odors.

2. Document the time and outcome of each perimeter check in daily odor monitoring log in accordance with Article 1.07 of this Section.

3. Implement the following if MGP-related odors are noticed at the perimeter of the work area:

a. Notify CONTRACTOR personnel.

b. Identify the source or cause of the MGP-related odors.

c. CONTRACTOR shall continue Work and employ additional odor, vapor, and dust controls to abate emissions in accordance with Section 01 51 05 – Temporary Utilities and Controls and Section 01 76 50 – Nuisance Controls, Management, and Corrective Measures.

d. CONTRACTOR shall evaluate and, if necessary and appropriate, modify construction techniques.

e. REMEDIATION ENGINEER shall perform more frequent perimeter checks.

f. If MGP-related odors persist at the perimeter of the work area, CONTRACTOR shall stop work and REMEDIATION ENGINEER shall notify the OWNER.

g. CONTRACTOR shall evaluate and, if necessary and appropriate, further modify construction techniques and employ additional odor, vapor, and dust controls to abate emissions in accordance with Section 01 51 05 – Temporary Utilities and Controls and Section 01 76 50 – Nuisance Controls, Management, and Corrective Measures.

h. Work shall not resume until authorized by OWNER.

B. Odor Complaints:

1. Immediately notify OWNER of any odor complaints from the public.

2. Implement the following in response to an odor complaint:

a. As appropriate, REMEDIATION ENGINEER shall verify the legitimacy of the complaint based on the Work being performed at the Site, the predominant wind direction, and other climatological factors.

b. REMEDIATION ENGINEER shall continue monitoring and CONTRACTOR shall employ additional odor, vapor, and dust controls to abate emissions in accordance with Section 01 51 05 – Temporary Utilities and Controls and Section 01 76 50 – Nuisance Controls, Management, and Corrective Measures.

c. CONTRACTOR shall evaluate and, if necessary and appropriate, modify construction techniques.

3. REMEDIATION ENGINEER shall document the time and outcome of any odor complaints in daily odor monitoring log in accordance with Article 1.07 of this Section.

4. OWNER or the REMEDIATION ENGINEER shall coordinate with NYSDEC if the odor complaint cannot be resolved.

3.04 FIELD QUALITY CONTROL

A. REMEDIATION ENGINEER shall calibrate air monitoring equipment on a daily basis, or other frequency recommended by the manufacturer, in accordance with manufacturer's calibration and quality assurance requirements. Document all instrument readings, field reference checks, and calibrations in a dedicated log.

B. During the workday, REMEDIATION ENGINEER shall perform periodic field checks of monitoring equipment to verify proper function. Document the date, day, time, and outcome of each field check in a dedicated log.

C. REMEDIATION ENGINEER shall immediately remove from service, and replace, in coordination with OWNER, damaged or malfunctioning equipment.

D. Preventative maintenance and repair of monitoring equipment, if required, shall only be performed by qualified personnel, or authorized representatives of the manufacturer.

E. REMEDIATION ENGINEER shall prepare and retain at the Site electronic or written records of all equipment calibrations, field checks, maintenance, and repairs.

END OF SECTION

SECTION 01 41 26

STORMWATER POLLUTION PREVENTION PLAN AND PERMIT

PART 1 - GENERAL

1.01 DESCRIPTION

A. CONTRACTOR shall comply with the Project's Stormwater Pollution Prevention Plan (SWPPP) and the substantive requirements of the most current version of New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Construction Activity (hereinafter, the "SPDES General Permit"). CONTRACTOR is responsible for providing necessary materials and taking appropriate measures to comply with requirements of the SPDES General Permit and minimize pollutants in stormwater run-off from the Site.

B. Documents: The following are part of the Work included under this Section:

1. SWPPP: Prepared by DESIGN ENGINEER, on behalf of OWNER, and filed with NYSDEC. The SWPPP is included as part of the Contract Documents.

2. SWPPP Revisions: Prepared by DESIGN ENGINEER, on behalf of OWNER, in accordance with Article 1.04 of this Section. Copy of each SWPPP Revision will be furnished to CONTRACTOR. SWPPP Revisions, if any, will become part of the Contract Documents.

3. Stormwater Permit Certification Statement: To be submitted by CONTRACTOR to DESIGN ENGINEER AND REMEDIATION ENGINEER on the form included with the Project SWPPP. Do not perform Work at the Site until the stormwater permit certification statement has been submitted to DESIGN ENGINEER AND REMEDIATION ENGINEER.

4. Stormwater Inspection Reports: Prepared by CONTRACTOR's qualified inspector and submitted to REMEDIATION ENGINEER in accordance with Article 1.05 of this Section. A stormwater inspection report shall be prepared for each Site inspection and assessment required by the SPDES General Permit and this Section.

C. Prevent discharge of sediment to and erosion from the Site to surface waters, drainage routes, public streets and rights-of-way, and private property, including dewatering operations. Prevent trash and construction and demolition debris from leaving the Site via stormwater run-off. Provide acceptable methods of directing stormwater around work areas to drainage routes.

D. Do not cause or contribute to a violation of water quality standards, Laws, or Regulations. Provide and implement measures to control pollutants in stormwater run-off from the Site to prevent:

1. Turbidity increases that will cause a substantial visible contrast to natural conditions.

2. Increase in suspended, colloidal, and settle-able solids that would cause sediment deposition or impair receiving water quality and use.

3. Presence of residue from oil and floating substances, visible oil, and globules of grease.

E. CONTRACTOR shall pay civil penalties and other costs incurred by OWNER, including additional engineering, construction management, and inspection services, associated with non-

compliance with the SPDES General Permit and erosion, sediment, and turbidity controls associated with the Work.

F. Contract Price includes all material, labor, and other permits and incidental costs related to:

1. Installing and maintaining structural and non-structural items used in complying with the SWPPP and its revisions, if any.

2. Clean-up, disposal, and repairs following wet weather events or spills caused by CONTRACTOR.

3. Implementing and maintaining "best management practices", as defined in applicable permits and Laws or Regulations, to comply with requirements that govern stormwater discharges at the Site.

4. Inspecting erosion, sediment, turbidity, and stormwater controls as specified.

G. Coordinate requirements of this Section with requirements for earthwork, erosion control, and landscaping in the Contract Documents, applicable permit requirements, and Laws and Regulations.

H. Implement SWPPP controls and practices prior to starting other Work at the Site.

1.02 QUALITY ASSURANCE

A. Qualifications:

1. Qualified Inspector:

a. CONTRACTOR's qualified inspector shall be knowledgeable in the principles and practices of erosion, sediment, and turbidity control, and shall be responsible for performing Site inspections and assessments, and preparing and certifying stormwater inspection reports, in accordance with this Section.

b. CONTRACTOR's qualified inspector shall be one of the following:

1) Professional engineer licensed and registered in the State of New York.

2) Landscape architect licensed and registered in the State of New York.

3) Certified Professional in Erosion and Sediment Control.

4) NYSDEC-endorsed individual.

5) An individual working under the direct supervision of, and employed by the same company as, a professional engineer or landscape architect licensed and registered in New York State, provided that said individual has received four hours of NYSDEC-endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC- endorsed entity. Following the initial training, the individual shall have completed four hours of training every three years.

B. Regulatory Requirements:

1. Comply with Laws and Regulations related to environmental protection and restoration, including:

a. SPDES General Permit.

b. New York State Standards and Specifications for Erosion and Sediment Control (Blue Book) (Latest version).

1.03 SUBMITTALS

A. Informational Submittals:

1. Stormwater Permit Certification Statement: Submit in accordance with Paragraph 1.01.B.3 of this Section.
2. Qualifications Statements: Submit name and qualifications of qualified inspector, including summary of experience, training received, and copy of valid certifications applicable to the Project.
3. Stormwater Inspection Reports: Submit in accordance with Article 1.05 of this Section.

1.04 SWPPP REVISIONS

A. DESIGN ENGINEER will prepare a SWPPP Revision in accordance with the SPDES General Permit:

1. When the provisions of the SWPPP prove to be ineffective in minimizing pollutants in stormwater discharges from the Site.
2. When there is a significant change in design, construction, operation, or maintenance of the Project that has or could have an effect on the discharge of pollutants from the Site.
3. To address issues or deficiencies identified during an inspection by CONTRACTOR's qualified inspector, NYSDEC, or other regulatory authority having jurisdiction.

1.05 STORMWATER INSPECTION REPORTS

A. Prepare a stormwater inspection report for each Site inspection and assessment required by the SPDES General Permit and this Section. Each report shall be prepared using the form included with the Project SWPPP.

B. Include in each stormwater inspection report, at a minimum, the following:

1. Date and time of inspection.
2. Name, title, and affiliation of CONTRACTOR's qualified inspector.
3. Weather and soil conditions (e.g., dry, wet, saturated, etc.) at the time of the inspection.
4. Description of and site plan showing areas that are disturbed at the time of the inspection and any areas that have been stabilized (either temporary or final) since the previous inspection.
5. Repairs, maintenance, or corrective actions implemented since the previous inspection. Include digital photographs, with date stamp, that clearly show the areas or items installed, repaired, or replaced.
6. Condition of stormwater run-off at all points of discharge from the Site.
7. Identification of any erosion, sediment, turbidity, and stormwater controls that require repair or maintenance.
8. Identification of any erosion, sediment, turbidity, and stormwater controls that were not installed properly or are not functioning as designed.

9. Repairs, maintenance, or corrective actions required to correct any deficiencies observed during the inspection. Include digital photographs, with date stamp, that clearly show the deficient areas or items.

    a. Submit stormwater inspection reports to REMEDIATION ENGINEER within three days after each inspection. Inspection reports shall be signed by CONTRACTOR's qualified inspector.

    b. Retain copies of stormwater inspection reports at the Site. Keep with the SWPPP and any SWPPP revisions.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 INSPECTIONS AND REPAIRS

A. Perform Site inspections and assessments as required by the SPDES General Permit and this Section to ensure the continued effectiveness and integrity of all SWPPP controls and practices, including erosion, sediment, and turbidity controls. Inspections and assessments shall be done by CONTRACTOR's qualified inspector.

B. Inspections:

1. Site inspections shall be performed:

    a. After installation of SWPPP controls, including erosion, sediment, and turbidity controls, and temporary field offices and other temporary facilities, prior to starting other Work at the Site.

    b. Every seven days during the Work, and within 24 hours after wet weather events, until all disturbed areas have achieved final stabilization in accordance with the SPDES General Permit and the SWPPP. For temporary Work stoppages and seasonal shut-downs greater than two weeks in duration, inspection frequency may be reduced to once every 30 days if temporary stabilization measures have been applied to all disturbed surfaces, and if approved by DESIGN ENGINEER, the OWNER, and NYSDEC.

2. During each inspection, verify sediment control practices and record approximate degree of sediment accumulation as percentage of acceptable sediment storage volume. Inspect erosion, sediment, and turbidity control practices and record repairs and maintenance performed, if any. Observe and record deficiencies relative to implementation of the SWPPP.

3. Prepare stormwater inspection report for each inspection in accordance with Article 1.05 of this Section.

C. Notify REMEDIATION ENGINEER within one day after each inspection of any deficiencies observed, and any repairs, maintenance, or corrective actions required to correct such deficiencies.

D. Complete repairs or maintenance to SWPPP controls in accordance with applicable requirements and to satisfaction of REMEDIATION ENGINEER within two days after each inspection. If site conditions prevent repairs or maintenance from being completed, document such conditions in the subsequent stormwater inspection report and complete repairs or maintenance as soon as site conditions permit.

E. Cooperate with representatives of authorities having jurisdiction during periodic visits to Site, and promptly provide information requested by authorities having jurisdiction.

END OF SECTION

SECTION 01 51 05

TEMPORARY UTILITIES AND CONTROLS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. CONTRACTOR shall provide all temporary utilities and temporary facilities required for the Project, including the following:
   a. Electricity
   b. Lighting
   c. Telephone and communications
   d. Heating, cooling, ventilating, and temporary enclosures
   e. Water
   f. Fire protection
2. Make all arrangements with utility owners for temporary utilities and with others as appropriate for temporary facilities. Obtain required permits and approvals for temporary utilities and temporary facilities.
3. Pay all service costs for utilities and facilities indicated in this Section as CONTRACTOR's responsibility, including cost of electricity, water, fuel, and other utility services and temporary facilities required for the Work.
4. At minimum, provide and maintain temporary utilities and temporary facilities through Substantial Completion unless otherwise approved in writing by REMEDIATION ENGINEER.
5. Maintain, including cleaning, temporary utilities, and temporary facilities, and continuously provide consumables (i.e., potable water, soap, paper towels, toilet paper, etc.) as required.
6. Temporary utilities and temporary facilities shall be adequate for personnel using the Site and the needs of the Project.
7. Provide temporary utilities and temporary facilities in compliance with laws and regulations and, when applicable, requirements of utility owners.
8. Provide and maintain methods, equipment, materials, and temporary construction as required to control environmental conditions at the Site and adjacent areas. Maintain temporary controls until no longer required. Temporary controls include, but are not limited to, the following:
   a. Erosion, sediment, and turbidity controls
   b. Control of surface water, including stormwater run-on and run-off
   c. Sheen controls
   d. Odor, vapor, and dust controls

e. Pollution controls

f. Noise controls

9. The CONTRACTOR shall comply with all applicable federal, state, and local codes, ordinances, regulations, statutes, and standards.

10. Exclusion Zones will be defined and operated as described in 29 CFR 1910.210 Hazardous Waste Operations.

1.02 REQUIREMENTS FOR TEMPORARY UTILITIES AND TEMPORARY FACILITIES

A. Electrical:

1. Provide temporary electrical service required for the Work, including continuous power for temporary field offices and sheds. Provide temporary outlets with circuit breaker protection and ground fault protection.

2. Provide written plan for electrical service including; approved service requests and work orders; as applicable.

3. Provide materials that comply with applicable NEMA, NECA, and UL standards and governing regulations of temporary electrical services.

4. Provide grounded extension cords with waterproof connectors and GFCI protection. Use "hard service" cords where there is exposure to abrasion and traffic.

5. Provide general service lamps and guard cages or tempered glass enclosures where lamp is exposed to breakage by removal operations. Use liquid-tight enclosures or boxes for the devices.

6. The CONTRACTOR shall provide a weatherproof, grounded temporary electrical power service and distribution system of sufficient size, capacity, and power characteristics to accommodate performance of the work.

7. Install overload protection and disconnect switches for each temporary circuit at the power source.

8. Install all cable or extension cords in the work area in such a manner that visual surveillance is easily accomplished.

B. Lighting:

1. Provide lighting at the Site of not less than five foot-candles for open areas and not less than ten foot-candles for stairs and shops. Provide not less than one, 300-watt lamp every 15 feet in indoor work areas. Provide night security lighting of not less than five foot-candles within 50 feet of all parts of the Site during hours of darkness, controlled by photocell.

2. Do not work in areas with insufficient lighting. Where lighting is insufficient for the work activities to be performed, provide additional temporary lighting.

3. Provide temporary lighting sufficient for observation of the Work by the REMEDIATION ENGINEER and inspection by CONTRACTOR and authorities having jurisdiction. Where required by the REMEDIATION ENGINEER, provide additional temporary lighting.

4. Provide temporary lighting for REMEDIATION ENGINEER's and New York State Department of Environmental Conservation's (NYSDEC) field offices in accordance with Section 01 52 11 – Temporary Field Offices and Structures.

C. Telephone and Communications:

1. Provide temporary telephone and communications required for CONTRACTOR's operations at the Site and for summoning emergency medical assistance.

2. Provide temporary telephone and communications for REMEDIATION ENGINEER's and NYSDEC's field offices in accordance with Section 01 52 11 – Temporary Field Offices and Structures.

D. Heating, Ventilating, and Enclosures:

1. Provide sufficient temporary heating, cooling, ventilating, and enclosures to ensure safe working conditions and prevent damage to existing facilities and the Work.

2. Maintain temperature of areas occupied by OWNER's personnel or electronic equipment, including offices, lunchrooms, and rooms containing computers, microprocessors, and control equipment, between 65°F and 80°F with relative humidity less than 75 percent.

3. Required temperature range for storage areas and certain elements of the Work, including preparation of materials and surfaces, installation or application, and curing as applicable, shall be in accordance with the supplementary conditions for the associated Work and/or the Supplier's recommended temperature range for storage, application, or installation, as appropriate.

4. Provide temporary ventilation sufficient to prevent accumulation in construction areas and areas occupied by Site personnel of hazardous and nuisance levels or concentrations of dust and particulates, mist, fumes or vapors, odors, and gases, associated with construction.

5. Provide temporary enclosures and partitions required to maintain required temperature and humidity.

6. Provide temporary heating, ventilating, and cooling for REMEDIATION ENGINEER's and NYSDEC's field offices in accordance with Section 01 52 11 – Temporary Field Offices and Structures.

E. Water:

1. General:

a. Provide temporary water facilities including piping, valves, meters if not provided by OWNER of existing waterline, backflow preventers, pressure regulators, and other appurtenances. Provide freeze-protection as required.

b. Continuously maintain adequate water flow and pressure for all purposes during the Project, until removal of temporary water systems.

2. Water for Construction Purposes:

a. Provide water for Site maintenance and cleaning, water necessary for construction activities, and water for disinfecting and testing of systems.

3. Water for Human Consumption and Sanitation:

a. Provide potable water in accordance with New York State Department of Health (NYSDOH) laws and regulations for consumption by personnel at the Site, for field offices, and for sanitary facilities.

b. When necessary, provide bottled, potable water for use and consumption by personnel at the Site, including CONTRACTOR, REMEDIATION ENGINEER, NYSDEC personnel, and visitors to the Site.

c. Provide temporary water for REMEDIATION ENGINEER's and NYSDEC's field offices in accordance with Section 01 52 11 – Temporary Field Offices and Structures.

d. Provide separate sanitary facilities for males and females.

e. Provide and maintain portable hand wash stations.

F. Fire Protection:

1. Provide temporary fire protection, including portable fire extinguishers rated not less than 2A or 5B in accordance with NFPA 10, Portable Fire Extinguishers, for each temporary building

2. Provide Class A (ordinary combustibles), Class B (combustible liquids and gases), and Class C (electrical equipment) fire extinguishers, as necessary.

3. Comply with NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations, and requirements of fire marshals and authorities having jurisdiction at the Site.

4. Provide temporary fire protection for REMEDIATION ENGINEER's and NYSDEC's field offices in accordance with Section 01 52 11 – Temporary Field Offices and Structures.

G. Staging Areas:

1. Staging areas shall be located on the Site in areas (exclusion zone) approved by the REMEDIATION ENGINEER in order to minimize possible cross contamination.

2. The staging areas for waste materials shall have a lined bottom with a minimum 60-mil sealed, HDPE watertight liner, 40-mil pre-seamed LLDPE liner, or asphalt liner, as approved by the REMEDIATION ENGINEER and presented in the Design Drawings.

3. Waste materials shall be covered at all times with a minimum 6-mil poly liner sealed, watertight liner to prevent contaminated runoff. Remove the liners when the staging area is no longer needed and dispose off-site.

4. All staging areas shall be constructed to prevent the spread of any contamination to the surrounding soils, surfaces, and/or groundwater.

5. Water spray or equivalent shall be utilized as necessary to prevent dust generation. Monitoring shall be provided to ensure that unacceptable levels of dust generated from the movement and handling of soil do not migrate from the Site.

6. Shop Drawings of all staging areas shall be submitted by the CONTRACTOR to the REMEDIATION ENGINEER for review and approval prior to the start of work.

7. The CONTRACTOR shall decontaminate staging areas on concrete pads as directed by the REMEDIATION ENGINEER.

8. Clean soil staging areas: can be located outside the exclusion zone over non-remedial areas, as applicable, erosion controls shall be maintained at the perimeter of piles. Stockpiles shall be covered at all times when not in use with a minimum of 6-mil poly liner. Long-term storage of piles may require additional stabilization measures, as directed by the REMEDIATION ENGINEER or required in the supplementary conditions.

9. Materials staging area: provide and maintain material staging areas as needed in locations indicated on the CONTRACTOR's work site layout, or as approved by the REMEDIATION ENGINEER.

H. Temporary (Work Zone) Fencing:

1. Work Zone Fencing, unless otherwise detailed in the supplementary conditions, provide a temporary, secure 4-foot high, high strength orange polyethylene plastic fence around the operations and work areas to control access. Fence posts shall be a minimum of 5 feet in total length and shall adequately support the fence and prevent leaning. Fence posts shall be set a maximum 10 feet apart.

2. Perimeter/Security Fencing, unless otherwise detailed in the supplementary conditions, shall consist of temporary or driven post fence panels a minimum of 6 feet in height. Privacy screening shall be provided.

I. Water Control:

1. Comply with procedures outlined in the NYSDEC Stormwater Management Design Manual, Stormwater Pollution Prevention Plan (SWPPP), Design Drawings, Technical Specifications, and Section 31 25 00 - Erosion Control.

J. Pollution Control:

1. Maintain work areas on and off-site free from further environmental pollution that would be in violation of any federal, state, or local regulations.

2. Prohibited Construction Practices include, but are not limited to, the following:

a. For any stream corridor, wetland, surface water or any unspecified location:

1) Dumping of spoil material

2) Indiscriminate, arbitrary, or capricious operation of equipment

3) Pumping of silt-laden water from trenches or other excavations

4) Disposal of trees, brush, and other debris.

b. Permanent or unspecified alteration of the flow line of any stream.

c. Explosive blasting.

d. Burning of refuse and debris at the project Site.

e. Disposal of construction water without treatment as per Section 02 72 00 – Construction Water Management.

3. Minimize air pollution by wetting down bare soils with clean water, requiring use of properly operating combustion emission control devices on construction vehicles and equipment used by CONTRACTORS, and requiring shutdown of motorized equipment not actually in use. Comply with procedures outlined in Section 01 35 00 – Green Remediation Procedures.

4. Any emissions during Site activities that may have an adverse health effect on workers or the community shall be suppressed to the extent possible.

5. Chemicals used, whether herbicide, pesticide, disinfectant, polymer, reactant, or other classification, must be approved by either the NYSDEC or any other applicable regulatory agency and the REMEDIATION ENGINEER and be used in a manner as their original purpose was intended.

6. Use of such chemicals and disposal of residues shall be in conformance with manufacturers' instructions.

7. Use of chemicals must be approved in advance by the REMEDIATION ENGINEER.

8. Disposal of volatile fluid wastes (such as mineral spirits, oil, or paint thinner) in storm or sanitary sewer system or into streams or waterways is not permitted.

9. Volatile wastes generated will be handled as hazardous wastes and reported to NYSDEC.

10. The CONTRACTOR shall provide that the generated project hazardous waste (if any) and any existing hazardous waste to be removed under this project shall be transported, manifested, and disposed in accordance with the current regulations.

11. Comply with procedures outlined in Section 02 61 15 – Handling and Disposal of Impacted Materials.

K. Traffic Control:

1. The CONTRACTOR shall maintain all on-site temporary roads necessary for performance of the Work. Temporary access roads will be repaired as necessary to ensure unimpeded daily operations. This may include at a minimum, routine grading and repairs to areas subject to settling resulting from site-related traffic.

2. Park vehicles in areas designated and approved in the Work Plan.

3. Keep the designated parking areas clear of dirt and debris resulting from the work.

L. Rubbish Control (Noncontaminated)

1. Clean up the debris resulting from the work at the end of each day and leave work areas broom clean. Locate containers where directed.

2. Remove debris from the Site at least once a week or more often if it presents a fire hazard or becomes excessive. Burning of waste material will not be permitted.

3. Containers shall have secure tops.

M. Protection of Natural Resources:

1. General:

a. Preserve the natural resources within the project Site that are not specified for removal or change or in accordance with supplementary permit conditions.

b. Preserve the natural resources outside the project Site impacted by the work.

c. Conform to federal, state, and local permitting requirements.

d. Restore disturbed resources to an equivalent or improved condition upon completion of work.

e. Vehicles, equipment, and machinery delivered or used at the Site that have visible oil or hydraulic leaks will not be allowed on Site. Clean up any oil or hydraulic fluid spills immediately.

2. Land Resources:

a. Except in areas specified to be cleared, do not remove, cut, deface, injure, or destroy existing vegetation.

b. Protect vegetation which is to remain from damage by construction operations.

c. Vegetation, intended to remain, that is scarred or damaged by construction operations shall be removed and replaced with equivalent undamaged vegetation.

d. Removal of scarred or damaged vegetation shall be in accordance with the specifications.

e. Trees or shrubs with 30 percent or more of their root systems damaged shall require removal and replacement.

f. Replacement vegetation shall be approved by the REMEDIATION ENGINEER before replacement.

3. Water Resources:

a. Prevent oily or hazardous substances from entering the ground, drainage areas, or local bodies of water.

b. Provide secondary containment of temporary fuel oil, petroleum, or hazardous substance storage tanks of sufficient size and strength to contain the contents of the tanks.

c. Cover and protection from vandalism will be provided at the Site for all petroleum products or other materials that have the potential to pose a threat to human health or the environment.

d. Any pumps located within 100 feet of the Genesee River will be on an impervious surface or plastic liner with absorbents capable of containing any leakage of petroleum products.

e. Equipment to be used in the Genesee River or adjacent to the river shall be equipped with environmentally friendly (i.e., vegetable based) hydraulic fluids.

4. Fish and Wildlife Resources:

a. Do not alter or significantly disturb water flows on or adjacent to the project Site, except as indicated or specified.

b. Do not alter or significantly disturb native habitat on or adjacent to the project Site, except as indicated or specified.

c. Conformance with supplementary permit conditions, as applicable.

N. Noise, Vibration, and Dust Control:

1. Conduct operations in compliance with applicable local noise ordinance.

2. Dust shall be controlled in compliance with approved CONTRACTOR's Nuisance Controls and Management Plan, Vapor Control Emissions Plan and Health and Safety Plan (CHASP), and site specific Community Monitoring Plan (CAMP). Comply with DER-10, Appendix 1A (NYSDEC 2010).

3. Equip compressors, hoists, and other apparatus with such mechanical devices as may be necessary to minimize noise, vibration, and dust. Equip compressors with silencers on intake lines.

4. Equip gasoline or oil-operated equipment with silencers or mufflers on intake and exhaust lines.

5. Provide unpaved roads, detours, or haul roads used in construction areas with water treatment to minimize dust. No visible dust, as determined by the REMEDIATION ENGINEER, will be permitted beyond the limits of the exclusion zone.

6. CONTRACTOR is responsible for providing all sound barriers needed to meet the requirements of these specifications. CONTRACTOR is responsible for all costs related to the manufacturer's representatives or consultants (contractors) who specialize in addressing such problems.

7. Control noise levels associated with Site operations in accordance with local noise ordinances.

8. Measure noise levels in decibels with a sound level meter conforming to the American National Standard Specification ANSI 12.9-2005/ Part 4.

9. Measurements shall be made at Site perimeter.

10. Measurements shall be continuous during the first week of construction activities. Additional measurements may be directed by the REMEDIATION ENGINEER throughout the course of the project.

11. Measurements shall be documented and reported to the REMEDIATION ENGINEER.

12. If the noise levels are not maintained in compliance with federal, state, and local noise ordinances, the CONTRACTOR shall take appropriate measures to bring the noise under control at no additional cost to the OWNER.

13. Additional specific requirements are given in Section 01 76 50 – Nuisance Controls, Management and Corrective Measures.

1.03 REFERENCES

A. NYSDEC. 2010. NYSDEC Program Policy DER-10/Technical Guidance for Site Investigation and Remediation, May 3, 2010.

PART 2 – PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for temporary utilities and temporary facilities may be new or used but shall be adequate for purposes intended and shall not create unsafe conditions and shall comply with laws and regulations.

B. Provide required materials, equipment, and facilities, including piping, cabling, controls, and appurtenances.

C. The CONTRACTOR shall provide all equipment to perform the activities associated with temporary environmental controls including, but not limited to:

1. Pumps, hoses, and other water handling equipment used for dust control;

2. Water truck(s) or other equipment needed to provide dust suppression independent of moisture conditioning activities; and

3. Equipment for deploying environmental controls.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install temporary utilities and temporary facilities in neat, orderly manner, and make structurally, mechanically, and electrically sound throughout.

B. Location of Temporary Utilities and Temporary Facilities:

1. Locate temporary systems for proper function and service.
2. Temporary systems shall not interfere with or provide hazards or nuisances to the Work under this and other contracts, movement of personnel, traffic areas, materials handling, hoisting systems, storage areas, finishes, or work of utility owners and others.
3. Do not install temporary utilities on the ground, with the exception of temporary extension cords, hoses, and similar systems in place for short durations.

C. Modify and extend temporary systems as required by progress of the Work.

3.02 USE

A. Maintain temporary systems to provide safe, continuous service as required.

B. Properly supervise operation of temporary systems:

1. Enforce compliance with laws and regulations
2. Enforce safe practices
3. Prevent abuse of services
4. Prevent nuisances and hazards caused by temporary systems and their use
5. Prevent damage to finishes
6. Ensure that temporary systems and equipment do not interrupt continuous progress of construction

C. At end of each workday check temporary systems and verify that sufficient consumables are available to maintain operation until work is resumed at the Site. Provide additional consumables if the supply on hand is insufficient.

3.03 REMOVAL

A. Completely remove temporary utilities, temporary facilities, equipment, and materials when no longer required. Repair damage caused by temporary systems and their removal and restore the Site to condition required by the Contract Documents; if restoration of damaged areas is not specified, restore to preconstruction condition.

B. Where temporary utilities are disconnected from existing utility, provide suitable, watertight, or gastight (as applicable) cap or blind flange, as applicable, on service line, in accordance with requirements of utility owner.

C. Where permanent utilities and systems were used for temporary utilities, upon Substantial Completion replace all consumables such as filters and light bulbs and parts used during the Work.

END OF SECTION

SECTION 01 51 41

TEMPORARY PUMPING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope

1. CONTRACTOR shall provide all labor, materials, tools, equipment, and incidentals shown, specified, and required for temporary pumping and handling of fluids during the Project.

2. Design and provide temporary pumping system; pumps; piping, supports, and valves; temporary instrumentation and control systems; fuel and electricity as required; personnel; and appurtenances. Comply with Laws and Regulations and requirements of authorities having jurisdiction. System shall be suitable for its service and operating environment.

3. Capacity – General

   a. Provide temporary pumping system of necessary capacity with not less than one of the largest pumps out of service.

   b. Pay costs associated with repairing damage to property, including cleaning, caused by undersized or inadequate temporary pumping systems.

   c. REMEDIATION ENGINEER's acceptance of temporary pumping submittals does not relieve or mitigate CONTRACTOR from responsibility for the temporary pumping system in accordance with the Contract Documents.

4. Temporary Pumping Capacity for Sewer Outfalls (where needed)

   a. Required capacity of each temporary pumping system for sewer outfalls shall be determined by CONTRACTOR.

   b. Each temporary pumping system shall be adequate to convey the discharge rate conveyed through the associated existing permanent conduits. Temporary pumping systems shall not result in flow back-ups into buildings or structures; overflows to storm sewers or receiving waters; or adverse effects on system of OWNER, adjacent property owners, utility owners, or owners of transportation systems (including streets and roads).

   c. Basis of capacity of each temporary pumping system shall consider flow metering data (if available), results of system hydraulic modeling (if available), sewer inspection video and associated data (if available), capacity of the pipe or conduit temporarily removed from service, whether system experiences surcharges during high-flow events, nature of drainage area tributary to the pipe or conduit temporarily removed from service, weather, and other factors.

5. Temporary Pumping Capacity for Dewatering Work Areas

   a. Dewatering pumps shall be sufficient in quantity and capacity to depress the surface water level within the removal area. Pumps shall be selected with a total dynamic head capacity of at least twice the static head due to elevation

difference from the pump inlet to the maximum elevation of the dewatering pipeline.

b. Temporary pumping systems shall not result in flow back-ups into buildings or structures; overflows to storm sewers or receiving waters; or adverse effects on system of OWNER, adjacent property owners, utility owners, or owners of transportation systems (including streets and roads).

6. Location of temporary pumping systems shall not affect utility owners, public access to streets and drives, or access to private property, unless approved by authorities having jurisdiction.

7. Obtain REMEDIATION ENGINEER's acceptance of each temporary pumping system submittal. Temporary pumping systems for which REMEDIATION ENGINEER's acceptance is not obtained in advance will not be eligible for payment.

B. Coordination

1. Coordinate the Work to be performed under other Sections that must be performed with or before the Work specified in this Section.

1.02 QUALITY ASSURANCE

A. Component Supply and Compatibility

1. Obtain each temporary pumping system from a single Supplier who shall be responsible for providing a complete system.

B. Regulatory Requirements

1. Secondary containment for fuel tanks, where applicable, shall be in accordance with Laws and Regulations.

2. Leakage from temporary pumping system or improper discharge is not allowed.

3. Quality of exhaust emissions from internal-combustion engines associated with temporary pumping systems shall comply with Laws and Regulations, including applicable air permits. Before furnishing temporary pumping system, verify compliance with air quality standards and provide temporary emissions controls to comply with such standards when required.

1.03 SUBMITTALS

A. Timing: Furnish to REMEDIATION ENGINEER submittals for temporary pumping system not less than 30 days prior to delivery of temporary pumping system to the Site.

B. Informational Submittals:

1. Schedule for Temporary Pumping in Collection System

a. Schedule for temporary pumping for each work area. Include dates of mobilizing each temporary pumping system, testing, starting and ending dates of temporary pumping, and demobilizing each temporary pumping system in each work area.

b. At CONTRACTOR's option, such information may be included on the Progress Schedule prepared and maintained in accordance with Section 01 32 16 – Construction Progress Schedule. When such option is exercised, however, upon request of REMEDIATION ENGINEER break out as separate sub-

schedule the schedule of temporary pumping and furnish to REMEDIATION ENGINEER.

c. Maintain and update schedule for temporary pumping for collection system and submit updated schedules in accordance with requirements for updating the Progress Schedule as indicated in Section 01 32 16 – Construction Progress Schedule.

2. Temporary Pumping System Plan (may be included in the Project Operations Plan), to include the following for each temporary pumping system:

a. Basis for capacity of the system proposed.

b. System curve of flow plotted against total dynamic head, and calculations that substantiate the proposed temporary pumping system, including comparison of net positive suction head required and net positive suction head available.

c. Manufacturer's data and specifications on each type and size of pump proposed and its capacity, including pump curves.

d. Manufacturer's data and specifications for engines and other equipment required for temporary pumping system, including expected exhaust emissions data.

e. Technical information and specifications on noise controls for noise-emitting equipment.

f. Technical data on temporary piping, pipe joints, valves, pipe supports, controls, flow meter, secondary containment for fuel tanks, emissions controls when required, and other information pertinent to the temporary pumping system.

g. Narrative describing proposed operation of temporary pumping system, including who will operate system, staffing, planned frequency of fueling, contingency plan in event of pump failure, and statement of existing systems that may be affected during operation of temporary pumping system.

PART 2 – PRODUCTS

2.01 TEMPORARY PUMPING SYSTEM

A. General

1. System components shall be suitable for continuous operation with the fluid pumped.

2. Noise controls: Provide noise controls for temporary pumping system. Noise emitted from temporary pumping system shall comply with Laws and Regulations and shall not exceed 70 dB at a distance of 30 feet from noise source.

3. Fuel-consuming temporary pumping system components intended for use when CONTRACTOR is not present shall include fuel tanks sized for not less than 24 hours of uninterrupted operation at system's operating capacity and means to automatically notify CONTRACTOR upon high and low suction water level and low fuel level.

4. Use biodegradable fluids for equipment and environmentally-acceptable lubricants for oil- water interfaces, to the extent practicable.

B. Temporary Pumps for Dewatering Work Areas

1. Sufficient in quantity and size to convey water to the temporary water treatment system specified in Section 01 53 53 – Temporary Water Treatment System.

C. Temporary Piping System

1. Piping shall be high density polyethylene or other durable material accepted by REMEDIATION ENGINEER and suitable for system operating pressures. Durable hoses can be used only for short sections upon acceptance by REMEDIATION ENGINEER.
2. Piping system shall have watertight joints of the following types: fused joints, restrained couplings, flanged coupling adapters, quick-connects by Camlock or equal, flanged joints, grooved and shouldered end-type couplings, and other watertight joints accepted by REMEDIATION ENGINEER.
3. Size piping for flow velocity of not greater than 10 feet per second.
4. Provide check valves or pump control valves on pump discharge lines as required.
5. Provide thrust restraints as required.
6. Provide air valves for all piping intermediate high points where required. Air valves shall expel air upon pipe filling and admit air upon pipe dewatering and release small quantities of entrained air during operation. Air valves shall be suitable for service with the pumped fluid.
7. Discharge from temporary pumping system shall not adversely affect collection system structures, pipe or conduits, private property, and shall not result in flow backups, flooding, or damage. Provide energy-dissipating measures at discharge point as necessary for temporary pumping capacity for sewer outfalls.

PART 3 – EXECUTION

3.01 PREPARATION

A. General

1. Temporary piping shall be located off of roads, driveways, and sidewalks.
2. Temporary piping for dewatering work areas, if performed, shall be temporarily anchored to the bank of the Genesee River, above the water line.
3. Where shown or indicated on the Design Drawings, bury temporary piping that would otherwise inhibit access to buildings, structures, streets, and driveways.
4. Hydrostatic Testing of Temporary Piping System
   a. For temporary pumping capacity for sewer outfalls perform successful hydrostatic testing of temporary piping system using clean water at pressure equal to 1.5 times highest expected system operating pressure, for 15 minutes while maintaining test pressure within 3.0 psi of required test pressure.
   b. For temporary pumping capacity for dewatering work areas perform successful hydrostatic testing of temporary piping system using clean water at pressure equal to 1.5 times highest expected system operating pressure, for one hour while maintaining test pressure within 3.0 psi of required test pressure.
   c. REMEDIATION ENGINEER will witness hydrostatic test.

d. Hydrostatic test criteria for acceptance: No leakage.

5. Verify that entire temporary pumping system is ready for operation before commencing temporary pumping. Verify that controls and flow meter are properly connected and functional, where appropriate.

3.02 TEMPORARY PUMPING

A. During Operation of the Temporary Pumping System, the system shall operate continuously as needed to dewater the work area and/or divert sewer outfalls. In the event of equipment failure, immediately make repairs or replace equipment. Provide spare parts and redundant units as necessary for continuous operation.

3.03 REMOVAL

A. Upon Conclusion of Temporary Pumping to Bypass Sewer Outfalls

1. Remove equipment in manner that allows flow to slowly return to normal, without surging, surcharging, and adverse effects on existing system.

2. Flush out temporary pumping system with clean water discharged to an appropriate location.

3. Remove temporary pumping system and appurtenances from the Site.

4. Repair damage caused by temporary systems and their removal and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.

B. Upon Conclusion of Temporary Pumping to Dewater Work Areas

1. Flush out temporary pumping system with clean water discharged to an appropriate location.

2. Remove temporary pumping system and appurtenances from the Site.

3. Repair damage caused by temporary systems and their removal and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.

END OF SECTION

SECTION 01 52 11

TEMPORARY FIELD OFFICES AND STRUCTURES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. This Section includes requirements for CONTRACTOR-provided field offices, with furnishings, equipment, and consumables, for use by REMEDIATION ENGINEER, CONTRACTOR, and the New York State Department of Environmental Conservation (NYSDEC).

2. CONTRACTOR shall provide and maintain field office for REMEDIATION ENGINEER's sole use. Provide field office at location approved by REMEDIATION ENGINEER, near CONTRACTOR's field office.

3. CONTRACTOR shall provide and maintain field office for NYSDEC's sole use. Provide field office at location approved by REMEDIATION ENGINEER and NYSDEC, near CONTRACTOR's field office.

4. Field office shall be complete and fully functional within 10 days after date on which the Contract Times commence or REMEDIATION ENGINEER approved mobilization date, unless the schedule is otherwise modified in accordance with the General Conditions.

5. Obtain required permits for field offices, as applicable.

6. Outfit the temporary fabric structure as necessary to create staging area for excavated materials and to mitigate the release of dust, odors, water, or other materials during staging, stabilization, and/or loading of excavated materials for off-site disposal. The existing sprung fabric structure is approximately 132 feet by 180 feet in size and includes two 14-foot by 14-foot doors for equipment access on the ends of the building.

1.02 SUBMITTALS

A. Action Submittals: Obtain REMEDIATION ENGINEER's approval of the following prior to staging field office to the Site:

1. Field Office Submittal: Submit the following under one submittal cover:

a. Site plan indicating proposed location of field offices, parking for field offices, facilities related to the field offices, and material of both field office parking and sidewalk or walkway to field office.

b. Information on proposed field office size, construction, exterior appearance, interior finishes, and field office security measures.

c. Proposed layout of field office interior, showing location of offices, common areas, restroom, closet, other areas specified (if any), with dimensions indicated for each.

d. Proposed layout of field office exterior identifying sign, showing all text, font, colors, and graphics (if any).

e. Proposed type of Internet service; name of proposed Internet service provider; and product data and technical information on equipment (if any) required for

Internet service.

f. Office Equipment: Product data and technical information for copier, telephones, and other office equipment.

2. Temporary Fabric Structure and Air Handling System: Submit the following:

a. Site plan indicating proposed location of temporary fabric structure with ingress and egress route for the structure.

b. Internal configuration of structure showing unloading, stockpile, and loading locations with internal vehicle traffic routing.

PART 2 – PRODUCTS

2.01 FIELD OFFICE CONSTRUCTION AND SITE REQUIREMENTS

A. Site at Field Office:

1. Allocate total of four reserved parking spaces for use by REMEDIATION ENGINEER and NYSDEC in close proximity to REMEDIATION ENGINEER's field office. Parking area shall be paved with crushed stone or other material approved by REMEDIATION ENGINEER. Parking area shall be suitably drained and free of standing water during wet weather.

2. Provide sidewalk or walkway, not less than four feet wide, of crushed stone or other material approved by REMEDIATION ENGINEER, for the full distance between parking area and field office.

B. Three (3) Field Offices:

1. Structurally sound foundation and superstructure.

2. Two (2) field office trailers (i.e., one for CONTRACTOR and one for the REMEDIATION ENGINEER) shall have a floor area of not less than 460 square feet, and not less than 10 feet wide.

3. One (1) field office trailer (for NYSDEC) shall have a floor area of not less than 160 square feet and not less than 8 feet wide,

4. Completely weather-tight and insulated, with minimum R-19 insulation.

5. Exterior finish approved by REMEDIATION ENGINEER.

6. New interior finishes approved by REMEDIATION ENGINEER, including resilient floor covering in good condition.

7. Field Office Ingress and Egress:

a. Two doors for ingress and egress for the REMEDIATION ENGINEER and CONTRACTOR trailers, each with landing, stairs, and railing complying with building codes and other Laws and Regulations in effect at the Site.

b. One door for ingress and egress for the NYSDEC trailer.

c. Landing and stairs shall have slip-resistant walking surfaces, and be metal, pressure-treated wood, fiberglass, or concrete.

d. Railing shall be metal, wood, or fiberglass.

e. Door Security:

1) Doors shall be secure and lockable.

2) Furnish each door with suitable, lockable security bar or knob.

8. Windows:

a. Window area equal to not less than 10 percent of floor area.

b. Windows shall each have insect screen and operable sash.

c. Provide each window with lock and exterior security bars approved by REMEDIATION ENGINEER.

9. One lockable closet for storage.

10. Keys:

a. Furnish to REMEDIATION ENGINEER and NYSDEC two identical sets of keys suitable for operating all keyed locks, including ingress/egress door locks, security bars for doors, window locks, closets, and office furnishings.

b. Permanently label each key to indicate its associated lock.

11. Restroom:

a. Provide in field portable toilets per Section 01 52 19 – Sanitary Facilities.

b. Provide in field hand washing stations.

12. Exterior Sign:

a. Field office identifying exterior sign, approved by REMEDIATION ENGINEER. Sign shall be durable, weatherproof, and suitable for long-term exposure to sunlight.

b. Exterior sign shall be not less than 1.5 feet high by 4 feet wide, installed at location determined in field and acceptable to REMEDIATION ENGINEER.

c. Sign shall be in color.

d. Sign layout and general proportions shall be furnished by REMEDIATION ENGINEER as a JPG file graphic for use by CONTRACTOR in preparing the sign.

C. Field Office Optional Construction:

1. Provide mobile office trailer in first-class condition approved by REMEDIATION ENGINEER, specifically designed for use as construction field office and complying with requirements of this Section.

2. Provide skirting around perimeter of each mobile field office trailer.

3. Supplier: Provide field office by one of the following:

a. Pac-Van, Inc.

b. Modular Space Corporation (ModSpace)

c. Williams Scotsman, Inc.

d. Or equal

2.02 FIELD OFFICE UTILITIES

A. Comply with Section 01 51 05 - Temporary Utilities and Controls.

B. Provide the following for the REMEDIATION ENGINEER's field office:

1. Electrical System and Lighting:
   a. Electric service as required, including paying all costs.
   b. Interior lighting of not less than 50 foot-candles at desktop height.
   c. Minimum of eight 120-volt, wall-mounted, duplex convenience electrical receptacles.
   d. Exterior, wall-mounted lighting at each entrance to field office, not less than 250 watts each.
   e. Exterior security light for REMEDIATION ENGINEER's field office parking area. Provide one 1000-watt, pole-mounted fixture with photocell control.
2. Heating, Ventilating, and Air Conditioning System:
   a. Provide automatic heating to maintain indoor temperature in field office of not less than 65 degrees F in cold weather. Furnish all fuel and pay all utility costs.
   b. Automatic cooling to maintain indoor temperature in field office of not warmer than 75 degrees F in warm weather.
3. Telephone Service:
   a. Land Lines:
      1) Private telephone service for REMEDIATION ENGINEER's sole use, including payment of installation, monthly, and service costs.
      2) Provide two telephone lines as follows: one for phone and one for fax. Each line shall have separate telephone number assigned by the telephone service provider.
      3) Pay for unlimited local and domestic long-distance service for duration of the Project.
      4) As approved by the REMEDIATION ENGINEER, mobile devices may replace Land Service Lines. Portable Bluetooth conferencing capabilities shall be provided to facilitate group conferencing.
4. Internet Access:
   a. Obtain and pay for Internet service until removal of the field office, with unlimited (untimed) Internet access, for REMEDIATION ENGINEER and NYSDEC's sole use.
   b. Set up system and appurtenances required and verify functionality in the field office.
   c. Internet service shall be one of the following, listed in order of preference; provide a lower type of access only when the next-higher level is unavailable:
      1) Fiber-optic or Cable Provider Service:
         a) Provide service via communication service provider via either cable or fiber-optic service at download speed of not less than 100 megabytes per second (Mbps) and upload speed of not less than 100 Mbps.
         b) Provide appropriate modem, cabling, and appurtenances.

2) Mobile Broadband Wireless:

a) Provide mobile broadband wireless 5G network by AT&T, Verizon, Sprint, T-Mobile, or equal, with download speed of not less than 100 Mbps and upload speed of not less than 100 Mbps.

b) Provide mobile broadband wireless router, WiFi 6 or equal.

c) Router will remain CONTRACTOR's property upon removal of field office from the Site.

C. Should actions of utility companies delay the complete set up of field office, CONTRACTOR shall provide temporary electricity, heat, water supply, sanitary facilities, and telephone service as required at no additional cost to OWNER.

2.03 FURNISHINGS AND EQUIPMENT (THREE TRAILERS)

A. Two field office trailers (i.e. one for the CONTRACTOR and one for the REMEDIATION ENGINEER). Provide the following furnishings and equipment:

1. Desks: Two 5-drawer desks, each with desktop surface five feet long by 2.5 feet wide with not less than one file drawer per desk, suitable for storing 8.5-inch by 11-inch documents.
2. Desk Chairs: Two new or used (in good condition) five-point, high backed, cushioned swivel chairs with seat-height adjustment.
3. Other Chairs: Four side chairs with arm rests and padded seats and backs, and eight metal folding chairs without arm rests.
4. Two new or used (in good condition) folding tables each eight feet long by 2.5 feet wide.
5. Two new or used (in good condition) folding tables each four feet long by 2.5 feet wide.
6. Plan rack(s) to hold not less than eight sets of the Drawings.
7. Two 4-drawer file cabinets.
8. One 2-door storage cabinet.
9. Shelving or bookcase with a total of 12 feet of shelf length and not less than 12 inches deep.
10. Four polyethylene waste baskets, each with capacity of not less than seven gallons.
11. Suitable doormat at each exterior ingress/egress door.
12. Two cork tack-boards, each 2.5 feet by 3 feet, with thumbtacks.
13. One white board for use with dry markers, approximately 6 feet by 4 feet, with marker holding tray, installed by CONTRACTOR at location directed by REMEDIATION ENGINEER in the field office. Furnish supply of colored markers and eraser for the white board.
14. Safety Equipment: Provide the following:
    a. Fire extinguishers with associated signage.
    b. Smoke detector with supply of batteries.
    c. Carbon monoxide detector with power supply.
    d. Provide in accordance with Laws and Regulations: For each field office

structure, provide not less than two wall-mounted fire extinguishers, one battery-operated ceiling-mounted smoke detector, and one carbon monoxide detector suitably installed.

15. First-Aid Station:

    a. In addition to first-aid stations otherwise required by the Contract Documents, provide for REMEDIATION ENGINEER's sole use a first-aid station in REMEDIATION ENGINEER's field office.

    b. Product and Manufacturer: Zee Medical USA, Item 0152, "Medium Four- Shelf Plastic Cabinet", www.zeemedical.com; or equal.

16. Personal Protective Equipment (PPE) for Visitors. Furnish the following:

    a. Protective Helmets (Hard Hats): Four, each with full brim, of fiberglass or thermoplastic; each with ratchet suspension; white in color.

    b. Safety Glasses: Four, each with clear lenses, polycarbonate, anti-fog and anti-scratch coating, suitable to fit over personal eyewear.

    c. Reflective Safety Vest: Four, each of polyester mesh or other material acceptable to REMEDIATION ENGINEER, color to be high-visibility orange, with one- inch-wide reflective tape, one-size-fits-all design.

    d. Earplugs: Supply of foam, disposable earplugs. Promptly resupply when stock is depleted.

17. Two electric clocks.

18. One electric coffee maker, with 10-cup capacity or larger.

19. Bottled water with electric cooler dispenser for 5-gallon bottles, with cup dispenser.

20. Telephone System:

    a. Telephone System Features:

        1) Provide one cordless telephone with hands-free speaker.

        2) Telephone shall have speed dialing with minimum of 20 programmable numbers, volume control, mute, redial, and hold button.

            a) Provide one digital telephone answering machine.

    b. Mobile phones may be substituted with REMEDIATION ENGINEER approval.

21. Multi-function Copier:

    a. One new or used (in good condition) machine with the following functions: photocopying, network printing, scanning to produce PDF and JPG files, and e-mail.

    b. Provide necessary cables and appurtenances to enable all functions specified in this Section, including scan-and-email and printing from field office computers. Furnish services of manufacturer's representative to set up and service copier.

22. Kitchen Area Appliances: Provide the following in the field office kitchen area:

    a. One new, frost-free, refrigerator-freezer, with capacity of not less than six cubic

feet.

b. One new microwave oven, not less than 1.2 cubic foot size.

c. Kitchen area appliances will remain property of CONTRACTOR upon removal of field office.

B. One field office trailer (i.e. for the NYSDEC) with minimum 160-square feet. Provide the following furnishings and equipment:

1. Desk: One 5-drawer desks, with desktop surface five feet long by 2.5 feet wide with not less than one file drawer, suitable for storing 8.5-inch by 11-inch documents.

2. Desk Chairs: One new or used (in good condition) five-point, high backed, cushioned swivel chairs with seat-height adjustment.

3. Other Chairs: Three side chairs without arm rests.

4. One new or used (in good condition) folding table each six feet long by 2.5 feet wide.

5. Plan rack(s) to hold not less than two sets of the Drawings.

6. One 4-drawer file cabinets.

7. Two polyethylene waste baskets, each with capacity of not less than seven gallons.

8. Suitable doormat at each exterior ingress/egress door.

9. One cork tack-boards, approximately 2.5 feet by 3 feet, with thumbtacks.

10. One white board for use with dry markers, approximately 6 feet by 4 feet, with marker holding tray, installed by CONTRACTOR at location directed by NYSDEC/REMEDIATION ENGINEER in the field office. Furnish supply of colored markers and eraser for the white board.

11. Safety Equipment: Provide the following:

a. Fire extinguishers with associated signage.

b. Smoke detector with supply of batteries.

c. Carbon monoxide detector with power supply.

d. Provide in accordance with Laws and Regulations: For each field office structure, provide not less than two wall-mounted fire extinguishers, one battery-operated ceiling-mounted smoke detector, and one carbon monoxide detector suitably installed.

12. First-Aid Station:

a. Product and Manufacturer: Zee Medical USA, Item 0152, “Medium Four- Shelf Plastic Cabinet,” www.zeemedical.com; or equal.

13. One electric clock.

14. One electric coffee maker, with 10-cup capacity or larger.

15. Bottled water with electric cooler dispenser for 5-gallon bottles, with cup dispenser.

16. Telephone System:

a. Telephone System Features:

1) Provide one cordless telephone with hands-free speaker.

2) Telephone shall have speed dialing with minimum of 20 programmable numbers, volume control, mute, redial, and hold button.

i. Provide one digital telephone answering machine.

b. Mobile phones may be substituted with NYSDEC approval.

17. Multi-function Copier:

a. One new or used (in good condition) machine with the following functions: photocopying, network printing, scanning to produce PDF and JPG files, and e-mail.

b. Products and Manufacturers. Provide one of the following:

1) Xerox WorkCentre 5845.

2) Or equal.

c. Provide necessary cables and appurtenances to enable all functions specified in this Section, including scan-and-email and printing from field office computers.

18. Kitchen Area Appliances: Provide the following in the field office kitchen area:

a. One new, frost-free, refrigerator-freezer, with capacity of not less than six cubic feet.

b. One new microwave oven, not less than 1.2 cubic foot size.

c. Kitchen area appliances will remain property of CONTRACTOR upon removal of field office.

2.04 TEMPORARY FABRIC STRUCTURE AND AIR HANDLING SYSTEM

A. Construct a temporary fabric structure to serve as a staging and handling area for excavated materials. Contractor shall repair and/or maintain the temporary fabric structure as needed, specifically:

1. Replace or repair the membrane as needed. Up to 5 percent of the membrane may be repaired before the entire membrane requires replacement.

2. Repair or replacement membrane fabric shall be equivalent to original fabric and original translucent panels shall be replaced in-kind as necessary.

3. Repair or replacement membrane fabric, when installed and tensioned, shall be wrinkle free and shall remain so indefinitely in temperatures normal for the area.

4. Anchor system, when installed, shall interface with the structure. No interior or exterior guy ropes or cables shall be used for anchoring the system.

B. Provide and maintain an air handling system for the temporary fabric structure, as follows:

1. A vapor extraction system to treat ambient air within the fabric structure via inline HEPA particulate filters and a vapor carbon filter system to remove dust and nitrous oxides (NO_x) prior to being released into the atmosphere.

2. System shall consist of two box adsorbers each containing 20,000 pounds of activated carbon filtration and be capable of exceeding four air change-outs per hour and the necessary ventilation/fan system. Contractor is responsible for maintaining a safe

work environment for workers through engineering controls or appropriate personal protective equipment.

3. Motors and drives shall be engineered to be significantly silenced, and an enclosure shall be constructed around the equipment if noise cannot be significantly silenced by engineering alone. "Significantly silenced" shall be at the discretion of the REMEDIATION ENGINEER.

C. Construct temporary fabric structure over existing site concrete pad/foundation in area indicated on Design Drawings. Repair the concrete pad/foundation as necessary to provide a workable surface. Line material staging areas as specified in Section 01 51 05 – Temporary Utilities and Controls and construct curbing as needed to prevent uncontrolled movement of construction water from staging areas.

D. Provide and maintain required catch basins or sumps within the temporary fabric structure for collection of construction water (defined in Section 02 72 00 – Construction Water Management) for transmission to the Temporary Water Treatment System (Section 01 53 53 – Temporary Water Treatment System).

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install field office, related facilities, and temporary fabric structure in accordance with Laws and Regulations, including all applicable local building codes.

B. Install materials and equipment, including prefabricated structures, in accordance with manufacturer's instructions, and to provide optimal performance and accuracy.

3.02 CLEANING, MAINTENANCE, AND SUPPLIES

A. Furnish the following maintenance services:

1. Immediately repair malfunctioning, damaged, leaking, or defective field office structure, site improvements, systems, and equipment.

2. Provide computer supplies and pay for maintenance on CONTRACTOR-furnished computer system and copier.

3. Promptly provide snow and ice removal for field offices, including parking area, walkways, and stairs and landings.

4. Provide continuous maintenance and janitorial service of field offices and sanitary facilities. Clean field office not less than once per week. Sweep or vacuum field office not less than daily, or more-frequently when site conditions are such that dirt or mud is frequently tracked into field office. Clean and wax (as appropriate) flooring every six months.

5. Waste Disposal:

a. Properly dispose of trash and waste as needed, not less than twice per week.

b. Properly handle and dispose of recyclables. Do not dispose of recyclables as trash.

c. Dispose of other waste, if any, as required, to avoid creation of nuisances and adverse environmental effects. Properly dispose of electronic waste, when necessary, at proper waste receiving facility.

B. Consumables: Provide the following consumables as needed:

1. Toner and ink cartridges for printers and copier, as required.
2. Paper supplies for printer and copier. Always maintain in field offices not less than one ream of each size of paper for which printer and copier are capable.
3. Dry markers in six colors and white board eraser set. Replace markers when exhausted or lost.
4. Bottled water suitable for water dispenser and disposable cups.
5. Coffee supplies, including coffee, filters, cups, sugar, creamer, and stir-sticks.
6. Hand-soap, paper towels, toilet paper, cleansers, and janitorial implements, including broom.
7. Batteries for smoke detector and other battery-powered items furnished by CONTRACTOR.
8. Replace fire extinguishers upon expiration.
9. Not less-often than monthly, inspect first-aid kit and inventory items consumed or used and remove items that are at or near their expiration date. Promptly replace and restock consumed and expired items.

3.03 AIR HANDLING SYSTEM MONITORING

A. REMEDIATION ENGINEER shall monitor air handling system during construction activities. If breakthrough is observed during construction (i.e., not as part of winter shutdown or demobilization), CONTRACTOR shall remove and replace air handling system activated carbon.

3.04 REMOVAL

A. Remove field office and furnishings when directed by REMEDIATION ENGINEER, prior to inspection for final completion. Deliver specified equipment to OWNER.

END OF SECTION

SECTION 01 52 16

FIRST AID FACILITIES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. CONTRACTOR shall provide first-aid facilities during the Project.

   a. Pay all costs for first-aid facilities, including installation, maintenance, and removal.

   b. Maintain, including cleaning, first-aid facilities. Keep first-aid facilities continuously supplied with consumables.

   c. Facilities shall be adequate for personnel using the Site and requirements of the Project.

   d. Provide facilities in compliance with Laws and Regulations.

1.02 REFERENCE STANDARDS

A. The following standards are referenced in this Section:

1 ANSI Z308.1, Minimum Requirements for Workplace First Aid Kits and Supplies.

2. ANSI Z358.1, Emergency Eye Wash and Shower Equipment.

1.03 REQUIREMENTS FOR FIRST-AID FACILITIES

A. Provide temporary first-aid stations at or immediately adjacent to the Site's major work areas, and inside the temporary field office(s). Locations of first-aid stations shall be determined by CONTRACTOR's safety representative. At a minimum, first-aid stations provided shall include:

1. One first-aid kit complying with ANSI Z308.1.

2. One eyewash station complying with ANSI Z358.1.

B. Provide list of emergency telephone numbers at each hardwired telephone at the Site. List shall be in accordance with the list of emergency contact information required in Section 01 35 29, CONTRACTOR's Health and Safety Plan.

C. When Work is in progress, provide at the Site at least one person trained in first-aid and cardiopulmonary resuscitation (CPR). First-aid- and CPR-trained personnel shall possess valid certificate indicating that they have successfully completed a first-aid and CPR training course by the American Red Cross or similar entity.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 INSTALLATION

A. Location of temporary first-aid facilities shall be as specified in Article 1.03 of this Section.

3.02 USE

A. Properly supervise temporary first-aid facilities.

B. Properly dispose of wastes.

C. Check temporary first-aid stations not less than weekly and verify that sufficient consumables are available. Provide additional consumables if the supply on hand is insufficient.

3.03 REMOVAL

A. Completely remove temporary first-aid facilities and materials when no longer required. Repair damage caused by temporary first-aid facilities and their removal and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.

END OF SECTION

SECTION 01 52 19

SANITARY FACILITIES

PART 1 - GENERAL

1.01 DESCRIPTION

A. CONTRACTOR shall provide all temporary sanitary facilities required for the Project:

1. Make all arrangements with temporary sanitary facility companies for temporary sanitary services and obtain required permits and approvals for temporary sanitary services.

2. Pay all temporary sanitary facility service costs, including cost of electricity, water, fuel, and other utility services required for the Work.

3. Continuously maintain, including cleaning, adequate temporary sanitary facilities for all purposes during the Project, until removal of temporary sanitary facilities. At minimum, provide and maintain temporary sanitary facilities through Substantial Completion and removal of temporary field offices and sheds. Provide consumables as required.

4. Provide temporary sanitary facilities in compliance with Laws and Regulations and, when applicable, requirements of utility owners.

1.02 REQUIREMENTS FOR TEMPORARY SANITARY FACILITIES

A. Sanitary Facilities:

1. Provide and maintain a minimum of two suitably-enclosed chemical or self-contained toilets and a minimum of one portable hand wash station for employees and visitors to the Site at the support area. Location and number of temporary toilets shall be acceptable to OWNER and representative of the number of individuals requiring the sanitary facilities.

2. Provide supply of potable drinking water and related facilities and consumables for all personnel using the Site.

PART 2 – PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for temporary sanitary facilities may be new or used but shall be adequate for purposes intended and shall not create unsafe conditions and shall comply with Laws and Regulations including 29 CFR Parts 1910 and 1926.

B. Provide required materials, equipment, and facilities, including piping, wiring, and controls.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install temporary sanitary facilities in neat, orderly, manner and make structurally, mechanically, and electrically sound throughout.

B. Location of Temporary Sanitary Facilities:

1. Locate temporary sanitary facilities for proper function and service at main staging area and any remote access/staging sites, as necessary.

2. Temporary sanitary facilities shall not interfere with or provide hazards or nuisances to: The Work under this and other contracts, movement of personnel, traffic areas, materials handling, hoisting systems, storage areas, finishes, and work of utility companies.

C. Modify and extend temporary sanitary facilities as required by progress of the Work.

3.02 USE

A. Maintain sanitary facilities to provide safe, continuous service as required.

B. Properly supervise operation of sanitary facilities:

1. Enforce compliance with Laws and Regulations.

2. Enforce safe practices.

3. Prevent abuse of services.

4. Prevent nuisances and hazards caused by temporary sanitary facilities and their use.

5. Prevent damage to finishes.

6. Ensure that temporary sanitary facilities do not interrupt continuous progress of construction.

C. At the end of each workday, check sanitary facilities and verify that sufficient consumables are available to maintain operation until work is resumed at the Site. Provide additional consumables if the supply on hand is insufficient.

3.03 REMOVAL

A. Following completion of the remedial construction activities, the CONTRACTOR shall remove the temporary sanitary facilities.

END OF SECTION

SECTION 01 53 53

TEMPORARY WATER TREATMENT SYSTEM

PART 1 – GENERAL

1.01 SUMMARY

A. Provide and operate a temporary water treatment system to pre-treat construction water. The treatment process is anticipated to include a variety of physical and chemical treatment steps including, but not necessarily limited to, oil water separation (OWS), pH adjustment, coagulation, flocculation, clarification, organoclay and fine filtration, granular activated carbon (GAC) adsorption, and solids processing (holding and disposal).

B. This Section also includes installation of a new below-grade pre-treated effluent forcemain and tie-in to the existing sanitary sewer along the alignment shown on the Contract Documents.

C. Construction water includes, but is not limited to:

1. Water from equipment/vehicle decontamination areas;
2. Excavated groundwater
3. Precipitation/Surface water runoff which contacts impacted areas (e.g., open excavations);

D. Perform the following activities, including but not limited to, procurement, field support during the installation, commissioning, initial start-up, and service and repair as required through the duration of the contract.

E. The pre-treated water shall be discharged to and compliant with the pre-treatment effluent criteria of Monroe County Pure Waters and in accordance with the Sewer Use Law of Monroe County, while ensuring proper disposal of any residuals. Compliance monitoring will be performed on 7-operating day intervals by Others.

F. Obtain and comply with the following permits:

1. Monroe County Pure Waters Sewer Connection Permit
2. Monroe County Pure Waters Pretreatment Permit
3. Others as required to execute the work described in this Section.

G. Submit technical reports and other required submittals to the DESIGN ENGINEER, REMEDIATION ENGINEER, and NYSDEC for review.

1.02 REFERENCES

A. Monroe County. 2023. Monroe County, New York, Municipal Code. Adopted by the County Legislature of the County of Monroe Sept. 5, 1979 as L.L. No. 1-1979 and includes legislation adopted through December 12, 2023. Available at: https://www.ecode360.com/M00860. Accessed September 2024.

1.03 SUBMITTALS

A. Prepare and submit a Construction Water Treatment Plan (may be included in the Project Operations Plan) including details on all unit processes of the treatment equipment, including interconnecting piping and pumps, to be employed in the treatment train. Specify the water treatment method to be used and the equipment required for that method. At a minimum, include:

1. A detailed description of treatment by unit process and monitoring systems installation procedures and maintenance of equipment.
2. Calculations determining the size of pipes, connections and equipment.
    a. Calculations shall include sufficient detail to allow the DESIGN ENGINEER to confirm selections are appropriate and consistent with standard practice.
3. A flow chart or schematic process and instrumentation diagram (P&ID) of system processes in sequence with flow direction.
4. A detailed description and sketch showing the routing of the treated water discharge pipeline with the effluent monitoring point clearly noted.
5. The effluent monitoring point shall be readily accessible by personnel at all times.
6. Details regarding the types, sizes, and quantities of equipment for water storage and treatment. Include detailed specifications on the proposed equipment with treatment capacities and performance ratings.
7. A figure showing the proposed processing area and equipment layout to scale with emphasis on maintaining compact use of the space for all work.
8. Equipment arrangement scaled diagrams and elevations as applicable, which illustrate component location, connections, and utilities.
9. Installation and start-up procedure details.
10. A description of non-routine/emergency procedures to follow when problems arise.
11. Product data:
    a. Catalog data for all water treatment system components.
    b. Product data and Safety Data Sheets (SDS) for all chemicals to be used.
12. Expected treatment media change-out frequency and procedures including the process for the characterization and disposal of treatment system media.
13. Manufacturer's operation and maintenance recommendations.
14. Contractor's operation and maintenance procedures.
15. A description of the approach required for the decontamination of equipment upon conclusion of treatment activities.
16. A residual handling and disposal plan.
17. A list of safety protocols for chemical handling and equipment operation.
18. Sample collection QA/QC procedures for analytical sampling.

B. Daily and monthly water treatment system operation and maintenance records and reports.

C. Monroe County Pure Waters Sewer Use Permit.

D. Submit all the above mentioned documents to the DESIGN ENGINEER, REMEDIATION ENGINEER, and NYSDEC for review and approval.

E. Submittals by Others

1. Local 480V, 3-phase power panel(s) shall be provided by Others. The CONTRACTOR shall be responsible for running power from the power panel(s) to individual equipment.
    a. This shall include furnishing and installing any required transformers.

PART 2 – PRODUCTS

2.01 WATER TREATMENT SYSTEM

A. General

1. The Construction Water Treatment System shall be designed to operate for a minimum timeframe of five (5) years.
    a. All materials of construction shall be suitable for continuous installation during this timeframe.

B. Design Requirements

1. Furnish equipment for treatment plant designed to treat construction water to meet the pre-treatment requirements of Monroe County Pure Waters and in accordance with the Sewer Use Law of Monroe County. The information in the specification is preliminary and may be refined based on additional testing and field data on estimated finalized flow rates and contaminant concentrations.
2. The anticipated design influent flowrate is approximately 120 gallons per minute (gpm).
3. The anticipated treatment process includes the following equipment: oil-water separation, influent holding tank(s), chemical augmentation and mixing, residuals transfer and holding, clarification, organoclay and fine filtration, GAC adsorption, and effluent holding and discharge. Refer to the Design Drawings for a process flow diagram (PFD) that identifies a proposed process configuration which is expected to treat the incoming water and achieve the desired discharge limits. Alternate configurations shall be considered and implemented upon approval from the DESIGN ENGINEER.
4. All equipment shall meet or exceed industry standards for safety, operability, and reliability.
5. Equipment shall be located outside and exposed to ambient environmental conditions. All outdoor equipment shall be designed to operate at outdoor ambient temperatures experienced at the Site. Provide winterization as required.
6. All equipment shall be designed, fabricated, and assembled in accordance with accepted industry standards in the United States.
7. Provide appropriate containment for overflow and spills for all equipment.
    a. Containment shall comply with all applicable federal, state, and local regulations, including Resource Conservation and Recovery Act (RCRA) and New York State Chemical Bulk Storage (CBS) requirements.
8. Furnish, provide coordination, determine proper sizing, and ensure performance of all system components for a complete operating system.
9. All equipment shall be electrically powered, either via utility (mainline) or local generator.
10. Pumps shall be capable of operating continuously at any speed within the design range.

11. Local control panels, switches, interlocks or other means to facilitate operation of the equipment.

12. Influent Quality

    a. Table 1 presents anticipated influent quality based on recent Site groundwater sampling (Pre-Design Investigation Report 2024).

    b. The CONTRACTOR is advised that elevated levels of total suspended solids (TSS), potentially exceeding 100 mg/L, may be present in the influent and require treatment to meet effluent criteria and/or protect downstream treatment processes.

    c. In addition to the potential constituents noted in Table 1, NAPL pockets may be encountered during the course of this project and require treatment.

Table 1: Anticipated Influent Criteria

Chemical Name	Unit	Design	Max.
Volatile Organic Compounds			
Benzene	GPM	100 – 120	
Volatile Organic Compounds			
Benzene	µg/L	2,844	8,925
Carbon Disulfide	µg/L	36.0	36.0
Chloroform	µg/L	1.1	1.1
Cyclohexane	µg/L	4.10	4.73
Ethylbenzene	µg/L	1,153	3,864
Isopropylbenzene (Cumene)	µg/L	31.6	49.8
Methylcyclohexane	µg/L	4.49	6.95
Styrene	µg/L	1,500	1,500
Toluene	µg/L	3,403	6,460
Trichloroethylene (TCE)	µg/L	1.2	1.2
Xylenes	µg/L	1,085	4,196
Semivolatile Organic Compounds			
2,4-Dimethylphenol	µg/L	2.60	3.77
2,4-Dinitrophenol	µg/L	174	451
2-Methylnaphthalene	µg/L	133	309
4,6-Dinitro-2-Methylphenol	µg/L	11.0	11.9
4-Methylphenol (P-Cresol)	µg/L	1.1	1.1
Acenaphthene	µg/L	57.5	152
Acenaphthylene	µg/L	23.5	88.7
Acetophenone	µg/L	2.7	2.7
Anthracene	µg/L	3.60	5.07
Benzo(A)Anthracene	µg/L	0.42	0.42
Biphenyl (Diphenyl)	µg/L	7.93	12.7
Bis(2-Chloroisopropyl) Ether	µg/L	5.50	5.95
Caprolactam	µg/L	7.3	7.3
Carbazole	µg/L	12.7	17.9
Chrysene	µg/L	0.35	0.35
Dibenzofuran	µg/L	7.48	9.70

Chemical Name	Unit	Design	Max.
Fluoranthene	µg/L	2.77	3.83
Fluorene	µg/L	24.9	43.6
Hexachlorocyclopentadiene	µg/L	66.5	213
Naphthalene	µg/L	1,464	4,360
N-Nitrosodiphenylamine	µg/L	0.55	0.55
Pentachlorophenol	µg/L	131	427
Phenanthrene	µg/L	20.5	35.7
Phenol	µg/L	14.1	20.5
Pyrene	µg/L	2.48	4.7
Total Organic Carbon	mg/L	11.7	23.0
TAL Metals			
Aluminum	mg/L	0.66	1.83
Arsenic	mg/L	0.04	0.17
Barium	mg/L	0.28	0.81
Cadmium	mg/L	6.60E-04	7.37E-04
Calcium	mg/L	207	488
Chromium, Total	mg/L	2.22×10^{-3}	3.13×10^{-3}
Cobalt	mg/L	0.02	0.09
Copper	mg/L	5.40×10^{-3}	6.82×10^{-3}
Iron	mg/L	5.92	19.5
Lead	mg/L	3.30×10^{-3}	3.57×10^{-3}
Magnesium	mg/L	63.4	91.2
Manganese	mg/L	0.35	0.82
Nickel	mg/L	0.02	0.07
Potassium	mg/L	40.8	176
Selenium	mg/L	9.60×10^{-3}	9.60×10^{-3}
Sodium	mg/L	419	787
Vanadium	mg/L	0.01	0.04
Zinc	mg/L	4.32×10^{-3}	6.30×10^{-3}
Mercury	mg/L	2.95×10^{-3}	3.00×10^{-3}
Miscellaneous Pollutants			
Oil & Grease, Total Recoverable	mg/L	4.60	7.59
Sulfate (As SO_4)	mg/L	99.6	239
Nitrogen, Nitrate (As N)	mg/L	0.75	2.82
Nitrogen, Nitrate-Nitrite	mg/L	0.77	2.83
Nitrogen, Nitrite	mg/L	0.04	0.04

C. Effluent Requirements

1. Effluent discharge criteria shall be established by Monroe County Pure Waters upon receipt and approval of application for discharge.

2. Compliance sampling will be performed by the CONTRACTOR to ensure the effluent does not exceed effluent criteria. CONTRACTOR shall notify REMEDIATION ENGINEER immediately through Field Order directive should there be documented exceedances

of the effluent parameters. Corrective measures shall be borne by the CONTRACTOR under consultation with the REMEDIATION ENGINEER.

D. Discharge Permit

1. The CONTRACTOR shall apply for and obtain an Initial Industrial Sewer Use Permit from Monroe County Pure Waters. The permit application is provided in Attachment A for completion and submission by the CONTRACTOR.

2.02 EFFLUENT FORCEMAIN AND SANITARY SEWER TIE-IN

A. Reserved

1. The CONTRACTOR shall route the effluent forcemain along the general alignment shown in the Design Drawings.
2. The effluent forcemain shall be installed below the local frost line at a minimum depth required by New York State Department of Transportation (NYS DOT) Sanitary Sewer Main Installation Details (Sheet 664-01).

B. Materials

1. The forcemain materials shall be DR17 HDPE or approved Equal.
2. Connection to the existing sewer shall be via tapping sleeve or saddle or as directed by Monroe County or the City of Rochester.

PART 3 – EXECUTION

3.01 PREPARATION

A. Meet the special requirements of any permits that have been issued including those identified in the Contract Documents, or those to be obtained by the CONTRACTOR. These special requirements as specified by local, state, and/or federal permitting agencies shall have precedence to this Section.

3.02 WATER TREATMENT SYSTEM

A. Design and construct an appropriately sized water treatment system that meets the permit requirements and the treatment capacity necessary to achieve the CONTRACTOR's approved schedule. If it is determined that the water treatment system capacity is insufficient to maintain work progress and complete the work in accordance with the Contract Documents and the CONTRACTOR's approved schedule, the CONTRACTOR is responsible for resizing the system to meet the needs of the Contract at no additional cost to the OWNER.

1. The anticipated capacity and influent design criteria are provided in Part 2.01.A.12, Table 1.

B. The CONTRACTOR shall perform all testing during operation of the system and shall provide the test results to the REMEDIATION ENGINEER.

C. Install, startup, test, and troubleshoot the water treatment system before commencing operation. Do not discharge any water until tests results showing water is below allowable permit limits.

D. Monitor and adjust the water treatment system in accordance with the CONTRACTOR's Approved Construction Water Treatment Plan, or as otherwise modified through REMEDIATION ENGINEER or OWNER approved field directive. If there is a conflict between requirements, the more stringent requirement shall prevail.

E. The CONTRACTOR will establish sampling regimes and conduct routine sampling of the pre-treatment effluent streams to ensure that the effluent criteria for each parameter are being met. CONTRACTOR shall allow authorized Monroe County Pure Waters personnel with unrestricted access to the water treatment area for sampling and inspection purposes. The REMEDIATION ENGINEER shall be promptly notified of any access requests or visits.

F. Do not discharge any water until test results showing water is below allowable permit limits and approval to discharge is provided by the REMEDIATION ENGINEER.

1. The CONTRACTOR shall continuously record the instantaneous and total effluent flow discharged from the temporary water treatment plant.

2. The CONTRACTOR shall provide a readily accessible compliance sampling port upstream of the Lift Station. Effluent samples shall be collected and analyzed at a frequency dictated by Monroe County Pure Waters.

3. The CONTRACTOR shall report any permit exceedances to Monroe County Pure Waters and the REMEDIATION ENGINEER within 24 hours or as required by Monroe County Pure Waters.

G. Ensure safe and proper disposal of any residuals generated during the water treatment process.

1. Assume that any residuals from normal treatment operations are considered non-hazardous.

3.03 SYSTEM OPERATION, MAINTENANCE, AND REPORTING

A. Testing and Startup Activities

1. Perform temporary water treatment system startup, testing, and troubleshooting activities prior to initiating full-scale (normal) operations. Startup and testing activities shall be in accordance with equipment manufacturer's recommendations and as indicated in CONTRACTOR prepared Construction Water Treatment Plan which has been reviewed by the REMEDIATION ENGINEER.

2. General startup and testing of the temporary water treatment system shall consist of treating a minimum of 50,000 gallons of collected water. During the startup test, the temporary water treatment system shall be operated at the peak flow rate until the entire 50,000-gallon batch is treated. The CONTRACTOR shall continuously monitor and record readings (every 15 minutes minimum) from all pressure gauges, flow meters, and other installed instrumentation necessary to demonstrate that the system is operating as designed, including backwash, by-pass, and recycle functions, to the satisfaction of the REMEDIATION ENGINEER.

3. REMEDIATION ENGINEER shall collect start-up testing water samples following treatment of approximately 10,000 gallons, 25,000 gallons, and 50,000 gallons of water. The entire 50,000 gallons of treated water shall be retained in the effluent storage tanks until analytical results indicate that water may be discharge. Samples collected during start-up shall be submitted for laboratory testing in accordance with the discharge permit to be obtained by the CONTRACTOR.

B. Collection of Liquids

1. Liquid that requires handling, treatment, and disposal shall be collected and transferred to the temporary water treatment system. The method(s) by which water is

collected shall be area-specific and shall be conducted in a manner that prohibits the spillage, leakage, or other release of liquid as collected.

2. Maintain timely and accurate records concerning the volumes and areas from which accumulated liquids are removed and transported to the temporary water treatment system.

3. Equipment utilized to collect/handle accumulated liquids, including pumps, tanks, and tanker trucks, as appropriate, shall be decontaminated prior to removal from the Site.

C. Handling and Storage of Liquids

1. Store liquids in containers acceptable to the REMEDIATION ENGINEER and OWNER. Storage containers may be reused by the CONTRACTOR, unless otherwise directed by the REMEDIATION ENGINEER.

2. Storage containers shall be clearly marked to indicate the known or suspected contents, source area(s), and date(s) of generation.

D. Water Quality Testing

1. Water treatment system water quality testing shall be conducted during normal operations. During the first month of operation, testing shall be conducted once per week. During and after the second month of operation, extending until system shutdown, testing shall be conducted once per month. Note, water quality testing may have to be conducted more frequently, dependent on the permit requirements. Operational sampling shall be collected in accordance with the discharge permit obtained by the CONTRACTOR.

2. Notify REMEDIATION ENGINEER and OWNER regarding any operational, sampling, or effluent discharge issues that may could permit limitations.

E. Routine Monitoring

1. The water treatment system shall initially be manually operated and controlled through a series of valves, visual reading gauges, and pump controls as necessary to accommodate system operation. CONTRACTOR shall provide an experienced operator to be on site during temporary water treatment system operation. While the system is operating, the operator shall have no other duties that interfere with the manual operation of the temporary water treatment system. As operating experience is gained, the CONTRACTOR may add additional controls and alarms approved by REMEDIATION ENGINEER to eliminate the need for a dedicated on-site system operator

2. The CONTRACTOR prepared Construction Water Treatment Plan shall describe the routine activities to be conducted at least once per shift by the temporary water treatment system operator. Activities should be in accordance with equipment manufacturer's requirements and recommendations. Those activities shall include, but not be limited, to the following:

   a. Verify that valves are positioned properly, to fill and drain the tanks as applicable.

   b. Visual inspection of piping, hoses, and valves noting damage, leakage, or other defects.

   c. Visual inspection of storage tanks noting water levels, damage, leakage, corrosion, or other defects. When tanks are emptied, the sediment thickness in the bottom of the tank shall be gauged and recorded. If sediment is

observed to be 4 inches deep, or if directed by the REMEDIATION ENGINEER, the tank shall be cleaned. Liquids resulting from cleaning activities shall be treated using the temporary water treatment system, and solids shall be collected for subsequent disposal in accordance with Section 02 61 15 – Handling and Disposal of Impacted Sediments and Debris.

d. Visual inspection of pumps and equipment noting excessive noise or vibration, damage, leakage, corrosion, or other defects.

e. Obtain readings from temporary water treatment system pressure gauges associated with the different treatment processes within the treatment train(s). Pressure gauge readings shall be utilized to determine when a backwash event or filter replacement is required, or a particular treatment unit is not functioning properly.

f. Obtain readings from the system flow meter totalizer to monitor system flow rate, totalized flow to date, and daily flow total.

g. Visual inspection of containment liner noting damage, standing water, or other deficiencies or concerns.

h. CONTRACTOR shall collect, at a minimum once per day, water quality field data consisting of TSS, turbidity, and pH measurements to provide indications of system performance. As operating experience is gained and following approval of the REMEDIATION ENGINEER, the CONTRACTOR may reduce the frequency of the monitoring. Samples shall be collected upstream and downstream of each unit process.

F. Corrective Actions

1. At the direction of OWNER or REMEDIATION ENGINEER, the CONTRACTOR shall take corrective actions necessary to maintain specified treatment system performance in the event of an upset condition and/or operating conditions that result in non-compliant effluent water quality. During corrective actions, the CONTRACTOR may be required by OWNER or REMEDIATION ENGINEER to mobilize additional influent and/or effluent storage, improved equipment, and/or repeat start-up and testing procedures as specified herein. If the CONTRACTOR fails to make these corrections, or if the improved equipment fails to meet specified requirements, OWNER, notwithstanding having made partial payment for work and materials which have entered into the manufacture of said equipment, may reject said equipment and order the CONTRACTOR to remove it from the premises at the CONTRACTOR's expense.

G. Documentation

1. CONTRACTOR shall maintain a daily operations log (i.e., tabulated results) in which the process variables described above shall be recorded. In addition, all activities related to operation and maintenance of the temporary water treatment system shall be documented in the daily log. The daily log shall be kept onsite and shall be made available to the REMEDIATION ENGINEER on demand.

H. Progress Reporting

1. Submit Daily Logs each morning which cover the prior 24-hours work and Monthly Logs on the first Monday of each month for the preceding month's work. Daily and Monthly Logs shall note any significant performance or compliance problems during the preceding period, the measures undertaken to correct those problems, and a running

summary or such prior problems until their resolution. CONTRACTOR shall report daily treatment rates including average operating average flow rates, discharge/transfer rates to the publicly-owned treatment works (POTW) and average dosing rates for each applicable treatment component of the treatment train.

I. Project Closeout Documentation

1. Maintain management, operation and maintenance records, and prepare management, operation, and maintenance reports. All final records and copies of reports shall be turned over to the REMEDIATION ENGINEER within 20 days after contract substantial completion.

J. Attachments

1. The attachment listed below, which follow after the "End of Section" designation, is part of this Section:

   a. Attachment A: Industrial Sewer Use Permit Application (to be completed by CONTRACTOR).

END OF SECTION

ATTACHMENT A

DISCHARGE PERMIT APPLICATION

(TO BE COMPLETED BY CONTRACTOR)

SECTION 01 55 13

TEMPORARY OFF-SITE ACCESS ROADS AND PARKING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. CONTRACTOR shall provide temporary construction roads, walks, parking areas, and appurtenances required during the Project for use by CONTRACTOR, other contractors employed on the Project, OWNER, REMEDIATION ENGINEER, and emergency vehicles.
2. CONTRACTOR shall implement best management practices to control traffic during Site deliveries and transportation and disposal activities.
3. CONTRACTOR shall improve Suntru Street as described in the Contract Documents and perform maintenance of Suntru Street as required during the Project for use by CONTRACTOR, other contractors employed on the Project, OWNER, REMEDIATION ENGINEER, and emergency vehicles.
4. Suntru Street, temporary roads and parking areas shall be maintained by CONTRACTOR and shall be fully passable to vehicles in all weather conditions.
5. CONTRACTOR shall use designated areas for temporary off-site access and/or staging as approved by the OWNER and REMEDIATION ENGINEER.
6. CONTRACTOR shall not stage equipment on designated off-site areas until directed by the OWNER or REMEDIATION ENGINEER.
7. CONTRACTOR shall provide all materials and equipment to restore to pre-existing conditions all off-site properties used for site access, installation of temporary fencing and signage, vegetation removal, land grading activities, staging of temporary facilities and equipment, excavation and filling activities, and other work.
8. CONTRACTOR shall obtain all required City of Rochester right-of-way permits for work within public right-of-ways.

B. Use of Existing Roads:

1. CONTRACTOR is allowed to use existing roads upon the Effective Date of the Agreement.
2. Prevent interference with traffic on existing roads and parking areas. At all times, keep access roads and entrances serving the Site clear and available to OWNER, OWNER's employees (e.g., REMEDIATION ENGINEER), emergency vehicles, and other contractors. Do not use access roads or Site entrances for parking or storage of materials or equipment.
3. Following completion of site access improvements, CONTRACTOR shall document the condition of access road in accordance with Section 01 71 23 – Field Engineering. After substantial completion of remedial construction, CONTRACTOR shall repair road to conditions existing at the time of completion of site access improvements and document these final conditions in accordance with Section 01 71 23 – Field Engineering.

4. Schedule deliveries to minimize use of driveways and Site entrances.

1.02 SITE ACCESS

A. Site Access:

1. CONTRACTOR access to the Site shall be via the Site entrance located at Suntru Street, Rochester, New York.

2. CONTRACTOR shall comply with public roadway requirements for weight and height.

1.03 CONTRACTOR PARKING

A. CONTRACTOR employee vehicles shall park in designated area(s) at the support area for the Site.

B. Park construction vehicles and equipment in work areas off of permanent roads and parking areas, in areas of the Site designated and approved by the REMEDIATION ENGINEER for CONTRACTOR staging.

1.04 SUBMITTALS

A. Informational Submittals:

1. Right-of Way permits

2. Other permits, as needed

PART 2 – PRODUCTS

2.01 MATERIALS

A. Materials for temporary roads and parking areas shall comply with the Contract Documents.

B. Traffic controls shall comply with requirements of authorities having jurisdiction.

PART 3 – EXECUTION

3.01 TEMPORARY ROADS AND PARKING AREAS

A. Temporary Roads and Parking in Areas Different from Permanent Pavement:

1. Install Construction Entrance Pads at all access points from temporary roads to permanent pavement as detailed in the Design Drawings.

3.02 TRAFFIC CONTROLS

A. Traffic Controls:

1. Provide temporary traffic controls at the intersections of Suntru Street with St. Paul Street and of Suntru Street and the outlet of the Monroe County Social Services building parking lot.

2. Provide traffic control signs on roads and drives in accordance with state and local rules and regulations.

   a. Provide warning signs on permanent roads and drives and provide “STOP” signs for traffic on temporary roads where required and at entrances to permanent pavement.

   b. Provide traffic control best management practices, including, but not limited to flag men, spotters, gates, automatic signal lights, and/or other methods.

3. Comply with requirements of authorities having jurisdiction.

a. Comply with Contract Specifications and Section 619 of the NYSDOT Standard Construction Details and Specifications.

3.03 MAINTENANCE OF ROADS

A. General:

1. Maintain Suntru Street and temporary roads and parking to continuously provide access for construction vehicles and trucks, emergency vehicles, and REMEDIATION ENGINEER.

2. Public roads shall be passable at all times unless a road closure is allowed in writing by authority having jurisdiction.

3. When granular material of temporary roads and parking without hard surfacing become intermixed with soil or when temporary roads otherwise create a nuisance, remove intermixed granular-and-soil material and replace with clean aggregate (Section 31 00 00 – General Earthwork) as required.

B. Cleaning and Dust Control:

1. Cleaning: Clean paved surfaces over which construction vehicles travel. Perform cleaning by mechanical sweeping a minimum of once per day when construction vehicles are traveling over roads or as directed by REMEDIATION ENGINEER. Clean public roads that require sweeping and cleaning due to construction operations.

2. Dust Control: Comply with Section 01 76 50 – Nuisance Controls, Management, and Corrective Measures.

C. Protection of Underground Facilities: Provide temporary, heavy-duty steel roadway plates as needed to protect existing manholes, handholes, valve boxes, vaults, and other underground facilities near to or visible at the ground surface.

3.04 TEMPORARY OFF-SITE ACCESS AREAS

A. CONTRACTOR shall use designated areas for temporary off-site access and/or staging as approved by the OWNER, DESIGN ENGINEER, and REMEDIATION ENGINEER.

B. CONTRACTOR shall not stage equipment on designated off-site areas until directed by the OWNER or REMEDIATION ENGINEER. REMEDIATION ENGINEER shall perform analytical pre-construction confirmation soil sampling of all off-site access areas prior to off-site access area use by CONTRACTOR.

1. REMEDIATION ENGINEER shall collect analytical soil samples at a frequency of one sample per 2,500 square feet in a 50-foot by 50-foot pre-established grid.

2. Samples shall be analyzed for volatile organic carbons (VOCs) (benzene, toluene, ethylene, and xylene [BTEX]), semi-volatile organic carbons (SVOCs) (polycyclic aromatic hydrocarbons [PAHs]), and cyanide.

C. Upon completion of the work, CONTRACTOR shall remove all temporary fencing, signage, and temporary facilities and equipment from off-site access areas. CONTRACTOR shall notify REMEDIATION ENGINEER when off-site access areas are no longer used.

D. REMEDIATION ENGINEER shall perform analytical post-construction confirmation soil sampling of off-site access areas when off-site access areas are no longer in use by CONTRACTOR. CONTRACTOR shall not complete restoration activities on off-site access areas until directed by REMEDIATION ENGINEER.

1. REMEDIATION ENGINEER shall co-locate post-construction analytical soil samples with pre-construction samples at a frequency of one sample per 2,500 square feet in a 50-foot by 50-foot pre-established grid.
2. Samples shall be analyzed for VOCs (BTEX), SVOCs (PAHs), and cyanide.
3. Pre- and post-construction sample results shall be provided to NYSDEC.

E. As directed by REMEDIATION ENGINEER and NYSDEC, CONTRACTOR shall remove up to 6 inches of soil from off-site access areas based on the results of the post-excavation confirmation samples.

1. CONTRACTOR shall dispose of removed soil off-site at a landfill approved by REMEDIATION ENGINEER.
2. CONTRACTOR shall replace removed soil with new material in areas designated by REMEDIATION ENGINEER.

F. Off-site areas consisting of concrete foundations will not require pre- and post-construction analytical soil sampling. Existing concrete surfaces to be used by the CONTRACTOR will be demarcated and improved with an impermeable surface as indicated on the Design Drawings.

G. CONTRACTOR shall restore to pre-existing conditions, all lawns, fences, pavement, driveways, or other pre-existing features of off-site properties damaged during the work unless otherwise requested by OWNER.

3.05 REMOVALS AND RESTORATION

A. Removals:

1. Remove temporary roads, walks, and parking areas unless otherwise indicated in the Contract Documents or as requested by the OWNER.
2. Return areas of temporary roads, walks, and parking to pre-construction condition unless otherwise indicated in the Contract Documents or as requested by the OWNER.
3. Remove temporary gates, fencing, and traffic controls associated with temporary roads and parking areas unless otherwise indicated in the Contract Documents or as requested by the OWNER.

B. Restoration:

1. Repair or replace paving, curbs, gutters, and sidewalks affected by temporary roads and parking, and restore to required conditions in accordance with authorities having jurisdiction.
2. Restore to pre-construction conditions existing roads, walks, and parking areas damaged by CONTRACTOR, subject to approval of the owner of affected roads, walks, and parking areas.

END OF SECTION

SECTION 01 58 13

TEMPORARY PROJECT SIGNAGE

PART 1 - GENERAL

1.01 SUMMARY

A. Scope:

1. CONTRACTOR shall furnish and install temporary signage as specified inthis Section for construction site information.
2. Temporary signs include:
   a. Sidewalk closed signs, as necessary.
   b. Danger signs.
   c. Security signs.
3. Do not display any other temporary signs, other than those specified, without prior approval of OWNER.
4. Maintain temporary signs until Substantial Completion, or as otherwise directed by OWNER.

1.02 SUBMITTALS

A. Action Submittals:

1. Shop Drawings: Submit Shop Drawings showing layout, text, font, character size, colors, graphics or logos (if any), materials of construction, and dimensions of each temporary sign, and the proposed locations and orientations of temporary signs at the Site.

PART 2 – PRODUCTS

2.01 MATERIALS AND CONSTRUCTION

A. Sidewalk Closed Signs, as necessary:

1. Location: Mounted on temporary barricade/temporary fence blocking access to sidewalk.
2. Text: “Sidewalk Closed” in two rows.
3. Background Color: White, black outline along border.
4. Text color: Black.
5. Printing: Digital or screen printing with ultraviolet-resistant inks.
6. Sign Board:
   a. Material: High Intensity reflective aluminum, thickness 0.080 inch.
   b. Minimum Dimensions: 24 inches wide by 12 inches high.
7. Supports and Bracing: Provide supports and bracing, including temporary barricade (e.g., chain link fencing, jersey barricade, metal or plastic pedestrian barricade), as required to adequately support and brace sign for the duration of the project.

Temporary barricade must be suitable to be moved on a daily basis, as needed based on construction sequencing.

B. Danger Signs:

1. Location: Mounted on fencing at intervals of 100 linear feet and on either side of temporary Site security gate at Suntru Street entrance.
2. Text: "DANGER" in upper panel and "CONSTRUCTION AREA AUTHORIZED PERSONNEL ONLY" in lower panel.
3. Background Color: Red upper panel, black outline along border, and white lower panel.
4. Text Color: White in upper panel and black in lower panel.
5. Printing: Digital or screen printing with ultraviolet-resistant inks.
6. Sign Board:
   a. Material: Treated polyethylene, thickness of 0.055 inch.
   b. Minimum Dimensions: 14 inches wide by 10 inches high.
7. Supports and Bracing: Provide supports and bracing as required to adequately support and brace signs for the duration of the Project.

C. Security Signs:

1. Location: Mounted on fencing on each side of Site security gate entrance at Suntru Street entrance and at entrances of each field office trailer (one sign per trailer entrance).
2. Text: "SECURITY NOTICE" in upper panel and "ALL VISITORS MUST SIGN-IN AT THE FIELD OFFICE."
3. Background Color: Yellow upper panel, black outline along border, and white lower panel.
4. Text Color: Black for upper and lower panels.
5. Printing: Digital or screen printing with ultraviolet-resistant inks.
6. Sign Board:
   a. Material: Treated polyethylene, thickness of 0.055 inch.
   b. Minimum Dimensions: 20 inches wide by 14 inches high.
7. Supports and Bracing: Provide supports and bracing as required to adequately support and brace signs for the duration of the Project.

PART 3 – EXECUTION

3.01 INSTALLATION, MAINTENANCE, AND REMOVAL

A. Installation:

1. Install temporary signs within 14 days of REMEDIATION ENGINEER's approval of the submittal required by this Section.
2. Install temporary signs prior to start of work, unless otherwise allowed by the REMEDIATION ENGINEER.
3. Sidewalk Closed sign to be mounted to temporary barricade shall be installed to block

access to and close sidewalk, as appropriate, for duration of construction activities.

4. No access signs shall remain in place for the duration of construction activities.

5. Danger sign shall be installed prior to the start of work and maintained for the duration of work.

6. Obtain OWNER and REMEDIATION ENGINEER approval of installation locations before installing temporary signs.

B. Maintenance:

1. Maintain temporary signage so that signs are clean, legible, and upright. Cut grass, weeds, and other plants so that temporary signs are not covered or obscured. Maintain warning buoys/signs at the water's surface during fluctuations of water levels.

2. Repair or replace damaged temporary signs. Relocate signs as required by progress of the Project.

C. Remove temporary signs upon Substantial Completion, or as otherwise directed by the REMEDIATION ENGINEER.

END OF SECTION

SECTION 01 62 00

PRODUCT OPTIONS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. This Section includes:

a. CONTRACTOR's options for selecting products.

b. Requirements for consideration of "or-equal" products.

1.02 TERMINOLOGY

A. The following words or terms are not defined but, when used in this Section, have the following meaning:

1. "Products" includes materials, equipment, machinery, components, fixtures, systems, and other goods incorporated in the Work. Products do not include machinery and equipment used for preparing, fabricating, conveying, erecting, or installing the Work. Products include OWNER-furnished goods incorporated in the Work where use of such goods is specifically required in the Contract Documents.

1.03 PRODUCT OPTIONS

A. For products specified only by reference standard or description, without reference to Supplier, provide products meeting that standard, by a Supplier or from a source that complies with the Contract Documents.

B. For products specified by naming one or more products or Suppliers, provide the named products that comply with the Contract Documents, unless an "or-equal" or substitute product is approved by REMEDIATION ENGINEER.

C. For products specified by naming one or more products or Suppliers and the term, "or equal," when CONTRACTOR proposes a product or Supplier as an "or equal", submit to REMEDIATION ENGINEER a request for approval of an "or-equal" product or Supplier.

D. For products specified by naming only one product or manufacturer and followed by words indicating that no substitution is allowed, there is no option and no substitution will be allowed.

1.04 "OR-EQUAL" PRODUCTS

A. For proposed products not named in the Contract Documents and considered as an "or equal," CONTRACTOR shall request in writing REMEDIATION ENGINEER's approval of the "or equal". Request for approval of an "or-equal" product shall accompany the Shop Drawing or product data submittal for the proposed product and shall include:

1. CONTRACTOR's request that the proposed product be considered as an "or equal," accompanied by CONTRACTOR's certifications.

2. Documentation adequate to show that proposed product:

a. Does not require extensive revisions to the Contract Documents.

b. Is consistent with the Contract Documents.

c. Will produce results and performance required in the Contract Documents.

d. Is compatible with other portions of the Work.

3. Detailed comparison of significant qualities of proposed product with the products and manufacturers named in the Contract Documents. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements shown or indicated.

4. Evidence that proposed product manufacturer will furnish warranty equal to or better than specified, if any.

5. List of similar installations for completed projects with project names and addresses, and names and address of design professionals and owners, if requested.

6. Samples, if requested.

7. Other information requested by the REMEDIATION ENGINEER.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 66 00

PRODUCT STORAGE AND HANDLING REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. This Section includes general requirements for storing and protecting materials and equipment.

1.02 STORAGE

A. Store and protect materials and equipment in accordance with manufacturers' recommendations and the Contract Documents.

B. CONTRACTOR shall make all arrangements and provisions necessary for, and pay all costs for, storing materials and equipment. Excavated materials, construction equipment, and materials and equipment to be incorporated into the Work shall be placed to avoid injuring the Work and existing facilities and property, and so that free access is maintained at all times to all parts of the Work and to public utility installations in vicinity of the Work. Store materials and equipment neatly and compactly in locations that cause minimum inconvenience to OWNER, other contractors, public travel, and owners, tenants, and occupants of adjoining properties. Arrange storage in manner to allow easy access for inspection.

C. Areas available at the Site for storing materials and equipment are shown or indicated in the Contract Documents, or as approved by OWNER or REMEDIATION ENGINEER.

D. Store materials and equipment to become OWNER's property to facilitate their inspection and ensure preservation of quality and fitness of the Work, including proper protection against damage by freezing, moisture, and high temperatures. Store in indoor, climate-controlled storage areas all materials and equipment subject to damage by moisture, humidity, heat, cold, and other elements, unless otherwise acceptable to OWNER. When placing orders to Suppliers for equipment and controls containing computer chips, electronics, and solid-state devices, CONTRACTOR shall obtain, coordinate, and comply with specific temperature and humidity limitations on materials and equipment, because temperature inside cabinets and components stored in warm temperatures can approach 200 degrees F.

E. CONTRACTOR shall be fully responsible for loss or damage (including theft) to stored materials and equipment.

F. Do not open manufacturer's containers until time of installation, unless recommended by the manufacturer or otherwise specified in the Contract Documents.

G. Do not use other private property for storage without written permission of the OWNER or other person in possession or control of such premises.

1.03 PROTECTION

A. Equipment to be incorporated into the Work shall be boxed, crated, or otherwise completely enclosed and protected during shipping, handling, and storage.

B. Store all materials and equipment off the ground (or floor) on raised supports such as skids or pallets.

C. Protect electrical equipment, controls, and instrumentation against moisture, water damage, heat, cold, and dust.

1.04 UNCOVERED STORAGE

A. The following types of materials may be stored outdoors without cover on supports so there is no contact with the ground:

1. Reinforcing steel.
2. Pre-cast concrete materials.
3. Structural steel.
4. Metal stairs.
5. Handrails and railings.
6. Grating.
7. Checker plate.
8. Metal access hatches.
9. Castings.
10. Fiberglass products.
11. Rigid electrical conduit.
12. Piping, except polyvinyl chloride (PVC) or chlorinated PVC (CPVC) pipe.

1.05 COVERED STORAGE

A. The following materials and equipment may be stored outdoors on supports and completely covered with covering impervious to water:

1. Rough lumber.
2. Soil materials and granular materials such as aggregate.
3. PVC and CPVC pipe.
4. Filter media.

B. Tie down covers with rope or anchor with sandbags, and slope covering to prevent accumulation of water.

C. Store loose soil materials and granular materials, with covering impervious to water, in well-drained area or on solid surfaces to prevent mixing with foreign matter. Place, grade, and shape stockpiles for proper drainage.

1.06 FULLY-PROTECTED STORAGE

A. Store all material and equipment not named in Articles 1.04 and 1.05 of this Section on supports in buildings or trailers that have concrete or wooden flooring, roof, and fully-closed walls on all sides. Covering with plastic sheeting or similar material in space without floor, roof, and walls is not acceptable. Comply with the following:

1. Provide heated storage for materials and equipment that could be damaged by low temperatures or freezing.
2. Provide air-conditioned storage for materials and equipment that could be damaged by high temperatures.

3. Protect mechanical and electrical equipment from being contaminated by dust, dirt, and moisture.

4. Maintain humidity at levels recommended by manufacturers for electrical and electronic equipment.

1.07 HAZARDOUS PRODUCTS

A. Prevent contamination of personnel, storage area, and the Site. Comply with Laws and Regulations, manufacturer's instructions, and Section 01 35 43.13 – Environmental Procedures for Hazardous Materials.

1.08 MAINTENANCE OF STORAGE

A. On a scheduled basis, periodically inspect stored materials and equipment to ensure that:

1. Condition and status of storage facilities is adequate to provide required storage conditions.

2. Required environmental conditions are maintained on a continuing basis.

3. Materials and equipment exposed to elements are not adversely affected.

1.09 RECORDS

A. Keep up-to-date account of materials and equipment in storage to facilitate preparation of Applications for Payment if the Contract Documents provide for payment for materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 71 23

FIELD ENGINEERING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. This Section includes field engineering, surveying, and layouts by CONTRACTOR, and associated requirements. This Section supplements the Agreement and General Conditions' provisions on reference points and other matters.

2. CONTRACTOR shall provide field engineering services, surveying and layout services, and professional services of the types indicated for the Project, including:

   a. Furnishing civil, structural, and other delegated professional engineering services specified or required to execute CONTRACTOR's construction methods.

   b. Developing and making all detail surveys and measurements required for construction; including slope stakes, batter boards, and all other working lines, elevations, and cut sheets.

   c. Providing materials required for benchmarks, control points, batter boards, grade stakes, structure and pipeline elevation stakes, and other items.

   d. Keeping a total station; survey grade global positioning system (GPS); leveling instrument; and related surveying equipment at the Site at all times and having a skilled instrument person available when necessary for laying out the Work.

   e. Pre-Dredging/Excavation, Progress, Post-Dredging/Excavation, and Post-Backfill/Capping Surveys. Both topographic and hydrographic surveys shall be provided as described in this Section. All hydrographic surveys shall be by multi-beam sonar unless otherwise agreed to by the DESIGN ENGINEER.

   f. Capture topographic spot elevations and generate ground surface contours at 1-foot intervals. Sufficient field verification and topographic spot elevation measurements shall be obtained to facilitate accurate topographic plans to support as-built documentation requirements.

   g. Capture hydrographic survey data of sufficient density to establish sub-bottom contours at 1-foot intervals. Sufficient field verification shall be obtained to facilitate accurate hydrographic plans to support as-built documentation requirements.

   h. Being solely responsible for all locations, dimensions, and levels. No data other than Change Order, Work Change Directive, or Field Order shall justify departure from dimensions and levels required by the Contract Documents.

   i. Rectifying all Work improperly installed because of not maintaining, not protecting, or removing without authorization established reference points, stakes, marks, and monuments.

   j. Providing such facilities and assistance necessary for REMEDIATION ENGINEER and/or OWNER to check lines and grade points placed by

CONTRACTOR. Do not perform excavation or embankment work until all cross-sectioning necessary for determining payment quantities for Unit Price Work have been completed and accepted by the REMEDIATION ENGINEER.

k. All survey work shall be certified by a New York State Professional Land Surveyor (PLS).

l. PLS shall also work with CONTRACTOR to develop a Quality Assurance/Quality Control (QA/QC) program and necessary certification of GPS guided equipment to ensure accuracy. The use of GPS data from equipment will not replace the required record surveys. The QA/QC program for certification of GPS guided equipment shall be subject to approval by the DESIGN ENGINEER.

B. Coordination:

1. Review requirements of this and other Sections and coordinate installation of items to be installed with or before field engineering, surveying, and layout Work.

1.02 SUBMITTALS

A. Informational Submittals: Submit the following:

1. Certificates:

a. When requested by the REMEDIATION ENGINEER, submit certificate signed by professional engineer or professional land surveyor, as applicable, certifying that elevations and locations of the Work comply with the Contract Documents. Explain each deviation, if any.

2. Field Engineering:

a. Submit daily reports as indicated in this Section.

b. When requested by the REMEDIATION ENGINEER, submit documentation verifying accuracy of field engineering.

3. Surveying:

a. Complete plan for performing survey work, submitted not less than 10 days prior to beginning survey Work.

b. Example of survey data to be maintained by CONTRACTOR's surveyor. Example shall have sufficient information and detail, including example instrument output, calculations, and notes.

c. Submit raw instrument data or field data within two days after completing survey Work.

d. Submit the following certified surveys in accordance with this Section:

1) Existing Conditions Bathymetric Survey of the Sediment Removal Areas, as shown on the Design Drawings

2) Existing Conditions Topographic Survey of the Upland Area, as shown on the Design Drawings

3) Interim Progress Surveys depicting the installation of support components (i.e. temporary river diversion system, site access improvements, etc.)

4) Post-Dredging Bathymetric Survey of the Sediment Removal Areas,

as shown on the Design Drawings

5) Post-Excavation Topographic Survey of the Soil Removal Areas, as shown on the Design Drawings

6) Dredging Progress Surveys

7) Excavation Progress Surveys

8) In-situ Stabilization (ISS) Progress Surveys in accordance with Section 02 55 00 – ISS Construction

9) Backfill/Restoration Progress Surveys of the Sediment Removal Areas

10) Backfill/Restoration Progress Surveys of the Soil Removal Areas

11) Site Cover Progress Surveys, including, but not limited to, Surveys of each layer of Cover (i.e., demarcation layer and imported fill layer[s])

12) Final As-Built Bathymetric Survey of the Sediment Removal Areas

13) Final As-Built Survey of the Soil Removal Areas

4. General Requirements for all Survey Deliverables:

a. Submit surface digital terrain models (DTM) compatible with AutoCAD/Civil 3D for each topographic and bathymetric/hydrographic survey.

b. Submit AutoCAD files in version 2020, AutoCAD Civil 3D version 2020 .dwg and portable document format (.pdf), as well as any supporting file types (e.g. .xyz, .txt, .csv, etc.) used to generate the .dwg and .pdf files.

c. Submit an unsigned and unsealed draft .pdf and .dwg for review and approval.

d. Submit a final signed and sealed .pdf and .dwg upon the approval of the draft submission by the REMEDIATION ENGINEER.

e. Coordinate datums between topographic and bathymetric/hydrographic surveys such that elevations are consistent between the two survey methods, and that contours are compatible at the transition between the surveys.

f. Smallest scale of submitted survey plans shall be 1” = 40’.

g. Show locations of found survey control points.

h. Provide the following for bathymetric/hydrographic survey data reports:

1) Show locations of all above-water and below-water features within the limits of Work Limits, including objects, structures, and anomalies;

2) Narrative description, including schedule, and photographs;

3) Digital Terrain Model (DTM), Digital Elevation Model (DEM), or Civil 3D surface in AutoCAD Civil 3D version 2020, and Hypack format or similar (e.g., .raw, .edt);

a) Echo sounder records;

b) Copies of survey notes, logs, videos, and other field documentation;

c) Supplementary tide or GPS data collected during the Work; and

d) Daily calibrations and QA/QC report.

5. Qualifications Statements:

a. Field Engineer: Name, employer, and professional address. When requested by REMEDIATION ENGINEER, submit qualifications, including resume.

b. Surveyor: Name, employer, and professional address of firm, and resumes of each professional land surveyor and crew chief that will be engaged in survey Work. Submit not less than 10 days prior to beginning survey Work. During the Project, submit resume for each new registered, licensed land surveyor and crew chief employed by or retained by CONTRACTOR not less than 10 days prior to starting on the survey Work.

1.03 CONTRACTOR'S ENGINEERS

A. Qualifications of Field Engineer:

1. Employ and retain at the Site a field engineer with experience and capability of performing all field engineering tasks required of CONTRACTOR, as indicated in this Section and elsewhere in the Contract Documents.

2. CONTRACTOR's field engineer shall possess experience performing duties similar in scope and extent to those required of CONTRACTOR's field engineer on this Project. Qualifications of the CONTRACTOR's field engineer shall be subject to review and approval by the OWNER.

B. Responsibilities of CONTRACTOR's Field Engineer:

1. Daily Reports:

a. Prepare and maintaining daily reports of activity on the Contract. Submit reports to REMEDIATION ENGINEER including the following information:

1) Number of employees at the Site.

2) Breakdown of employees by trades.

3) Company name and purpose of each Subcontractor at the Site.

4) Number of employees at the Site for each Subcontractor.

5) Major equipment and materials installed as part of the Work.

6) Major construction equipment utilized.

7) Location of areas in which construction was performed.

8) Materials and equipment delivered to the Site or suitable, off-site storage location.

9) Work performed, including field quality control and testing.

10) Weather conditions.

11) Safety concerns, events, and precautions taken.

12) Delays encountered, extent of delay incurred, reasons for the delay, and measures that will be taken to rectify delays encountered.

13) Acknowledgement of specific instructions received from REMEDIATION ENGINEER or OWNER.

b. Daily reports shall be signed and dated by responsible member of CONTRACTOR's staff, such as CONTRACTOR's project manager, field engineer, superintendent, or foreman designated by CONTRACTOR as having authority to sign daily reports.

c. Submit CONTRACTOR's daily reports by 10 a.m. the next working day after the day covered in the associated report.

2. Continually inspect the Work to ensure that the quality and quantities required by the Contract Documents are provided.

3. Cooperate as required with REMEDIATION ENGINEER in observing the Work and performing field inspections.

4. Check and coordinate the Work for conflicts and interferences, and immediately advise REMEDIATION ENGINEER of all discrepancies of which CONTRACTOR is aware.

5. Maintain field office files and drawings, record documents, and coordinate field engineering services with Subcontractors and Suppliers as appropriate, and other prime contractors (if any).

6. Prepare layout and coordination drawings for construction operations.

7. Review and coordinate the Work with Shop Drawings and CONTRACTOR's other submittals approved or accepted, as applicable, by REMEDIATION ENGINEER.

C. Professionals Retained by CONTRACTOR (whether or not stationed at the Site):

1. Delegated Professional Design Services:

a. Where the Contract Documents require CONTRACTOR to furnish professional engineering or architecture services as delegated professional design, the provisions of the General Conditions regarding delegated professional design services, and the Contract Documents' requirements applicable to the specific delegated professional design, shall apply.

2. Professional Services that are Not Delegated as Professional Design of the Completed Work:

a. Where the Contract Documents require that the CONTRACTOR retain a design professional to carry out the CONTRACTOR's responsibilities for construction means, methods, techniques, sequences, and procedures (including temporary construction that will not remain as part of the completed Work), such services shall be performed by a registered professional of the discipline required for specific service on the Project, with valid license in the same jurisdiction as the Site.

b. OWNER and REMEDIATION ENGINEER shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed by such design professionals.

1.04 CONTRACTOR'S SURVEYOR

A. Qualifications:

1. Employ or retain the services at the Site, as needed, a surveyor with experience and

capability of performing surveying and layout tasks required in the Contract Documents and as required for the Work. Surveyor qualifications will be subject to review and acceptance by the REMEDIATION ENGINEER.

2. Surveyor shall be a professional land surveyor registered and licensed in the State of New York.

B. Responsibilities of CONTRACTOR's Surveyor:

1. Providing required surveying equipment, including transit, theodolite, or total station; level; stakes; and surveying accessories.

2. Establishing required lines and grades for constructing all facilities, structures, pipelines, and site improvements, including outdoor electrical equipment and feeders.

3. Preparing and maintaining professional-quality, accurate, well-organized, legible notes of all measurements and calculations made while surveying and laying out the Work.

4. Prior to backfilling operations, survey, locate, and record on a copy of the Contract Documents accurate representation of buried Work and Underground Facilities provided and encountered.

5. Locate on a site plan the actual location of above-ground Work to be indicated on record documents.

6. Complying with requirements of the Contract Documents relative to surveying and related Work, including requirements of this Section's Articles 1.05 and 3.1.

7. Prepare all surveys in AutoCAD version 2020 .dwg, AutoCAD Civil 3D version 2020 .dwg, and .pdf.

1.05 RECORDS

A. General:

1. Maintain at the Site a complete and accurate log of control and survey Work as such Work progresses.

B. Field Books and Records:

1. Survey data and records shall be in accordance with recognized professional surveying standards, Laws and Regulations, and prevailing standards of practice in the locality where the Site is located.

C. Initial Survey:

1. Provide topographic survey of Site property and any contractor use areas, bathymetric survey of sediment removal areas, property boundary survey and utilities prior to Site disturbance. Elevations will be provided for all control points.

2. Compute the coordinates of each surveyed point on the New York State Plane Coordinate System West Zone U.S. Foot using the North American Datum 1983 (NAD 83) (2011). The elevations shall be on the National American Vertical Datum of 1988 (NAVD 88).

D. Site Control:

1. Provide one permanent Site control monument with elevations referenced to a NAVD 88 benchmark and coordinates referenced to the NAD 83 Datum. The monument locations and elevations shall meet the Federal Geodetic Control Committee Standard

for second order (horizontal and vertical). Final locations will be reviewed by the REMEDIATION ENGINEER for acceptability.

E. Payment Surveys:

1. Surveys required for the verification of payment quantities will be signed and sealed by the professional surveyor.

2. Compute the coordinates of each surveyed point on the New York State Plane Coordinate System West Zone U.S. Foot using the NAD 83. The elevations shall be on the NAVD 88.

F. Certified Survey of Surface Structures:

1. Upon completion of foundation walls and major Site improvements, prepare a certified survey, signed and sealed by professional surveyor, showing or indicating dimensions, locations, angles, and elevations of construction and locations and elevations of Underground Facilities installed and encountered during the Work.

2. Compute the coordinates of each surveyed point on the New York State Plane Coordinate System West Zone U.S. Foot using the NAD 83. The elevations shall be NAVD 88.

3. Well locations and their corresponding elevations of the top of casing shall be surveyed.

G. As-Built Surveys:

1. Perform survey Work to document final as-built conditions, including but not limited to, topography, bathymetry, edge of water, fences, monitoring wells, and piezometers, and other Site features located within the area of Work. Submit survey drawing in hard copy and electronic form (AutoCAD meeting the requirements described herein and .pdf) to the REMEDIATION ENGINEER for review.

2. Final As-built Surveys of the Sediment and Soil Removal Areas must be completed upon the REMEDIATION ENGINEER approval of the final restoration construction, including the following:

   a. Finished grades, contours, and elevations

   b. Include finish grades and final elevation of the other structures/features shown on the Drawings

3. Show locations of all features within the Work Limits.

4. Identify any discrepancies or differences between the surveyed information and Existing Conditions Bathymetric Survey of the Sediment Removal Areas and Existing Conditions Topographic Survey of the Upland Area to demonstrate that excavation and restoration were completed per the Contract.

5. Capture location of edge of water (noting elevation and date/time of measurement).

6. Prepare final cross-sections through the Site at the same locations as those shown on the Design Drawings.

7. Provide additional survey information as requested by the REMEDIATION ENGINEER to support pay requisitions, quantity measurements, or verification of completed Work (i.e., existing ISS barrier wall, ISS monolith, horizontal and vertical limits of dredging and excavation, horizontal and vertical location of post-excavation samples, subgrade,

each capping layer system).

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 SURVEYING

A. Reference Points:

1. Refer to the General Conditions, as may be modified by the Supplementary Conditions, for requirements regarding reference points.
2. OWNER's established reference points that are damaged or destroyed by CONTRACTOR will be re-established by OWNER at CONTRACTOR's expense. OWNER may deduct from payments owed CONTRACTOR such amounts as set-offs in accordance with the Contract Documents.
3. From OWNER-established reference points, establish lines, grades, and elevations necessary to control the Work. Obtain measurements required for executing the Work to tolerances specified in the Contract Documents.
4. Establish, place, and replace as required, such additional stakes, markers, and other reference points necessary for control, intermediate checks, and guidance of construction operations.

B. Surveys to Determine Quantities for Payment:

1. For each application for progress payment, perform such surveys and computations necessary to determine quantities of Work performed or placed.
2. Perform surveys necessary for REMEDIATION ENGINEER to determine final quantities of Work in place.
3. Notify REMEDIATION ENGINEER not less than 24 hours before performing survey services for determining quantities to be included in Application for Payment. Unless waived in writing by REMEDIATION ENGINEER, perform quantity surveys in presence of REMEDIATION ENGINEER.

C. Construction Surveying: Comply with the following:

1. Alignment Staking: Provide alignment stakes at 50-foot intervals on tangent, and at 25-foot intervals on curves.
2. Slope Staking: Provide slope staking at 50-foot intervals on tangent, and at 25-foot intervals on curves. Re-stake at every 10-foot difference in elevation.
3. Structure: Stake-out structures, including elevations, and check prior to and during construction.
4. Pipelines: Stake-out pipelines including elevations and check prior to and during construction.
5. Roads, Drives, and Paved Areas: Stake-out roadway, driveway, and paved area elevations at 50-foot intervals on tangent, and at 25-foot intervals on curves.
6. Cross-sections: Provide original, intermediate, and final staking as required, for Site work other locations as necessary for quantity surveys.
7. Easement Staking: Provide easement staking at 50-foot intervals on tangent, and at 25-foot intervals on curves. Also provide wooden laths with flagging at maximum

intervals of 100 feet.

8. Record Staking: Provide permanent stake at each blind flange and each utility cap provided for future connections. Stakes for record staking shall be material acceptable to REMEDIATION ENGINEER.

D. Post-excavation bottom and sidewall documentation samples in locations where removals are limited or restricted due to location of sensitive infrastructure (e.g., bridge abutments, steep embankments, etc.): measure the horizontal and vertical position of all post-excavation samples collected by the REMEDIATION ENGINEER. Provide the REMEDIATION ENGINEER with sample coordinates.

1. Documentation of low permeability subaqueous cover installation: when the CONTRACTOR is notified in writing by the REMEDIATION ENGINEER that the post-excavation soil visual criteria and/or analytical sample results indicate that the remaining soil below the water surface elevation exceeds remedial criteria for soil (i.e., grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u); soil containing visual impacts including tar like material (TLM), purifier waste, or non-aqueous phase liquid (NAPL); soil containing total SVOCs exceeding 500 ppm; and soils that create a nuisance condition, as defined in CP-51 Section G); the CONTRACTOR shall document the position and elevation of the excavation subgrade represented by the visual criteria and/or exceedance sample.

   a. The area shall be measured using a 10-foot by 10-foot grid oriented parallel to the gradient of the slope.

   b. The CONTRACTOR shall install the low permeability subaqueous cover. Within 10 minutes after placing the low permeability subaqueous cover, the CONTRACTOR shall use the same 10-foot by 10-foot grid used to document the excavation subgrade to verify the minimum 6 inch thickness has been reached.

   c. Immediately following confirmation that the low permeability subaqueous cover has been placed to the minimum vertical thickness, the CONTRACTOR shall cover the area of low permeability subaqueous cover with a minimum of 3 feet of backfill. The CONTRACTOR shall use the same 10 foot by 10 foot grid used to document the low permeability subaqueous cover to document the minimum thickness of backfill.

   d. The CONTRACTOR can forgo measuring the thickness of backfill if the DESIGN ENGINEER has approved in writing an alternative low permeability subaqueous cover system that does not require a minimum backfill thickness to provide buttressing for slope stability and confining pressure to control the swell of bentonite.

2. Documentation of low permeability cover installation: when the CONTRACTOR is notified in writing by the REMEDIATION ENGINEER that the post-excavation soil visual criteria and/or analytical sample results indicate that the remaining soil above the water surface elevation exceeds remedial criteria for soil (i.e., grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u); soil containing visual impacts including tar like material (TLM), purifier waste, or non-aqueous phase liquid (NAPL); soil containing total SVOCs exceeding 500 ppm; and soils that create a nuisance condition, as defined in CP-51 Section G); the CONTRACTOR shall document the position and elevation of the excavation subgrade represented by the visual criteria and/or exceedance sample(s).

a. The area shall be measured using a 10-foot by 10-foot grid oriented parallel to the gradient of the slope.

b. The CONTRACTOR shall install the low permeability cover consisting of fiber-reinforced shotcrete placed contiguously over the area on a (2H:1V) cut slope to minimum vertical thickness of 6 inches. The CONTRACTOR shall use the same 10 foot by 10 foot grid used to document the excavation subgrade to document that the minimum 6 inch thickness has been reached.

E. Accuracy:

1. Establish CONTRACTOR's temporary survey references points for CONTRACTOR's use to not greater than second-order accuracy (e.g., 1:10000). Construction staking used as a guide for the Work shall be set at not greater than third-order accuracy (e.g., 1:5000). Basis on which such orders are established shall provide the absolute margin for error specified below.

2. Horizontal accuracy of easement staking shall be plus or minus 0.1 feet. Accuracy of other staking shall be plus or minus 0.1 feet horizontally and plus or minus 0.1 feet vertically.

3. Survey calculations shall include an error analysis sufficient to demonstrate required accuracy.

4. Material placement tolerances are located in Section 02 56 13 – Soil Cover Construction, Section 32 72 00 – Upland, Riparian, and Streambed Restoration, and Section 32 91 19.13 – Finish Grading, Topsoil, and Seeding.

F. Hydrographic/Bathymetric Surveys by Multi-beam Sonar

1. Conduct bathymetric surveys in general accordance with US Army Corps of Engineers (USACE) Engineer Manual EM 1110-2-1003 "Hydrographic Surveying", or equivalent standard.

2. To help ensure the consistency of relative measurements, throughout the execution of the Work use the same sonar equipment, vessel, and operator.

3. Perform multi-beam sonar surveys of the entire area of all project segments. Surveys shall be conducted to a vertical accuracy of plus or minus 0.1 feet horizontally and plus or minus 0.1 feet vertically, or better.

4. Record GPS coordinates of all features at plan accuracy of plus or minus 0.1 feet horizontally and plus or minus 0.1 feet vertically, or better. Use Real Time Kinematic (RTK) GPS.

5. Sonar surveys shall not be used in water that is sufficiently shallow or turbid to impact the accuracy of measurements. Subcontractor shall allow in the construction schedule sufficient time for turbidity to reduce before conducting a sonar survey.

6. A competent person shall be in charge of QA/QC and shall sign all performance tests.

7. To the extent practicable, use backscatter intensity or other information and methods to delineate areas of exposed bedrock in hydrographic/bathymetric surveys. This shall be performed along with the mechanical method for determining that dredging has been completed to bedrock described in Section 31 16 23 – Excavation, or other mechanical methods, as conditions dictate.

G. Hydrographic/Bathymetric Surveys by Manual Sounding

1. Conduct manual depth measurement in general accordance with Appendix B Manual Depth Measurement Techniques of the USACE Engineer Manual EM 1110-2-1003 “Hydrographic Surveying”, or equivalent standard.
2. Surveys shall be conducted with a vertical accuracy of plus or minus 0.1 feet, or better.
3. Locate sounding location with RTK GPS. Determine absolute elevations using direction observations using a total station, or other method of similar accuracy approved by the DESIGN ENGINEER.
4. Conduct QA/QC in accordance with Section B-4, Appendix B of USACE Standard EM 1110-2-1003.

END OF SECTION

SECTION 01 76 50

NUISANCE CONTROLS, MANAGEMENT, AND CORRECTIVE MEASURES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope:

1. This Section includes requirements for managing and controlling nuisance issues and associated corrective measures during construction. Consideration of equipment noise and vibration levels shall be part of each stage of project planning.

2. Nuisance emissions, including fugitive dust, vapor, odor, noise, vibration, disruptive lighting, or other situations which may give rise to complaints from the community will not be tolerated.

3. The requirements presented in this specification supplement other nuisance monitoring requirements in the Contract Documents (e.g., air monitoring). This specification does not relieve the CONTRACTOR of other Contract requirements and where there is a conflict in monitoring requirements, the more stringent action level shall be applied.

4. The CONTRACTOR is responsible for developing means and methods as well as accounting for these requirements or proposing alternate best management practices which meet the intent of these provisions (i.e., minimizing nuisance conditions which may adversely impact the public or the environment through appropriate engineering controls).

B. Performance Requirements:

1. The intent of this Section is to document and formalize the CONTRACTOR's plan for managing and controlling nuisance issues and associated corrective measures during construction per the Contract Documents.

2. The point of compliance for fugitive dust, vapor, odor, vibration, noise, lighting, or other nuisance management issues will be at the limit of the Site. At the point of compliance, no visible dust is allowed. Complaints from the community will result in work stoppage until corrective measures are implemented to the satisfaction of the REMEDIATION ENGINEER.

3. Nuisance management shall meet the requirements outlined in Section 01 35 49 – Community Air Monitoring Plan and the Design Report Appendix F – Community Air Monitoring Plan.

1.02 REFERENCES

A. Local Government Noise Ordinances

B. Light Trespass – In accordance with Local Ordinances

C. 6 NYCRR Parts 200 - 254 - Air pollution

D. Fugitive Dust - Clean Air Act - Particulate Matter (PM) Air Quality Standards.

E. Vibration – New York State Department of Transportation Highway Design Manual, Chapter 9 – Soils, Walls, and Foundations.

1.03 SUBMITTALS

A. Nuisance Controls and Management Plan (may be included in the Project Operations Plan):

1. Plan to provide advance notification
2. Nuisance monitoring plan
3. Complaint resolution approach (and Summary Form)
4. Issues of concern with existing and anticipated nuisances must be defined within the Nuisance Control and Management Plan, including the CONTRACTOR's resolution to complete the work of the Contract Documents.

B. The CONTRACTOR shall develop a one-page summary of general practices for nuisance management and clearly display on Site. Operating hours, delivery times, truck routes, and extra considerations for works during sensitive times should also be included in the summary.

C. Work Zone Monitoring Results:

1. The CONTRACTOR shall submit monitoring results via electronic files daily.
2. The CONTRACTOR shall immediately notify the REMEDIATION ENGINEER of concentrations above established action levels for volatile organic compounds (VOCs), dust, and odors. Elevated concentrations will be recorded in the CONTRACTOR's daily field reports and be available for review.

D. Product Data: Submit manufacturer's product data, specifications, and installation instructions for vapor mitigation agents and proposed application and storage equipment for each.

PART 2 – PRODUCTS

2.01 ODOR, VAPOR, AND DUST CONTROLS

A. Vapor Mitigation Agents:

1. BioSolve® Pinkwater® (The BioSolve® Company).
2. RusFoam® OC (AC-645) (RusMar Foam Technologies, Incorporated).

B. Water: Clean, potable.

C. Provide pressure washers, pneumatic foam unit, portable tanks, hoses, and other equipment required for the storage and application of vapor mitigation agents and/or water.

D. Provide a water truck, as necessary to control dust on Site and on access roads. Provide a sweeper truck to clean any materials tracked off-site onto public roadways, as necessary.

PART 3 - EXECUTION

3.01 WORK PRACTICES

A. General:

1. CONTRACTOR shall communicate nuisance reduction commitments to staff. Workers and subcontractors shall be trained to follow nuisance management practices. Nuisance management issues shall be integrated into health and safety tail-gate meetings.
2. The CONTRACTOR shall develop a one-page summary of general practices for nuisance management and clearly display on Site. Operating hours, delivery times, truck routes, and extra considerations for work during sensitive times should also be included in the

summary. Workers shall be reminded about these commitments during daily tail-gate meetings.

3. Nuisance Monitoring – The CONTRACTOR shall periodically check the Site and local area for nuisance problems and actively manage nuisance issues before and as they arise.

B. Site planning, barriers, and layout:

1. Disturbances shall be managed by appropriately arranging Site orientation and operations. These principles need to be addressed during early project stages, when there is greater flexibility to plan for nuisance management.

C. Managing disturbances from trucks/mobile equipment:

1. The Site layout shall be arranged to avoid the need for truck reversing. Drive-through parking and deliveries with a one-way thoroughfare is one method that shall be investigated.

2. An area away from residential dwellings shall be selected for off-site truck parking when vehicles arrive before Site opening hours. The REMEDIATION ENGINEER may require that trucks wait away from the Site in a less sensitive area.

3. The CONTRACTOR shall designate a truck route that minimizes noise impacts and clearly communicate to drivers the requirements for arrival times, vehicle movements, idling reduction, and general conduct, and/or include these requirements as a condition of the subcontract.

4. Deliveries to the Site shall be scheduled to occur only within the allowed times.

5. When equipment needs to be operated close to noise sensitive areas, restricting the hours of operation should be considered.

6. When possible, noisy fabrication work shall be done off-site and transported to the Site at a later date.

7. Use the Site to shield sources of noise

8. Use of barriers to break 'line of sight'

   a. Barriers shall be used to break the 'line of sight' between the noisy works and the noise-sensitive areas (when looking towards the noise source from the location receiving the noise).

   b. Barriers shall be located as close as possible to the noise source or sensitive receiver. There shall be no gaps or openings at joints in the barrier material and barriers need to be sufficiently dense. In general, material weighing at least 10 kg/m^2 should be used.

9. Acoustic sheds shall be considered for very noisy operations where it is possible to contain the plant and equipment. As with barriers, the shed shall be of sufficient density and suitable construction, with seals on doors and internal treatments to reduce noise reverberation. Ventilation and general occupational health and safety requirements also need to be considered.

10. Require trucks delivering and picking up at the Site to reduce unnecessary engine idling.

D. Fugitive Dust:

1. Fugitive dust management shall meet the requirements outlined in Section 01 35 49 – Community Air Monitoring Plan and the Design Report Appendix F – Community Air Monitoring Plan.

2. Control of fugitive dust will be a high priority during remediation activities. The primary mechanism for fugitive dust control will be the use of water trucks with a spray bar and hose(s) or other appropriate methods for the work being performed. Only potable water will be used for fugitive dust control purposes. Proactive controls will be instituted to reduce the amount of fugitive dust generation during Site activities, including enforcement of low speed limits for vehicular traffic, decontamination of trucks leaving the remediation work areas, and height limits for stockpiles, if applicable.

3. The CONTRACTOR will implement a fugitive dust control training program for all Site personnel. This training program will review the potential sources of fugitive dust, individual responsibilities, and actions for controlling fugitive dust as described in this plan. The training will emphasize the importance of dust control to the overall success of the remedial activities and familiarize Site personnel with the air monitoring requirements and appropriate fugitive dust control procedures that must be adhered to in accordance with this plan to minimize dust generation.

4. Bulk material piles will not be created other than while gathering material to load into trucks (e.g., pulling soil into a pile for the excavator to load into trucks). If any bulk material piles are left on the Site overnight (e.g., due to equipment failure, transportation delays, etc.), they will be tarped as necessary to limit wind-blown dust. All trucks being utilized for transport and disposal of excavated material off-site are required to be fitted with solid, sliding or slot-top type covers with no gaps when fully deployed. Trucks shall be covered immediately after loading and are to remain covered throughout the transportation and disposal. The cover must not contact the excavated material and must be installed in such a way to prevent wind from entering over the leading edge of the trailer rim.

5. The CONTRACTOR shall conduct operations and maintain the Site as to minimize the creation and dispersion of visible dust. Clean water, provided by the CONTRACTOR, shall be applied to the Site as necessary to prevent dust during excavation, loading/unloading, and backfilling activities. Excavation areas and on-site roadways will be kept damp, as necessary, without creating ponding or mists that travel beyond the defined boundaries of the work. The watering operations shall be sufficient to control fugitive dust.

6. Water shall be applied in a manner to prevent runoff. As a contingency measure, the CONTRACTOR will have erosion and sedimentation controls, such as silt fencing, sediment logs, or manhole silt screens, installed as necessary to manage runoff.

7. Transfer points refer to any time material is loaded or unloaded during removal activities. For the purposes of this project, the primary transfer points of concern will be the transfer of soil material from the excavator or processing area to a waiting truck. The secondary transfer points of concern will be the unloading of the clean soil for use in backfilling and cover installation. At all transfer points, the following guidelines will be maintained:

8. During loading of impacted soil, the material must be moist during the transfer, and the transfer shall be into an overhead truck trailer only. The material drop into the trailer must not exceed 4 feet.

9. All trucks entering and leaving the Site will adhere to the posted speed limit, which shall be no more than 10 miles per hour (mph).

10. All trucks shall adhere to the established tarping policy for off-site transportation and disposal.

11. All trucks leaving the Site to paved areas of the public right-of-way (i.e., sidewalk or street), whether full or empty, will be visually inspected for loose material. Stabilized construction exits will be used to assist with cleaning of truck tires as the vehicles leave the Site. Any loose material is to be removed and placed into the truck trailer.

12. Roadways and entrances must be kept clean and free of accumulation to prevent fugitive dust.

13. Sidewalks and public rights-of-way, where trucks will need to cross the sidewalk to enter/exit the Site, will be maintained in a "broom clean" condition at all times by using a skid steer loader (e.g., BobCat) equipped with a power broom or manual tools (e.g., push broom, shovels, etc.).

14. All trucks are to take the most efficient and direct route to the disposal facility as possible.

E. Disruptive Lighting:

1. A temporary lighting system shall be designed to effectively light the work area without spilling over to adjoining property. When, in the opinion of the REMEDIATION ENGINEER, the lighting is disturbing adjoining property, the CONTRACTOR shall modify the lighting arrangement or add hardware to shield the light trespass.

2. Every effort should be made to control artificial light escaping from a site, for example, the fitting of diffusers/guards, ensuring there is no light overspill into neighboring properties.

3. All lighting shall be designed, installed, and operated to avoid glare that affects traffic on the roadway or that causes annoyance or discomfort for residences. The CONTRACTOR shall locate and aim lighting fixtures to provide the required level of illumination and uniformity in the work zone without the creation of objectionable light trespass.

F. Noise:

1. The CONTRACTOR shall implement work practices to reduce noise complaints, particularly important at night or during sensitive times.

2. General construction activities shall be carried out in the following ways:

   a. Minimize metal-on-metal contact.

   b. Avoid dropping items from a height.

   c. Use equipment sensibly: Turn off equipment when not in use. Throttle settings shall be reduced if possible.

   d. Require appropriate staff conduct: Staff shall not use loud radios and/or stereos outdoors. Shouting or swearing, loud talking, and slamming vehicle doors should be avoided.

   e. Use noise shields/acoustic curtains around higher noise operations.

f. Manage truck noise: Noise from trucks is a common issue, especially near residences. Scheduling and management of truck movements is important to reduce issues associated with reverse beepers, engine noise and general off-Site activity.

g. Plant and equipment: CONTRACTOR shall endeavor to use low-noise, low-vibration, well-maintained equipment where feasible and reasonable.

h. Equipment Selection: Consideration of equipment noise and vibration levels shall be part of each stage of project planning and contract specification.

3. The CONTRACTOR shall evaluate different types of equipment that perform the same job and compare the noise and vibration level data. Noise and vibration emission labels are often provided on equipment and can be used to assist in this process. The following items shall be considered in the evaluation: high-quality mufflers, acoustic enclosures, low-noise tool bits/blades, and inquire from suppliers about lower-noise equipment.

4. Alternative equipment – Noise from compressors for pneumatic equipment shall be considered. They should be silenced, enclosed, and located appropriately in locations where they will not cause significant noise to the public. Noisy excavation and demolition works shall be reduced by alternative work methods if they may cause significant noise to the public.

5. Maintenance – A key commitment for any project is to ensure that:

a. Equipment is not operated if maintenance or repairs would eliminate or significantly reduce a characteristic of noise, vibration, or other disturbance resulting from its operation.

b. Equipment shall be in good working order, and where there is a fault or maintenance issue creating the disturbance, it must be dealt with before it is used.

c. CONTRACTOR shall regularly check the condition of mufflers, enclosures, and air lines, for example, to make sure they are in good working order and that there are no gaps or leaks. An ongoing inspection and maintenance process shall be established and included in the Work Plan.

d. Equipment that is causing excessive nuisance impacts in a manner that is not typical for the equipment shall be removed from the Site.

G. Odor and Vapor:

1. Odor and vapor management shall meet the requirements outlined in Section 01 35 49 – Community Air Monitoring Plan and the Design Report Appendix F – Community Air Monitoring Plan.

2. Proper Drainage – Standing water is a potential source of odors. The operations area will be on a surface that is sloped to facilitate drainage and prevent standing water. The grade will be maintained to prevent ponding. General spill control programs and curbing will be in place as appropriate.

3. Personnel training – Personnel will be trained in the proper use of equipment. Potential hazards and safety features will be stressed as well as handling procedures to minimize the potential production of odors, such as leaving stockpiled sediments uncovered unnecessarily.

4. Some of the operating procedures that can help reduce odors include:
    a. "First-in, first-out" waste handling practices that keep waste on Site only for short periods of time.
    b. Removing all waste from loading areas by the end of each operating day so that these surfaces can be swept clean and washed down as needed.
    c. "Good housekeeping" measures, including regular cleaning and disinfecting of surfaces, if appropriate, and equipment that comes into contact with waste.
    d. Water misting and/or deodorizing systems.
5. Below are the activities that can generate odor nuisances on-site along with control measures and methods to implement and help reduce potential odors:
    a. Movement of Transport Trucks Entering/Exiting Site – Hauling materials in properly tarped or watertight containers to prevent odor. Limit haul trucks to five minutes idle time.
    b. Excavated Materials – Limiting the number of exposed areas or amount of time materials are exposed to the open atmosphere.
    c. Soil/Debris moved by equipment to Stockpile Areas – Limiting the number of exposed areas or amount of time material is exposed to the open atmosphere. Turning off equipment that is not in active use. Limiting the amount of equipment used at one time while on-site.
    d. Stockpiles – Covering stockpiles and material after activity ceases with polyethylene sheeting and securing with sandbags (or equivalent).
    e. Work Zones (Exclusion Zone) – Performing Housekeeping. Daily cleaning up (free of trash, garbage, and debris). Properly disposing of any odorous material.
6. The CONTRACTOR shall furnish vapor mitigation agents and odor suppressant foams described below and appropriate equipment for controlling air emissions and odors associated with excavated soil and sediment. The CONTRACTOR may propose alternate vapor mitigation and foam products, subject to approval by the REMEDIATION ENGINEER. At a minimum, foam shall be available for daily application for the duration of excavation and waste material handling activities. CONTRACTOR shall dispense foam according to the manufacturers' recommended instructions. Application of vapor mitigation agents and odor suppressant foams shall be as follows:
    a. BioSolve® Pinkwater:
        1) Prepare a solution of BioSolve® Pinkwater concentrate and water in accordance with manufacturer's instructions,
        2) Apply when actively handling excavated materials and as required by OWNER or REMEDIATION ENGINEER.
        3) BioSolve may not be dispensed onto open water.
    b. RusFoam® OC (AC-645):
        1) Prepare a solution of RusFoam® OC (AC-645) concentrate and water in accordance with manufacturer's instructions. Apply to uniformly cover excavated materials with a minimum 3 inches of foam.

2) Apply before each work break, at the end of each workday, and as required by OWNER or REMEDIATION ENGINEER.

3) Foam may not be dispensed onto open water.

7. If CONTRACTOR's means, methods, and facilities are unsuccessful in controlling MGP-related odors and vapors, based on observations or the results of community air monitoring, Work shall be suspended until appropriate corrective actions are taken by CONTRACTOR to remedy the situation to REMEDIATION ENGINEER's satisfaction. OWNER will not be liable for any expense or delay resulting from CONTRACTOR's failure to control MGP-related odors and vapors in accordance with this Section.

3.02 CORRECTIVE MEASURES

A. Nuisance conditions which represent a potential health and safety concern and/or migration of contaminated materials (e.g., visible dust) will result in an immediate corrective action.

B. Following a work stoppage, appropriate corrective measures as determined by the REMEDIATION ENGINEER will be implemented prior to work resuming.

C. A written corrective measures plan will be required for chronic or repeated incidents of nuisance issues, if requested by the REMEDIATION ENGINEER.

END OF SECTION

SECTION 01 77 19

CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.01 GENERAL

A. Scope:

1. Provisions of this section apply to the procedural requirements for closeout of Work executed by the CONTRACTOR. Closeout procedures apply to each construction season/mobilization.

1.02 SUBMITTALS

A. Informational Submittals: Submit the following:

1. Removal Documentation. Provide all documentation pertaining to all components of Work and requiring inspection prior to submitting an application for Final Certification Inspection including, but not limited to, tables showing actual excavated and backfilled volumes, Construction Drawings, certified survey data, executed warranties, bills of lading and/or waste manifests from the waste hauler, certified weigh slips from the disposal facility, maintenance agreements, inspection certificates and similar required documentation for specific units of Work.

2. Truck volume counts and measurement summary. Following completion of construction and as a pre-requisite for Final Certification Inspection, the CONTRACTOR shall provide the REMEDIATION ENGINEER with final truck volume counts and measurement summary tables. Provide supporting data that was used to develop the measurement summary tables.

B. The CONTRACTOR shall prepare and submit Closeout Documents in accordance with Section 01 78 39 - Project Record Documents.

1.03 INSPECTION PROCEDURES

A. Substantial Completion:

1. Preliminary Procedures: Prior to requesting an inspection for Substantial Completion, the CONTRACTOR shall complete the following:

a. Prepare a list of items to be completed and corrected, including the value of the items on the list, and the reasons why the items are not completed. Submit the list to the REMEDIATION ENGINEER.

b. Advise the REMEDIATION ENGINEER, in writing, of pending insurance changeover requirements, if applicable.

c. Terminate and remove temporary facilities, including mockups, construction tools, and similar elements from the Site, as necessary.

d. Complete grading, restoration, and final cleaning.

2. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of the request, the REMEDIATION ENGINEER will proceed with the inspection or notify the CONTRACTOR of unfulfilled requirements. The REMEDIATION ENGINEER will prepare the Certificate of Substantial Completion after inspection or will notify the

CONTRACTOR of items, either on CONTRACTOR's list or additional items identified by the REMEDIATION ENGINEER, that must be completed or corrected before the Certificate of Substantial Completion will be issued. Any outstanding items required for Substantial Completion at this time will be documented as the formal punch-list for Substantial Completion:

a. Re-inspection: Request re-inspection when the punch-list is completed or corrected.

b. Results of completed inspection will form the basis of requirements for Final Completion.

B. Final Acceptance:

1. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

a. Submit a Request for Payment in accordance with the procedures specified in Section 01 29 76 - Progress Payment Procedures.

b. Submit a Certification for the REMEDIATION ENGINEER stating that all items, actions, and requirements of the punch-list have been completed, corrected, satisfied, or otherwise resolved.

2. Inspection: Submit a written request for final inspection for acceptance. The REMEDIATION ENGINEER will prepare a Recommendation of Final Payment after inspection or will notify the CONTRACTOR of work that must be completed or corrected before the Certificate will be issued.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 FINAL CLEANING

A. At the time of project closeout, clean and restore the Work area to its pre-construction condition. Complete the following operations before requesting the REMEDIATION ENGINEER's inspection for certification of substantial completion:

1. Dismantle the work area(s), equipment/personnel decontamination area(s), and other remedial support areas including the temporary field offices and restoring the area to pre- construction conditions (or better).

2. Dispose of decontamination area construction materials in accordance with Section 0261 15 - Handling and Disposal of Impacted Materials.

3. Remove from the Site all materials, equipment, and support structures, unless otherwise specified by the OWNER.

4. Remove non-permanent protection and labels.

5. Remove debris.

6. Inspect Project Work Limits.

END OF SECTION

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SCOPE

A. Scope:

1. CONTRACTOR shall maintain and submit to REMEDIATION ENGINEER record documents in accordance with this Section.

1.02 SUBMITTALS

A. Closeout Submittals:

1. Record Documents: Submit in accordance with Article 1.04 of this Section.

1.03 MAINTENANCE OF RECORD DOCUMENTS

A. Maintain in CONTRACTOR's field office, in clean, dry, legible condition, complete sets of project record documents. Project record documents include but are not limited to,the following:

1. Remedial Design Report, Drawings, Specifications, and Addenda.
2. Shop Drawings, Samples, and other CONTRACTOR submittals, including records of test results, reviewed or accepted by DESIGN ENGINEER or REMEDIATION ENGINEER, as applicable.
3. Change Orders, Work Change Directives, Field Orders, photographic documentation, survey data, and all other documents pertinent to the Work.
4. CONTRACTOR's updated work schedule.
5. As-built survey drawings.
6. Meeting minutes.
7. Permits.
8. Shipping papers (e.g., waste manifest and bills of lading).
9. CONTRACTOR's Health and Safety Plan (HASP), including appropriate training/medical monitoring certifications, Site and emergency contact information, and emergency route(s) to hospital.

B. Provide files and racks for proper storage and easy access to record documents. File record documents in accordance with the edition of the Construction Specification Institute's "MasterFormat" used for organizing the Project Manual, unless otherwise accepted by REMEDIATION ENGINEER.

C. Make record documents available for inspection upon request of OWNER or REMEDIATION ENGINEER.

D. Do not use record documents for purpose other than serving as Project record. Do not remove record documents from CONTRACTOR's field office without REMEDIATION ENGINEER's approval.

1.04 SUBMITTAL OF RECORD DOCUMENTS

A. Prior to readiness for final payment, submit to REMEDIATION ENGINEER one copy of the following record documents:

1. Drawings.

2. Specifications and Addenda.

B. Submit record documents with transmittal letter on CONTRACTOR letterhead complying with letter of transmittal requirements in Section 01 33 00 – Document Submittal Procedure.

C. Record documents submittal shall include certification, with original signature of an official authorized to execute legal agreements on behalf of CONTRACTOR, reading as follows: "[*Insert CONTRACTOR's corporate name*] has maintained and submitted record documentation in accordance with Specification Section 01 78 39 – Project Record Documents and other elements of Contract Documents, for the RG&E, East Station Former MGP Site, City of Rochester, Monroe County, New York. We certify that each record document submitted is complete, accurate, and legible relative to the Work performed under our Contract, and that the record documents comply with the requirements of the Contract Documents.

[*Provide signature, print name, print signing party's corporate title, and date*]"

1.05 RECORDING CHANGES

A. General:

1. At the start of the Project, label each record document to be submitted as "PROJECT RECORD" using legible, printed letters. Letters on record copy of the Drawings shall be two inches high.

2. Keep record documents current. Make entries on record documents within two working days of receipt of information required to record the change.

3. Do not permanently conceal the Work until required information has been recorded.

4. Accuracy of record documents shall be such that future searches for items shown on the record documents may rely reasonably on information obtained from DESIGN ENGINEER or REMEDIATION ENGINEER-accepted record documents, as applicable.

5. Marking of Entries:

a. Use erasable, colored pencils (not ink or indelible pencil) for marking changes, revisions, additions, and deletions to record documents.

b. Clearly describe the change by graphic line and make notations as required. Use straight-edge to mark straight lines. Writing shall be legible and sufficiently dark to allow scanning of record documents into legible electronic files.

c. Date all entries on record documents.

d. Call attention to changes by drawing a "cloud" around the change(s) indicated.

e. Mark initial revisions in red. In the event of overlapping changes, use different colors for subsequent changes.

B. Drawings:

1. Record changes on a copy of the Design Drawings. Submittal of CONTRACTOR-originated or -produced drawings as a substitute for recording changes on the Design Drawings is unacceptable.

2. Record changes on plans, sections, schematics, and details as required for clarity, marking reference dimensions and elevations (to Project datum) for complete record documentation.

3. Record actual construction, including:

   a. Horizontal and vertical location of existing Underground Facilities and surface structures demolished, realigned, or abandoned in-place, referenced to permanent surface improvements. For each Underground Facility or surface structure, provide dimensions to at least two permanent, visible surface improvements.

   b. Horizontal and vertical limits of excavation and in-situ stabilization (ISS).

   c. Depths of various elements of backfill/restoration relative to Project datum.

   d. Location of exposed utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Site.

   e. Changes in structural and architectural elements of the Work, including changes in reinforcing.

   f. Field changes of dimensions, arrangements, and details.

   g. Changes made in accordance with Change Orders, Work Change Directives, and Field Orders.

   h. Changes in details on the Design Drawings. Submit additional details prepared by CONTRACTOR when required to document changes.

4. Supplemental Drawings:

   a. In some cases, drawings produced during construction by REMEDIATION ENGINEER or CONTRACTOR supplement the Design Drawings and shall be included with record documents submitted by CONTRACTOR. Supplemental record drawings shall include the following:

      1) Drawings provided with Change Orders, Work Change Directives, and Field Orders.

      2) Drawings that cannot be incorporated into the Design Drawings due to space limitations.

      3) Certified survey drawings, in accordance with Article 1.06 of this Section.

   b. Supplemental drawings provided with record drawings shall be integrated with the Design Drawings and include necessary cross-references between drawings. Supplemental record drawings shall be on sheets the same size as the Design Drawings.

   c. When supplemental drawings developed by CONTRACTOR using computer-aided drafting/design (CADD) software are to be included in record drawings, submit electronic files for such drawings in AutoCAD 2020, or newer, format

as part of record drawing submittal. Submit electronic files electronically labeled, "Supplemental Record Drawings", together with CONTRACTOR name, Project name, and Contract name and number.

C. Specifications and Addenda:

1. Mark each Section to record:

a. Manufacturer, trade name, catalog number, and Supplier of each product and item of equipment actually provided.

b. Changes made by Addendum, Change Orders, Work Change Directives, and Field Orders.

1.06 CERTIFIED SURVEY DRAWINGS

A. Prepare the following survey drawings:

1. Existing Conditions Bathymetric Survey of Sediment Removal Areas and Existing Conditions Topographic Survey of the Upland Area, depicting the pre-construction horizontal and vertical limits for each soil and sediment removal area and for each support area in accordance with Section 01 71 23 – Field Engineering, including spot elevations and topographic contours.

2. Interim survey, depicting the installation of support components (i.e., the temporary river diversion system, site access improvements, etc.), including alignment and spot elevations.

3. Post-Dredging Bathymetric Survey of the Sediment Removal Areas and Post-Excavation Topographic Survey of the Soil Removal Areas, depicting the horizontal and vertical limits of material removal for each removal area in accordance with Section 01 71 23 – Field Engineering, including spot elevations and topographic contours.

4. Soil Cover Progress Surveys, depicting the horizontal limits of grading and subgrade topographic contours, including location of all installed subgrade features (i.e., subgrade fill layers, demarcation layer).

5. Final As-Built Bathymetric Survey of the Sediment Removal Areas and Final As-Built Survey of the Soil Removal Areas, , depicting the horizontal and vertical limits of backfill/restoration for each removal area and each support area in accordance with Section 01 71 23 – Field Engineering, and final (post-construction) Site conditions.

B. Drawing Requirements:

1. General Content:

a. Property lines, easements, and rights-of-way.

b. Topographic contours at minimum 1-foot intervals.

c. Horizontal and vertical location of buildings, foundations, bridges, and walls.

d. Horizontal location of exposed piping and utilities, poles, exposed wires, posts, signs, markers, curbs, fencing, gates, guard rails, guard cables, and other facilities visible at or above ground surface.

e. Horizontal limits of lawns, pavements, roads, walks, drives, and other surface improvements.

f. Horizontal and vertical location of monitoring wells, including ground surface elevation, outer casing elevation, and inner casing elevation.

g. Horizontal location, size (diameter), and species of trees and other plantings.

2. Scale: 1 inch equals 30 feet.

3. Sheet Size: 42 inches wide by 30 inches high.

C. Certification:

1. Each survey drawing shall be signed and sealed by a professional land surveyor licensed and registered in the State of New York.

1.07 ELECTRONIC FILES FURNISHED BY DESIGN ENGINEER

A. CADD files will be furnished by DESIGN ENGINEER upon the following conditions:

1. CONTRACTOR and REMEDIATION ENGINEER shall submit to DESIGN ENGINEER a letter on CONTRACTOR letterhead requesting CADD files and providing specific definition(s) or description(s) of how files will be used, and specific description of benefits to OWNER if the request is granted.

2. CONTRACTOR and REMEDIATION ENGINEER shall execute DESIGN ENGINEER's standard agreement for release of electronic files and shall abide by all provisions of the agreement for release of electronic files.

3. Layering system incorporated in CADD files shall be maintained as transmitted by DESIGN ENGINEER. CADD files transmitted by DESIGN ENGINEER containing cross-referenced files shall not be bound by CONTRACTOR or REMEDIATION ENGINEER. Drawing cross-references and paths shall be maintained. If CONTRACTOR or REMEDIATION ENGINEER alters layers or cross-reference files, CONTRACTOR or REMEDIATION ENGINEER shall restore all layers and cross-references prior to submitting record documents to REMEDIATION ENGINEER.

4. CONTRACTOR shall submit record drawings to REMEDIATION ENGINEER in same CADD format that files were furnished to CONTRACTOR.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 02 21 00

STRUCTURAL MONITORING AND SURVEYS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Furnish all engineering, labor, materials, equipment, surveys, services, interpretation of data, and incidentals required to complete a structural inspection of the Bausch Memorial Bridge, Suntru Street embankment, adjacent retaining wall structures and buildings located on the slope above Suntru Street prior to the commencement of and after completion of project activities. Structural inspections will be completed by a New York State licensed Professional Engineer.

B. Furnish all engineering, labor, materials, equipment, surveys, services, interpretation of data, and incidentals required for the instrumentation and monitoring of deflections, vibrations, settlement and the changes in cracks located in foundations or other structures during the period of time encompassing any intrusive work activities and site access improvements at the project Site. Implement precautionary and remedial measures, as necessary, to prevent damage to the existing structures based on the instrumentation and monitoring data. The work described herein includes:

1. Supply, install, survey, monitor, protect, and maintain Deflection Monitoring Point (DMP) monuments for the purposes of deflection monitoring.
2. Supply, install, survey, monitor, protect, and maintain Settlement Monitoring Point (SMP) monuments for the purposes of settlement monitoring along Suntru Street.
3. Supply, install, operate and monitor, protect, and maintain seismographs for the purpose of monitoring vibrations.
4. Supply, install, survey, monitor, protect, and maintain crack monitors (as required) for the purposes of monitoring horizontal or vertical changes in cracks located in foundations or other structural components.
5. Compute the coordinates of each surveyed point on the New York State Plane Coordinate System using the 1983 North American Datum. The elevations shall be on the National American Vertical Datum of 1988 in accordance with Section 01 71 23 – Field Engineering.
6. Incidental work necessary to ensure the accuracy and precision of the data, including establishing controls and baseline data, as needed.

C. Threshold Limit Values (TLV)

1. The level of protection afforded by the TLV's provided herein shall be confirmed by the Contractor's Professional Engineer and revised as required. TLV's for all monitoring equipment shall be submitted in accordance with Section 1.02.B below.
2. Deflection
   a. Surveyed movement of DMP monuments at structures shall not exceed 1/4 inch, in any of the x, y, or z axes. The TLV may be adjusted based on the results of the 2-week pre-work monitoring.
3. Settlement

a. Surveyed movement of SMP monuments shall not exceed 1/4 inch, in any of the x, y, or z axes. The TLV may be adjusted based on the results of the 2-week pre-work monitoring.

4. Vibrations

a. Peak particle velocities at structures shall not exceed 2.0 inch/second in the single component of any of the x, y, or z axes. The precaution value shall be 1.5 inch/second in the single component of any of the x, y, or z axes. The TLV may be adjusted based on the results of the 2-week pre-work monitoring.

5. Exceedance of the precautionary value shall be the basis for making adjustments to the intrusive work activity means and methods. Do not exceed the TLV at any time during construction.

6. Repair any damage caused by any work activities to structures and restore the structure(s) to the condition prior to being damaged at no additional cost to OWNER

1.02 SUBMITTALS

A. Prepare and submit a structural inspection of the Bausch Memorial Bridge, Suntru Street embankment, adjacent retaining wall structures, and buildings located on the slope above Suntru Street adjacent to the proposed Work prior to the commencement of and after completion of project activities to the REMEDIATION ENGINEER in accordance with Section 01 33 00 – Document Submittal Procedures. Structural inspections will be completed by a New York State licensed Professional Engineer and shall include:

1. Pre-Construction Conditions Inspection:

a. Location details and structure types.

b. Information on material conditions and structural conditions, corrosion conditions of steels, existing damage, any signs of distress, and disrepair observed during visual survey.

c. Provide a graphical depiction of locations of existing damage or other features of concern. If any repair is required for existing structures, necessary repair or replacement shall be documented prior to construction.

d. Re-evaluation of acceptable vibration levels and additional structural monitoring as needed.

2. Post-Construction Conditions Inspection

a. Perform using same methods and requirements as Pre-Construction Conditions Inspection for direct comparison of observations made during Pre-Construction Conditions Inspection.

B. Prepare and submit survey and vibration monitoring documentation to the DESIGN ENGINEER and REMEDIATION ENGINEER in accordance with Section 01 33 00 – Document Submittal Procedure at least thirty (30) days prior to start of any intrusive work activity. The survey documentation shall include, but is not limited to:

1. Qualifications of the CONTRACTOR's Professional Land Surveyor and Professional Engineer, including experience of personnel to manage and staff the work in accordance with Section 01 71 23 – Field Engineering and Article 1.03.

2. Survey product and equipment information.

   a. Survey equipment make, model and year. Manufacturer's literature including specifications, sensitivity, and recommended practices for setup and operation, data downloading, and corresponding precision and bias in the x, y, and z directions.

   b. Seismograph make, model, and year. Manufacturer's literature including specifications, sensitivity, and recommended practices for installation, setup, operation, data downloading, and corresponding precision and bias in the x, y, and z directions.

   c. Factory calibrations for survey and vibration monitoring equipment.

3. TLV's confirmed/established by the CONTRACTOR's Professional Engineer for all monitoring equipment.

4. Schedule and sequencing of monitoring activities and submission of subsequent reports.

5. Drawings showing the proposed locations of all instruments and survey monument monitoring points. At a minimum, seismograph drawings shall include the proposed locations of sensors, attachments, and readouts. All instrumentation locations may be submitted on a single drawing.

6. Daily field data sheets.

C. Instrument and Monitoring Installation Report

1. After the instruments have been installed submit a field report in accordance with Section 01 33 00 – Document Submittal Procedure within two (2) working days with shop drawings summarizing the installation of each instrument to include at a minimum the following information:

   a. Instrument identification number and type.

   b. Installation personnel, procedures, and the date of installation.

   c. The "as installed" configuration of each instrument including elevations, station, offset, baseline readings, and any other key elements.

   d. If an instrument is damaged, provide an explanation of how the instrument was damaged and the procedures to protect from future damage within the daily field data recording sheets. Once repaired and reinstalled, the minimum information required within the instrument and monitoring installation field report shall be included within the daily field data recording sheets for the day in which the instrument was reinstalled.

D. Daily Reports

1. Submit all vibration and deflection monitoring and survey data on a daily basis as part of the CONTRACTOR's Daily Report in accordance with Section 01 33 00 – Document Submittal Procedure. Retain and keep all information available for review at all times during construction.

1.03 QUALITY ASSURANCE

A. All surveys of monuments shall be performed by a New York State licensed Professional Land Surveyor in accordance with Section 01 71 23 – Field Engineering.

B. All vibration, deflection, settlement, and crack monitoring equipment shall be set up, calibrated, operated, maintained, and data recorded and downloaded by experienced and qualified personnel experienced in the practice of vibration and deflection monitoring and supervised by the CONTRACTOR's Professional Engineer.

1. Instrumentation personnel must have at least 4 years of direct field experience in installation and monitoring of the types of instruments specified herein and interpreting instrumentation data. The instrumentation installer must be able to demonstrate that they have successfully completed a minimum of 5 projects where optical survey points and vibration monitoring instrumentation have been installed and operated.

C. A factory calibration shall be conducted on all instruments prior to shipment. Calibration shall be provided to the REMEDIATION ENGINEER to indicate that the test equipment used for this purpose is calibrated and maintained in accordance with the test equipment manufacturer's calibration requirements.

D. All seismograph and survey equipment shall be properly calibrated per the manufacturer's recommended procedure, frequency, and schedule.

E. All instruments shall be installed in the presence of the REMEDIATION ENGINEER. The CONTRACTOR shall allow access to the work area at all times for the purpose of observing instrumentation and obtaining data.

1.04 REGULATIONS

A. All work shall be in accordance with applicable Federal, State, and local laws, rules, and regulations, regarding safety and construction practices.

PART 2 - PRODUCTS

A. All materials, equipment, and accessories shall meet the performance requirements of these specifications.

B. The equipment shall be of sufficient sensitivity and quality so as to routinely meet the precision requirements of these specifications.

C. Survey equipment and methods shall achieve a precision of 1/32 inch or better in the x, y, and z axes.

D. Seismograph(s) shall have the following minimum features:

1. Seismic range of 0.05 to 10.00 inches per second with an accuracy of ±5 percent of the measured peak velocity or better at frequencies between 10 to 100 Hertz, and with a resolution of 0.01 inches per second of less. Capable of running on an internal rechargeable battery and charger. Battery must be capable of supplying power to monitor deflections continuously for up to 24 hours.

2. Three channels for simultaneous time-domain monitoring of vibration velocities in digital format on three mutually perpendicular axes.

3. Continuous monitoring mode capable of recording single component peak velocities and frequencies of peaks with an interval of one minute or less.

4. Capable of internal dynamic calibration.

5. Capable of running on either a 115-volt AC power source or internal rechargeable battery and charger. Battery must be capable of supplying power to monitor vibrations continuously for up to 24 hours.

6. Provided with computer download capabilities and software to perform analysis and produce reports of continuous monitoring.

7. Capable of producing strip chart recordings of single component peak particle velocities and frequencies of peaks with an interval of one minute or less.

8. Capable of providing a warning alarm when peak particle velocities reach precautionary and TLV levels.

E. Remote station and telemetry reporting shall have the following minimum features:

1. Continuous monitoring mode.

2. Capable of running on an internal rechargeable battery and charger. Battery must be capable of supplying power to monitor deflections continuously for up to 24 hours.

3. Provided with computer download capabilities and software to perform analysis and produce reports of continuous monitoring.

4. Capable of providing a warning alarm when deflections reach precautionary and TLV levels.

F. Furnish and retain at the Site spare instrumentation, readout indicators, data loggers, batteries, and accessories to allow for uninterrupted monitoring in the event of instrument damage or malfunction.

PART 3 - EXECUTION

3.01 PREPARATION

A. Install DMPs and SMPs at locations determined by the CONTRACTOR's Professional Engineer. At a minimum, monuments will be installed as follows:

1. DMPs installed on existing retaining walls, buildings and bridge foundations.

2. SMPs installed at 100-foot intervals at the top of slope along Suntru Street.

B. Install Seismographs at locations determined by the Contractors Professional Engineer. Seismograph vibration sensors shall be firmly mounted on the surface slab of concrete or asphalt, or firmly set in undisturbed soil by qualified personnel for each seismograph location to any intrusive work activities. A detailed description and photograph of each location shall be provided within the field data sheet documentation. At a minimum, seismographs will be installed as follows:

1. Seismographs installed on existing retaining walls, buildings and bridge superstructure..

C. Install crack monitors at (if required) locations determined by the CONTRACTOR's Professional Engineer.

D. Field verify and photograph all locations before installation. The instruments and monuments shall be installed by qualified personnel. Care should be taken not to damage existing surfaces during installation of instruments.

E. Conduct monitoring for a period of two weeks prior to the start of intrusive work activity to ensure that the instruments are working properly and establish baseline and ambient records prior to intrusive work activity. Where possible, note the source(s) of vibrations.

F. Conduct monitoring one hour prior to the start of construction and ½ hour after construction ends each day.

G. Install, monitor, and/or survey instruments and monuments in a manner as to be functional without disruption or damage for any foreseeable work or weather condition during the project.

H. Datum used to establish benchmark elevations shall be located at sufficient distance so as not to be affected by movement resulting from work activities.

3.03 DEFLECTION AND SETTLEMENT MONITORING

A. Survey DMPs and SMPs two weeks prior to, during, and two weeks after intrusive work activities that can cause ground disturbance. Additionally, monuments are to be surveyed after the following events:

1. If any perceivable change from the pre-condition survey baseline is observed.

2. Upon monitored vibrations exceeding the precaution value designated by the CONTRACTOR's Professional Engineer.

3.04 VIBRATION MONITORING

A. Vibration monitoring shall be conducted continuously using seismographs two weeks prior to, during, and two weeks after any intrusive work activities that can cause ground disturbance.

B. Inform the REMEDIATION ENGINEER each time measured particle velocities exceed the precaution values designated by the CONTRACTOR's Professional Engineer. Set the seismograph alarms to give warning when vibrations reach the precaution values.

C. Adjust equipment and/or procedures as necessary to prevent damage to structures and maintain vibrations and deflections to below the TLV.

D. During intrusive work activities, the vibration TLV may require adjustments, depending upon practical considerations regarding productivity and available means and methods and the results of deflection monitoring data. Any proposed modifications to TLVs must first be accepted in writing by the DESIGN ENGINEER.

E. Maintain the peak particle velocity below a level that will cause disturbance, aesthetic or structural damage, including cracking or deflections of any part of the structures. At no time shall the peak particle velocity exceed the TLV.

F. Monitoring requirements may be increased or decreased depending upon the recorded baseline ambient and background vibration levels, practicality of completion of the work, and findings of the deflection monitoring. Changes to the monitoring requirements must first be accepted in writing by the DESIGN ENGINEER.

3.05 THRESHOLD LIMIT VALUE

A. Any exceedance of the precautionary value designated by the CONTRACTOR's Professional Engineer is to be reported to the REMEDIATION ENGINEER immediately. Work causing an exceedance of TLVs shall be stopped and structures shall be inspected by the CONTRACTOR's Professional Engineer for any structural damage that may have occurred from exceedance of the TLV. In addition, all survey and monitoring locations shall be surveyed and measured and compared with baseline and/or previous data to determine if the exceedance of the TLV caused any discernable movement or damage to buildings/structures.

B. Exceedance of the TLV shall be the basis for making adjustments to the intrusive work activity means and methods.

3.06 REMOVAL

A. Upon completion of work, all instruments and monuments shall be removed. Repair any damage or drill holes caused by the installation or removal of the monuments.

END OF SECTION

SECTION 02 41 13

STRUCTURE DEMOLITION

PART 1 – GENERAL

1.01 DESCRIPTION

A. The Work specified in this section consists of the labor, equipment, materials, tools, and services needed to accomplish demolition work and incidental appurtenant work as described herein or shown on the Design Drawings. Work included in this Section:

1. Universal waste/hazardous substances survey, abatement and disposal.
2. Asbestos containing material (ACM) survey, abatement and disposal pursuant to NYS Industrial Code Rule 56.
3. Utility disconnects for structures being demolished.
4. Removal and disposal of existing equipment and materials.
5. Demolition of the superstructure and foundations of the following structures:
    a) RG&E Laboratory
    b) Building 11
    c) Masonry building adjacent to Building 11
    d) Metal shed adjacent to Building 11
    e) Metal storage building
6. Demolition/removal of the office trailer and monitoring station trailer adjacent to Building 11; and
7. Reduction in size and stockpile for reuse of concrete and disposal or recycling offsite for other materials demolished.

B. Work specified in this Section shall include obtaining all permits required for demolition, transportation and appropriate disposal of demolished materials and associated debris in accordance with Chapter 47A of the City of Rochester Code – Demolition Regulation Ordinance of the City of Rochester, and applicable State and Federal codes and regulations.

1.02 GENERAL REQUIREMENTS

A. Remove rubbish and debris from the project Site; do not allow accumulations inside of the facility. Store materials that cannot be removed daily in areas specified by the REMEDIATION ENGINEER.

1.03 CONTRACTOR'S RESPONSIBILITY

A. The CONTRACTOR shall carefully examine the Site and make all inspections necessary in order to determine the full extent of the work required to conform to the Design Drawings and Specifications. The CONTRACTOR shall satisfy himself as to the nature and location of the work, conditions, the conformation and condition of the existing concrete surfaces, and the character of equipment and facilities needed prior to and during performance of the work. Any inaccuracies or discrepancies between the actual field conditions and the Design Drawings, or between the Design Drawings and Specifications must be brought to the DESIGN ENGINEER's and REMEDIATION ENGINEER's attention in order to clarify the exact nature of the work to be

performed.

1.04 SUBMITTALS

A. Submit a Hazardous Substances Abatement and Disposal Plan (may be included in the Demolition and Materials Handling Plan), if applicable, in accordance with Section 01 33 00 – Document Submittal Procedures to the REMEDIATION ENGINEER for approval before work is started. The Hazardous Substances Abatement and Disposal Plan shall include a detailed description of the methodology, equipment and sequencing that will be used to conduct the abatement of hazardous materials identified in the respective buildings.

B. Submit an ACM Abatement and Disposal Plan (may be included in the Demolition and Materials Handling Plan), if applicable, in accordance with Section 01 33 00 – Document Submittal Procedures to the REMEDIATION ENGINEER for approval before work is started. The ACM Abatement and Disposal Plan shall include a detailed description of the methodology, equipment and sequencing that will be used to conduct the abatement of ACM identified in the respective buildings.

C. Submit a Demolition and Materials Handling Plan in accordance with Section 01 33 00 – Document Submittal Procedures to the REMEDIATION ENGINEER for approval before work is started. The Demolition and Materials Handling Plan shall include a detailed description of the methodology, equipment and sequencing that will be used to conduct the demolition of the respective buildings.

1.05 REGULATORY AND SAFETY REQUIREMENTS

A. The CONTRACTOR shall comply with regulations in force at all times to prevent pollution of air and water.

B. The CONTRACTOR shall comply with federal, state, and local demolition, hauling, and disposal regulations. In addition to the requirements of the "Contract Clauses," safety requirements shall conform with ANSI A10.6, "Demolition Operations - Safety Requirements" and requirements stated in Section 01 35 29 – Contractor's Health and Safety Plan.

1.06 DUST AND DEBRIS CONTROL

A. Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to flooding or pollution.

B. Perform dust and debris control in accordance with Section 01 76 50 – Nuisance Controls, Management, and Corrective Measures.

C. Perform monitoring for dust in accordance with Section 01 35 49 – Community Air Monitoring Plan.

1.07 PROTECTION

A. Protect adjacent properties and facilities.

1.08 BURNING

A. Burning will not be permitted.

1.09 QUALITY ASSURANCE

A. The CONTRACTOR shall exercise due care to assure procurement, storage and placement of materials from onsite or offsite sources shall comply with the requirements, specifications, and standards set out herein.

B. The REMEDIATION ENGINEER, through the project representative(s) will be the onsite arbiter and judge of the acceptability of the work done, based on such observations and tests that may be performed. Visual and any other quality assurance inspections and tests shall be performed by the REMEDIATION ENGINEER. The CONTRACTOR shall bear the cost of retesting and reinspection of reworked and/or faulty work.

1.10 SAFETY

A. The CONTRACTOR shall familiarize himself with, and shall at all times conform to, the regulations of the "OSHA General Industry Occupational Safety and Health Standards" and "OSHA Safety and Health Regulations for Construction".

B. OSHA rule 29 CFR 1910.120 provides for the protection of workers engaged in hazardous waste operations. The issuance of this rule is mandated by Section 126(e) of the "Superfund Amendments and Reauthorization Act of 1986" (SARA).

C. No open flame or spark generating equipment shall be utilized if the concentration of explosive gas is equal to or greater than 10% of the lower explosive limit (LEL). If the LEL is equal to or greater than 10%, work shall be suspended until contingency measures are taken to reduce the LEL. Explosive gas shall be monitored with a combustible gas indicator.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 PREPARATION

A. Prevent damage, movement, or settlement of buildings on adjacent properties.

B. Protect existing items and appurtenances that are not to be demolished.

C. The CONTRACTOR shall assume all utilities are ‘live’ until testing is performed to prove otherwise.

D. The CONTRACTOR shall complete a universal waste/hazardous substances survey to identify the presence of universal waste and hazardous substances within buildings to be demolished. Based on the results of the survey, the CONTRACTOR shall complete, if required, universal waste/hazardous substances abatement and disposal pursuant to 6 CRR-NY IV 374-3 – Standards for Universal Waste.

E. The CONTRACTOR shall complete an ACM survey to identify the presence of ACM within the buildings to be demolished. Based on the results of the survey, the CONTRACTOR shall complete, if required, ACM abatement and disposal pursuant to NYS Industrial Code Rule 56.

F. Disconnection, cutting, capping or sealing and abandoning in-place above- and below-grade utilities including, but not limited to gas, electric, water, sanitary and storm water that provide service to the structures being demolished.

G. Mark locations of disconnected utilities. Identify utility locations on drawings in accordance with Section 01 78 39 – Project Record Documents.

H. Removal and disposal of existing laboratory, process, mechanical, electrical and HVAC equipment and materials from each structure to be demolished

3.02 DEMOLITION

A. Demolish indicated structures and appurtenances in an orderly and careful manner that prevents excessive dust migration from the site.

B. Concrete, brick, and block removed during demolition shall be processed so that it is free of protruding rebar and reduced in size to a maximum size of 2 inches if used onsite under the

soil cover demarcation layer, or in the ISS treatment area, or 2 feet for offsite recycling or disposal. The processed concrete for use as fill during site remediation shall be stockpiled onsite.

C. Cease operations and notify OWNER/REMEDIATION ENGINEER immediately if adjacent structures appear to be endangered. Do not resume operations until corrective measures have been taken.

D. Remove demolished materials from site as work progresses except for crushed concrete to be reused as fill.

3.03 DISPOSITION OF MATERIAL

A. Except where noted otherwise, immediately remove demolished materials from the Site.

B. All demolition work, and the transportation and disposal of all demolished materials must conform to all local, state, and federal codes and regulations.

C. Brick and other suitable hard rubble generated at this Site that does not contain ACM may be used as fill subject to OWNER approval.

3.04 CLEANUP

A. Remove and transport debris and rubbish in a manner that will prevent spillage on pavements, streets or adjacent areas. Clean up spillage from pavements, streets, and adjacent areas.

END OF SECTION

SECTION 02 51 00

DECONTAMINATION PROCEDURES

PART 1 - GENERAL

1.01 GENERAL

A. Perform decontamination procedures for all vehicles and equipment in contact with excavated or impacted materials at the Site.

B. Perform decontamination of personnel, hand tools, small equipment, large equipment, and vehicles (i.e., trucks) as required to prevent off-site migration of impacted materials and cross contamination with clean materials.

C. Transporting impacted materials beyond the work area will require the use of lined and covered trucks to limit the possibility of dust migration and spillage and to control odor. Trucks exiting work areas will be required to travel over a decontamination area to remove residual soil from the vehicle wheels and/or undercarriage. To the extent possible, equipment and trucks are to be staged and loaded on clean areas outside the limits of excavation. Employ methods to limit spillage and tracking/migration. The identified truck loading areas may be lined with temporary polyethylene sheeting or direct clean loading methods may be employed (using plastic sheeting over trucks). Either practice should limit the need to provide routine decontamination of every vehicle associated with the work.

D. Decontamination shall be completed in the material processing area to the extent practicable. Additional operational decontamination pads may be required depending on the CONTRACTOR'S selected sequence of work and implemented means and methods. Coordination with the REMEDIATION ENGINEER shall occur to ensure proper decontamination procedures are being followed at all times.

1.02 SUBMITTALS

A. Proposed method(s) of decontamination procedures for small equipment and hand tools, large equipment and vehicles, and water-based equipment.

B. Safety Data Sheets for all cleaning/decontamination solutions.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Additional decontamination pad(s), as necessary, consisting of:

1. Sand and crushed stone
2. Impervious geomembrane liner - minimum 40-mil scrim-reinforced high-density polyethylene (HDPE), or equivalent approved by REMEDIATION ENGINEER. Panels shall be sized so that minimal seams are required.
3. Non-woven geotextile - minimum 16 ounce per square yard nonwoven geotextile, or equivalent approved by REMEDIATION ENGINEER.
4. Collection sump and pumping system

B. Hydraulic high-pressure wash equipment with ability to provide hot water and/or steam.

C. Clean water and construction water storage facilities.

D. Truck loading staging areas: Areas for truck loading outside of the temporary fabric structure/material processing pad must be lined with temporary polyethylene sheeting.

E. Cleaning appurtenances including brushes, brooms, and industrial detergent. All additives, such as surfactants or water-borne abrasives to facilitate removal of hardened material from equipment, are subject to the approval of the REMEDIATION ENGINEER.

PART 3 - EXECUTION

3.01 GENERAL

A. Construct additional decontamination pad(s), if necessary, to facilitate the cleaning of equipment and trucks prior to leaving the Site. Provide adequate dimensions within additional decontamination pads or asphalt processing/staging pad to contain wash water and debris from the largest sized vehicles to be used for the Work. All impacted vehicles and construction equipment leaving the exclusion zone shall be decontaminated.

1. Decontamination pads are to be located such that non-impacted areas are not impacted during remedial activities. This may require the construction and use of multiple decontamination pads.

2. Locate the decontamination pad(s) as close to the active work as possible to prevent tracking of impacted materials beyond the impacted areas of the Site.

3. The decontamination pad(s) shall consist of an aggregate (sand and crushed stone) working base, impervious geomembrane liner, nonwoven geotextile, and a collection sump and pumping system. The subgrade surface beneath the liner shall be free of stones, debris, or other objects greater than one half inch in size.

B. Collect and store wash water in the construction water storage facility.

C. Sumps, pumping facilities, and temporary storage facilities are to be adequate for the anticipated use.

D. Manage wash water with construction water as described in Section 02 72 00 - Construction Water Management.

3.02 VEHICLE AND EQUIPMENT HANDLING REMEDIATION WASTE

A. Trucks loaded in and traveling exclusively on clean roads may follow the following decontamination procedure:

1. Remove loose dry soil from the exterior truck body using brooms and/or other hand implements.

2. Sweep the staging area liner clean of loose soil that has fallen outside of the truck/ excavator bucket during loading.

3. Proceed to the stabilized construction entrance using a defined route over clean onsite access roads.

4. Sweep the staging area liner clean, as required, in preparation of the next truck to be loaded.

B. Trucks shall be required to pass through the onsite decontamination pad for rinsing with high pressure water if additional decontamination measures are warranted based on the following conditions:

1. Wet soil creates a film on the vehicle due to work during wet weather conditions.

2. A vehicle drives outside the defined clean access route.

C. Rinse all trucks and equipment being removed from the Site that handled remediation waste with high pressure water in the decontamination pad prior to removal.

3.03 SMALL EQUIPMENT AND HAND TOOLS

A. Decontaminate small equipment and hand tools that handled remediation waste with high pressure water in the material processing area or on decontamination pad(s).

3.04 MAINTENANCE OF THE DECONTAMINATION PAD(S)

A. Clean the decontamination pad(s) periodically, as required, including:

1. Before each transition of handling remediation waste and clean material.

2. When accumulated sediment/soil reduces the storage capacity of the sump.

3. When accumulated sediment/soil begins clogging and reducing the permeability of the crushed stone layer.

3.05 TEMPORARY WORKS REMOVAL

A. Regularly containerize, characterize, stage, and transport generated construction water, soils, and sediments in accordance with Section 02 61 15 – Handling and Disposal of Impacted Materials, Section 02 72 00 – Construction Water Management, and Section 31 23 16 – Excavation.

B. After removal of the decontamination pad(s), visually examine the underlying existing surface. If staining or other visual indications of contamination are noted, sample and test the subgrade surface beneath the former decontamination pad location(s) to ensure no cross contamination of wastes contained within the decontamination pad has occurred.

C. If the subgrade beneath the decontamination pad(s) is determined to be impacted, excavate and dispose of the impacted material then retest the subgrade.

END OF SECTION

SECTION 02 55 00

IN-SITU STABILIZATION/SOLIDIFICATION CONSTRUCTION

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. This section includes the minimum requirements for constructing the *in situ* stabilization/solidification (ISS) as shown on Design Drawings.

B. The ISS work consists of furnishing all plant, labor, equipment, and materials and performing all operations as required to solidify/stabilize the soils within the alignment as specified herein. The lateral and vertical extent of ISS is shown on the Design Drawings. Debris greater than 2 feet by 2 feet must be either removed prior to conducting ISS or reduced in size to less than 12 inches in diameter if being incorporated into the ISS monolith. The completed solidification project shall be a cured homogeneous mixture of amendment and the subsurface materials meeting performance requirements. The ISS work may be accomplished by mixing amendments and soil using *in situ* dry or wet mixing methods, assisted by external pug mills if necessary.

1.02 REFERENCE STANDARDS

A. GENERAL:

REFERENCE	TITLE OF DESCRIPTION
ACI 211.1-91	Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete
ASTM D1633	Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders (Unconfined Compressive Strength (UCS))
ASTM D5084	Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter
ASTM C150	Standard Specification for Portland Cement
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
NYSDEC (2016)	New York State Department of Environmental Conservation letter to Environmental Energy Alliance of New York transmitting the NYSDEC ISS QA/QC Guidance Document February 22, 2016
New York State Department of Transportation (NYSDOT) Standard Specifications, Current Version	

1.03 SUBMITTALS

A. Qualifications: CONTRACTOR shall be knowledgeable and experienced in soil improvement using solidification techniques. The CONTRACTOR shall meet the following experience criteria:

1. Project Experience: CONTRACTOR shall have at least five (5) years of experience over the last 10 years; and have completed at least five (5) solidification projects, with at least two (2) projects having objectives similar to those of this project.

2. Personnel Experience: CONTRACTOR's Supervisor shall have at least three (3) years on-Site experience managing field operations of similar size and scope and shall have supervised at least two (2) projects within the past five (5) years employing the technique proposed for this project. The Supervisor shall have experience and knowledge of all aspects of solidification as required for the project and shall be present at the work Site at all times during solidification operations.

3. CONTRACTOR's other personnel shall have a minimum of two (2) years of experience with projects of similar scope. Other personnel include equipment operators, batch plant operator, rig operator, supervisory engineering staff, and technical staff involved with the system operation.

4. Provide project staff resumes and project specific solidification experience over the last ten (10) years. At a minimum, the project staff shall include a project manager, Site supervisor, quality control technicians, and other associated key staff. Project descriptions shall include Site description, size of the stabilization areas, type of grout and equipment used.

B. CONTRACTOR shall control the mixing of the amendments, rate of treatment and the grout addition rate. The CONTRACTOR shall supervise and ensure that the solidification treatment has been properly mixed and interconnected.

C. CONTRACTOR shall submit the name, qualifications and contact information for the third-party geotechnical testing laboratory. The laboratory shall have previous experience with soil mixing materials, experienced laboratory technicians, and modern laboratory testing equipment.

D. Pilot-Scale Study Work Plan shall be submitted for review by the REMEDIATION ENGINEER at least 10 business days prior to the start of work under this section. The pilot-scale study work plan shall include the following items:

1. Solidification/Stabilization Method: A detailed description of the methods of construction which shall include the method of advancing treatment, methods of application of amendment, grout mixing, and monitoring, rate of advancement, and the minimum gallons [based on proposed cement to water ratio] of grout per treatment area or volume. An estimate of the swelled in-place volume shall be provided, based on the design mix.

2. Equipment: A list of major equipment by type and capacity. This may include: excavator, grout mixer, batch plant, mixer heads, demo heads, storage silos and transport equipment.

3. Drawings: The following drawings shall be provided by the CONTRACTOR:

   a. Equipment Arrangement - the locations of all equipment including that required to mix raw materials;

   b. Process and Instrumentation Diagram - A process and instrumentation diagram showing the flow of all raw materials and the size of all pumps and associated equipment required to conduct operations.

   c. Material Treatment Plan - the approximate location of treatment units and their dimensions (and/or coordinates) should be provided along with the estimated rate of treatment.

4. Material Certificates shall be provided by the CONTRACTOR:

a. Cement: The CONTRACTOR shall submit the manufacturer's catalog certificate and specification prior to shipment of any cement, and certificate of compliance for each lot or shipment of cement upon arrival on site regarding compliance with ASTM C150 (Type I).

b. Grout: (if applicable) The CONTRACTOR shall supply testing results in accordance with ACI 211 verifying the proper water to cement ratio and unit weight.

c. Slag: (if applicable) The CONTRACTOR shall submit for certificates each lot or shipment of slag upon arrival at the site showing conformance with NYSDOT Specification 711-12. Slag material that are considered Technically Enhanced Naturally Occurring Radioactive Material (TENORM) are prohibited from the site.

d. Water: The CONTRACTOR shall submit a certificate that water used in ready mix grout supplied to the site meets the requirements of ASTM C1602. Indicate the source of the water.

e. Additives: Submit a manufacturer's catalog certificate and specification prior to shipment of any additives, and a certificate of conformance for each lot or shipment of additive upon arrival on site.

E. Pre-Construction Work Plan shall be submitted for review by the REMEDIATION ENGINEER at least 10 business days prior to the start of work under this section. The work plan shall include the following items:

1. Schedule: A schedule in sufficient detail to identify the major segments of the work. Starting and ending dates for all major work items shall be clearly identified.

2. Solidification/Stabilization Method: A detailed description of the methods of construction which shall include the method of advancing treatment, method of application of amendment, grout mixing and monitoring, rate of advancement, and the minimum gallons [based on proposed cement to water ratio] of grout per treatment area or volume. An estimate of the swelled in-place volume shall be provided, based on the design mix.

3. Equipment: A list of major equipment by type and capacity. This may include: excavator, grout mixer, batch plant, mixer heads, demo heads, storage silos and transport equipment.

4. Drawings shall be provided by the CONTRACTOR:

a. Equipment Arrangement - the locations of all equipment including that required to mix raw materials.

b. Process and Instrumentation Diagram - A process and instrumentation diagram showing the flow of all raw materials and the size of all pumps and associated equipment required to conduct operations.

c. Material Treatment Plan - the approximate location of treatment units and their dimensions (and/or coordinates) should be provided along with the estimated rate of treatment.

5. Material Certificates shall be provided by the CONTRACTOR:

a. Cement: The CONTRACTOR shall submit the manufacturer's catalog certificate and specification prior to shipment of any cement, and certificate of

compliance for each lot or shipment of cement upon arrival on site regarding compliance with ASTM C150 (Type I).

b. Grout: (if applicable) The CONTRACTOR shall supply testing results in accordance with ACI 211 verifying the proper water to cement ratio and unit weight.

c. Slag: (if applicable) The CONTRACTOR shall submit for certificates each lot or shipment of slag upon arrival at the site showing conformance with NYSDOT Specification 711-12. Slag material that are considered Technically Enhanced Naturally Occurring Radioactive Material (TENORM) are prohibited from the site.

d. Water: The CONTRACTOR shall submit a certificate that water used in ready mix grout supplied to the site meets the requirements of ASTM C1602. Indicate the source of the water.

e. Additives: Submit a manufacturer's catalog certificate and specification prior to shipment of any additives, and a certificate of conformance for each lot or shipment of additive upon arrival on site.

F. Quality Control (QC) Plan shall be submitted along with the Work Plan for review and approval by the REMEDIATION ENGINEER.

1. The plan shall include a list of test methods and minimum standards the CONTRACTOR plans to implement to gauge the quality of the work during construction, including grout density (if applicable), depth measurements, densities of mixed materials, pocket penetrometer testing of mixed materials, and UCS and permeability testing.

2. The plan shall address the physical properties and manufacturer's stated properties for all permanent materials including manufacturer's certifications of quality, mill certificates, gradation test data, etc.

3. The plan shall state when all quality control data will be submitted to the REMEDIATION ENGINEER and the correction procedures to be employed in the case of substandard results.

4. The plan shall include a plan for corrective measures to be taken in the event performance requirements are not met in a specific area.

G. Daily Records summarizing the work activities including daily totals and running totals for volume of soil mixed and grout components used. CONTRACTOR shall attach daily grout mixing forms. Daily reports shall include at a minimum the following information:

1. Description of the work completed with a sketch identifying where work was completed.

2. Date and time of beginning and completion of work, including interruptions to the mixing process or material supply.

3. Grout batch records, if applicable.

4. Daily totals and running totals for volume of soil and grout components (if applicable) used.

5. Issues identified and how they have been resolved.

H. Completion Report summarizing the work activities completed which shall include at a

minimum the following information:

1. Grout Quantities: Quantities of grout constituents delivered to the Site and used during the project with backup in the form of weigh receipts, bills of lading, flow meter records, or equivalent.

2. Date Certificates of Analysis: Certificates of Analysis for each load of grout component imported to the Site. If the grout is delivered pre-blended, then a certificate of analysis shall be required for each component (e.g., Portland cement) of the grout blend. All testing conducted for the Certificates of Analysis shall be performed by a laboratory that has been accredited by the American Association of State Highway and Transportation Officials (AASHTO). Provide one (1) certificate of analysis for each type of material and one (1) for each and every source. This shall be required once during the project, prior to delivery of materials to the Site. The analysis shall ensure compliance with materials requirements specified herein.

3. Results of all QC and quality assurance (QA) testing.

4. Project modifications: Any modification to the project schedule and any modifications or deviations from the Contract Documents.

5. Spoil Disposal/Handling Methods: Description of spoil disposal and handling methods, as well as quantities managed.

6. Unforeseen Issues: Any unforeseen Site conditions or equipment problems that affected solidification efforts and how they were resolved.

7. Record Survey Drawings: Record survey drawings of the as-built lateral extent and top and bottom elevations of the stabilization effort and QC sampling locations.

PART 2 - PRODUCTS

2.01 MATERIALS REQUIREMENTS

A. Provided below are general guidelines for evaluating the quality of raw materials to be used in the process. CONTRACTOR may propose alternative materials, material quality standards, and test methods for the raw materials, subject to approval by the REMEDIATION ENGINEER.

1. Cement - if used in preparing grout, shall conform to ASTM Designation C150, "Requirements for Portland Type I/II." The cement shall be adequately protected from moisture and contamination while in transit. Cement shall be stored in supersacks or silos or temporarily in other appropriate bulk storage containers and protected from moisture. Reclaimed cement or cement containing lumps or deleterious matter shall not be used.

2. Grout - The pumpable mixture of pozzolanic material and other approved additives added to the subsurface will be referred to as grout. The purpose of the grout is to solidify subsurface materials to render immobile any nonaqeous-phase liquid (NAPL) present in areas shown on Design Drawings. In addition, when cured, the subsurface solidified matrix shall be capable of supporting backfill and the final cover material. The grout shall consist of ground granulated blast – furnace slag, Portland cement, 0.5% bentonite, and water. The ratio of slag to cement shall be three to one (3:1). The water to reagent ratio shall be in the range of 1:1 to 1.35:1. These ratios may be modified during the work based on actual test results and observations if approved by the DESIGN ENGINEER.

3. Water – Potable water, free of deleterious substances that adversely affect the properties of the grout, shall be used for ready mixed grout. Potential water sources shall be tested by the CONTRACTOR prior to beginning the construction to assure that the water is of suitable characteristics for grout preparation. Water shall meet ASTM C1602 standards.

4. Slag – Ground Granulated Blast Furnace Slag, Grade 120 shall conform with New York State Department of Transportation (NYSDOT) Specification 711-12. Slag materials that are considered Technically Enhanced Naturally Occurring Radioactive Material (TENORM) are prohibited from the site.

5. The following percentages of reagents and *in situ* materials shall be used unless the CONTRACTOR's Pilot Study demonstrates that a higher or lower proportion of reagent will be needed to meet project requirements:

In Situ Materials	Reagents
~92.5%	~7.5%

6. Additives (Optional) - Admixtures of softening agents, dispersants, retarders or plugging or bridging agents may be added to the water or the grout to permit efficient use of materials and proper workability of the grout. However, no additives shall be used prior to informing, and gaining approval from, the DESIGN ENGINEER.

7. Proprietary Chemicals (Optional) - Shall be approved by the REMEDIATION ENGINEER based on initial bench scale testing results provided by the CONTRACTOR.

2.02 EQUIPMENT

A. CONTRACTOR shall furnish the equipment for construction of the facilities necessary to complete the ISS work. The CONTRACTOR's equipment shall be of the type and capacity to complete the work in an efficient manner and shall be maintained in operable condition at all times.

B. Equipment used to complete the ISS work may include, but is not limited to, excavators with bucket attachment and/or auger mixing heads, pug mills, grout mixing plants, Frac tanks or liquid holding tanks and transport equipment. Screening equipment may also be required for *ex situ* stabilization/solidification work, if necessary, to remove any material greater than the *in-situ* mixing equipment can manipulate.

C. Grout Mixing Plant - (Optional), the CONTRACTOR shall provide a grout mixing plant containing the necessary equipment for preparing the grout including a high-shear/high speed colloidal mixer capable of producing a stable grout mixture. If no grout mixing plant is to be provided, provide mix information on pre-mixed grout from facility, meeting the requirements of ASTM C94.

D. Submit all quality control data in accordance with the approved QC Plan.

E. Dry materials used in the grout mixing, if stored on site, shall be stored in silos prior to mixing and fed via a calibrated rotary valve (screw feeder) to the colloidal mixer(s) for agitation and circulation. If dry materials are delivered to the site in supersacks, the material shall be adequately protected from weather.

F. If applicable, calibration of mixing components shall be done at the start of the project and at a minimum of weekly thereafter. The screw feeders or rotary valve shall be calibrated against time to deliver a predetermined weight. Water shall be controlled by flow meter and/or by the volume level indicators in the colloidal mixer. The specific gravity of the grout shall be determined during the design mix program for double checking grout proportions. Grout

volumes from the mixing plant shall be monitored by a flow meter capable of measuring liquids containing high solids or other acceptable method.

G. Solidification equipment must be capable of delivering and mixing solidification reagents such that uniform dispersion of reagents occurs, producing a uniform product capable of producing the required strength.

H. Environmental control equipment may consist of the following: odor and emissions control foam, water sprays (misting), a dust hood on the bucket of the loader/excavator, and a perimeter odor masking system to regulate and reduce the amount of potentially noxious emissions while treating with solidification agents and curing.

PART 3 - EXECUTION

3.01 PILOT-SCALE STUDY

A. A pilot-scale study shall be performed as the first part of the full-scale implementation at a location approved by the REMEDIATION ENGINEER.

B. The pilot-scale study shall use the same equipment proposed for the full-scale implementation.

C. A mix design is defined as variations of the cement addition, bentonite addition, and/or water addition rates. For each proposed mix design to be used for the full-scale implementation:

1. A minimum of two cells totaling approximately 500 cubic yards (i.e., approximately 250 cubic yards per cell) shall be mixed.

2. Mix the test cells at the locations designated by the REMEDIATION ENGINEER.

D. Each cell and overlap shall be sampled as described in Article 3.04.

E. A minimum of three (3) full depth mixing passes shall be performed for each cell. Additional mixing passes shall be performed if visual inspection of samples indicates incomplete or non-uniform mixing of grout and soil.

F. Full-scale implementation shall not begin until the results from the pilot study demonstrate that one or more of the proposed mix designs meets the project requirements in this specification as approved by the REMEDIATION ENGINEER.

3.02 FULL-SCALE IMPLEMENTATION

A. The solidification area shall be constructed within the boundary shown on Design Drawings and in accordance with these specifications unless otherwise approved by the REMEDIATION ENGINEER.

B. Horizontal Alignment - The solidification treatment areas shall be staked out prior to beginning construction. The advancement of solidification treatment shall be set according to surveyed reference points in accordance with the approved Work Plan.

C. Vertical Alignment - CONTRACTOR shall establish vertical survey control prior to beginning construction for use throughout mixing operations.

D. Mixing Speed – (if applicable) The mixing speed of reagents shall be adjusted to accommodate a constant rate of mixing based on the degree of mixing difficulty.

E. Pre-mixing – The overburden soils shall be mixed to create a homogenous mixture prior to mixing with reagents.

F. Grout Take – (if applicable) The grout take per measured unit of solidified soil will be adjusted to the requirements of the design mix. Positive displacement pumps will be used to transfer the grout from the mix plant to the active treatment area.

G. Performance Criteria - The treated subsurface materials shall achieve the characteristics presented in the Table in Subsection 3.04F.

H. Remixing - In the event the soil mix has not:

1. Adequately incorporated site contaminants into a homogeneous mix as evidenced through testing conducted by the REMEDIATION ENGINEER; or

2. Achieved the specified structural requirements at 28 days, the CONTRACTOR shall retreat this material per the direction of the REMEDIATION ENGINEER at no additional cost to the project to meet this minimum treatment standard.

3.03 TOLERANCES

A. The following tolerances shall apply to the dimensions and construction:

1. The depth of the cell shall be measured or surveyed to within six inches of the desired elevation. The depth shall be measured from the surface to the bottom of the mixing bucket.

2. The pattern of overlaps shall be surveyed and staked to ensure that the overlap or overlap ratio is constructed as designed.

3. Construction will not be permitted when the air temperature is below 20 degrees F or when severe weather conditions may compromise the quality of the work.

4. The addition ratio shall be calculated and checked for each cell. The addition ratio may be corrected for previous overlaps in the same cell. In all cases, the minimum addition ratio shall be observed.

3.04 QUALITY CONTROL

A. CONTRACTOR shall be responsible to ensure that all work is performed to the standards established herein, subject to review and inspection by the REMEDIATION ENGINEER. All quality control records, routine tests, observations, and measurements shall be generated by the CONTRACTOR and made available for inspection by the REMEDIATION ENGINEER. All quality control testing shall be at the expense of the CONTRACTOR. CONTRACTOR is obligated to provide REMEDIATION ENGINEER with required test cylinders for independent laboratory testing. Cylinder specimens will be collected under the inspection of the REMEDIATION ENGINEER and will as close as possible represent the sample on which the CONTRACTOR performs its performance testing.

B. Submittals - The CONTRACTOR shall make timely submittals of all information required by Article 1.03 to the DESIGN ENGINEER and REMEDIATION ENGINEER.

C. Materials - The CONTRACTOR shall submit data, tests, manufacturers' certificates, etc., to document the compliance of all materials to specifications determined by the CONTRACTOR in the quality control plan.

D. Thorough mixing of soil and cementitious materials will be visually evaluated and mixing will continue until no unmixed product is visible, and odor, oil, discoloration, and PID readings are indicative of stabilized/treated soil.

E. Samples of the stabilized/solidified soil for UCS and permeability testing will be taken each day; but not less than 1 sample for every 5,000 square feet. CONTRACTOR shall devise and

implement procedures to correlate specific samples to specific treatment areas. Sufficient samples shall be collected to make up three molds for quality control testing and additional two molds to serve as backup samples. The soil mix shall be placed in suitable molds, rodded to remove trapped air pockets, placed in a plastic bag that contains sufficient moisture to keep the mixture damp, and stored within an enclosure at temperatures between 50 degrees and 70 degrees Fahrenheit. Samples shall be cured between 7 and 10 days prior to being transported to the laboratory.

F. Samples shall be transported to an independent geotechnical laboratory and/or environmental testing laboratory for testing once the samples have sufficient strength so as to not adversely affect the properties. One sample from each sample location shall be tested for the following at 14 days and a second sample at 28 days:

Requirements for Solidified Material

Test Name	Method	Sample Frequency	Required Result
Unconfined Compressive Strength	ASTM D1633	1 per 5000 sf, minimum one per day	Minimum of 50 psi at 28 days
Hydraulic Conductivity	ASTM D5084	1 per 5000 sf, minimum one per day	$1x10^{-6}$ cm/sec at 28 days

sf =square feet (plan area)
psi = pounds per square inch
cm = centimeter
sec = second

All test results shall be reported to the REMEDIATION ENGINEER as soon as they become available from the laboratory. If initial sample test results do not meet criteria at 28 days, a backup sample shall be tested.

G. After the soil has been mixed and has cured in place and the laboratory tests have passed the specified criteria, then the wall will be cored through its full depth, including its interface with the bedrock. Samples for visual inspection per NYSDEC (2016) shall be conducted at a rate of one sample per 5,000 square feet (plan area) and no less than two per area of treatment. The first core borehole will be performed before the in situ stabilization work is 25 percent complete. During borehole operations, the drilling tools will be evaluated for NAPL coating and the drill wash tub will also be observed for evidence of free NAPL. The full depth samples will be visually inspected for the following criteria:

1. Visible NAPL;
2. Non-mechanical induced cracking within the core; and
3. Percent of core sample recovered.

H. CONTRACTOR shall maintain records for all testing, measurements, observations, and inspections. Quality Control Reports shall be submitted to the REMEDIATION ENGINEER each day on a form acceptable to the REMEDIATION ENGINEER. These reports shall list all test results, measurements, and observations made and/or received by the CONTRACTOR for that day.

I. The REMEDIATION ENGINEER reserves the right to perform additional tests, with support of the CONTRACTOR, on the solidification area. The REMEDIATION ENGINEER's testing will in no way relieve the CONTRACTOR of the responsibility to perform the tests as specified in the above sections and to meet this specification.

END OF SECTION

SECTION 02 56 13

SOIL COVER CONSTRUCTION

PART 1 - GENERAL

1.01 WORK INCLUDED

The Work of this Section includes preparation of the subgrade for placement of soil cover by smoothing and removing or compacting all compressible materials on the existing surface. The soil cover is required to allow for restricted-residential use of the Site.

A. Provide and place or grade subsoil to bring the subgrade to the minimum grade required for the cover in preparation of placement of the general fill layer.

B. Provide and place a demarcation layer over the prepared subgrade.

C. Provide and place a general fill layer consisting of at least 18 inches of general fill.

D. Provide and place 6 inches of topsoil over the general fill layer. This layer shall be graded to the finished surface shown in the Design Drawings.

1.02 REFERENCES

A. ASTM D6913. Standard Test Method for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

B. ASTM D7928 Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis

C. ASTM D698. Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft^3)

D. ASTM D1557. Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3)

E. ASTM D2216. Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

F. ASTM D6938. Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

G. ASTM D4318. Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

H. New York Department of Transportation: Standard Specifications (US Customary), Current Version

I. OSHA Regulations. Department of Labor, Occupational Safety and Health Administration (OSHA), 29 CFR Part 1926, Occupational Safety and Health Standards - Subpart P - Excavations

1.03 TESTS

A. Quality control/quality assurance testing of gradation, compaction density, and moisture content of the various earth materials shall be performed by the CONTRACTOR as described herein or more frequently if necessary to control the work and comply with these specifications. In addition, the CONTRACTOR shall submit test results for all imported materials showing compliance with applicable specifications prior to importing the materials to the Site. Work that does not meet specifications shall be redone at no cost to the OWNER.

B. Testing of the general fill layer and topsoil prior to acceptance of the materials shall be conducted by the Remediation Engineer in accordance with Section 31 00 00 – General Earthwork.

C. During construction, the CONTRACTOR shall perform the following quality control tests on the general fill soil layer during and immediately after placement for materials requiring compaction as described in Article 3.01. Results shall be submitted to the REMEDIATION ENGINEER.

Test	Approximate Frequency
Density and Water Content (Nuclear) ASTM D6938	5 tests / acre
Standard Proctor ASTM D698	1 test / 1,000 cy or material change

1.04 SUBMITTALS

A. Source of imported materials and material certification.

B. Results of all soil sampling and laboratory testing described above.

C. Results of compaction testing.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Subsoil. Subsoil to create the required subgrade may be generated by regrading the Site, as long as it can be compacted to a firm, incompressible mass, without excessive organics or debris subject to eventual decay and collapse.

B. Demarcation Layer. The demarcation layer shall consist of a nonwoven geotextile and will meet the requirements for separation geotextiles presented in Table 31 25 14-1 of Section 31 25 14 – Geotextiles and Rolled Erosion Control Products. This layer shall not be installed on slopes greater than 10%.

C. General Fill Layer. This layer will consist of General Fill conforming with Section 31 00 00 – General Earthwork and consisting of soils native to the area and shall be a mineral soil, homogenous in extent, free from organics, and free from debris.

D. Topsoil Layer. Topsoil shall conform with Section 32 91 19.13 – Finish Grading, Topsoil and Seeding.

2.01 MATERIAL DELIVERY/HANDLING/STORAGE

A. The Work Area designated on the Design Drawings is available to the CONTRACTOR for stockpiling, staging, etc., but the CONTRACTOR shall coordinate all details and shall be wholly responsible for all aspects of material delivery, handling, and storage.

PART 3 - EXECUTION

3.01 SOIL COVER LAYER PLACEMENT

A. Subsoil in Soil Cover Areas. The existing soil subgrade shall be compacted using a minimum of three passes of a vibratory roller with an operating weight of at least 10 tons prior to the placement of additional soil. After removing obstructions and smoothing as necessary, the subgrade shall be proof rolled with at least one pass of a loaded 10-ton dump truck to identify any soft areas. The existing subsoil shall be regraded, and additional fill provided to create the required grade for the finished soil cover. Imported and regraded subsoil shall be placed in maximum 12-inch lifts (compacted thickness) and shall be compacted using a minimum of

three passes of a vibratory roller with an operating weight of at least 10 tons to firm, unyielding conditions. Rutting, weaving, or pumping conditions will require scarifying and moisture conditioning the materials prior to recompaction. Immediately prior to placement of the demarcation layer, the subgrade shall be proof rolled with at least one pass of a loaded 10-ton dump truck to identify any soft areas. Soft areas shall be scarified, moisture conditioned, and recompacted as necessary.

B. Subsoil in Permanent Paved Areas. The existing soil subgrade shall be compacted using a minimum of three passes of a vibratory roller with an operating weight of at least 10 tons prior to the placement of additional soil. After removing obstructions and smoothing as necessary, the subgrade shall be proof rolled with at least one pass of a loaded 10-ton dump truck to identify any soft areas. The existing subsoil shall be regraded, and additional fill provided to create the required grade for the finished soil cover. Imported and regraded subsoil shall be placed in maximum 12-inch lifts (compacted thickness) and shall be compacted using a minimum of three passes of a vibratory roller with an operating weight of at least 10 tons to firm, unyielding conditions. The soil will be moisture conditioned to ± 3 percent of the optimum water content and compacted to at least 90 percent of the maximum dry density determined using the Standard Proctor Test (ASTM D698). Rutting, weaving, or pumping conditions will require scarifying and moisture conditioning the materials prior to recompaction. Immediately prior to placement of the demarcation layer, the subgrade shall be proof rolled with at least one pass of a loaded 10-ton dump truck to identify any soft areas. Soft areas shall be scarified, moisture conditioned, and recompacted as necessary.

C. Demarcation Layer. Install the demarcation layer in accordance with the Design Drawings and Section 31 25 14 – Geotextiles and Rolled Erosion Control Products.

D. General Fill Layer. Within soil cover area, 18 inches of general fill shall be placed and compacted on top of the prepared subsoil. If this layer is to be covered with topsoil and vegetated, then it shall be placed in a single lift and leveled without compaction to permit root penetration. If this layer will be the subgrade for a gravel or asphalt surface, then it shall be placed in 9-inch lifts (compacted thickness), moisture conditioned to ± 3 percent of the optimum water content, and compacted to firm, unyielding conditions with a dry density of at least 90% standard proctor maximum dry density.

1. Substitution of other materials and components into the general fill layer may be allowed to incorporate topographic relief into the Site 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, cement, paved surface parking areas, sidewalks, building foundations, and building slabs.

D. Topsoil. A minimum of 6 inches of topsoil shall be placed over the General Fill Layer and graded to the finish grade shown on the Design Drawings. Placement of topsoil shall be as specified in Section 32 91 19.13 – Finish Grading, Topsoil and Seeding.

3.02 TOLERANCES

A. Unless specified elsewhere, final ground surface on the cover shall have a minimum drainage slope of 1%, with no undrained depressions, unless otherwise indicated on the Design Drawings or approved by DESIGN ENGINEER. Unless specified elsewhere, the final surface of the soil cover area shall have maximum slope of 3H:1V.

B. The thickness tolerances for the combined general fill and topsoil layers are +0.2 feet/-0.0 feet of the design finish grade.

3.03 FIELD QUALITY CONTROL

A. Quality Control:

1. The CONTRACTOR shall perform the various tests as outlined in the Articles 1.03 Tests, and 1.04 Submittals in this Section.

B. Quality Assurance:

1. The REMEDIATION ENGINEER may verify that imported materials (general fill, topsoil, etc.) meet specifications. This will be accomplished by reviewing CONTRACTOR submittals for all different types of imported materials and by observing onsite stocks and performing compliance testing on representative samples as deemed necessary.
2. The REMEDIATION ENGINEER may verify that compacted in-place materials meet dry density specification and that the materials are compacted at moisture content that is within the specified range.
3. The REMEDIATION ENGINEER may verify that subgrades of areas to be filled are free of soft spots, debris, or water.
4. The REMEDIATION ENGINEER may verify that equipment is as specified (compactors, etc.).
5. The REMEDIATION ENGINEER may observe subgrade preparation to verify that a smooth, non-yielding surface free of rocks or sharp objects is achieved. The REMEDIATION ENGINEER may also verify that the grade of the finished surface will be according to Design Drawings.
6. The REMEDIATION ENGINEER may verify that the various soil layers are placed to grade and to the correct thicknesses.

END OF SECTION

SECTION 02 61 15

HANDLING AND DISPOSAL OF IMPACTED MATERIALS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section includes a description of requirements and responsibilities for handling, screening, transportation and disposal of waste materials removed and identified for offsite disposal including but not limited to the following materials:

1. Land Clearing Debris
2. Non-Hazardous Remediation Waste (soil and sediment)
3. Hazardous Remediation Waste (soil and sediment)
4. Construction Water
5. Metal Waste
6. Recyclable Metal
7. Sanitary Waste
8. Site Refuse

B. Construction and demolition debris, including demolished asphalt/concrete pavement, Site piping, fencing, and tree clearing will be segregated from contaminated soil for offsite disposal. The debris is anticipated to be classified as non-hazardous.

C. Properly transport and dispose of all items, which can be generally classified as hazardous and non-hazardous solid wastes removed from the Site to appropriate disposal facilities. This includes existing wastes as well as the wastes generated during construction.

D. All sampling, analysis, transportation, and disposal requirements of the Treatment, Storage and/or Disposal Facility (TSDF), Solid Waste Management Facility (SWMF), Publicly Owned Treatment Works (POTW), or reclamation/recycling/salvage facility, federal, state, and local governments are to be complied with and properly documented.

E. The CONTRACTOR shall video local roads along proposed haul routes prior to the initiation of the work and after completion of the work to document the existing condition of the road prior to being exposed to project traffic.

F. Scope:

1. Provide all labor, materials, equipment, and incidentals as shown, specified and required for removal and handling of impacted materials in the Work Area.
2. The Work includes handling, segregating, dewatering, temporary storage as necessary, and loading of contaminated material for transport to appropriate OWNER-selected or OWNER-approved facilities in accordance with Laws and Regulations.
3. CONTRACTOR shall be responsible for obtaining the appropriate permits and equipment necessary for the removal, processing (e.g., screening, dewatering, stabilizing), transportation, and disposal of such materials and pay all fees (unless otherwise paid by the OWNER) associated with removal, processing, transporting and disposing of contaminated

material.

4. Separate and stockpile cobbles and boulders 6 inches or greater in size for reuse as shoreline backfill inland from the Ordinary High Water Mark.

G. Coordination:

1. Coordinate disposing of waste as specified under this and other Sections.

1.02 REFERENCES

A. Definitions:

1. Asbestos Containing Material (ACM): Any material containing greater than 1% asbestos

2. Land Clearing Debris: Trees and vegetative growth including shrubs, bushes, vines, grasses, root systems, stumps, and other organic matter that is generated during clearing and grubbing.

3. Solid Waste: typical municipal household and/or commercial/industrial waste in solid form and not classified as hazardous waste, including rubbish/trash, garbage, other miscellaneous discarded material/debris. Includes waste generated during the course of remedial action construction from Site workers, equipment, temporary facilities and controls, and/or imported materials.

4. Debris: Any solid materials intended for disposal that is larger than 60 millimeters (2.36 inches). Solid materials may include, but are not limited to, timber piles, stone blocks, concrete, brick, plastics, tires, wire/cable/chain, sheet metal, anchors, wood debris, and other miscellaneous materials as designated by REMEDIATION ENGINEER. Such materials will be segregated as appropriate from other excavated materials (i.e., soil and sediment) resized to pass through a grid opening of 24-inches by 24-inches square (or as required by the OWNER-approved disposal facility), and handled separately, where practicable. Large boulders encountered as part of excavation shall be brought to the attention of REMEDIATION ENGINEER prior to removal and may ultimately be used as shoreline backfill inland from the Ordinary High Water Mark if approved by REMEDIATION ENGINEER.

5. “Disposal” is removal to an offsite location of contaminated material and subsequent recycling, reuse, or disposal in an OWNER-approved or OWNER-selected landfill or incinerator conforming to Laws and Regulations and acceptable to authorities having jurisdiction.

6. Non-hazardous Remediation Waste: Soil, sediment, sludge, treatment system byproducts, and associated debris that are not a listed hazardous waste and do not exhibit any of the characteristics of hazardous waste defined in 40 CFR 261 Subpart C 6 NYCRR Part 371 – Identification and Listing of Hazardous Wastes.

7. Hazardous Remediation Waste: Hazardous soil, sediment, sludge, treatment system byproducts, and associated debris that are a known listed hazardous waste or exhibit any of the characteristics of hazardous waste defined in 40 CFR 261 Subpart C and/or 6 NYCRR Part 371 – Identification and Listing of Hazardous Wastes.

8. Construction Water: water/liquids that contain less than 1% by weight total organic carbon (TOC) and less than 1% by weight total suspended solids that have contact contaminated materials, and includes the following:

a. Water which exhibits visible sheen or turbidity as a result of contact with contaminated soils, sediments, fill or debris that have had the surface disturbed by

construction-related activities; with the exception of water classified as stormwater, floodwater, or dredge water per Section 02 72 00 – Construction Water Management.

b. Liquids generated during decontamination activities.

c. Water collected from the sediment stabilization activities.

9. Sanitary Wastes: Wastes characterized as sanitary sewage.

10. Metal Waste: Surficial and buried metal wastes that are saturated in contamination and/or too small in size to be easily segregated from soil/sediment or other construction and demolition (C&D) debris.

11. Recyclable Metal: Surficial and buried metal that can easily be segregated from soil/sediment or other construction and demolition (C&D) debris. May include pipes that are free of hazardous liquids, rebar, and damaged fencing.

12. Contaminated Materials: Waste types requiring special handling including land clearing debris, grubbing, remediation waste, non-hazardous waste, construction water, and impacted soil. Other materials in direct contact with these waste types are also classified as contaminated.

13. Clean: Work or areas where direct contact with contaminated material does not occur. Clean areas include areas where remediation is not required as determined by remedial investigation testing; areas where remediation has been completed as verified by confirmation testing, and areas where separation between clean and impacted has been maintained with an engineered control.

14. Impacted: Work or areas where direct contact with contaminated materials does occur.

15. Engineered Control: A physical barrier or method to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination or eliminate potential exposure pathways to contamination. Examples may include clean temporary access roads, stockpile containment areas, and tarps.

16. Generator: For the purpose of the project, the OWNER, or the REMEDIATION ENGINEER on behalf of the OWNER, will assume the role of generator and shall sign all required documentation and recordkeeping.

17. Transporter: Means a person or firm engaged in the offsite transportation of solid waste by air, rail, highway, or water.

B. Reference Standards:

1. The following standards are referenced in this Section:

a. ASTM E329, Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.

b. United States Environmental Protection Agency (EPA Method 9095, SW-846; USEPA 1991h) – Paint Filter Test.

1.03 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:

a. 29 CFR 1910, Occupational Safety and Health Standards.

b. 29 CFR 1926, Safety and Health Regulations for Construction.

c. 40 CFR 261.3, 264, and 265, Resource Conservation and Recovery Act (RCRA).

d. 49 CFR 171.8, Transportation, Definitions and Abbreviations.

e. 46 CFR 46, Shipping

f. 6 NYCRR 248, Use of Ultra Low Sulfur Diesel Fuel and Best Available Retrofit Technology for Heavy Duty Vehicles

g. 6 NYCRR 364, Waste Transporter Permits.

h. 6 NYCRR 370, Hazardous Waste Management System – General.

i. 6 NYCRR 371, Identification and Listing of Hazardous Wastes.

j. 6 NYCRR 372, Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities.

k. 6 NYCRR 373, Hazardous Waste Management Facilities.

l. 6 NYCRR 375, Environmental Remediation Programs.

m. 12 NYCRR Part 56, Asbestos.

n. New York State Department of Environmental Conservation (NYSDEC) Technical Guidance for Site Investigation and Evaluation (DER-10).

o. United States Department of Transportation (USDOT) Regulations.

p. New York State Department of Transportation (NYSDOT) Regulations.

q. New York State Diesel Emission Reduction Act (DERA).

2. Comply with applicable provisions and recommendations of the following:

a. NYSDEC Management of Coal Tar Waste and Coal Tar Contaminated Soils and Sediment from Former Manufactured Gas Plants (MGPs) (DER-4).

b. NYSDOT Standard Specifications and Standard Sheets.

3. Obtain required permits and approvals for removal of material, including work permits from right-of-way owners.

4. Comply with requirements of authorities having jurisdiction.

1.04 SUBMITTALS

A. Action Submittals: Submit the following:

1. Product Data: Submit manufacturer's product data for proposed drying agent.

2. A Materials Handling Plan (may be included in the Project Operations Plan) detailing the procedures, materials and equipment to be used for the excavation, dredging, screening, dewatering, relocation, transportation, consolidation, and disposal of waste materials and stockpiling of screened cobbles and boulders. Include procedures for the abatement of lead and/or asbestos containing materials that may be encountered during excavation, demolition, and removal of underground utilities, foundations, manholes, and vaults. Include a spill contingency plan as part of this submittal. This submittal may incorporate or reference the Water Quality Management Plan (WQMP) described in Section 31 23 16 –

Excavation. Do not begin waste excavation or dredging work until the REMEDIATION ENGINEER has approved this submittal.

3. Waste Management Plan (may be included in the Project Operations Plan): Prepare plan describing means and methods for managing material after removal and arranging for transportation of all generated waste as a result of remediation activities to the offsite processing and disposal facility(ies). At a minimum, include the following:

   a. Description, number, and type of trucks to be used for material transport, including debris, from the removal areas to the upland support/staging areas.

   b. Locations of all identified TSDFs and reclamation/recycling/salvage facilities.

   c. Name, location, and a copy of the operating permit for offsite disposal facilities to be used.

   d. Waste profiles and acceptance letters from each disposal facility.

   e. The proposed haul route over local roads to each of the identified facilities.

   f. Video records of the existing condition and final condition of the local roads proposed for haul routes.

   g. Sample manifest(s) or Bill of Lading to be used for the project

   h. Description of conveyance system piping and pumps (number and type) to be used for water transport from the removal areas to the temporary construction water treatment system (CWTS).

   i. Description of the equipment and process flow to be used to screen material at the support area.

B. Information Submittals: Submit the following:

1. Copies of all local, state, and federal transport permits, licenses, and approvals.

2. Waste Transporter Permits: Submit copy of valid NYSDEC waste transporter permit for each transporter hauling contaminated material.

3. Disposal Records: CONTRACTOR to obtain and provide to the REMEDIATION ENGINEER counter-signed manifests, bills of lading, weight tickets, receipts, and invoices for disposal facility(ies) other than ESMI's Fort Edward facility on a monthly basis throughout the Project, and concurrent with each Application for Payment.

4. Weekly tracking summary report that includes the type of waste material, weight, volume, disposal/recycle location, date of shipment, date of receipt, and responsible transporter.

5. REMEDIATION ENGINEER to provide copies of waste characterization results, as necessary.

C. Samples: Provide adequate quantities of the following materials to the REMEDIATION ENGINEER for analytical sampling:

1. Waste Characterization: Provide samples of removed material at the quantity and frequency specified by the selected disposal facility. Provide samples the same day that the material is removed.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store drying agent, if any, in closed water-proof super sacks not exceeding 1 ton in weight. Bulk deliveries and uncontained onsite storage of drying agent are prohibited.

1.06 WASTE CONTAINERS

A. Equipment and materials as required in Section 31 23 16 – Excavation for excavated sediments and soils.

B. Trucks or other equipment as required for onsite management and handling of all waste types in a manner that minimizes comingling and cross contamination.

C. Appropriate containers and/or trucks for the offsite transportation disposal/recycling of all wastes. All vehicles transporting contaminated material shall be fully lined with minimum 6-mil polyethylene sheeting, an equivalent material, or otherwise water-tight, and shall be equipped with functioning tailgate locks and non-mesh (solid), waterproof tarpaulins.

D. Portable, temporary storage tanks (e.g., Frac tanks) for the storage/treatment of collected construction water.

E. Containers (e.g., roll-off containers) for site refuse collected during the course of the project and during final site cleanup activities.

F. Plastic bags for disposable personnel protection equipment. Plastic bags shall have a minimum thickness of 6- mils.

G. Lined and covered stockpile areas for excavated soil and dredged sediment.

1.07 RECORDKEEPING

A. This section applies to all wastes identified in Subsection 1.02B except Hazardous Remediation Waste.

B. Document each waste load shipped offsite.

1. Complete a bill of lading provided by the transporter or TSDF for non-hazardous wastes. Other forms as approved by the REMEDIATION ENGINEER may be used. The form shall generally include the following information:

a. Unique identifying tracking number.

b. Generator/generator representative contract information.

c. Transporter contract information.

d. TSDF contact information.

e. Date of shipment.

f. Quantity of shipment.

g. Signatures of generator/generator representative, transporter, and TSDF.

1.08 RECORDKEEPING FOR HAZARDOUS REMEDIATION WASTE

A. Document each load of Hazardous Remediation Waste shipped offsite in accordance with all federal, state, and local regulations and requirements.

B. Provide signed manifests to the noted recipient on each copy of the form including the generator, transporter, and designated TSDF.

C. Complete a Uniform Hazardous Waste Manifest for hazardous waste in accordance with Sub-Part 1.09.

1.09 DISPOSAL OF REMEDIATION WASTES

A. Dispose of all wastes that are specified as a component of the Work or that are generated during the execution of the Work at approved TSDFs in conformance with all federal, state, and local regulations and requirements.

B. The REMEDIATION ENGINEER/OWNER shall approve of all designated TSDFs prior to offsite transportation and disposal. The CONTRACTOR shall not change facilities without prior consent of the REMEDIATION ENGINEER/OWNER.

C. Approved TSDFs, POTWs, and reclamation/recycling/salvage facilities shall be licensed to accept the profiled/characterized wastes.

D. Maintain waste onsite until approval of the waste profile has been granted by the TSDF/POTW.

E. Document certified weights of each waste load measured by the TSDF, POTW, or reclamation/recycling/salvage facility at the time of disposal. The certified weight slips shall include at a minimum, the name and location of the TSDF, the date and time of measure, and the net weight of the load measured in tons calculated by subtracting the vehicle tare weight from the total gross weight (vehicle and load). For POTWs, the unit of measure shall be gallons.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Drying Agent: Provide Portland cement, cement kiln dust, lime kiln dust, or approved non-biodegradable sorbent containing no more than 50 percent reactive (free) calcium oxide (CaO) and magnesium oxide (MgO) by weight.

PART 3 – EXECUTION

3.01 GENERAL

A. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent facilities.

1. Designate and label specific areas of the Site necessary for separating and storing wastes.

B. Provide temporary controls and signage in accordance with the Contract Documents and Sections 01 51 05 – Temporary Utilities and Controls and 01 58 13 – Temporary Project Signage.

3.02 PREPARATION FOR ONSITE TRANSPORTATION

A. Dewatering of removed material to meet the requirements for onsite transportation to the upland staging area and dewatering pad shall include gravity dewatering within the remediation work areas.

3.03 ONSITE TRANSPORTATION

A. CONTRACTOR shall use lined, sealed, or otherwise watertight trucks when transporting excavated and dredged waste materials to prevent leakage and spills.

B. CONTRACTOR shall construct access roads as necessary to provide safe and stable access to and egress from remediation work areas to avoid excessive load shifting during transport.

C. CONTRACTOR shall not overload haul trucks to avoid material spillage and/or exceeding manufacturer's load limits.

D. CONTRACTOR shall implement and enforce truck loading practices to avoid truck loading that may result in material spillage during onsite transport.

3.04 MATERIAL SEGREGATION AND REUSE

A. Materials will be removed in accordance with Section 31 23 16 – Excavation.

B. ACM or Suspected ACM shall be handled in accordance with 12 NYCRR Part 56.

C. Site-grubbing wastes shall be handled in accordance with the waste stream for the surrounding excavated material.

1. To prevent the spread of Emerald Ash Borers, any ash wood or other ash tree parts shall be chipped onsite to a size of 1 inch in two of three dimensions.

D. Once at the upland staging area, removed material will be dewatered via gravity, followed by physical separation via mechanical screen. Screened cobbles and boulders greater than 6 inches in diameter shall be sprayed (e.g., pressure washed or equivalent) and inspected to verify that they are free of non-aqueous phase liquid (NAPL) and Tar Like Material (TLM) prior to being reused for restoration.

E. If cobbles and boulders segregated for reuse produce visible sheen when in contact with water, the cobbles shall be re-sprayed in the decontamination area or processing pad to remove sheen producing residuals to the satisfaction of the REMEDIATION ENGINEER, the OWNER, and/or NYSDEC. Wash water shall be collected and treated onsite at the temporary CWTS.

3.05 WASTE CHARACTERIZATION

A. General:

1. In accordance with DER-4, excavated material exhibiting a toxicity characteristic for benzene (D018) will be disposed offsite at a low-temperature thermal desorption (LTTD) facility (i.e., ESMI's Fort Edward facility).

2. Non-impacted/non-hazardous waste material may be disposed of offsite at a non-hazardous solid waste landfill facility approved by the OWNER.

3. Segregate waste streams as required by waste transporters and disposal facilities. Crush rock and debris, as necessary, to render material suitable for disposal.

B. Waste Characterization:

1. Provide REMEDIATION ENGINEER with list of disposal facility characterization requirements for each non-impacted/non-hazardous waste stream.

2. REMEDIATION ENGINEER shall collect waste characterization samples and submit the samples for laboratory analysis (as required by the disposal facility[ies]), and coordinate and pay for laboratory testing.

3. Removed material to be disposed of at the LTTD facility shall be analyzed for the following:

a. Total petroleum hydrocarbons – diesel range organics by U.S. Environmental Protection Agency (USEPA) Method 8015

b. Total VOC by USEPA Method 8260

c. Total SVOCs by USEPA Method 8270

d. Total polychlorinated biphenyls by USEPA Method 8082

e. Total metals by USEPA Method 6010

f. Mercury by USEPA Method 7471

g. Total cyanide by USEPA Method 9012

h. Percent sulfur by American Society for Testing and Materials International (ASTM) D129-95

i. Heat of combustion BTU by ASTM International D240-92

j. Percent solids by Standard Method 2540G-97

4. The REMEDIATION ENGINEER shall coordinate with the LTTD facility to determine whether additional or different site-specific waste characterization sampling analytical and frequency requirements are requested by the LTTD facility.

3.06 DEWATERING OF REMOVED MATERIAL

A. CONTRACTOR shall use material processing pad and amending agents as necessary to stabilize excavated and dredged materials that will be disposed of offsite as a solid waste.

B. Drying agent shall not be added to impacted material outside of designated processing areas (e.g., impacted material staging area, container), and shall not be added to the ground surface within the removal areas. Drying agent shall not be applied to excavation areas with open water.

C. Stabilization and dewatering of excavated material to remove free liquids and meet the requirements of the selected offsite treatment/disposal facility (e.g., paint filter test, additional moisture content requirements), prior to the transportation of such materials to the offsite permitted treatment/disposal facility.

D. Dewater material as necessary to pass Paint Filter Liquids Test procedures (USEPA SW-846 Method 9095) before leaving the Site, as well as comply with additional moisture requirements from treatment and disposal facilities.

E. Transportation of liquids, including excavated and dredged wastes that do not pass the Paint Filter Test (EPA Method 9095, SW-846; USEPA 1991h) shall be in DOT compliant containers constructed for the shipment of liquids.

F. Dewatering shall include the following:

1. Gravity dewatering within the impacted materials staging area.

2. Use of approved drying agent to amend removed materials. Unless otherwise directed by OWNER, removed materials shall be amended with no more than ten percent drying agent by weight.

3.07 TEMPORARY STORAGE OF CONTAMINATED MATERIAL

A. General:

1. Provide temporary containment areas adequate to support and withstand traffic loads during the Project. Locate temporary containment areas within the temporary fabric structure.

2. Waste materials shall be stored in locations approved by the OWNER. Stockpiles shall be graded to a safe and stable slope and when not in use be covered with 6-mil poly sheeting and odor suppressant foam (as necessary) to prevent nuisance dust and/or odor emissions.

3. Provide safe and adequate vehicle/equipment access to and egress from the removal area and the temporary support and upland staging areas.

4. Special precautions shall be taken to permit access at all times to fire hydrants, fire alarm boxes, driveways, and other points where access may involve the safety and welfare of the general public. Site access for utility personnel shall be maintained at all times.

5. The CONTRACTOR shall mark, label, placard, package, and manifest wastes in accordance with applicable codes, regulations, and statutes.

B. Removed Material:

1. Removed materials may be temporarily staged in the support area.

   a. Removed materials shall only be stockpiled (for longer than 24 hours) within the temporary fabric structure.

   b. Based on Site conditions, the OWNER may elect to limit the maximum allowable stockpile size. Limitations to stockpile size shall not result in any additional cost to the OWNER.

   c. Stockpiles and temporary staging areas shall be inspected daily (at a minimum), and any noted deficiencies shall be immediately corrected by the CONTRACTOR to the satisfaction of the OWNER and/or REMEDIATION ENGINEER.

   d. All waste stockpiles shall be covered with a minimum 6-mil poly sheeting and/or odor suppressant foam to prevent nuisance dust and/or odor emissions when not in use.

   e. Stockpiles of recyclable metal, concrete, and/or 6-inch diameter cobbles that do not emit nuisance odors, generate turbidity, and/or sheen when rinsed can be stored on the upland portion of the site without a 6-mil poly sheeting cover.

2. Mobilize debris crushing/downsizing equipment prior to initiating excavation activities to minimize potential work delays once/if materials requiring downsizing are encountered.

3. Grossly contaminated debris emitting nuisance odors or generating turbidity and/or sheen when rinsed shall be stockpiled onsite within processing pad or a fully lined roll-off container for characterization by the REMEDIATION ENGINEER prior to offsite disposal. Following characterization by the REMEDIATION ENGINEER, CONTRACTOR shall place a 6-mil poly sheeting cover over the stockpile and deploy odor suppressant foam to prevent nuisance odor emissions. CONTRACTOR shall downsize debris (as required by the waste transportation and disposition vendors), and appropriately containerize (i.e., completely line and cover waste hauling vehicles) the debris to facilitate transportation to the offsite disposal facility based on the characterization results and in accordance with applicable rules and regulations (including local flow control regulations).

C. Construction Wastewater:

1. All water generated during the Project shall be collected, extracted, and conveyed to the onsite temporary CWTS per Section 01 51 41 – Temporary Pumping.

2. Project-related water shall be treated at the onsite CWTS and discharged in accordance with Section 01 53 53 – Temporary Water Treatment System.

D. Free-phase NAPL:

1. Free-phase NAPL, if encountered, may represent a hazardous waste (subject to characterization by REMEDIATION ENGINEER) and shall be managed in accordance with all applicable Laws and Regulations, including 6 NYCRR Parts 370-374 and 376, unless and until determined to be non-hazardous.

2. NAPL-containing drums or containers shall be stored in a secure storage area equipped with secondary containment (generally consisting of an impermeable liner and run-on/run-off control). The storage area shall include appropriate signage to identify it as a hazardous waste storage area.

3. A hazardous waste label, with generator information, accumulation start date, and other

required information, shall be completed by the CONTRACTOR and affixed to each container.

4. Containers shall be transported offsite for disposal at an appropriate OWNER-approved facility within 90 days of the accumulation date.

5. The total volume of NAPL in the satellite accumulation area shall not exceed 50 gallons at any time without prior notification to and approval by the OWNER.

6. Once full, containers will be marked with an accumulation end date by the OWNER or REMEDIATION ENGINEER and shall be re-located by the CONTRACTOR to a separate, demarcated storage area equipped with secondary containment. The storage area shall include appropriate signage to identify it as a hazardous waste storage area.

7. Coordinate and be responsible for the costs associated with the transportation of containers offsite for treatment/disposal at an OWNER-selected facility within 90 days of the end accumulation date.

3.08 LOADING, TRANSPORTATION, AND DISPOSAL

A. Transport all wastes specified or generated as a result of the Work. This includes materials generated by final Site cleanup activities including the dismantling of the temporary facilities and controls.

B. Comply with the New York State DERA and 6 NYCRR 248 when using heavy duty vehicles.

C. Coordinate the scheduling with offsite transportation/disposal facilities, as well as with waste haulers contracted by the OWNER.

D. Contaminated material shall be transported in vehicles with current New York State Waste Transporter Permits pursuant to 6 NYCRR Part 364. Waste Transporter Permits shall be submitted to the REMEDIATION ENGINEER before CONTRACTOR mobilization, and current copies of those permits shall be maintained onsite by the CONTRACTOR for the duration of the Project.

E. Ensure that the transporters arriving at the Site for loading do not cause undue congestion to local roads. Stage trucks either within the perimeter of the Site or at an offsite staging area approved by the REMEDIATION ENGINEER. Transporters shall not be accepted at the Site before 7 AM and after 5 PM.

F. Inspect the transportation vehicles before and after loading to ensure compliance with all federal, state, and local regulations for the safe transport of wastes from the Site to the receiving facility.

G. All vehicles transporting contaminated material shall be fully-lined with minimum 6-mil polyethylene sheeting, an equivalent material, or otherwise water-tight, and shall be equipped with functioning tailgate locks and covered with non-mesh (solid), waterproof tarpaulins. As an additional measure if the soil is especially odorous, spray odor control foam on the soil before placing the tarp and prior to departure.

H. Load contaminated material in a manner as to avoid contamination of their exteriors, including tires (e.g., loaded with 6-mil polyethylene sheeting draped over the side of the truck).

I. Weigh each load with an onsite truck or axle scale, and modify the load as required to meet the weight limitations for the local roads along the designated route. The net weight of the waste load measured in tons shall be calculated by subtracting the vehicle tare weight from the total gross weight (vehicle and load). Record weight of the total waste quantity on a bill of lading or a Uniform Hazardous Waste Manifest, as appropriate and compare to certified weight slips reported by the disposal facility as a quality control check.

J. A manifest (hazardous or non-hazardous as appropriate) shall be prepared by the REMEDIATION ENGINEER for each load of waste material to be transported offsite for treatment/disposal. Each

manifest will be signed by the OWNER (as the Generator) or an authorized agent. Counter-signed waste manifests and facility disposal receipts (indicating the actual quantity of waste received at the treatment/disposal facility) shall be maintained by the REMEDIATION ENGINEER onsite in the project file.

K. The REMEDIATION ENGINEER shall be responsible for the preparation of a log for each disposal facility that indicates, at a minimum, the following information regarding each truck load:

1. Load number (sequential).
2. Uniform Hazardous Waste Manifest Number or Bill of Lading Number.
3. Transporter's name.
4. Truck ID number (tractor or trailer number).
5. Estimated tare weight.
6. Material type (nonhazardous, hazardous, debris).
7. Destination.

L. Inspect and decontaminate vehicles before leaving the Site in accordance with Section 02 51 00 – Decontamination Procedures. Trucks exiting work areas will be required to travel over a decontamination area to remove residual soil from the vehicle wheels and/or undercarriage. Employ methods to limit spillage and tracking/migration.

M. Keep all streets, sidewalks, and pavements clean and free from dirt, mud, stone, and other hauled materials.

N. Transport all wastes and regulated materials on state and local roads in accordance with federal, state, and local codes, regulations, statutes, and standards and in a manner that prevents spills and the spread of contamination.

O. Proceed directly from the Site to the designated receiving facility. Temporary staging or storage of material at intermediate locations between the Site and the receiving facility is prohibited.

P. Vehicles transporting contaminated material shall follow approved haul routes as specified in Soil Hauling and Traffic Control Plan.

END OF SECTION

SECTION 02 72 00

CONSTRUCTION WATER MANAGEMENT

PART 1 – GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of all labor, equipment, tools, materials, services, supervision, and incidentals necessary to collect, handle, store, analyze, treat, transport, and dispose of construction water and associated residual solids as described herein, shown on the Contract Documents, or as directed by the REMEDIATION ENGINEER. Work in this Section includes, but is not limited to:

1. The development of acceptable Construction Water Management Procedures detailing the collection, handling, storage, analysis, treatment, transportation, and disposal of all construction water, associated residual solids, and storm water generated during construction.

2. Provision of all labor, equipment, tools, materials, services, supervision, and incidentals required for the collection, handling, storage, analysis, treatment, transportation, and disposal of all construction water and associated residual solids in accordance with the DESIGN ENGINEER and REMEDIATION ENGINEER-approved Construction Water Management Procedures.

3. Performance of all specified and necessary sampling and analyses to ensure compliance with the Contract Documents, required permits, applicable federal, state, and local codes, ordinances, regulations, statutes, and standards.

1.02 PERFORMANCE REQUIREMENTS

A. The CONTRACTOR shall comply with all applicable Federal, state, and local codes, ordinances, regulations, statutes, and standards.

B. The CONTRACTOR is to obtain and operate within all applicable federal, state, and local permits and requirements necessary to implement the proposed Construction Water Management Procedures. Any and all civil, criminal, and monetary penalties associated with non-compliance in any regard shall be the sole responsibility of the CONTRACTOR.

1.03 REFERENCES

A. New York State Standards and Specifications for Erosion and Sediment Control (Blue Book) (Latest Version).

B. New York State Stormwater Management Design Manual, (Latest Version).

1.04 DEFINITIONS

A. Construction Water shall be defined as water/liquids that contact contaminated materials, and includes the following:

1. Water which exhibits visible sheen or turbidity as a result of contact with contaminated soils, sediments, fill, or debris that have had the surface disturbed by construction-related activities; with the exception of water classified as stormwater as defined in 1.04.B, floodwater as defined in 1.04.C, dredge water as defined in 1.04.D, or water identified in 1.04E.

2. Liquids generated during dewatering pumping from sumps or wells in contaminated soils, sediments, fills, or debris with the exception of water classified as stormwater as defined in 1.04.B, floodwater as defined in 1.04.C, dredge water as defined in 1.04.D, or water identified in 1.04E.

3. Liquids generated during decontamination activities.

4. Water collected from the sediment stabilization activities.

B. Stormwater shall be defined as water/liquids that do not contact disturbed contaminated materials, and includes the following:

1. Water incident upon, or draining from, undisturbed excavation areas. This water shall be diverted from the excavation area as required to prevent contact with the construction operations.

2. Water associated with the drainage of areas to be excavated (e.g., through the use of drainage ditches or other conveyances) prior to initiation of full-scale removal activities in that area.

3. Surface or groundwater from areas that have been accepted as meeting remediation goals, provided that the water is then prevented from contacting contaminated disturbed surfaces (e.g., water from dewatering operations).

4. If disturbed contaminated materials are covered by clean materials (e.g., soil, geotextile, plastic sheeting) or otherwise stabilized, waters that stand on or flow over/from that surface shall be defined as storm water. Stormwater shall be controlled and managed as described in Section 31 25 00 – Erosion Control.

5. Water which passes through a properly installed silt fence or other approved erosion control measure at the bottom of a continuously sloped (greater than a 3H:1V) excavation face provided the surface has been accepted as meeting remediation goals.

C. Floodwater shall be defined as waters that flow onto the Site from adjacent surface water bodies at elevations at least 1 foot above the median surface water elevations. Floodwater that drains by gravity from the Site, is pumped down to a clean or undisturbed material surface, or to within 12 inches of a disturbed contaminated material, shall be managed as stormwater.

D. Dredge water shall be water which comes into contact with the working dredge surface (e.g., channel bottom or banks in or adjacent to flowing or still water) or dredged material prior to being loaded into containers (e.g., water that contacts bucket or dredged materials as it is extracted through the water column, water draining from the dredge bucket, or temporarily staged dredge materials, due to double handling, that are not directly loaded into containers for up to 24 hours unless otherwise approved by the New York State Department of Environmental Conservation [NYSDEC]) for transport to dewatering pads.

E. Residual solids shall be defined as solids resulting from the construction water management operations, including sediment accumulated in sumps, settling tanks, ponds, or basins, chemically flocculated sediments, precipitates, and filtered suspended solids. Residual sediments generated during dredging operations do not meet this definition.

1.05 SUBMITTALS

A. The CONTRACTOR shall submit the following in accordance with Section 01 33 00 – Document Submittal Procedure, Section 01 53 53 – Temporary Water Treatment System, and as elsewhere specified in this Section:

1. Construction Water Management Procedures.

2. Shop drawings and details, including but not limited to:
    a. Construction Water Treatment Pad
    b. Dewatering Pad, if required
    c. Decontamination Pad/Area(s)
    d. Treatment Equipment and Layout
    e. Discharge Points and Related Structures
    f. Quality Control Work Plan.
3. Name and Qualifications of Independent Testing Laboratory.
4. Test results as specified herein shall be submitted to the REMEDIATION ENGINEER for review immediately upon receipt of results:
    a. Influent
    b. Effluent
    c. Field Turbidity

1.06 QUALITY CONTROL

A. The CONTRACTOR shall submit a Quality Control (QC) Work Plan (may be included in the Project Operations Plan) for review. Once instituted, the CONTRACTOR shall use the QC Work Plan to ensure that the Work meets the requirements of the Contract Documents. The CONTRACTOR shall submit the name of a qualified Independent Testing Laboratory (ITL) to the REMEDIATION ENGINEER for review.

1.07 PROJECT AND SITE CONDITIONS

A. The CONTRACTOR shall carefully examine the Site to determine the full extent, nature, and location of work required to conform to the Design Drawings and Specifications. The CONTRACTOR shall bring any inaccuracies or discrepancies between the Design Drawings and Specifications to the DESIGN ENGINEER's and REMEDIATION ENGINEER's attention in order to clarify the exact nature of the Work to be performed.

PART 2 – PRODUCTS

2.01 GENERAL

A. Construction Water Management Procedures

1. The CONTRACTOR shall prepare and submit Construction Water Management Procedures for the DESIGN ENGINEER's and REMEDIATION ENGINEER's approval. The procedures shall include, but not be limited to, the CONTRACTOR's proposed method of collection, handling, storage, analysis, treatment, transportation, and disposal of all construction water and associated residual solids generated during construction. Methods of minimizing the generation of construction water shall be identified.
2. The acceptable method of managing construction water upon collection shall be by discharge to the publicly-owned treatment works (POTW) after appropriate treatment. Appropriate treatment prior to discharging to the POTW shall result in effluent flowrates and water quality at levels less than the applicable effluent limits.
3. The acceptable methods of managing residual solids generated by the CONTRACTOR's management of construction water are limited to:

a. Collection, dewatering, stabilization, analytical testing, and transportation required for offsite treatment and disposal in accordance with Section 02 61 15 – Handling and Disposal of Impacted Materials.

b. If directed by the REMEDIATION ENGINEER, collection, analytical testing, transport and offsite treatment and disposal, which shall be conducted in accordance with all applicable federal, state, and local codes, ordinances, regulations, statutes, and standards.

B. Services, Facilities, and Personnel: The CONTRACTOR shall provide all means, methods, services, facilities, power, equipment, tools, material, consumables, incidentals, labor, and supervision necessary to collect, handle, store, analyze, treat, transport, dispose of, and otherwise manage construction water.

C. Stormwater shall be diverted to existing drainage features with no further treatment necessary, following the procedures in Section 31 25 00 – Erosion Control. Trapped stormwater may be pumped to existing drainage features with no further treatment necessary, following the procedures in Section 31 25 00 – Erosion Control.

PART 3 – EXECUTION

3.01 PREPARATION

A. The CONTRACTOR shall be responsible for estimating the quantity and quality of construction water and residual solids expected for this project based on the existing Site conditions and proposed activities.

B. It shall be the responsibility of the CONTRACTOR to investigate and comply with all applicable federal, state, and local codes, ordinances, regulations, statutes, and standards governing the collection, handling, storage, analysis, treatment, transportation, and disposal of all construction water and associated residual solids generated during the execution and completion of the Work. All construction water shall be disposed of in a manner which meets applicable permit requirements, codes, ordinances, regulations, statutes, and standards.

C. The CONTRACTOR shall obtain all required permits, manifests, and approvals required for the collection, handling, storage, analysis, treatment, transportation, and disposal of all construction water and associated residual solids generated during the execution and completion of the Work.

D. Sampling and analyses necessary to protect the health and welfare of the CONTRACTOR's employees and/or agents and/or to characterize collected water, treated water, or residual solids shall remain the sole responsibility of the CONTRACTOR.

E. Construction water shall be managed using equipment and materials compatible with anticipated contaminants which may be present.

3.02 CONSTRUCTION WATER TREATMENT PAD

A. The construction water treatment pad shall include a collection sump and be constructed in accordance with the Design Drawings.

3.03 DISCHARGE TO THE POTW

A. No construction water shall be discharged to the POTW unless it meets applicable effluent limits and is tested at the frequency as specified by the pre-treatment requirements of Monroe County Pure Waters and in accordance with Section 01 53 53 – Temporary Water Treatment System.

B. The temporary water treatment plant will include provisions for "batch" treatment during startup. Treated waters shall be tested (on a per batch basis), to demonstrate compliance with the effluent limits prior to discharging to the POTW, until it is determined that the temporary water treatment plant is effective.

C. Once the onsite treatment plant is demonstrated to be effective, it may be operated on a batch or continuing basis provided it continues to demonstrate compliance.

D. Testing required for discharge to the POTW shall be the responsibility of the CONTRACTOR.

E. Influent testing shall be conducted on the same schedule as effluent testing during start-up and bi-weekly thereafter, or within 2 days of a change in water source.

F. Effluent testing shall be conducted as specified by the pre-treatment requirements of Monroe County Pure Waters and in accordance with Section 01 53 53 – Temporary Water Treatment System.

3.04 OFFSITE DISPOSAL OF RESIDUAL SOLIDS AND OTHER WASTES

A. The CONTRACTOR shall characterize construction water related wastes and any associated residuals as necessary for offsite disposal.

B. No CONTRACTOR-proposed facility for offsite disposal shall be used without prior approval by OWNER. The CONTRACTOR is responsible for arranging for proper temporary storage in accordance with all applicable federal, state, and local regulations at no additional cost to OWNER. OWNER will contract offsite transportation and disposal of wastes directly.

C. The CONTRACTOR shall dispose of wastes designated for offsite disposal within 90 days of filling the storage container.

D. The CONTRACTOR shall mark, label, placard, package, and manifest wastes in accordance with applicable codes, regulations, and statutes.

3.05 MINIMIZATION OF CONSTRUCTION WATER

A. The CONTRACTOR shall minimize the generation of construction water and associated residual solids. Methods to minimize generation of construction water may include, but are not limited to:

1. Erection of temporary berms or construction of temporary ditches.
2. Use of low permeability tarpaulins, geotextiles, or other suitable means to cover exposed contaminated areas and materials.
3. Use of 6 inches of uncontaminated soil as daily cover to cover exposed contaminated areas and materials.
4. Limiting the amount of exposed contaminated areas.
5. Grading to control run-on and run-off.
6. Engineering controls on construction activities to minimize contact of personnel and equipment with contaminated areas, thus minimizing the amount of decontamination or other methods required.

END OF SECTION

SECTION 31 00 00

GENERAL EARTHWORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of all labor, equipment, tools, materials, services, supervision, and incidentals necessary to perform all excavation, backfilling and grading necessary for completion of the Work as described herein, shown on the Design Drawings, or as directed by the REMEDIATION ENGINEER. Work in this Section includes, but is not limited to:

1. Excavating, relocating, screening, stockpiling, preparing soils/sediment for off-site disposal, and/or hauling soil for proper use on-site.
2. Provision, testing, and placement of imported fills. REMEDIATION ENGINEER is responsible for performing geotechnical, pH, organic matter, and analytical testing, with the exception of placed materials testing as specified in Section 02 56 13 – Soil Cover Construction and Section 32 12 16 – Paving and Surfacing.
3. Compaction and grading.
4. Appurtenant work in accordance with the Design Drawings and Specifications and all related work as directed by the REMEDIATION ENGINEER.

1.02 PERFORMANCE REQUIREMENTS

A. The CONTRACTOR shall comply with all applicable federal, state and local codes, ordinances, regulations, statutes, and standards.

B. All excavation, trenching, sheeting, bracing and related work shall comply with the requirements of Title 29 Code of Federal Regulations, Part 1926.650-652, (Subpart P - Excavations), OSHA Safety and Health Regulations for Construction.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM C136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
2. ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3)
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3)
4. ASTM D2216 - Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
5. ASTM D2974 - Standard Test Methods for Moisture, Ash Content, and Organic Material of Peat and Other Organic Soils
6. ASTM D6913 – Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis
7. ASTM D4972 – Standard Test Methods for pH of Soils

8. ASTM D5519-15 – Standard Test Method for Particle Size Analysis of Natural and Man-Made Riprap Materials

9. ASTM D4318 – Standard test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

B. New York Department of Transportation (NYSDOT): Standard Specifications (US Customary), Current Version.

C. New York State Department of Environmental Conservation (NYSDEC): 6 NYCRR Part 375, Environmental Remediation Programs, 2006.

D. NYSDEC Division of Environmental Remediation, DER 10 / Technical Guidance for Site Investigation and Remediation, 2010.

E. Title 29 Code of Federal Regulations, Part 1926.650-652, (Subpart P - Excavations), OSHA Safety and Health Regulations for Construction.

1.04 SUBMITTALS

A. The CONTRACTOR shall submit the following in accordance with Section 01 33 00 – Document Submittal Procedure and as elsewhere specified in this Section:

1. The proposed methods of construction including excavation, material handling, backfilling, compaction, grading and erosion control. The CONTRACTOR shall be responsible for the adequacy and safety of the methods.

2. Quality Control Work Plan (may be included in the Project Operations Plan) – Once instituted, the CONTRACTOR shall use the QC Work Plan to ensure that the Work meets the requirements of the Contract Documents.

B. REMEDIATION ENGINEER shall provide test results as specified herein. The CONTRACTOR shall not deliver material to the site prior to approval by the REMEDIATION ENGINEER of the required geotechnical and analytical chemistry test results. Test results include, but are not limited to:

1. Analytical Chemistry Data

2. Material Property Data

3. Compaction Data

C. Action Submittals:

1. Borrow Source Characterization Report: At least four weeks prior to import of materials to project site, submit a Borrow Source Characterization Report for each source and each material type specified in Part 2. The Borrow Source Characterization Reports shall include, at a minimum, the following:

a. The material source, including name, address, and contact information.

b. A certification letter from the borrow source owner or operator certifying that the source is not from an industrial site or suspected to have been modified by the addition of manufactured chemicals and that the material does not contain oil or hazardous material as supported by test data to be provided with certification letter and a copy of applicable current permits (e.g., NYSDEC mining permit) and approvals (e.g., NYSDOT quarry certification).

2. Representative Sample: At least four weeks prior to proposed import of materials to the Project Site, submit a representative sample of each off-site fill material to the REMEDIATION ENGINEER to perform the geotechnical and analytical testing, as appropriate, and as required by Article 1.05 of this Section.

3. Material Testing Results:

   a. REMEDIATION ENGINEER to submit to the CONTRACTOR, as necessary, geotechnical and analytical testing results for each material tested as specified in Article 1.05.B.

4. NYSDEC's Request to Import/Reuse Fill or Soil Form:

   a. For each proposed import or reuse material, REMEDIATION ENGINEER shall submit to the NYSDEC all required laboratory data and a completed Request to Import/Reuse Fill or Soil form (Attachment A) for NYSDEC review and approval prior to importing fill material or using reuse materials.

D. Informational Submittals:

1. Delivery Tickets. Submit copy of delivery ticket for each load of off-site material delivered to the Site. Each delivery ticket shall indicate Supplier name and source address, project name, contract number, date, material type, NYSDOT item number when applicable, and weight delivered as measured on certified scales at the source location.

1.05 QUALITY ASSURANCE

A Qualifications:

1. REMEDIATION ENGINEER's Testing Laboratory

   a. The REMEDIATION ENGINEER shall retain the services of an independent testing laboratory authorized to operate in the New York State to perform testing for analytical chemistry, pH, organic matter, and geotechnical characteristics, as required in this Section.

   b. Testing laboratory shall have current National Environmental Laboratory Accreditation Program (NELAP) and New York State Environmental Laboratory Approval Program (ELAP) certification for specific methods (including Perfluorooctanesulfonic acid [PFOS] and Perfluorooctanoic Acid [PFOA]) they are performing from a recognized state or federal laboratory accreditation program.

   c. The laboratory shall be capable of providing detection limits at or below 6 NYCRR Part 375 Unrestricted Use soil cleanup objectives to allow for comparison of the analytical results to those objectives.

2. Off-Site Fill Sources:

   a. Source of off-site fill shall be a NYSDEC-permitted mine, pit, or quarry, and shall be approved by NYSDOT for furnishing aggregates for NYSDOT projects.

   b. If quality assurance testing shows that the material does not meet the requirements of this Section, the CONTRACTOR must identify a new source for the material and provide the required data and materials for testing by the REMEDIATION ENGINEER for the new source of material prior to the use of

such material on-site.

3. Quality Assurance Material Testing for Off-Site Materials:

   a. Each composite sample shall be tested for material properties as defined in the specific Specification Section or Subpart for that material type.

   b. Materials used in the Work may require testing and retesting, as directed by REMEDIATION ENGINEER, during the Project. In addition to providing a representative sample CONTRACTOR shall provide the REMEDIATION ENGINEER with free access to material stockpiles and facilities at all times. Costs for initial testing shall be the REMEDIATION ENGINEER's responsibility.

   c. REMEDIATION ENGINEER reserves the right to visit each material source and conduct visual observation of the materials proposed for use. CONTRACTOR shall coordinate access with the material sources for the REMEDIATION ENGINEER to perform visits.

   d. Quality assurance testing of the imported materials shall be performed at the source location prior to shipment to the Project Site unless otherwise approved by the REMEDIATION ENGINEER.

   e. The REMEDIATION ENGINEER reserves the right to reject material based on the results of conformance tests. Rejected materials shall be removed from the Project Site at no cost to the OWNER (if delivered without REMEDIATION ENGINEER approval).

B. Sample Frequency – General Fill and Topsoil:

1. Each imported fill material that has a gradation that results in more than 10% by weight passing through a No. 80 Sieve shall be sampled for analytical and geotechnical parameters at the following frequency:

   a. For the first 1,000 cubic yards of each fill type from a specific fill source, two representative composite samples and seven discrete samples for volatile organic compounds (VOCs) will be obtained.

   b. For the next 4,000 cubic yards of each fill type from a specific fill source, a representative composite sample and two discrete samples for VOCs will be obtained from each 1,000 cubic yards (in-place volume) batch or part thereof.

   c. If five consecutive acceptable test results have been obtained on samples representing the first 5,000 cubic yards or greater of each fill type and the material continues to be from the same fill source with consistent appearance and source area or process, then the batch size can be increased to 10,000 cubic yards for the subsequent material deliveries.

2. Required Quality Assurance Material Testing:

   a. REMEDIATION ENGINEER shall perform the testing described below at the frequency indicated above in Article 1.05.B.1. of this Section, unless otherwise specified. Additional sampling may be required at the discretion of the REMEDIATION ENGINEER if concerns arise that the characteristics of the fill materials have changed.

      1) Compaction characteristics in accordance with ASTM D698. Perform

one test for each type of and source of material requiring compaction.

2) Gradation in accordance with ASTM D6913.

b. REMEDIATION ENGINEER shall perform the testing described below at the frequency indicated above in Article 1.05.B.1. of this Section. Additional sampling may be required at the discretion of the REMEDIATION ENGINEER if concerns arise that the characteristics of the fill materials have changed. Each analytical chemistry sample that will be analyzed for VOCs shall be collected as a discrete/grab sample, and all other analytical chemistry samples shall be obtained by compositing at least five randomly selected individual samples of approximately equal weight. In addition, at least 1 pound of each individual sample will be retained in a separate, sealed clean glass jar for additional duplicate testing, if needed.

1) Imported materials with a gradation of 10 percent or less by weight passing the #80 sieve as determined by ASTM C136 or ASTM D6913 (Section 31 37 00 – Stone Materials) can be imported without chemical sampling or analysis consistent with NYSDEC DER-10 Paragraph 5.4(e)(5), provided that they consist of gravel, rock, or stone, consisting of virgin material from a permitted mine or quarry.

2) Each other fill material shall either:

a) For fill materials to be placed within the RGE property: Have discrete and composite samples tested for the compounds in Table 375-6.8(b) “Restricted Use Soil Cleanup Objectives” in NYSDEC Subpart 375. All test results shall be below the lower of the restricted-residential soil cleanup objectives (SCOs) or protection of groundwater SCOs provided in this table. Failure of a single compound test result shall mean that the entire material batch will be rejected unless specifically accepted on a test-by-test basis in writing by the REMEDIATION ENGINEER; or

b) For fill materials to be placed within the B+L property: Have discrete and composite samples tested for the compounds in Table 375-6.8(a) “Unrestricted Use Soil Cleanup Objectives” in NYSDEC Subpart 375. All test results shall be below the unrestricted use SCOs provided in this table. Failure of a single compound test result shall mean that the entire material batch will be rejected unless specifically accepted on a test-by-test basis in writing by the REMEDIATION ENGINEER; or

c) Originate from a borrow site that has been otherwise verified as having no compounds exceeding the limits in Table 375-6.8(a) “Unrestricted Use Soil Cleanup Objectives” in NYSDEC Subpart 375.

3. Perform the following analyses in accordance with NYSDEC DER-10 5.4(e) unless otherwise noted:

a. Target Compound List (TCL) VOCs (USEPA SW-846 Method 8260)

b. TCL SVOCs (USEPA SW-846 Method 8270)

c. PCBs (USEPA SW-846 Method 8082)

d. Pesticides (USEPA SW-846 Method 8081)

e. Herbicides (USEPA SW-846 Method 8151)

f. Target analyte list (TAL) metals (USEPA SW-846 Method 6010)

g. Mercury (USEPA SW-846 Method 7471)

h. Chromium - trivalent and hexavalent (USEPA SW-846 Method 7196)

i. Cyanide (USEPA SW-846 Method 9014)

j. Perfluorooctane sulfonate (PFOS), Perfluorooctanoic acid (PFOA), Per- and Polyfluoroalkyl substances (PFAS, listed in Appendix G of Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances [PFAS] [NYSDEC April 2023]), and 1,4-dioxane (USEPA Method 1633, USEPA SW-846 Method 8270)

k. Total organic carbon (USEPA SW-846 9060 Modified)

4. If testing results indicate that a proposed off-site fill material does not comply with the Contract Documents, CONTRACTOR shall identify and propose a new off-site source of the specified material in accordance with Article 1.04 of this Section. Costs for retesting of rejected materials and installed Work shall be the CONTRACTOR's responsibility.

5. Do not ship off-site fill materials to the Site until proposed materials, sources, and suppliers are accepted by REMEDIATION ENGINEER.

C. Required Quality Assurance Material Testing for On-site Materials (Reuse Materials):

1. If REMEDIATION ENGINEER approves reuse of excavated material based on visual observation (i.e., no coal tar impacts observed), REMEDIATION ENGINEER shall collect samples and coordinate and pay for geotechnical and analytical laboratory testing of on-site materials to verify compliance with the requirements of this Section.

a. Compaction in accordance Article 1.05.B.2.a.1) of this Section

b. Gradation in accordance Article 1.05.B.2.a.2) of this Section

c. Analytical testing in accordance with the standards specified in Article 1.05.B.2.b. of this Section for VOCs, SVOCs, PCBs, pesticides, herbicides, and inorganics demonstrating that the material meets the soil cleanup objectives outlined in 6 NYCRR Part 375 (Environmental Remediation Programs) as specified in Article 1.05.B02.b. of this Section, unless otherwise noted below. Analytical testing for potential reuse materials shall be conducted at a rate of one discrete and one composite sample per 200 CY.

2. If testing results indicate that an on-site material does not comply with the Contract Documents, CONTRACTOR shall remove, transport, and dispose of material, unless otherwise approved by REMEDIATION ENGINEER.

D. Sampling of Imported Materials:

1. The REMEDIATION ENGINEER shall be responsible for collecting samples and conducting tests using a qualified ITL or approved sampling and testing staff to certify and document that imported material meets the allowable analytical compound concentrations and properties specified in this Section. These samples will be collected and transported in compliance with the QC Work Plan. These samples will be sent to an Analytical Chemistry Testing Laboratory (ACTL) selected by the OWNER.

3. Quality control samples may be obtained from in-situ samples for pre-approval of a dedicated borrow source area. The means for assuring the material dedication to the project shall be submitted to the REMEDIATION ENGINEER for approval prior to the commencement of sampling.

4. Quality control samples may also be obtained from dedicated stockpiles or storage/transportation vessels. The means for assuring the material dedication to the project shall be submitted to the REMEDIATION ENGINEER for approval prior to the commencement of sampling.

5. The REMEDIATION ENGINEER shall provide all data, testing and reports generated by the ITL, ACTL or other sampling and testing entities for the project.

6. No imported fill materials shall be delivered to the project site before the required material property and analytical chemistry testing for that batch has been completed by the REMEDIATION ENGINEER and written acceptance received from the REMEDIATION ENGINEER. Unaccepted material shall be removed from the site at the CONTRACTOR's expense.

7. Additional quality control tests may be required at each visual or textural change in source material, as directed by the REMEDIATION ENGINEER. Test results shall be submitted to the REMEDIATION ENGINEER immediately upon receipt.

8. The CONTRACTOR shall be responsible for repairing or reconstructing the deficiencies at its own expense to meet this Specification and other Contract Documents.

1.06 PROJECT AND SITE CONDITIONS

A. Prior to the start of the Work, the CONTRACTOR shall carefully examine the site to determine the full extent, nature and location of work required to conform to the Design Drawings and Specifications. The CONTRACTOR shall bring any inaccuracies or discrepancies between the Design Drawings and Specifications to the DESIGN ENGINEER's attention in order to clarify the exact nature of the Work to be performed.

B. Field Measurements:

1. Verify that survey benchmark, monuments and intended elevations for the work are as shown on the Design Drawings or as provided by the DESIGN ENGINEER or REMEDIATION ENGINEER.

2. Identify required lines, levels, contours, and datum. Review subsurface investigation reports and other available site information.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General Fill:

1. General Fill shall consist of natural mineral soil substantially free of organic materials, topsoil, wood, trash, debris, frozen materials, and other objectionable materials that may be compressible or cannot be properly compacted. General Fill shall have the following gradation:

Sieve Size	Percent Finer by Weight
4-in	100
¼-in	30-75
No. 40	5-50
No. 200	0-20

B. Topsoil: See Section 32 91 19.13 – Finish Grading, Topsoil and Seeding.

C. Borrow Source and Quality Control Testing:

1. Conduct borrow source and quality control testing prior to delivery to the site as required in Article 1.05 of this Section, Section 02 56 13 – Soil Cover Construction, and Section 32 91 19.13 – Finish Grading, Topsoil and Seeding, including, but not limited to the following specific testing, at the frequency specified in Article 1.05 of this Section:

Material Property	Test Method
Particle Size Analysis	ASTM D6913
Moisture Content	ASTM D2216
Standard Proctor	ASTM D698
Modified Proctor	ASTM D1557
Soil pH	ASTM D4972
Organic Matter	ASTM D2974

Analytical Chemistry Testing as per Article 1.05 of this Section.

2. Additional Quality Control tests may be required at each visual or textural change in source material, as directed by the REMEDIATION ENGINEER. Test results shall be submitted by the REMEDIATION ENGINEER immediately upon receipt of results.

2.02 EQUIPMENT

A. The CONTRACTOR shall use equipment suitable for excavating, hauling, placing, spreading, and compacting backfill materials to the thicknesses and densities tolerances provided in Section 02 56 13 – Soil Cover Construction, Section 32 72 00 – Upland, Riparian and Streambed Restoration, and Section 32 91 19.13 – Finish Grading, Topsoil and Seeding.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Provide erosion control prior to and throughout all earthwork operations in accordance with Section 31 25 00 – Erosion Control.

B. Manage construction water in accordance with Section 02 72 00 – Construction Water Management. Sequence and conduct earthwork activities to limit the generation of construction water as appropriate.

C. The site shall be cleared and grubbed in accordance with Section 31 11 00 – Clearing and Grubbing.

D. Protect plants, lawns, and other features that have been designated on the Design Drawings to remain.

E. Protect control points, benchmarks, existing structures, features, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic. Repair or replace damaged items.

F. Prior to the start of construction, notify the appropriate organizations and have underground utilities staked or marked. Utilities include, but are not limited to water, gas, electric, telephone, cable, storm sewer, sanitary sewers, laterals, and services. If utility locations indicate a possible interference, or points of connection to existing facilities need to be identified, perform exploratory excavations to determine the utility's location and elevation. Provide the utility owner with results from exploratory excavations for review. Allow the DESIGN ENGINEER and REMEDIATION ENGINEER sufficient time to review exploratory excavation results and evaluate if changes are required to the Design Drawings prior to start of construction in the vicinity of the identified utility.

G. Identify above-grade and overhead utilities. Protect overhead utilities against damage. Where equipment will be operating below overhead lines, relocate or provide insulation of electrical lines for worker protection as necessary.

H. Maintain existing manholes, catch basins, culverts, and other utility structures above and below grade in their pre-work condition unless shown in the Design Drawings to be removed or altered. Promptly remove any material or debris entering such structures.

3.02 EXCAVATION

A. Refer to Section 31 23 16 – Excavation.

3.03 BACKFILL

A. Verify that fill materials are acceptable. Remove and re-mix materials which have undergone excessive particle segregation, prior to backfilling.

B. Verify subsurface installations for the project have been inspected and are ready for backfilling.

C. Compact subgrade to density requirements for subsequent backfill materials. Cut out soft areas of subgrade not capable of in-situ compaction.

D. Inspect areas to be backfilled prior to backfilling operations. Remove unsuitable materials including water, snow, ice, and debris from surfaces to accept backfill material unless otherwise approved by the REMEDIATION ENGINEER. Remove sheeting, bracing, forms, and debris.

E. Roughen seal-rolled surfaces by tracking with a bulldozer immediately before placement of backfill materials.

F. Unless otherwise approved by the REMEDIATION ENGINEER start backfilling as soon as practicable after: excavation of soils/sediment is completed and approved by the REMEDIATION ENGINEER; ISS areas have been completed and approved by the REMEDIATION ENGINEER; structures or pipe installations have been completed and approved by the REMEDIATION ENGINEER; concrete has acquired 70 percent of design strength; and/or subgrade waterproofing materials have been in place for at least 48 hours. Execute backfilling expeditiously thereafter.

G. Do not place backfill against foundation walls of structural members unless they are properly stored and braced or of sufficient strength to withstand lateral soil pressures.

H. Do not place backfill material on frozen ground or when the material itself is frozen or contains frozen soil fragments unless approved by the REMEDIATION ENGINEER. Do not add calcium chloride or other chemicals to prevent freezing. Material incorporated in the backfilling operation that is not in satisfactory condition is subject to rejection and removal at the CONTRACTOR's expense.

I. Do not place backfill material when the moisture content is too high to allow equipment to operate or perform proper compaction. In order to allow for root penetration in restoration areas above the water table that will receive little or no compaction, plastic soils with too high a water content shall not be placed. When material is too dry for adequate compaction, add water during placement to the extent necessary. Maintain optimum moisture content of backfill materials to attain required compaction density.

J. Do not obstruct natural drainage at any time unless required to direct water flows away from contaminated areas. Do not backfill in such a manner that water flows across contaminated areas unless approved by the REMEDIATION ENGINEER.

K. Backfill areas to required contours, grades, and elevations as detailed in Design Drawings and Specifications.

L. If the surface of any layer becomes too hard and smooth for proper bond with the succeeding layer, it shall be roughened to a depth of not less than 2 inches before the next layer is placed.

M. Backfill with material specified in Article 2.01, Section 32 91 19.13 – Finished Grading, Topsoil and Seeding, and Section 31 37 00 – Stone Materials, and as shown on the Design Drawings. If compaction is required, the requirements will be listed in the Design Drawings for the specific materials and location. In general, compaction is not required because most of the placed backfill may be a rooting zone for herbaceous and woody plants and very dense soil inhibits root growth and penetration.

O. Rough grade backfilled and filled areas to meet subsequent topsoiling or paving requirements. Make grade changes gradual. Blend slopes into level areas unless indicated otherwise in the Contract Documents.

P. Repair or replace settlement in the finished work in accordance with this Section if the settlement interferes with the intended performance of the fill in the opinion of the REMEDIATION ENGINEER.

Q. Remove surplus backfill materials from site and place in an area approved by the REMEDIATION ENGINEER.

3.04 COMPACTION

A. Fill specifically designated as requiring compaction to a density specified in Section 02 56 13 – Soil Cover Construction shall be placed in layers having a maximum thickness of 12 inches measured before compaction. One out of five test results will be permitted to fall below the specified percentage of the maximum dry density, but no test results will be accepted if they are more than 5% below the specified percentage. No soft spots or uncompacted areas will be allowed in the work. The ITL will perform compaction testing. Any areas not achieving the compaction criteria, exhibiting pumping, excessive wetness, or other signs of distress under loading shall be removed or reworked by the CONTRACTOR at their own expense.

B. Vibratory compactors shall not be used on material that is too wet either from rain or from excess application of water. At such times, the CONTRACTOR may attempt to use the compactor

in static (non-vibratory mode) to achieve the required compaction. If the CONTRACTOR cannot achieve the required compaction, the fill material shall be removed, reworked, and/or replaced.

3.05 TEMPORARY STOCKPILES

A. Grade stockpiles to minimize erosion and ensure positive drainage.

B. Cover exposed stockpiles with plastic sheeting, tarps, mulch, or other coverings to minimize erosion and dust.

C. Track-walk completed stockpile surfaces, as directed by REMEDIATION ENGINEER. Operate machinery up and down the slope (perpendicular to the contours) when track-walking.

D. Prevent erosion from stockpiles in accordance with Section 31 25 00 – Erosion Control.

END OF SECTION

SECTION 31 05 19.16

GEOMEMBRANES FOR EARTHWORK

PART 1 – GENERAL

1.01 SUMMARY

A. Furnish and install 40 mil smooth linear low-density polyethylene (LLDPE) geomembrane liner for any lined containment areas (e.g., Temporary Construction Water Treatment System pad, Decontamination Area) as specified in this section.

B. Quality assurance (QA)/quality control (QC) testing of LLDPE geomembrane liner as specified in this section and in accordance with the manufacturer's recommendations/specifications.

1.02 APPLICABLE CODES, STANDARDS, AND SPECIFICATIONS

A. The following latest version of the American Society for Testing and Materials (ASTM) standards are referenced in this section and are to be considered part of this section:

1. ASTM D1505 – Standard Test Method for Density of Plastics by the Density-Gradient Technique.
2. ASTM D5199 – Standard Test Method for Measuring Nominal Thickness of Geotextiles and Geosynthetics.
3. ASTM D792 – Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
4. ASTM D1004 – Standard Test Method of Tear Resistance (Graves Tear) of Plastic Film and Sheeting.
5. ASTM D1238 – Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer.
6. ASTM D1603 – Standard Test Method for Carbon Black Content in Olefin Plastics.
7. ASTM D4218 - Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique.
8. ASTM D4833 - Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.
9. ASTM D5321 - Standard Test Method for Determining the Shear Strength of Soil-Geosynthetic and Geosynthetic-Geosynthetic Interfaces by Direct Shear.
10. ASTM D5323 - Standard Practice for Determination of 2% Secant Modulus for Polyethylene Geomembranes.
11. ASTM D5397 - Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test.
12. ASTM D5596 - Standard Test Method for Microscopic Examination the Dispersion of Carbon Black in Polyolefin Geosynthetics.
13. ASTM D5994 - Standard Test Method for Measuring the Core Thickness of Textured Geomembranes.

14. ASTM D6693 - Standard Test Method for Determining Tensile Properties of Nonreinforced Polyethylene and Nonreinforced Flexible Polypropylene Geomembranes.
15. ASTM D7466 - Standard Test Method for Measuring the Asperity Height of Textured Geomembrane.
16. ASTM D5617 – Standard Test Method for Multi-Axial Tension Test for Geosynthetics.
17. ASTM D8117 – Standard Test Method for Oxidative Induction Time of Polyolefin Geosynthetics by Differential Scanning Calorimetry.
18. ASTM D5885 – Standard Test Method for Oxidative Induction Time of Polyolefin Geosynthetics by High-Pressure Differential Scanning Calorimetry.
19. ASTM D5721 – Standard Practice for Air-Oven Aging of Polyolefin Geomembranes.
20. ASTM D7238 - Standard Test Method for Effect of Exposure of Unreinforced Polyolefin Geomembrane Using Fluorescent UV Condensation Apparatus.
21. GRI GM 9 - Cold Weather Seaming of Geomembranes.

Note: If a newer ASTM Test method version is available other than noted, the latest version shall be used.

B. Where reference is made to one of the above codes, standards, specifications, or publications, the revisions in effect at the time of bid shall apply.

1.03 QUALITY CONTROL

A. Geomembrane Manufacturer:

1. Verify that the geomembrane manufacturer produces the geomembrane rolls from resin and has sufficient production capacity and qualified personnel to meet the demands (e.g., quantity production and quality control) of this project.
2. The geomembrane manufacturer shall have successfully manufactured a minimum of 230 acres of high density polyethylene (HDPE), LLDPE, and polyethylene (PE) geomembrane for use in at least ten similar projects in the past five years.

B. Geosynthetic Installer:

1. The CONTRACTOR shall be responsible for work conducted by the geosynthetic installer, including field handling, storing, deploying, seaming, temporarily restraining (against wind), and other site aspects of the geomembrane and other components of the liner system, and shall ensure the geosynthetic installer provides qualified installation personnel, as outlined in this Section. The geosynthetic installer may be responsible for transportation of these materials to the site, and for anchoring systems.

1.04 SUBMITTALS

A. Submit the following information to the REMEDIATION ENGINEER for review not less than 14 calendar days prior to geomembrane installation.

1. Geomembrane manufacturer capabilities, including daily production capacity available for this contract and manufacturing quality control procedures.

2. A list of 10 completed facilities for which the geomembrane manufacturer has manufactured a minimum total of 230 acres of polyethylene geomembrane. Provide the following information for each facility:

   a. Name, location, purpose of facility, and date of installation;

   b. Names of owner, project manager, design engineer, and installer; and

   c. Thickness and surface area of geomembrane provided.

3. Origin (resin supplier's name, resin production plant) and identification (brand name, number) of the polyethylene resin used.

4. Certification of minimum average roll values (95 percent lower confidence limit) for physical, mechanical, and environmental properties and the corresponding test procedures for the geomembrane properties listed in Table 1 for the 40-mil base liner geomembrane. Submit values that are specific to the resin used in manufacturing of the geomembrane.

5. Certification that LLDPE welding rod is compatible with the specifications and consists of the same resin as the geomembrane.

6. Manufacturer warranty as specified in this Section.

B. Submit to the REMEDIATION ENGINEER for review not less than 14 calendar days prior to geomembrane installation, the following documentation:

1. Copies of quality control certificates issued by the resin supplier including the production dates and origin of the resin used to manufacture the geomembrane for this project.

2. Results of tests conducted by the manufacturer to verify the quality of the resin used to manufacture the geomembrane rolls assigned to the project.

3. Certification that no reclaimed polymer has been added to the resin during the manufacturing of the geomembrane to be used for this project except as allowed by this Specification.

C. Submit to the REMEDIATION ENGINEER for review the following documentation on geomembrane roll production at least 5 calendar days prior to transporting geomembrane to the Site:

1. Manufacturing certificates for each shift's production of geomembrane and signed by the manufacturer's quality control manager.

2. Certificate shall include roll numbers and identification, sampling procedures and results of manufacturer quality control tests, including descriptions of the QC test methods performed.

3. Cold weather seaming procedures (including manufacturer specifications) in accordance with the standards of GRI GM 9.

D. Submit to the REMEDIATION ENGINEER for review the following information from the geosynthetic installer at least 14 calendar days prior to mobilization of the installer to the site.

1. Copy of installer's letter of approval or license by the manufacturer.

2. Installation capabilities, including information on equipment proposed for this project, average daily production anticipated for this project, and quality control procedures to include quality control organization.

3. Resumes of personnel who will perform seaming operations on this project, including dates and duration of employment.

E. Submit to the REMEDIATION ENGINEER for review at least 14 days prior to geomembrane placement, a Certificate of Calibration less than 12 months old for the field tensiometer. Tensiometer shall be calibrated within one year of date of test. Calibration shall be traceable to national or industry recognized standards where possible.

F. Submit subgrade acceptance certificates, signed by the geosynthetic installer, for each area to be covered by the geomembrane prior to that area being covered by geomembrane.

G. Within 14 calendar days of completion of the geomembrane installation, submit a one - year installation warranty and as-built documentation for the placed geomembrane (including panel layout, seam testing, and repairs) to the REMEDIATION ENGINEER.

1.05 CONSTRUCTION QUALITY ASSURANCE

A. The geomembrane installation will be monitored in accordance with the Construction Quality Assurance (CQA) Plan, the Contract Documents, and CONTRACTOR Plans.

B. The REMEDIATION ENGINEER will perform installation quality assurance testing of the geomembrane seams, in accordance with recommendations from the manufacturer and as required in the CQA Plan.

C. CQA activities required of the REMEDIATION ENGINEER shall be accounted for in the construction schedule.

D. Correction of deficiencies and non-conformances identified by the REMEDIATION ENGINEER shall be at no additional cost to the Owner.

1.06 PROJECT AND SITE CONDITIONS

A. The CONTRACTOR shall carefully examine the Site to determine the full extent, nature, and location of work required to conform to the Design Drawings and Specifications. The CONTRACTOR shall bring any inaccuracies or discrepancies between the Design Drawings and Specifications to the DESIGN ENGINEER's attention in order to clarify the exact nature of the Work to be performed.

PART 2 – PRODUCTS

2.01 RESIN

A. Use LLDPE resin having the following properties:

1. Formulated Sheet Density: 0.939 g/ml maximum (ASTM D792 Method A or ASTM D1505)

2. Resin Specific Gravity: 0.93 g/ml minimum (ASTM D792 Method B or ASTM D1505).

3. Melt Flow Index: 1.0 g/10 min., maximum (ASTM D1238 Condition E)

B. Provide geomembrane manufactured from new, first-quality polyethylene resin.

C. Do not add reclaimed polymer to the resin.

D. The use of polymer recycled during the manufacturing process is permitted if performed with appropriate cleanliness and if the recycled polymer during the manufacturing process does not exceed 10 percent by weight of the total polymer weight. The percentage of recycled polymer shall not affect the quality of the finished product.

2.02 GEOMEMBRANE PROPERTIES

A. Furnish LLDPE geomembrane having properties that comply with the required values shown in Table 1 for 40-mil LLDPE geomembrane.

2.03 LABELING

A. Label the geomembrane rolls with the following information.

1. Thickness of the material
2. Length and width of the roll
3. Name of manufacturer
4. Product identification
5. Lot number
6. Roll number

B. Geomembrane rolls not labeled in accordance with this Section or on which labels are illegible will be rejected and replaced.

2.04 TRANSPORTATION, HANDLING, AND STORAGE

A. Provide proper handling and storage of the geomembrane at the site. Protect the geomembrane from excessive heat or cold, dirt, puncture, cutting, or other damaging or deleterious conditions. Provide additional storage procedures in accordance with manufacturer requirements.

B. Store geomembrane rolls on pallets or other elevated structures. Do not store geomembrane rolls directly on the ground surface. Do not store more than three rolls high.

2.05 ACCEPTABLE MANUFACTURERS

A. Solmax Geosynthetics.

B. GSE Lining Technology, Inc.

C. Poly-Flex, Inc.

D. Equal, approved by REMEDIATION ENGINEER.

PART 3 – EXECUTION

3.01 GENERAL

A. Inspection:

1. Prior to implementing work in this Section, carefully inspect the installed work of other Sections and verify that work is complete to the point where the installation of this section may properly commence without adverse impact.
2. If concerns arise regarding the installed work of other Sections, notify the REMEDIATION ENGINEER immediately in writing. Failure to inform the REMEDIATION

ENGINEER in writing or continuance of installation of the geomembrane will be construed as the CONTRACTOR'S acceptance of the work.

3.02 SUBGRADE SURFACE PREPARATION

A. Provide certification in writing from the geomembrane installer that the surface on which the geomembrane will be installed is acceptable. This certification of acceptance shall be given to the REMEDIATION ENGINEER prior to commencement of geomembrane installation in the area under consideration.

B. Special care shall be taken to maintain the prepared soil surface.

C. Damage to the subgrade caused by installation activities shall be repaired at the CONTRACTOR'S expense.

3.03 GEOMEMBRANE DEPLOYMENT

A. General:

1. Do not place geomembrane panels when the ambient temperature is below 40 degrees Fahrenheit (F), unless authorized in writing by the REMEDIATION ENGINEER. For cold weather (i.e., below 40 degrees F) deployment, use the additional procedures authorized in writing by the REMEDIATION ENGINEER. These additional procedures shall include, more trial welds, deploying panels the night before to maintain consistent temperatures between the panels being seamed, and utilizing temporary enclosed structures with heaters. In addition, manufacturer specifications for cold weather seaming and panel placement for the selected geomembrane shall be followed. The procedures will also address placement of the barrier protection material during cold weather. The manufacturer recommendations for cold weather will be followed.

2. Do not place geomembranes during precipitation, in the presence of heavy fog or dew, in an area of ponded water, or in the presence of wind in excess of 20 miles per hour.

3. Ensure that:

   a. Equipment used does not damage the geomembrane by handling, trafficking, or leakage of hydrocarbons (i.e., fuels).

   b. Personnel working on the geomembrane do not smoke, bring glass onto the geomembrane, or engage in other activities that could damage the geomembrane.

   c. The method used to unroll the panels does not scratch or crimp the geomembrane and does not damage lower geosynthetics or the supporting soil.

   d. The method used to place the panels minimizes wrinkles (especially differential wrinkles between adjacent panels). Adjust or repair geomembrane wrinkles where the wrinkle height causes a concern for wrinkle to fold over during placement of material on top. A wrinkle height of 4 inches, measured perpendicular to the slope, can be used as a general guide. The method used to place the panels does not cause the panels to lift up (i.e., tent) or trampoline during the coolest portion of the day.

   e. The geomembrane is anchored or weighted with sandbags, or the equivalent, to prevent damage or uplift from wind. Install sufficient anchoring or weighting to prevent uplift and maintain such system until overlying material is placed.

4. Replace field panel or portion thereof that becomes damaged (torn, twisted, or crimped). Remove from the work area damaged panels or portions of damaged panels.

3.04 FIELD SEAMING

A. General Requirements

1. Do not perform seaming unless both a "master seamer" and the REMEDIATION ENGINEER are present.
2. If required, place a firm substrate such as a flat board or similar hard surface directly under the seam overlap to achieve proper support.
3. Place the electric generator used for power supply to the welding machines outside the area to be lined or mount it on soft tires such that no damage occurs to the geomembrane. Properly ground the electric generator. Place a smooth insulating plate or fabric beneath the hot welding apparatus after use.

B. Weather Conditions for Seaming:

1. Do not seam geomembrane at ambient temperatures below 40 degrees Fahrenheit or above 104 degrees Fahrenheit, unless authorized in writing by the REMEDIATION ENGINEER. Do not seam geomembrane at sheet temperatures above 158 degrees Fahrenheit. For cold (i.e., below 40 degrees Fahrenheit) or hot (i.e., above 104 degrees Fahrenheit) weather seaming, use the additional procedures authorized in writing by the REMEDIATION ENGINEER. Cold weather procedures (including manufacturer specifications) will be a CONTRACTOR submittal that will be made available to the regulators.
2. Measure ambient temperatures between 0 to 6 inches above the geomembrane surface.
3. Geomembrane seam areas shall be dry and protected from wind. Avoid seaming geomembranes during periods of precipitation or when winds exceed 20 miles per hour.

C. Seam Preparation:

1. Prior to seaming, clean the seam area and ensure that area to be bonded is free of moisture, dust, dirt, debris and foreign material.
2. If seam overlap grinding is required, complete the process according to the manufacturer's instructions. Do not grind to a depth that exceeds ten percent of the geomembrane thickness. Grinding marks shall not appear beyond 0.25 inch of the extrudate after it is placed.
3. Align seams with the fewest possible number of wrinkles and "fish-mouths".
4. Cut fish-mouths or wrinkles at the seam overlaps along the ridge of the wrinkle to achieve a flat overlap. Seam the cut fish-mouths or wrinkles and patch portion where the overlap is less than 6 inches with an oval or round patch of geomembrane that extends a minimum of 6 inches beyond the cut in each direction.
5. Extend seams to the outside edge of panels to be placed in the anchor trench.
6. Orient seams parallel to the line of maximum slope (i.e., oriented down, not across, the slope). Minimize the number of seams in corners and at irregular geometric locations. No horizontal seam shall be less than 10 feet from the toe of the slope, except where

approved by the REMEDIATION ENGINEER. Do not locate seams at an area of potential stress concentration.

7. Overlap geomembrane panels for welding and to allow peel tests to be performed on the seam in accordance with manufacturer requirements. Seams that cannot be destructively tested because of insufficient overlap shall be deemed deficient.

D. Seaming Process:

1. Approved field seaming processes are extrusion welding and fusion welding. The primary method of welding shall be fusion. Seaming equipment shall not damage the geomembrane. Use only geomembrane manufacturer-approved equipment.

2. Extrusion Equipment and Procedures:

   a. Maintain at least one spare operable seaming apparatus on site.

   b. Equip extrusion welding apparatus with gauges giving the temperature in the apparatus and at the nozzle.

   c. Prior to beginning a seam, purge the extruder until heat-degraded extrudate has been removed from the barrel. Whenever the extruder is stopped, purge the barrel of heat-degraded extrudate.

3. Fusion Equipment and Procedures:

   a. Maintain at least one spare operable seaming apparatus on site.

   b. Fusion-welding apparatus shall be an automated self-propelled device equipped with gauges giving the applicable temperatures and pressures.

   c. Fusion-welding apparatus shall produce a double-track seam.

   d. Abrade the edges of cross seams to a smooth incline (top and bottom) prior to extrusion welding.

4. Control the temperature of the air at the nozzle of heat bonding apparatus such that the geomembrane is not damaged.

E. Seam Testing:

1. Trial Seams

   a. Make trial seams on excess pieces of the same geomembrane material to be installed.

   b. Perform at least one trial seam each day that seaming is performed by that seamer. Conduct additional trial seaming as follows:

      1) At the beginning of each seaming period;

      2) After every four hours of continuous seaming;

      3) Every time seaming equipment is changed;

      4) If significant changes in geomembrane temperature are observed; and

      5) For each seaming apparatus used that day prior to seaming. In addition, each seamer shall conduct trial seaming under the same conditions as the actual seaming.

c. Prepare trial seams that are at least 15 feet long by 1 foot wide (after seaming) with the seam centered lengthwise for fusion equipment and at least 3 feet long by 1 foot wide for extrusion equipment.

2. Nondestructive Seam Continuity Testing:

a. Perform nondestructive test for continuity field seams over their full length. Perform continuity testing as the seaming work progresses, not at the completion of field seaming. Record the location, date, unit number of test apparatus, name of tester and results of testing. Complete repairs in accordance with the "Defects and Repairs" Article of this Part. Apply the following procedures:

1) Vacuum testing for extrusion welds; and

2) Air pressure testing for double-track fusion seams.

b. Vacuum Testing:

1) Use the following equipment:

a) A vacuum box assembly consisting of a stiff housing, a transparent viewing window, a soft neoprene gasket attached to the bottom, port hole or valve assembly, and a vacuum gauge.

b) A system for applying 5 pound per square inch (psi) gauge vacuum to the box.

c) A bucket of soapy solution and applicator.

2) Follow these procedures:

a) Energize the vacuum pump and reduce the tank pressure to 5 ±1 psi gauge.

b) Wet an area of the geomembrane seam larger than the vacuum box with the soapy solution.

c) Place the box over the wetted area.

d) Close the bleed valve and open the vacuum valve.

e) Ensure that a leak tight seal is created.

f) Examine the geomembrane through the viewing window for the presence of soap bubbles for not less than 20 seconds.

g) If no bubbles appear after 20 seconds, close the vacuum valve and open the bleed valve, move the box over the next adjoining area with a minimum 3 inch overlap, and repeat the process.

h) Mark areas where soap bubbles appear with a marker that will not damage the geomembrane and repair in accordance with the "Defects and Repairs" Article of this Part.

c. Air Pressure Testing:

1) Use the following equipment:

a) An air pump (manual or motor driven) or air reservoir, equipped with a pressure gauge, capable of generating and sustaining a pressure

between 25 and 30 psi;

b) Rubber hose with fittings and connections; and

c) Hollow needle, or other approved pressure feed device.

2) Follow these procedures:

a) Seal both ends of the seam to be tested.

b) Insert needle, or other approved pressure feed device, into the tunnel created by the fusion weld.

c) Insert a protective cushion between the air pump and the geomembrane.

d) Energize the air pump to a pressure between 25 and 30 psi, close valve, and sustain the pressure for not less than 5 minutes.

e) If loss of pressure exceeds 3 psi, or does not stabilize, locate faulty area and repair in accordance with the "Defects and Repairs" Article of this Part.

f) Cut opposite end of air channel from pressure gauge and observe release of pressure to ensure air channel is not blocked.

g) Remove needle, or other approved pressure feed device, and seal both ends in accordance with the "Defects and Repairs" Article of this Part.

F. Retesting:

1. CONTRACTOR, Geosynthetics Subcontractor or the Manufacturer may elect to retest failed tests. The testing conditions shall be in accordance with ASTM D5321 and this Section. Re-testing shall be done at the CONTRACTOR'S or manufacturer's expense. Re-test results shall also be reviewed by the REMEDIATION ENGINEER.

G. Defects and Repairs:

1. Inspect the geomembrane before and after seaming for evidence of defects, holes, blisters, undispersed raw materials, and indications of contamination by foreign matter. The surface of the geomembrane shall be clean at the time of inspection. Sweep or wash the geomembrane surface if surface contamination inhibits inspection.

2. Test each suspect location, both in seam and non-seam areas, using the methods described in the "Nondestructive Seam Continuity Testing" Article of this Part. Repair each location that fails nondestructive testing.

3. Cut and re-seam wrinkles not conforming with Part 2 of this Section. Retest the seams in accordance with this Section.

4. Repair Procedures:

a. Repair portions of the geomembrane exhibiting a flaw or failing a nondestructive test. Use the most appropriate of the available procedures:

1) Patching, used to repair large holes, tears, undispersed raw materials, and contamination by foreign matter;

2) Abrading and reseaming, used to repair small sections of extruded

seams;

3) Spot seaming, used to repair minor, localized flaws;

4) Capping, used to repair long lengths of failed seams;

5) Topping, used to repair areas of inadequate seams, which have an exposed edge less than 4 inches in length; and

6) Removing bad seam and replacing with a strip of new material seamed into place (used with long lengths of fusion seams).

b. When making repairs, satisfy the following:

1) Abrade surfaces of the geomembrane that are to be repaired no more than 20 minutes prior to the repair;

2) Clean and dry geomembrane surfaces immediately prior to repair;

3) Only use approved seaming equipment; and

4) Extend patches or caps at least 6 inches beyond the edge of the defect, and round corners of patches to a radius of at least 3 inches.

5. Repair Verification:

a. Test each repair using the methods described in the "Nondestructive Seam Continuity Testing" Article of this Part. Repairs that pass the nondestructive test are adequate unless the REMEDIATION ENGINEER elects to also perform destructive tests. Re-repair and retest failed tests.

3.05 EQUIPMENT IN CONTACT WITH THE GEOMEMBRANE

A. Take necessary precautions to prevent damage to the geomembrane during the installation of other components of the cover system.

B. Refrain from driving equipment directly on the geomembrane. Use low ground pressure equipment above the geomembrane that meets the following ground pressure requirements.

Maximum Allowable Equipment Ground Pressure (psi)	Minimum Thickness of Overlying Material (inches)
<5	12
<10	18
<20	24
>20	36

3.06 PROTECTION OF WORK

A. Protect prior work and materials and completed work of other Sections.

B. In the event of damage, make repairs or replacements necessary to be in full compliance with the Contract Documents.

3.07 REPAIRS

A. Imperfections, flaws, construction damage, and seam failures shall be repaired at no additional cost to the OWNER.

B. Acceptable repair methods include:

1. Patching, used to repair holes, tears, undispersed raw materials, and contamination by foreign matter.
2. Grinding and re-welding, used to repair small sections of extruded seams.
3. Spot Welding or Seaming, used to repair pinholes or other minor, localized flaws.
4. Capping, used to repair large lengths of failed seams.
5. Topping, used to repair areas of inadequate seams which have an exposed edge.
6. Removing bad seams and replacing with a strip of new material welded into place.

3.08 REVIEW OF TEST RESULTS

A. The REMEDIATION ENGINEER shall review test reports to determine if the test results meet the minimum requirements stated above.

TABLE 1.
REQUIRED GEOMEMBRANE PROPERTIES FOR 40-MIL LLDPE (SMOOTH)

Properties	Test Method	Test Value for 40 mils	Minimum Testing Frequency
Thickness (min. ave.) - mils Lowest individual for 8 out of 10 values - % Lowest individual for any of the 10 values - %	D5199	nom. -5% -10 -15	per roll
Formulated Density (max.) - g/cc	D1505/D792	0.939	200,000 lb
Tensile Properties (2) (min. ave.) Break strength - lb/in Break elongation - %	D6693 Type IV	 152 800	20,000 lb
2% Modulus - lb/in (max.)	D5323	2400	per formulation
Tear Resistance (min. ave.) - lb	D1004	22	45,000 lb
Puncture Resistance (min. ave.) - lb	D4833	60	45,000 lb
Axi-Symmetric Break Resistance Strain (min.) - %	D5617	30	per formulation
Carbon Black Content - %	D4218(3)	>2.0	45,000 lb
Carbon Black Dispersion	D5596	9 of 10 views in Category 1 or 2 and 1 in Category 3	45,000 lb
Oxidative Induction Time (OIT) (min. ave.)(4) Standard OIT - min. - or - High Pressure OIT - min.	 D8117 D5885	 100 400	200,000 lb
Overn Aging at 85°C (5) Standard OIT (min. ave.) - % retained after 90 days - or - High Pressure OIT (min. ave.) - % retained after 90 days	D5721 D8117 D5885	 35 60	per formulation
UV Resistance(6) Standard OIT (min. ave) - or - High Pressure OIT (min. ave.) - % retained after 1600 hrs(8)	D7238 D8117 D5885	 N.R.(7) 35	per formulation

Notes:

1. Alternate the measurement side for double sided textured sheet.
2. Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of 5 test specimens each direction. Break elongation is calculated using a gage length of 2.0 in. at 2.0 in/min.
3. Other methods such as D1603 (tube furnace) or D6370 (TGA) are acceptable if an appropriate correlation to D4218 (muffle furnace) can be established.
4. The manufacturer has the option to select either one of the OIT methods listed to evaluate the antioxidant content in the geomembrane.
5. It is also recommended to evaluate samples at 30 and 60 days to compare with 90 day response.
6. The condition of the test should be 20 hr. UV cycle at 75°C followed by 4 hr. condensation at 60°C.
7. Not recommended since the high temperature of the Std-OIT test produces an unrealistic result for some antioxidants in the UV exposed samples.
8. UV resistance is based on percent retained value regardless of the original HP-OIT value.

TABLE 2.
REQUIRED GEOMEMBRANE SEAM PROPERTIES FOR 40-MIL LLDPE

Geomembrane Nominal Thickness	40 mil
Hot Wedge Seams(1)	
shear strength, lb/in. (NR); lb (R)	30
shear elongation(2), %	50
peel strength, lb/in. (NR); lb (R)	25
peel separation, %	25
Extrusion Fillet Seams	
shear strength, lb/in. (NR); lb (R)	30
shear elongation(2), %	50
peel strength, lb/in. (NR); lb (R)	25
peel separation, %	25

Notes:

1. Also for hot air and ultrasonic seaming methods.
2. Elongation measurements should be omitted for field testing.

END OF SECTION

SECTION 31 11 00

CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of all labor, equipment, tools, materials, services, supervision, and incidentals necessary to remove and manage brush, trees, shrubs, stumps, logs, debris, boulders, and other objectionable materials from Work areas as described herein, shown on the Design Drawings, or as directed by the REMEDIATION ENGINEER. Work in this Section includes, but is not limited to:

1. Clearing and grubbing within the Limits of Excavation and Limits of Soil Cover shown on the Design Drawings.
2. Clearing and grubbing to establish access routes, support areas, and other work areas as necessary to complete the Work, or as directed by the REMEDIATION ENGINEER.
3. Protection and preservation of trees and vegetation outside the Limits of Excavation and Limits of Soil Cover shown on the Design Drawings.
4. Cutting, chipping, and management of above-grade timber and brush.
5. Management of below-grade stumps and woody vegetation.
6. On-site management of all related debris, stumps, roots and other objectionable materials.

1.02 PERFORMANCE REQUIREMENTS

A. The CONTRACTOR shall comply with all applicable federal, state and local codes, ordinances, regulations, statutes, and standards.

1.03 SUBMITTALS

A. The CONTRACTOR shall submit the following in accordance with Section 01 33 00 – Document Submittal Procedures and as elsewhere specified in this Section:

1. The CONTRACTOR's proposed Limits of Clearing and Grubbing for approval by the REMEDIATION ENGINEER.
2. The proposed methods for managing brush, trees, shrubs, stumps, logs, debris, boulders, and other objectionable material.

1.04 PROJECT AND SITE CONDITIONS

A. The CONTRACTOR shall carefully examine the Site to determine the full extent, nature, and location of work required to conform to the Design Drawings and Specifications. The CONTRACTOR shall bring any inaccuracies or discrepancies between the Design Drawings and Specifications to the DESIGN ENGINEER's attention in order to clarify the exact nature of the Work to be performed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 CLEARING AND GRUBBING

A. Provide erosion control measures prior to and throughout all clearing and grubbing activities, in accordance with Section 31 25 00 – Erosion Control.

B. Limit clearing and grubbing activities to the Limits of Excavation and Limits of Soil Cover shown on the Design Drawings, or as otherwise approved by the REMEDIATION ENGINEER.

C. Manage construction water in accordance with Section 02 72 00 – Construction Water Management. Sequence and conduct clearing and grubbing activities to limit the generation of construction water as appropriate.

D. Clear all vegetation and objectionable material to a height of approximately 6 to 12 inches within the Limits of Excavation and as otherwise required to complete the Work within the Limits of Disturbance. Large, woody material should be removed. Phragmites stalks and similar material may be left within the Limits of Excavation to be excavated with the soil/sediment. Manage all removed material in accordance with Section 02 61 15 – Handling and Disposal of Impacted Materials, unless otherwise directed by the REMEDIATION ENGINEER and approved by the New York State Department of Environmental Conservation (NYSDEC).

E. Backfill holes outside the Limits of Excavation resulting from the removal of materials that extend below finished grade with common fill.

F. Immediately restore or replace any damaged items.

G. Cut above-grade timber within 12 inches of grade. Chip above-grade timber on-site and stockpile for use for soil stabilization and/or drainage material for dewatering pads and other purposes, unless otherwise directed by the REMEDIATION ENGINEER and approved by the NYSDEC. Wood chips from ash trees may not be used for these purposes. Wood chips used for sediment dewatering shall be removed and managed in accordance with Section 02 61 15 – Handling and Disposal of Impacted Materials and all applicable federal, state and local codes, ordinances, regulations, statutes, and standards.

H. Below-grade grubbing outside the Limits of Excavation shall be avoided.

I. Provide a chipper and/or grinder of sufficient size to handle material expected from the cleared and grubbed areas.

J. Below-grade woody material located inside the Limits of Excavation, including, but not limited to roots, stumps, and other materials shall be excavated concurrently with the soils/sediment; chipped and ground or otherwise managed; and combined with contaminated soils/sediment for off-site disposal in accordance with Section 02 61 15 - Handling and Disposal of Impacted Materials.

K. Do not burn on or off-site.

3.02 TOPSOIL REMOVAL

A. Topsoil within the excavation limits is assumed to be impacted and must be disposed of off-site in accordance with Section 02 61 15 – Handling and Disposal of Impacted Materials. On or off-site re-use of topsoil from within the excavation limits is prohibited.

3.03 GUARANTEE

A. The CONTRACTOR shall guarantee that Work performed under this Section will not permanently damage trees, shrubs, turf or plants designated to remain, or other adjacent work or facilities. If damage resulting from operations appears during a period up to 12 months after completion of the project, the CONTRACTOR shall replace damaged items.

END OF SECTION

SECTION 31 23 16

EXCAVATION

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of the labor, equipment, tools, materials, services, supervision, and incidentals necessary to perform all excavation necessary for completion of the Work as described herein, shown on the Design Drawings, or directed by the REMEDIATION ENGINEER. Work in this Section includes, but is not limited to:

1. Excavation of uncontaminated soil materials.
2. Excavation of contaminated soils, sediments, wastes, and debris.
3. Excavation for drainage ditches, culverts, piping, and trenches.
4. Excavation for site structures.

1.02 PERFORMANCE REQUIREMENTS

A. The CONTRACTOR shall comply with all applicable federal, state, and local codes, ordinances, regulations, statutes, and standards.

B. All excavation, trenching, sheeting, bracing and related work shall comply with the requirements of Title 29 Code of Federal Regulations, Part 1926.650-652, (Subpart P - Excavations), Occupational Safety and Health Act (OSH Act)) Safety and Health Regulations for Construction.

C. Excavate in accordance with the CONTRACTOR's HASP.

D. All excavation, dredging, and waste handling shall be performed in a manner that minimizes the emission of fugitive dusts, odors, turbidity, and suspended solids in runoff.

1.03 REFERENCES

A. Title 29 Code of Federal Regulations, Part 1926.650-652, (Subpart P - Excavations), OSHA Safety and Health Regulations for Construction.

1.04 DEFINITIONS

A. Waste is defined as contaminated or potentially contaminated soil, sediment, or other material that is excavated on-site. Materials that come into contact with contaminated or potentially contaminated soils/sediment shall also be considered waste.

B. On-site is defined as work occurring within the limits of the former East Station manufactured gas plant (MGP). The northern limit of the Site is bound by the Bausch + Lomb Property (off-site), the eastern limit is the gorge wall off of Saint Paul Street, the southern limit is the Bausch Street bridge, and the western limit is the limits of excavation located within the Genesee River.

C. Waste excavation is defined as removals of materials considered to be waste above the water surface.

D. Waste dredging is defined as removals of materials considered to be waste below the water surface.

E. Competent Bedrock is defined as a surface that is visibly free of soil, sediment, and waste-like material or when scraped along a 10 foot long cutting pass by an excavator (minimum Cat 325

or equivalent) equipped with a grading bucket (bucket with no teeth), the material collected in the bucket consists primarily of rock visibly free of soil, sediment, and waste-like materials.

F. High flow condition is defined as 17,500 CFS which is the flowrate that will cause the overtopping of the temporary diversion structures.

G. Ordinary High Water Mark (OHWM) is defined as the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

1.05 SUBMITTALS

A. The CONTRACTOR shall submit the following in accordance with Section 01 33 00 – Document Submittal Procedure and as elsewhere specified in this Section:

1. A Material Handling Plan (may be included in the Project Operations Plan) detailing the procedures, materials and equipment to be used for the excavation, dredging, screening, dewatering, relocation, transportation, consolidation, and disposal of waste materials and stockpiling of screened cobbles and boulders. Include a spill contingency plan as part of this submittal. This submittal may incorporate or reference the Water Quality Management Plan (WQMP) described below. Do not begin waste excavation or dredging work until the REMEDIATION ENGINEER has approved this submittal.

2. Submit as part of the Contractor's Health and Safety Plan (CHASP), a contingency plan in the event hazardous conditions (e.g., high flow, free NAPL, drums, etc.) are encountered during excavation or dredging work. The contingency plan for high-flow events should be in accordance with Section 35 80 00 – Turbidity Barriers and Monitoring.

3. Water Quality Management Plan (WQMP, may be included in the Project Operations Plan). Provide a CONTRACTOR's WQMP describing anticipated measures to protect and monitor surface water quality during dredging. The WQMP shall also include a contingency plan that describes the information the CONTRACTOR will gather (e.g., weather forecasts, USGS Stream Gages, RG&E hydroelectric operations) to anticipate high flow conditions (17,500 CFS) and what protective measures that will be taken to protect disturbed soils/sediment and prevent the migration of contaminants.

4. Fiber-Reinforced Shotcrete mix design (i.e., gradation, water/cement ratio, additives) and results from an independent geotechnical laboratory demonstrating that in the absence of fiber-reinforcement the shotcrete mix will have a minimum 28 day unconfined compressive strength (ASTM D1633) of 3,000 psi. The fiber shall be MasterFiber® F70 manufacture by BASF and mixed with shotcrete at the recommended dosage of 1.5 pounds per cubic yard (1.5 lb/CY). The CONTRACTOR may replace fiber-reinforcement with light gauge welded-wire reinforcement 6 x 6 W1.4 x W1.4 or heavier installed 2 inches above the excavation surface. The CONTRACTOR may propose an alternate approach or material provided installation can safely be performed on a 2H:1V and will result in a hydraulic conductivity (ASTM D5084) that is no greater than $1x10^{-5}$ cm/sec and is approved in writing by the DESIGN ENGINEER.

1.06 QUALITY CONTROL

A. The CONTRACTOR shall submit a Quality Control (QC) Work Plan (may be included in the Project Operations Plan) for review. Once instituted, the CONTRACTOR shall use the QC Work Plan to ensure that the Work meets the requirements of the Contract Documents.

B. Employ a dredge bucket real-time kinematic (RTK) differential global positioning system (DGPS) and dredge cut visualization software for sediment removal.

C. Perform daily quality control checks of all dredging equipment and positioning system sensors.

D. Conduct hydrographic surveys to verify that the extent of dredging activities is in accordance with the limits shown on the Design Drawings. Surveys must be reviewed and approved by the REMEDIATION ENGINEER before Work will be considered complete. If high spots remain above the estimated bedrock elevation the REMEDIATION ENGINEER will request that the CONTRACTOR demonstrate that the vertical extent of dredging has reached bedrock as defined in Article 1.04 of this specification. When the REMEDIATION ENGINEER determines that bedrock has not been reached, the CONTRACTOR shall dredge the remaining sediments and document final removal quantities and elevations with additional hydrographic survey.

1.07 PROJECT AND SITE CONDITIONS

A. The CONTRACTOR shall carefully examine the site to determine the full extent, nature, and location of work required to conform to the Design Drawings and Specifications. The CONTRACTOR shall bring any inaccuracies or discrepancies between the Design Drawings and Specifications to the DESIGN ENGINEER's attention in order to clarify the exact nature of the Work to be performed.

B. Field Measurements

1. Verify that survey benchmarks, monuments, and intended elevations for the work are as shown on the Design Drawings or as provided by the DESIGN ENGINEER or REMEDIATION ENGINEER.

2. Identify required lines, levels, contours, and datum. Review subsurface investigation reports and other available site information.

C. Prior to the start of construction, CONTRACTOR shall notify the appropriate organizations, and have staked or marked underground, above-grade, and overhead utilities. Utilities include, but are not limited to water, gas, electric, telephone, cable, storm sewer, sanitary sewers, laterals, and services. If utility locations indicate a possible interference, or points of connection to existing facilities need to be identified, perform exploratory excavations to determine the utilities' location and elevation. Provide the utility OWNER with results from exploratory excavations for review. Allow the DESIGN ENGINEER and REMEDIATION ENGINEER sufficient time to review exploratory excavation results and evaluate if changes are required to the design prior to start of construction.

D. The water level on the River is impacted by a number of conditions including snow melt, precipitation, and the operating status of downstream hydroelectric dam. When the downstream hydroelectric dam is in operation the River elevation within the removal boundaries will be above elevation 389 feet (NAVD88), even during summer months when flowrates may be below average (see USGS StreamStats, https://streamstatsags.cr.usgs.gov/gagepages/html/04232000.htm showing an Average Daily Streamflow of 2,786 CFS). When the hydroelectric dam is not in operation the River elevation is expected to be above elevation 389 feet (NAVD88) for periods of time but will decrease proportionally with flowrate.

PART 2 - PRODUCTS

2.01 MATERIALS

A. The CONTRACTOR shall be notified in writing by the REMEDIATION ENGINEER in the case that post-excavation soil visual criteria and/or analytical sample results indicate that the remaining soil below the water surface elevation exceeds remedial criteria for soil:

1. Grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
2. Soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead;
3. Concentrated solid or semi-solid hazardous substances per 6 NYCRR Part 375-1.2(au)(1);
4. Soil with visual waste material or non-aqueous phase liquid (NAPL);
5. Soil containing total SVOCs exceeding 500 ppm;
6. Soils which exceed the protection of groundwater (PGW) soil cleanup objectives (SCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in Site groundwater above standards; and
5. Soils that create a nuisance condition, as defined in CP-51 Section G).

B. When the CONTRACTOR receives such notice, CONTRACTOR shall provide a low permeability subaqueous cover consisting of:

1. AquaBlok 2080FW,
2. Or equal approved by REMEDIATION ENGINEER.

PART 3 - EXECUTION

3.01 PREPARATION

A. Protect plants, lawns, and other features that have been designated on the Design Drawings to remain.

B. Protect control points, benchmarks, existing structures, features, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic. Repair or replace damaged items.

C. Provide protection of utilities, equipment, and personnel for all underground, above grade, and overhead utilities.

D. Maintain existing manholes, catch basins, culverts, and other utility structures above and below grade in their pre-work condition unless shown in design to be removed. Promptly remove any material or debris entering abovementioned structures due to the operation.

E. Grade areas to receive fill to prevent surface water runoff and ponding.

3.02 CLASSIFICATION OF EXCAVATED MATERIAL

A. Excavated material may be classified as contaminated or uncontaminated. Contaminated material excavations are also referenced in Section 02 61 15 – Handling and Disposal of Impacted Materials.

3.03 EXCAVATION

A. Protect adjacent structures that may be damaged by excavation work, including but not limited to utilities, monitoring wells, existing infrastructure, and pipe chases. Repair or replace any structure damaged as a result of operations.

B. Excavate subsoil required to accommodate access roads, construction operations, culverts, ditching, site structures, and piping.

C. Shore or machine-slope banks to an angle that is safe for the material in which the excavation is made, including appropriate offset or protection for nearby site structures.

D. Excavations shall not interfere with the normal 45-degree bearing splay of foundations. Do not undercut excavation faces.

E. Grade the excavation perimeter to prevent surface water drainage into the excavation. Grade excavations to minimize directing runoff over contaminated areas. Conduct excavation operations to provide continuous drainage and to prevent ponding. Remove and handle surface water and groundwater seepage that collect in disturbed excavation areas.

F. Dredging shall be conducted such that dredged material is removed to bedrock as shown on the Design Drawings unless otherwise noted on the Design Drawings or approved by the DESIGN ENGINEER.

G. Excavation shall be conducted as follows:

1. Excavate to the lines and grades shown on the Design Drawings. Do not over-excavate or over-dredge any area laterally or vertically without prior approval from the DESIGN ENGINEER.

2. Excavated material will be removed to Competent Bedrock in locations shown on the Design Drawings unless otherwise noted on the Design Drawings or approved by the DESIGN ENGINEER. At least 95% of the excavated surface elevation survey points and/or surface area shall be constructed within the range of 3 inches above (+3") and 3 inches below (-3") the elevations shown on the Design Drawings.

H. If required, REMEDIATION ENGINEER will perform post-excavation documentation sampling in the vicinity of the Smith Street Bridge in conformance with DER-10.

I. Establish exclusion zones for work areas in accordance with the CHASP.

J. CONTRACTOR shall sequence the excavation of riverbank soils and river dredging to prevent the migration of contaminants to clean or remediated areas.

K. To the extent practicable the CONTRACTOR shall perform dredging from upstream to downstream to minimize the potential for deposition of suspended solids on clean or remediated surfaces.

L. Perform excavation, dredging, and on-site transportation in a manner that prevents migration of contaminants to clean areas. Keep varying contaminant types and concentrations segregated as necessary for waste characterization and disposal.

M. Equip dredges with RTK-DGPS and the necessary sensors to enable accurate positioning of the dredge bucket and to continuously monitor and track the location of the dredge bucket.

N. Previous Site investigations have identified that visibly clean, large diameter cobbles and boulders are present in the river overlying contaminated finer grained gravels and sediments. During excavation or dredging the CONTRACTOR shall, to the extent practicable, remove and segregate the large diameter cobbles and boulders (6 inches and larger) prior to removing the underlying sediments.

O. Large diameter cobbles and boulders removed from the river shall be screened to remove gravel and sediment that is smaller than 6 inches in diameter. The CONTRACTOR may propose

an alternative to a screen for segregating cobble. The CONTRACTOR's alternative methodology shall be approved by the REMEDIATION ENGINEER prior to implementation.

P. Screened cobbles and boulders greater than 6 inches in diameter shall be sprayed (e.g., pressure washed) or equivalent method approved by REMEDIATION ENGINEER. Washed cobbles and boulders shall be inspected by REMEDIATION ENGINEER to verify that they are free of non-aqueous phase liquid (NAPL) and Tar Like Material (TLM) prior to being reused for restoration. Concrete fragments and other inert construction materials shall be managed similarly and, if visually verified, may be used as backfill above and/or inland from the OHWM.

Q. Excavation and dredging shall be conducted to remove sediment containing NAPL and TLM down to bedrock. The bedrock surface following sediment removal shall be visibly free of grossly contaminated sediments that can be removed using conventional mechanical excavation and dredging techniques (e.g., excavator, clamshell). Where visual confirmation is not feasible, the CONTRACTOR shall demonstrate that the vertical extent of excavation/dredging has reached bedrock as defined in this Specification.

R. Remove lumped subsoil, boulders, and rock.

S. Notify the DESIGN ENGINEER and REMEDIATION ENGINEER of unexpected subsurface conditions, or of questionable soils encountered at required subgrade elevations, and discontinue work in the area until notified to resume work.

T. When the weather forecast predicts precipitation or when the RG&E hydroelectric facilities need to discharge water at flowrate that will create a high flow condition (17,500 CFS) the CONTRACTOR shall implement the measures described in the CONTRACTOR's WQMP to protect disturbed soils/sediment to prevent the migration of contaminants to clean or remediated areas. The contingency plan for high-flow events should be in accordance with Section 35 80 00 – Turbidity Barriers and Monitoring.

U. Manage construction water in accordance with Section 02 72 00 - Construction Water Management. Sequence and conduct excavation, onsite handling, and loading activities to limit the generation of construction water as appropriate.

V. Provide storm water and erosion control measures prior to and throughout all excavation, dredging, onsite handling, and loading activities in accordance with Section 31 25 00 – Erosion Control.

W. Provide oil absorbent pads and/or booms as needed to contain and collect oil sheens that may emanate from the excavation and dredge areas.

X. Conduct excavation and dredging operations in accordance with approved WQMP, including providing turbidity curtains or other measures to manage turbidity in surface water caused by dredging. Monitor surface water quality in accordance with approved WQMP.

Y. Stop work immediately and notify the REMEDIATION ENGINEER at any time during the completion of works if NAPL, drums, tanks or other unanticipated sources of contamination are encountered. Do not proceed with removal of such materials without prior approval from the REMEDIATION ENGINEER, unless an emergency situation requiring immediate action exists.

Z. Stockpile excavated material in areas designated by the REMEDIATION ENGINEER.

AA. Install sheeting and bracing and use mobile shields in accordance with details of applicable codes, rules and regulations including applicable federal, state, and local regulations including those of the Occupational Safety and Health Administration (OSHA).

BB. Decontaminate equipment used for excavation of waste materials prior to re-use on clean material. Decontaminate equipment between distinct areas of contamination regardless of the type of contamination.

CC. Do not begin backfill/restoration of the waste excavation and dredge areas until the REMEDIATION ENGINEER determines waste excavation and dredging is complete for each area.

DD. Installation of a low permeability cover installation over soils: when the CONTRACTOR is notified in writing by the REMEDIATION ENGINEER that the post-excavation soil visual criteria and/or analytical sample results indicate that the remaining soil above the water surface elevation (i.e., above elevation 390 feet NAVD) exceeds remedial criteria for soil listed in Subpart 2.01.A.; the CONTRACTOR shall install a low permeability cover over the excavation subgrade represented by the visual criteria and/or exceedance sample(s).

1. The CONTRACTOR shall install the low permeability cover consisting of fiber-reinforced shotcrete placed contiguously on a (2H:1V) cut slope to minimum vertical thickness of 6 inches.

2. The CONTRACTOR may propose an alternative low permeability cover system for approval by the DESIGN ENGINEER.

3.04 TRENCH EXCAVATION

A. Excavate and maintain trenches for underground drainage, utilities, and piping as directed by the REMEDIATION ENGINEER. If a prefabricated, mobile shield is utilized in lieu of conventional sheeting and bracing in pipe trenches, maintain the bottom of the shield as high as possible (preferably above the spring line of the pipe) to prevent disturbance of the pipe foundation material and to avoid forces which could pull pipe joints apart when the shield is dragged forward. Fill gouged openings or troughs left by the shield with additional pipe foundation material and thoroughly compact. Install sheeting and bracing and use mobile shields in accordance with details of applicable codes, rules and regulations including applicable federal, state and local regulations including those of OSHA.

B. Excavate flat bottom trenches, of allowable width, at the required subgrade elevation for subsequent installation of pipe foundation material.

C. Trim back or remove bedrock, boulders. and cobbles greater than 6 inches on each side of the trench so no rock protrudes within 6 inches of the installed pipe. Trim back rock across the bottom of the trench so no rock, boulder or cobble protrudes within 4 inches of the installed pipe.

D. Do not open trenches more than 50 feet in advance of installed pipe unless approved by the DESIGN ENGINEER and REMEDIATION ENGINEER. Complete excavation of the trench at least 5 feet in advance of pipe laying operations. Do not leave more than 40 feet of trench open overnight.

3.05 MATERIAL MANAGEMENT

A. Consolidate or dispose of waste materials as specified in Section 02 61 15 – Handling and Disposal of Impacted Materials. Classify materials based on Design Drawings, visual observations, and material testing.

3.06 FIELD QUALITY CONTROL

A. Perform field inspections.

B. Provide for visual inspection of bearing surfaces.

3.07 PROTECTION OF EXCAVATIONS

A. Prevent cave-ins or loose soil from falling into excavations.

B. Maintain excavations while they are open and exposed in accordance with all applicable federal, state, and local codes, ordinances, regulations, statutes, and standards. Install and maintain sufficient and suitable barricades, warning lights, flood lights, signs, etc., to protect life and property until the excavation has been backfilled and graded to a safe and satisfactory condition.

C. Protect sealed surfaces from unnecessary vehicle traffic and other construction activities to protect the excavation surface from disturbance prior to commencement of backfilling operations.

D. Protect the bottom of excavations, soil beneath, and soil adjacent to foundations from freezing.

E. Exposed subgrade surfaces for foundations or roads shall remain undisturbed, drained, and maintained as uniform areas shaped to receive the foundation components of the structure.

END OF SECTION

SECTION 31 25 00

EROSION CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of the labor, equipment, tools, materials, and services needed to manage stormwater and provide and maintain erosion and sediment control (ESC) measures prior to and throughout construction as described herein and in the Project Stormwater Pollution Prevention Plan (SWPPP), as shown on the Design Drawings, or as directed by the DESIGN ENGINEER or REMEDIATION ENGINEER. Work in this Section includes, but is not limited to:

1. Installation and maintenance of temporary and permanent ESC measures.
2. Control of erosion from stockpiles.
3. Inspection of ESC measures during and after rainfall.
4. Repair of failed ESC measures.
5. Removal and disposal of sediment deposits in a manner that does not result in additional erosion or pollution.
6. Removal of temporary ESC measures once construction and permanent stabilization is complete.

1.02 PERFORMANCE REQUIREMENTS

A. The CONTRACTOR shall comply with all applicable federal, state, and local codes, ordinances, regulations, statutes, and standards.

B. Observe government policy established by U.S. Environmental Protection Agency (USEPA).

C. Conform to all ESC policies and procedures established by the State of New York.

D. Install temporary ESC measures as one of the first steps of Site preparation and before any clearing and grubbing or earthwork occurs. Temporary ESC measures shall be maintained throughout the construction and shall not be removed until permanent cover is completely established and stabilized, with no visible unstable rills or erosion, subject to the approval of the REMEDIATION ENGINEER.

E. Temporary ESC measures are a dynamic project element. The CONTRACTOR shall install, maintain, and modify control measures as required by changing remedial construction needs over time.

F. The CONTRACTOR shall plan and execute the Work to minimize routing of storm or flood water over disturbed areas in order to minimize erosion and sedimentation to the extent practicable. Similarly, the control measures shall minimize, to the extent practicable, the flow of stormwater over ground such that rills or unplanned ditches are not formed.

1.03 REFERENCES

A. New York Department of Transportation (NYSDOT). Standard Specifications (US Customary), 2019.

B. New York State Standards and Specifications for Erosion and Sediment Control (Blue Book) (Latest Version).

1.04 SUBMITTALS

A. The CONTRACTOR shall submit the following in accordance with Section 01 33 00 – Document Submittal Procedures and as elsewhere specified in this Section:

1. Product Data – Provide product data for each component to be used in ESC prior to delivery and implementation at the Site.
2. Methods – Provide in Materials Handling Plan, a description of and illustration (as needed) showing anticipated stormwater control and ESC measures to be implemented during construction. This shall be submitted prior to mobilization to the Site and in accordance with the Project SWPPP and Section 01 41 26 – Stormwater Pollution Prevention Plan and Permit.

B. Taking into account specific constraints or other criteria outlined herein, the CONTRACTOR shall prepare and incorporate a schedule into the overall construction schedule, which sets forth the program of operations to effectively control erosion and sediment runoff. The schedule shall be arranged to include:

1. Chronological completion dates for temporary and permanent measures for controlling erosion and sediment.
2. Location, type, and purpose for each temporary measure to be undertaken.
3. Dates when those temporary measures will be removed.

1.05 PROJECT AND SITE CONDITIONS

A. The CONTRACTOR shall carefully examine the Site to determine the full extent, nature, and location of work required to conform to the Design Drawings and Specifications. The CONTRACTOR shall bring any inaccuracies or discrepancies between the Design Drawings and Specifications to the DESIGN ENGINEER's and REMEDIATION ENGINEER's attention in order to clarify the exact nature of the Work to be performed.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Straw bales:

1. Straw for straw bales shall meet the requirements of NYSDOT 713-19 – Straw. The use of hay is not permitted.
2. Stakes for straw bale use shall be re-bar, steel pickets or 2-inch by 2-inch hardwood.

B. Silt Fences shall meet the requirements of NYSDOT 209-2.05.A Silt Fence-Temporary, NYSDOT Table 737-01G, and the following:

1. Fence posts shall be 5-foot minimum length and be of wood or steel. Softwood posts shall be at least 1-1/2 inch by 3-1/2 inch; hardwood posts shall be at least 1-1/4 inch by 1-1/4 inch; steel posts shall be of T or U cross-section, with a minimum weight of 1.3 lb./ft.
2. Fasteners shall be heavy duty staples, hog rings, tie wires, or other fasteners compatible with the fence post material.
3. Silt Fence geotextile shall have a minimum permittivity of 0.05 sec^{-1} and a maximum Apparent Opening Size of 0.0234 inch or sieve designation of #30.
4. Type I Silt Fence:

a. Reinforced support shall be minimum 14 gauge welded wire mesh with 6-inch openings or polymeric mesh.

b. Silt Fence geotextile shall have a minimum Grab Strength of 90 lbf in both the Machine and Cross-Machine directions.

5. Type II Silt Fence:

a. Silt Fence geotextile shall have a minimum Grab Strength of 123 lbf in the Machine and 101 lbf in the Cross-Machine direction.

C. Sand/gravel bags shall meet the requirements of NYSDOT 209-2.04B.

D. Sediment filter logs shall contain no plastic, be 100% biodegradable, and meet the requirement of NYSDOT 713-20.

E. Coir logs shall contain no plastic and be 100% biodegradable with a minimum density of 7 pounds per cubic foot. Coir logs used in lieu of straw bales shall be at least 12 inches in diameter.

F. Temporary or Permanent Rolled Erosion Control Products (RECP) shall contain no plastic, be 100% biodegradable, and meet the requirements of NYSDOT 209-3.08 and 713-07 - Rolled Erosion Control Products and Soil Stabilizers and shall meet the Type and Class shown on the Design Drawings for that location.

G. Oil Sorbents.

1. Booms – New Pig Spaghetti Boom with an oil-absorption capacity of at least 6 gal per 10 foot length or equal shall be used.

2. Socks – New Pig Skimmer Socks with an oil-absorption capacity of at least 30 oz per foot length or equal shall be used.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

A. The CONTRACTOR shall provide all means, methods, services, facilities, power, equipment, tools, material, consumables, incidentals, labor, and supervision necessary to manage stormwater and implement and maintain ESC measures to effectively minimize erosion and sedimentation.

B. Construction, including but not limited to clearing, grubbing, earthwork, and excavations shall be conducted in such a manner as to minimize erosion and sedimentation.

C. Install ESC products in accordance with manufacturers' recommendations.

D. ESC measures shall be inspected by the CONTRACTOR daily. Repairs shall be made as soon as practical.

E. Cover staged soil piles with temporary liners when precipitation is expected in order to minimize soil erosion.

F. Employ, construct, and maintain all temporary ESC measures in accordance with the New York State Standards and Specifications for Erosion and Sediment Control (Blue Book) (Latest Version).

3.02 COMPONENTS

A. Sediment Barriers – Sediment barriers shall be coir logs, sediment filter logs, straw bales, stone, silt fences, ecoberms, or other approved materials that will prevent migration of silts and

sediment to receiving waters. 100% biodegradable coir wattle roll sediment filter logs or coir logs that contain no plastic product are the preferred sediment barrier. 100% biodegradable materials may be left in place and/or on-site with approval by the REMEDIATION ENGINEER if no component of the material contains photodegradable polypropylene product or other plastic product. Non-biodegradable or photodegradable/other plastic containing materials must be removed from the Site at the completion of the Work unless specifically directed by the REMEDIATION ENGINEER.

1. Straw bales:
    a. Straw bale sediment barriers are only to be used when:
        1) No other practice is feasible.
        2) Erosion would occur in the form of sheet erosion.
        3) The length of slope above the bales does not exceed the following limits for a one-inch rainfall event:

2:1 slope	25 foot slope length
3:1 slope	50 foot slope length
4:1 slope	75 foot slope length

    b. Bales shall be placed at the toe of a slope or along a contour with each vertical end tightly abutting the adjacent bale. Loose straw shall be wedged between bales as required.
    c. Each bale shall be embedded a minimum of 4 inches and placed so bindings are horizontal.
    d. Two stakes shall securely anchor each bale in place. Stakes must be driven a minimum of 18 inches into the ground and driven flush with the top of the bale. The first stake in each bale shall be driven at an angle toward the previously laid bale, in order to force the bales together.
2. Silt Fences:
    a. Silt fences shall be placed within 2 feet of the area under consideration, but at least 10 feet from the toe of a slope to allow for maintenance and roll down of larger materials from the slope.
    b. The geotextile shall be embedded to a minimum of 6 inches with native material tamped in place so that no flow can pass under the fence.
    c. The geotextile shall be placed on the upslope side of the fence posts.
    d. Where ends of the geotextile join each other, they shall be overlapped by a minimum of 6 inches, folded and stapled or sewn.
    e. Type I Silt Fence:
        1) Fence posts shall be driven a minimum of 2 feet into the ground.
        2) Maximum center to center fence post spacing shall be 4 feet.
        3) Reinforced support shall be a minimum 30 inches high and tied to fence posts.

4) Geotextile shall be securely fastened to reinforced support with ties spaced every 24 inches at the top and mid-section.

f. Type II Silt Fence:

1) Maximum center to center post spacing shall be 4 feet in filter fabric which has an elongation greater or equal to 50%. If the filter fabric has an elongation of less than 50%, maximum fence post spacing shall be increased to 6 feet. Elongation is measured in accordance with ASTM D4632.

2) Fence posts shall be driven a minimum of 1 foot into the ground.

3) Geotextile shall be securely fastened to fence posts at the top and mid-section.

B. Run-off control shall be implemented by the CONTRACTOR to control surface water and minimize construction water in accordance with the Project SWPPP.

C. Stabilization including slope protection to reduce erosion and rock protection to reduce depth, velocity, and energy of discharge at a receiving reach.

1. Biodegradable Geotextile shall be installed as per the Design Drawings and Section 31 25 14 – Geotextiles and Rolled Erosion Control Products.

2. Other RECP be installed per the procedures in NYSDOT 209-3.08.

3. Temporary Rock Outlet Protection shall be implemented at treated water discharge outlets.

a. Separation geotextile as per Section 31 25 14 – Geotextiles and Rolled Erosion Control Products shall be placed over the entire area before rock placement.

b. Outlets shall be designed as per the latest version of the New York State Standards and Specifications for Erosion and Sediment Control (Blue Book).

4. Construction Road Stabilization:

a. Surface drainage will be provided, and excess runoff shall be diverted to stabilized areas. Roadside ditch capacity shall be the 10 year peak runoff.

b. A 6-inch layer of Structural Fill as per Section 31 00 00 – General Earthwork shall be placed evenly over the full width of the roads.

c. Construction Roads shall be top-dressed with new gravel as required.

5. Stabilized Construction Entrance:

a. The length of the stabilized construction entrance shall be a minimum of 50 feet.

b. The width shall be 12-foot minimum, but not less than the full width where ingress or egress occurs.

c. A stabilization geotextile as per Section 31 25 14 – Geotextiles and Rolled Erosion Control Products, shall be placed over the entire area before gravel placement. This will also serve as a suitable separation fabric.

d. A minimum of 6 inches of coarse aggregate shall be placed over the geotextile.

e. The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public right-of-ways, including top-dressing with additional stone and repair and/or cleanout of any measures used to trap sediment, as required.

D. Oil Sorbent Booms/Socks - Oil sorbent booms/socks shall be installed to contain oil sheens emanating from waste materials. The CONTRACTOR shall maintain a supply of clean oil sorbent booms/socks on-site at all times and install within one hour after discovery of a sheen.

3.03 SPECIAL CONDITIONS

A. Prohibited construction practices include, but are not limited to the following:

1. Dumping of spoil material into any stream corridor, wetland, surface water, unspecified locations, or any location not expressly approved by the DESIGN ENGINEER.

2. Indiscriminate, arbitrary or capricious operation of equipment in any stream corridor, wetland, surface water, or other location. All equipment operation in water bodies or wetlands shall be in accordance with the Contract Documents.

3. Pumping of silt-laden water from trenches or other excavations into any stream corridor, wetland, surface water, or location not expressly approved by the DESIGN ENGINEER.

4. Disposal of trees, brush, and other debris in any stream corridor, wetland, surface water, or location not expressly approved by the DESIGN ENGINEER.

5. Permanent or unspecified alteration of the flow path of any stream not shown on the Design Drawings or expressly approved by the DESIGN ENGINEER.

6. On or off-site burning of construction project debris.

3.04 ADJUSTMENT OF PRACTICES

A. If the planned measures do not result in effective control of erosion and sediment runoff, the CONTRACTOR shall immediately adjust the program and/or institute additional measures in order to eliminate excessive erosion and sediment runoff.

B. If the CONTRACTOR fails or refuses to comply promptly, the REMEDIATION ENGINEER may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the CONTRACTOR.

END OF SECTION

SECTION 31 25 14

GEOTEXTILES AND ROLLED EROSION CONTROL PRODUCTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of all labor, equipment, tools, materials, services, supervision, and incidentals necessary to install geotextile fabrics necessary for completion of the Work as described herein, shown on the Design Drawings, or as directed by the DESIGN ENGINEER or REMEDIATION ENGINEER, as specified.

1.02 PERFORMANCE REQUIREMENTS

A. The CONTRACTOR shall comply with all applicable federal, state, and local codes, ordinances, regulations, statutes, and standards.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM D4355 – Standard Test Method For Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc-Type Apparatus
2. ASTM D4491/D4491M-20e1 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity
3. ASTM D4533/D4533M-15 – Standard Test Method for Trapezoidal Tearing Strength of Geotextiles
4. ASTM D4632 – Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
5. ASTM D4751-20b – Standard Test Method for Determining Apparent Opening Size of a Geotextile
6. ASTM D4873/D4873M-17 – Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples
7. ASTM D6241-14 - Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe
8. ASTM D6475-17 – Standard Test Method for Measuring Mass Per Unit Area of Erosion Control Blankets
9. ASTM D6525/D6525-18 – Standard Test Method for Measuring Nominal Thickness of Rolled Erosion Control Products
10. ASTM D6818-18 – Standard Test Method for Ultimate Tensile Properties of Rolled Erosion Control Products

B. American Association of State Highway and Transportation Officials (AASHTO)

1. National Transportation Product Evaluation Program Report (NTPEPR), accessed at: https://data.ntpep.org/Home/
2. M288-06 – Geotextile Specification for Highway Applications, (2009)

1.04 SUBMITTALS

A. The CONTRACTOR shall submit the following in accordance with Section 01 33 00 – Document Submittal Procedures and as elsewhere specified in this Section:

1. Manufacturers' technical data, samples, installation instructions, and proof of current AASHTO NTPEP or NYSDOT approval (or project specific testing of the specified properties).

2. Samples of sewn seams as per Part 3.02.

1.05 PROJECT AND SITE CONDITIONS

A. The CONTRACTOR shall carefully examine the Site to determine the full extent, nature, and location of work required to conform to the Design Drawings and Specifications. The CONTRACTOR shall bring any inaccuracies or discrepancies between the Design Drawings and Specifications to the DESIGN ENGINEER's attention in order to clarify the exact nature of the Work to be performed.

1.06 QUALITY CONTROL

A. Inspect all geotextiles upon delivery and verify that the proper materials and quantities have been supplied.

B. Inspect the subgrade prior to installation of geotextiles. The subgrade shall be free of organic matter, irregularities, protrusions, abrupt changes in grade, or other unacceptable conditions that could damage the geotextile. Maintain the subgrade in a smooth and uniform condition during installation of the geotextile. The subgrade shall be inspected and accepted by the REMEDIATION ENGINEER prior to placement of the geotextile.

C. Continuously inspect needle-punched geotextiles during deployment for broken needles remaining from needle punching operations. Reject the geotextile if it has defects, rips, holes, flaws, or deterioration or damage incurred during manufacture, transportation, or storage.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Permanent Erosion Control Geotextile:

1. Needle-punched, nonwoven geotextile

2. Meets or exceeds the values listed in Table 31 25 14-1.

B. Stabilization Geotextile

1. Woven, slit-film, or monofilament geotextile

2. Meets or exceeds the values listed in Table 31 25 14-1.

C. Biodegradable Erosion Control Geotextile

1. Bio-degradable erosion control blanket shall be a machine-produced 100 percent biodegradable mat with a 70 percent herbaceous straw and 30 percent coconut fiber blend matrix. The blanket shall be of consistent thickness with the straw and coconut fiber evenly distributed over the entire area of the mat. Cover the blanket on the top and bottom sides with 100 percent biodegradable woven natural organic fiber netting. The netting shall consist of machine directional strands formed from two intertwined yarns with cross directional strands interwoven through the twisted machine strands

(commonly referred to as a Leno weave) to form an approximate 1/2 inch by 1/2 inch mesh. Sew the blanket together with biodegradable thread on 1.5 inch centers.

2. The matrix shall consist of 70 percent straw fiber with approximately 0.35 lb./yd weight with 30 percent coconut fiber cured in fresh water with approximately 0.15 lb./yd weight.

3. The netting shall cover both sides and consist of woven 100% biodegradable natural organic fiber with approximately 9.3 lbs./1,000 ft^2 weight.

4. Thread shall be biodegradable.

5. Fibers shall be natural and biodegradable.

6. No photodegradable polypropylene or other plastic component shall be contained in any part of the product.

7. Meets or exceeds the values listed in Table 31 25 14-1.

D. Staking (for Bio-degradable Erosion Control Geotextile)

1. Stakes shall be non-treated wood and shall be designed to safely and effectively secure erosion control blankets for temporary or permanent applications. Serrate the stake on the leg to increase resistance to pull-out from the soil. The stake shall meet the erosion control blanket manufacturer recommendations for the application.

E. All geotextiles must be on the approved list of geotextiles in the current AASHTO NTPEPR or on the current NYSDOT approved list of geotextiles. Alternatively, project specific testing of the specified properties may be submitted in lieu of AASHTO or NYSDOT approval.

PART 3 - EXECUTION

3.01 LABELING, DELIVERY, STORAGE AND HANDLING

A. Labeling

1. Each roll of geotextile delivered to the site shall be wrapped in protective covers and labeled by the manufacturer with the manufacturer's name, product identification, length, width, and roll number.

B. Delivery

1. The geotextile rolls shall be shipped by appropriate means to prevent damage to the material and to facilitate off-loading. Materials shall not be delivered to the Site until the appropriate submittals of Article 1.04 have been approved by the REMEDIATION ENGINEER. At such time, the geotextile may be delivered to the Site, unloaded, and stored at an area approved by the REMEDIATION ENGINEER.

C. Storage and Handling

1. Store and handle materials as per ASTM D4873 and the manufacturers' recommendations in such a manner as to prevent damage or deterioration to any part of the geotextile.

2. Maintain the protective wrapping on geotextile rolls at all times until the geotextile is deployed for immediate placement.

3. Protect the geotextile from punctures, abrasions, dirt, dust, grease, mud, moisture, excessive heat, sunlight, cutting, or other damage or deleterious conditions. Protect the geotextile rolls from theft and vandalism and store away from high traffic areas.

Repair any damage to protective wrapping immediately. The CONTRACTOR is responsible for the on-site storage and handling of geotextiles. Damaged geotextile shall be replaced at the CONTRACTOR's expense.

3.02 INSTALLATION

A. Ensure the geotextile is not damaged in any way during handling.

B. Position geotextile rolls as required and unroll.

C. Overlap geotextile rolls in the direction of backfill placement so that the geotextile at the beginning of backfill placement is overlapped on top of the geotextile at the end of backfill placement.

D. Geotextile may be held in place with sandbags or anchor pins prior to backfill placement. When geotextile is on slopes steeper than 1V:5H and will have rip-rap placed on it, anchor pins shall be used on to restrain the geotextile on 5-foot centers or less.

E. When placed on stable subgrades flatter than 1V:5H, overlap geotextiles a minimum of 18 inches on all edges.

F. When geotextile is placed on stable subgrades steeper than 1V:5H, sew seams or overlap a minimum of two feet.

G. When geotextile is placed on unstable subgrades (soil California Bearing Ratio <1), seams must be sewn.

H. Sewing requirements:

1. Nylon thread shall not be used. For Erosion Control applications, the thread shall be resistant to ultraviolet radiation. The thread shall be of contrasting color to the geotextile.

2. Employ a thread tension that secures the geotextile without cutting the material.

3. Use a "J" seam secured with a minimum of one row of four-stitch per inch two thread main stitch.

4. CONTRACTOR shall provide a sewn seam sample at least six feet in length to the REMEDIATION ENGINEER for visual inspection and potential testing prior to installation of the geotextile if sewn seams are used. The sample shall be sewn using the same equipment and materials as that for the production seams.

I. When nonwoven geotextile is placed in deep trenches where the geotextile width is insufficient to line the trench without a seam, the geotextile shall be placed with the long dimension perpendicular to the centerline of trench, unless otherwise approved by the DESIGN ENGINEER. Overlap longitudinal seams between adjacent rolls of material a minimum of 2 feet. Overlap the material a minimum of one foot over the top of the trench.

J. When woven geotextile is placed above the trench, place the geotextile with the long dimension parallel to the line of the trench. Overlap the geotextile a minimum of 2 feet.

K. Lay geotextile smooth and free of tension, stress, folds, wrinkles, and creases. Unless specifically permitted by the DESIGN ENGINEER, geotextiles shall be placed in continuous intimate contact with the underlying subgrade so that water cannot flow unimpeded between the soil and geotextile.

L. If geotextiles are damaged during any phase of construction or installation, place a new piece of the same type over the damaged area with a three-foot minimum overlap and sew.

M. Cover the geotextiles within 10 days after installation. Inspect the geotextile immediately before and during placement of soil or aggregate on the geotextile.

N. During spreading operations of backfill, maintain a minimum depth of 12 inches of soil or aggregate over the geotextiles. Do not operate construction equipment directly on the geotextile.

O. Protect the geotextile from damage due to the placement of materials by limiting the height of drop of the material to less than one foot unless otherwise approved by the DESIGN ENGINEER. Rip-rap weighing more than 200 pounds shall not be permitted to roll on the geotextile.

END OF SECTION

TABLE 31 25 14-1

MINIMUM ACCEPTANCE CRITERIA FOR GEOTEXTILES

Minimum Strength Class Requirements							
Geotextile Application	Geotextile Structure	Class	Elongation	Grab Strength	Tear Strength	Puncture Strength	UV Stability[3]
		AASHTO M288 Class		ASTM D4632	ASTM D4533	ASTM D6241	ASTM D4355
		#	(%)	(lbf)	(lbf)	(lbf)	(%)
Permanent Erosion Control	NP-NW[1]	1	<50	315	112	618	50
		1	>50	202	79	433	50
Stabilization	W, MF[2]	1	<50	315	112	618	50
Separation	NP-NW	2	<50	247	90	90	50
		2	>50	157	56	56	50

TABLE 31 25 14-1 (Continued)

MINIMUM ACCEPTANCE CRITERIA FOR GEOTEXTILES

Geotextile Application	Geotextile Structure	In-situ Soil Passing #200 Sieve	Maximum Apparent Opening Size		Minimum Permittivity
		ASTM	ASTM		ASTM
		D422	D4751		D4491
		(%)	Sieve Size (in)	Sieve Designation	(sec^{-1})
Permanent Erosion Control	NP-NW[1]	<15	0.0167	No. 40	0.7
		15 – 50	0.00984	No. 60	0.2
		>50	0.0083	No. 70	0.1
Stabilization	W, MF[2]	n/a	0.0167	No. 40	0.05
Separation	NP-NW	n/a	0.0236	No. 30	0.02

1 NP-NW = Needle Punched, Non-Woven

2 W, MF = Woven , Slit-film or Monofilament type

3 Strength Retained after 500 hours

END OF SECTION

SECTION 31 37 00

STONE MATERIALS

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of the labor, equipment, tools, materials, services, supervision, and incidentals necessary to provide and place all rip-rap, stone filling, and boulders necessary for completion of the Work as described herein, shown on the Design Drawings, or as directed by the DESIGN ENGINEER. Work in this Section includes, but is not limited to:

1. Procurement of rip-rap, stone filling, or boulders.
2. Placement of procured or stockpiled rip-rap, stone filling, or boulders.

Cobbles and boulders are to be screened out of waste materials during excavation work at streambank and stream bed and shall be placed in stockpiles for reuse. Concrete from demolished structures is to be broken up and stockpiled for reuse.

1.02 PERFORMANCE REQUIREMENTS

A. The CONTRACTOR shall comply with all applicable Federal, State and Local codes, ordinances, regulations, statutes and standards.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM C33 – Standard Specification for Concrete Aggregates
2. ASTM C136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
3. ASTM D5240 – Standard Test Method for Evaluation of the Durability of Rock for Erosion Control Using Sodium Sulfate or Magnesium Sulfate
4. ASTM D5312 – Standard Test Method for Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions

B. New York Department of Transportation (NYSDOT) - Standard Specifications (US Customary), Current Version.

1.04 SUBMITTALS

A. The name and location of the source of material.

B. Classification test reports on the materials if available from material supplier.

C. Certification that the materials meet the requirements of the Specification.

1.05 PROJECT AND SITE CONDITIONS

A. The CONTRACTOR shall carefully examine the site to determine the full extent, nature and location of work required to conform to the Design Drawings and Specifications. The CONTRACTOR shall bring any inaccuracies or discrepancies between the Design Drawings and Specifications to the DESIGN ENGINEER's attention in order to clarify the exact nature of the Work to be performed.

PART 2 - PRODUCTS

2.01 GENERAL

A. Clean, hard, durable, rip-rap, stone filling, and boulders as delivered from an NYSDOT or NYSDEC-approved off-site source.

B. Free from organic matter, trash, debris, shale, snow, ice and other frozen or mechanically deleterious materials.

C. Hard enough to withstand exposure to air, water, freezing, and thawing.

D. Stone must meet the requirements of NYSDEC DER-10 Paragraph 5.4(e)(5) or undergo analytical sampling, as specified in Section 31 00 00 – General Earthwork.

2.02 STONE FILLING AND RIP-RAP

A. Stone Filling shall meet the requirements of NYSDOT 733-21 Stone Filling. Rip-rap shall meet the requirements of NYSDOT 733-22 Rip-Rap.

B. All materials shall have a gradation in accordance with the below:

Rip-Rap/Stone Filling Item	See Notes	Stone Size [1]	Percent of Total by Weight
Fine	2, 3, 4	Smaller than 8 inch	90 – 100
		Larger than 3 inch	50 – 100
		Smaller than No. 10 Sieve	0 – 10
Light	2, 3, 4	Lighter than 100 pounds	90 – 100
		Larger than 6 inch	50 – 100
		Smaller than 1/2 inch	0 – 10
Medium	2, 3, 4	Heavier than 100 pounds	50 – 100
		Smaller than 6 inch	0 – 10
Heavy	2, 4, 5	Heavier than 600 pounds	50 – 100
		Smaller than 6 inch	0 – 10

Notes:

1. Stone sizes, other than weights, refer to the average of the maximum and minimum dimensions of a stone particle as estimated by the DESIGN ENGINEER.
2. Materials shall contain less than 20 percent of stones with a ratio of maximum to minimum dimension greater than three.
3. Stone filling is defined as material with at least one fractured face per particle. It is generally expected to be derived from crushing or blasting suitable aggregate. Rounded stone may not be used in the construction of the causeway.
4. Materials shall contain a sufficient amount of stones smaller than the average stone size to fill the spaces between the larger stones.
5. Larger stone fill/boulders shall be substituted for medium stone fill in select areas of the causeway and shoreline restoration, as shown on Design Drawings.

2.03 BEDDING MATERIAL

A. Bedding material shall have the following gradations:

Sieve Size Designation	Percentage Passing by Weight	
	Type 1	Type 2
4 in.	100	
2 in.	40-60	
1-½ in.		100
1 in.		90-100
½ in.	0-15	25-60
¼ in.		0-10
No. 200	0-2	0-2

Notes:

1. Materials shall contain less than 20 percent of stones with a ratio of maximum to minimum dimension greater than three.
2. Stone may be crushed/fractured or rounded.
3. Materials placed underwater shall contain no more than 2% fines passing the #200 sieve
4. Sieve sizes refer to US standard sieve sizes.
5. The rounded stone shall meet the soundness and quality requirements of ASTM C33 unless approved by the DESIGN ENGINEER.

B. Provide material well-graded between the limits shown. REMEDIATION ENGINEER shall perform at least one test on each bedding material item and source, or one test per 500 tons to be delivered to the project site, whichever results in a greater number of tests, for each specified gradation in accordance with ASTM C136. All points on individual grading curves obtained from representative samples of rounded stone shall lie between the boundary limits as defined by smooth curves drawn through the tabulated gradation limits plotted on ENG FORM 2087 or similar form. The individual gradation curves within these limits shall not exhibit abrupt changes in slope denoting either gap grading or scalping of certain sizes or other irregularities which would be detrimental to the proper functioning of the bedding material.

2.04 UNDERDRAIN MATERIAL

A. Underdrain material shall have the following gradations:

Sieve Size Designation	Percentage Passing by Weight	
	Type 1	Type 2
1 in.	100	-
½ in.	90-100	100
¼ in.	0-30	20-100
No. 10	0-10	0-15
No. 20	0-5	0-5

Notes:

1. Materials shall consist of crushed stone, gravel, sand, or screened gravel.
2. Sieve sizes refer to US standard sieve sizes.

B. Provide material well-graded between the limits shown. REMEDIATION ENGINEER shall perform at least one test on each underdrain material item and source, or one test per 500 tons to be delivered to the project site, whichever results in a greater number of tests.

PART 3 - EXECUTION

3.01 PLACEMENT

A. Place stone materials at the locations shown on the Design Drawings. Cut or fill, grade, and compact the subgrade surface to the lines and grades shown on the Design Drawings and as necessary to provide a level surface.

B. Place stone materials on surfaces that are free of brush, trees, stumps, other objectionable material, and are dressed to a smooth surface. Clearing and grubbing shall be performed in accordance with Section 31 11 00 - Clearing and Grubbing. Do not place stone materials over frozen or spongy subgrade surfaces.

C. Place rip-rap/medium stone fill in a manner that will produce a reasonable well-graded mass of stone with smaller stone fragments filling the space between the larger ones, resulting in the minimum practicable void space. Rip-rap/medium stone fill should be placed so that pieces nest together without bridging over voids.

D. The layer thickness shall be at least 1.5 times the maximum size of the material for all applications. The layer thickness of the armor layer (layer composed of medium stone fill) shall be at least 3 times the maximum size of the material.

E. Stone materials should be placed so that the surface grain size distribution is no finer than the bulk grain size distribution.

F. Stone materials shall conform to the lines, grades, and thicknesses shown on the Design Drawings. Place stone materials used for bank or channel protection to its full course thickness in one operation, unless otherwise directed by the DESIGN ENGINEER or shown on the Design Drawings, in such a manner that the underlying material will not be displaced or worked into the layer of stone materials.

G. The surface of the stone materials should not have protruding stones.

H. Carefully control placement of rip-rap/medium stone fill upon finished bedding and/or underdrain material, when used, to avoid disruption and damage to the layer of bedding and/or underdrain material. Place and distribute the rip-rap/medium stone fill so that there are no pockets of uniform size material.

I. Obtain and place the desired distribution of various stone material sizes by selectively loading material at the quarry or other source, by controlled dumping of loads during final placing, and/or by other methods of placement which will produce the specified results. Rearrange individual stones by mechanical equipment or hand to secure the specified results, if necessary.

J. When stone materials are dumped under water, use methods that will minimize segregation.

K. Place stone materials starting at the bottom of the placement areas and proceed to the top, or in such a manner that stones will not slide or roll down during their placement. On slopes, place the largest stones at the bottom of the slope.

END OF SECTION

SECTION 31 50 00

EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of the labor, equipment, tools, materials, services, supervision, and incidentals necessary to provide, maintain, and remove all temporary excavation support structures as described herein, shown on the Design Drawings, or as directed by the DESIGN ENGINEER or REMEDIATION ENGINEER, as applicable. Work in this Section includes, but is not limited to:

1. Design of bracing and shoring.
2. Selection of construction sequence.
3. Temporary shoring of excavations.
4. Construction and removal of posts, timbers, lagging, braces, etc., required in connection with bracing and shoring.

1.02 REFERENCES

A. General:

1. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
2. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.

B. State of New York – New York State Department of Transportation (NYSDOT):

1. Standard Specifications.

1.03 DESIGN REQUIREMENTS

A. General: The stability and integrity of the excavation during construction shall be maintained at levels generally acceptable within the construction industry by the use of bracing, shoring, and underpinning and to prevent a need for over excavation. In no case shall the excavation be allowed to become unsafe during construction as defined by the local governing jurisdiction or to result in the need to excavate soil to remain in place.

B. Shoring of Excavations: The proposed shoring systems shall be designed for earth pressures and allowable soil bearing values as applicable in accordance with the geotechnical investigation prepared for the Project.

1.04 SUBMITTALS

A. Shop Drawings indicating layout, member sizes, connection details, and construction sequence for bracing and shoring. No work related to bracing and shoring shall take place until the DESIGN ENGINEER and REMEDIATION ENGINEER have reviewed the Shop Drawings.

B. Design calculations of bracing and shoring showing member stresses and connections due to imposed loads.

1.05 QUALITY ASSURANCE

A. Design calculations and Shop Drawings of proposed bracing and shoring shall be prepared, stamped, and signed by a Professional Engineer licensed in the State of New York.

PART 2 - PRODUCTS

2.01 MATERIALS FOR SHORING AND BRACING

A. Materials for shoring and bracing shall be undamaged, high quality materials.

PART 3 - EXECUTION

3.01 CONSTRUCTION

A. Construction of bracing and shoring shall be in accordance with the reviewed Shop Drawings prepared by the Subcontractor's Professional Engineer.

B. The Subcontractor shall hire the Professional Engineer responsible for the design of bracing and shoring and for the inspection of the work as detailed on the bracing and shoring Shop Drawings, prior to and during excavation of soils outside the bracing and shoring.

C. The Professional Engineer responsible for design of bracing and shoring shall write a letter certifying that construction of bracing and shoring was completed in accordance with the bracing and shoring Shop Drawings and meets its approval, prior to excavation of soil on the river side.

D. Excavated soils for the construction of the bracing and shoring shall be handled with the excavated soils per Section 02 61 15 – Handling and Disposal of Impacted Materials.

E. No heavy-equipment (i.e., trackhoe, bulldozer, etc.) will be permitted within 10 feet of the land side of the *in situ* soil stabilization (ISS) wall while work is in progress on the river side of the ISS wall.

3.02 REMOVAL OF BRACING AND SHORING

A. Bracing and shoring shall not be removed until the backfill has been placed on the river side of the shoring following the waste excavation. In no case may bracing or shoring be removed until the time and sequence has been approved by the Subcontractor's Professional Engineer responsible for bracing and shoring and reviewed by the OWNER, DESIGN ENGINEER and REMEDIATION ENGINEER.

B. Bracing and shoring may remain in place indefinitely following completion of remedial construction; however, bracing or shoring shall not be allowed to remain in place that may result in changes to existing hydrologic or hydrogeologic conditions, except as where otherwise noted in Design Drawings and Specifications.

END OF SECTION

SECTION 32 12 16

PAVING AND RESURFACING

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of the labor, equipment, tools, materials, services, supervision, and incidentals necessary to provide and place flexible pavement necessary for completion of the Work as described herein, shown on the Design Drawings, or as directed by the DESIGN ENGINEER or REMEDIATION ENGINEER, as applicable. Work in this Section includes, but is not limited to:

1. Construction of asphalt processing pad.

1.02 REFERENCES

A. ASTM International:

1. ASTM D2950 - Density of Bituminous Concrete in Place by Nuclear Methods.

B. New York State Department of Transportation (NYSDOT).

1. 2019 Standard Specifications (or most current edition)
2. Materials Method MM-5.16 Superpave Hot Mix Asphalt Mixture Design and Mixture Verification Procedures.

1.03 SUBMITTALS

A. Product Data: Submit product information and asphalt mix designs a minimum of 5 working days before use of the material, to REMEDIATION ENGINEER for approval.

B. Test results of asphalt thickness and density testing, performed in accordance with Part 3 of this Section.

C. Qualification Statements for Asphalt Production Facility, Testing Laboratory, and Installer.

D. Delivery Tickets for each load of material.

1.04 QUALITY ASSURANCE

A. Test bituminous materials and asphalt concrete mix design for each asphalt concrete material in accordance with NYSDOT Standard Specifications.

B. In lieu of quality assurance testing, submit evidence and certification of material compliance with NYSDOT Standard Specifications. When evidence of conformance submitted is not acceptable to REMEDIATION ENGINEER, perform quality assurance testing.

C. To facilitate testing laboratory, CONTRACTOR shall:

1. Secure and deliver to testing laboratory representative Samples of materials that CONTRACTOR proposes to furnish and that are required to be tested.
2. Furnish such labor as is necessary to obtain and handle samples at the Site or at asphalt concrete production facility and other material sources.
3. Advise testing laboratory and REMEDIATION ENGINEER sufficiently in advance of operations to allow for completion of quality assurance tests and for the assignment of personnel.

1.05 QUALIFICATIONS

A. Asphalt Concrete Production Facility: Production facility for asphalt concrete, tack coat materials, and other bituminous materials shall be approved by NYSDOT for furnishing such materials for NYSDOT highways.

B. CONTRACTOR's Testing Laboratory: Retain the services of an independent testing laboratory to perform testing and determine compliance with the Contract Documents of the materials provided under this Section. Testing laboratory shall comply with ASTM E329, and shall be experienced in the types of testing required.

C. Installer: Company specializing in performing work of this section shall have a minimum 10 years' experience with asphalt paving projects.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Binder course shall be plant mix bituminous concrete conforming to Section 400 of the NYSDOT specification and as follows:

1. Thickness: 4 inches
2. Item: 25 F3 Binder Course HMA, 80 Series Compaction
3. PG Binder Type: PG 64S-22

B. Top course shall be plant mix bituminous concrete conforming to Section 400 NYSDOT specifications and as follows:

1. Thickness: 2 inches
2. Item: 9.5 F3 Top Course HMA, 80 Series Compaction
3. PG Binder Type: PG 64S-22

C. All materials shall be as specified in NYSDOT § 402-2 and Materials Method 5.16. Aggregate shall conform to Subsection 401-2.02. Mixture shall conform to Section 402.

D. Tack Coat: Material and application shall conform to the requirements set forth in NYSDOT Sections 407 and 702.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of existing conditions before starting work.

B. Verify compacted subgrade is dry and inspected by REMEDIATION ENGINEER.

3.02 SUBGRADE

A. The subgrade surface shall be inspected and approved by the REMEDIATION ENGINEER prior to continuation of work activities.

3.03 PREPARATION - TACK COAT

A. Apply tack coat in accordance with NYSDOT Standard Specifications.

B. Apply tack coat to contact surfaces of curbs and vertical surfaces.

3.04 ASPHALT PAVEMENT (BASE AND SURFACE COURSE)

A. Placement, finishing, compaction and construction of the asphalt pavement shall be performed in accordance with NYSDOT Standard Specifications.

B. Place asphalt binder course within 12 hours of applying prime coat.

C. Place asphalt binder course to 4 inches compacted thickness. The bituminous binder course must be applied and compacted within the temperature range of 250-325°F.

D. Place asphalt top course within 24 hours of placing and compacting binder course.

E. Place top course to 2 inches compacted thickness. The bituminous top course must be applied and compacted within the temperature range of 250-325°F.

F. Compact each course by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.

G. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

H. Place asphalt finished surface flush with existing manholes, catch basins and any other existing subgrade features and finished asphalt surface shall be flush when adjoining existing asphalt.

3.05 TOLERANCES

A. Flatness: Maximum variation of 1/4 inch measured with 10-foot straight edge.

B. Scheduled Compacted Thickness: Within 1/4 inch.

3.06 FIELD QUALITY CONTROL

A. Perform in place compaction tests in accordance with the following:

1. Density Tests: ASTM D6938
2. Thickness Tests: ASTM 3549
3. NYSDOT Standard Specifications §402-3.07
4. Frequency of Tests: Every 2,500 square feet unless more frequent testing is requested by the DESIGN ENGINEER.

B. The asphalt binder and top courses shall be compacted to 95% of the maximum density. If the test results indicate compaction to less than 95% of the maximum density, the CONTRACTOR shall recompact the area and area shall be retested.

C. Thickness - Thickness measurements shall be conducted at a minimum frequency of one location per 2,500 square feet unless more frequent testing is requested by the DESIGN ENGINEER.

D. Where cold joints are necessary, cut back the placed and compacted asphalt a minimum of 3 inches with a concrete power saw, so that the vertical face of compacted full thickness material is exposed. Treat this surface with tack coat before proceeding with placement of new asphalt course.

E. Smoothness (Top Course Only) - The final surface shall be a smooth, level surface suitable for truck traffic and parking. The surface must also provide positive drainage off-Site and a smooth transition to the surrounding areas.

F. As directed by the REMEDIATION ENGINEER, remove and replace all defective areas. Cut out such areas and fill with fresh bituminous asphalt. Compact to the required density.

3.07 PROTECTION OF FINISHED WORK

A. Immediately after placement, protect pavement for 24 hours (minimum) or until it has become properly hardened.

END OF SECTION

SECTION 32 31 13

CHAIN LINK FENCES AND GATES

PART 1 – GENERAL

1.01 IDENTIFICATION

A. Scope:

1. CONTRACTOR shall furnish and install chain link fencing and gate(s) as specified in this Section and as shown on the Design Drawings.
2. CONTRACTOR shall identify and obtain all permits, authorizations, and other permissions to install permanent chain link fencing and gate(s) as specified in this Section and as shown on the Design Drawings.
3. CONTRACTOR shall comply with requirements of all authorities having jurisdiction.

1.02 SUBMITTALS

A. Action Submittals:

1. Shop Drawings: Submit Shop Drawings showing materials of construction and dimensions of fencing and gate(s).

B. Informational Submittals:

1. Permits, as needed:
   a. Building Permits
   b. Other permits, as applicable

PART 2 – PRODUCTS

2.01 MATERIALS AND CONSTRUCTION

A. Chain link fencing and gates

1. Basic composition: All items shall be galvanized, zinc-coated to ASTM specifications, including all posts, gates, and hardware. Spot welds, damage, caps, posts or other items shall be protected from weather by field application of Galvanox. Spot welds shall be to the pipe surface not to any galvanized surface. Barbed wire to be dual-strand, zinc coated wire with four point barbs spaced every five inches.
2. Height: Chain link fence seven feet in height, with top guard of 12-inch high, single, 45 degree outward-facing outriggers with three individual barbwire strands of dual-strand, zinc coated wire with four point barbs spaced every five inches of sufficient strength to withstand 250 pounds. applied to top strand. Fence height requirements are on level ground at final grade. They shall be increased due to such factors as terrain, adjacent slope, and adjacent buildings.
3. Posts:
   a. All posts shall be ASTM Type I Schedule 40 zinc-coated steel posts.
   b. All posts shall be set (embedded) to a minimum depth of 36 inches backfilled with 3000 psi concrete in a posthole that is 12 inches in diameter and 48 inches deep. The concrete shall not extend beyond the hole diameter and

in areas that are exposed to standing water shall extend two inches above final grade and be crowned away from the pole, all concrete shall be single pores to final grade. Gate posts shall be set (embedded) to a minimum depth of 36 inches in a posthole 24 inches in diameter and 48 inches deep.

c. Line posts shall have a minimum nominal outside diameter of 2.875 inches and placed equidistant not more than 10 feet apart.

d. Gateposts shall have a minimum nominal outside diameter of six inches.

e. End, corner, personnel gates and pull posts shall have minimum nominal outside diameter of 3.75 inches.

4. Rails:

a. Top and bottom rails are required.

b. Top rails shall be ASTM Type I Schedule 40 zinc-coated steel with a minimum nominal outside diameter 1.66 inches and a minimum length of 18 feet. Couplings shall be not less than six inches long, 0.070 inch thick and shall allow for expansion. Top rails shall be attached to the top caps, fabric, and gate, end and corner posts.

c. Top caps shall be a combination type that excludes weather, have 45 degree angle outrigger arm(s) to support barbed wire to a height of one-foot, with a hole suitable for the passage of the top rail and connected to all posts by either spot welding or other tamper- proof means.

d. Bottom rails shall be ASTM Type I Schedule 40 zinc-coated steel with a minimum nominal outside diameter of 1.66 inches and shall be attached to the line posts, fabric, and gate, end & corner posts. MAXIMUM clearance to ground shall be not more than two inches. If terrain, culverts or other obstructions are encountered then additional fencing shall protect these openings. All bottom rails shall be securely attached to all poles.

e. Fabric attachment to the top and bottom rails shall be made with clips, wire ties are not permitted.

5. Gates:

a. The number of gates shall be installed in number and location as specified in the Design Drawings.

b. Gates shall be constructed from the same materials as the fence, have a minimum nominal outside diameter of two inches or larger, rectangular stock may be used for electronic automatic opening type gates, based upon opening size, corners shall be welded, all gates shall have provisions for locking, secure hinges or sliding mechanisms and all gates shall have bracing to prevent sagging.

c. Any bolts or hinge pins shall be of a tamper-proof type and any exposed bolts and nuts shall be spot-welded. All gate-locking mechanisms shall be of a “drop bar-type” welded to the gate frame.

d. Hinge type mechanisms shall not be permitted.

e. Concrete or paving shall be installed at all gate openings. With the gate in the closed position the concrete/paving shall extend a minimum of 12 inches inside and to 12 inches outside the gate.

f. The maximum space to the bottom of the gate shall be two inches. Gate placement shall not be in a direct line with the driveway/access road.

6. Bracing: Diagonal bracing to the nearest line post is required at all corner and gateposts using the same material as the top and bottom rails.

7. Clear Space:

a. There shall be a "clear" space of at least 10 feet on the exterior of all fence barriers.

b. This space shall be free from all large vegetation such as trees, and shrubbery. No tree limbs or other overhangs shall be permitted over the barrier fence.

c. If encroachments such as buildings, bridges or other structures are unavoidable, then an enhanced barrier system shall be tailored to the site upon approval by the REMEDIATION ENGINEER

d. Interior clear space of paving or gravel shall be a minimum of 10 feet.

B. Fabric

1. Basic composition: Fabric 9 A.W.G or heavier zinc-coated mesh with openings no larger than two inches.

2. Fabric shall be connected to line posts, gates, terminal posts, top rails and bottom rails using galvanized metal clips. Wire ties are not permitted.

3. The fabric shall be attached to line posts not to exceed 24 inches and to gates at intervals not to exceed 15 inches and to the top and bottom rails at intervals not to exceed 24 inches.

4. The fabric shall be terminated at all gate and corner posts and attached to such posts using tension bars and clamps.

5. The fabric shall be installed to the outside of the fencing with sufficient tension to provide a smooth uniform appearance.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install fencing and gate(s) within 14 days of REMEDIATION ENGINEER's approval of the submittal required by this Section.

END OF SECTION

SECTION 32 72 00

UPLAND, RIPARIAN, AND STREAMBED RESTORATION

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of all labor, equipment, tools, materials, services, supervision and incidentals necessary to place topsoil, seed, plant material, mulch, and erosion control material at Work areas as described herein, shown on the Design Drawings, or as directed by the DESIGN ENGINEER or REMEDIATION ENGINEER, as applicable. Work in this Section includes, but is not limited to:

1. Soil preparation including placing and preparing topsoil within restoration areas.
2. Seeding uplands and portions of upper slopes with a conservation seed mix.
3. Planting live stakes/cuttings, shrubs, and trees within designated planting areas.
4. Establishment of erosion control material.
5. Maintenance.

1.02 PERFORMANCE REQUIREMENTS

A. The CONTRACTOR shall comply with all applicable Federal, State and Local codes, ordinances, regulations, statutes, and standards.

B. The CONTRACTOR shall construct the finished grades as shown on the Design Drawings and establish and maintain vegetation for one year.

1.03 SUBMITTALS

A. The CONTRACTOR shall submit the following in accordance with Section 01 33 00 – Document Submittal Procedure and as elsewhere specified in this Section:

1. Topsoil Source: Refer to Section 32 91 19.13 – Finish Grading, Topsoil, and Seeding.
2. Conservation Seed Vendors Certificate: Include name and address of suppliers, common name and scientific name, percentage by weight, and percentages of pure live seed of all seed mixes.
3. Plant Stock Supplier Certificate: include name and address of supplier, common name, scientific name, and county of origin.
4. Planting Plan: Provide proposed layout for material specified in Tables 2 and 3 of this Section based on site conditions and plant material availability to the DESIGN ENGINEER at least 30 days prior to planting. Planting Plan shall contain a diverse mix of species, with no individual tree species comprising more than 25% of the total number of trees to be planted, and no individual shrub species comprising more than 50% of the total number of shrubs to be planted. Proposed planting zones shall be staked out in the field by a surveyor and approved by the REMEDIATION ENGINEER prior to planting.

1.04 QUALITY CONTROL

A. For each bag delivered, submit a Conservation Seed Vendors Certificate to the REMEDIATION ENGINEER and allow time for the REMEDIATION ENGINEER's inspection of the seed prior to use.

B. Label seed in accordance with USDA Rules and Regulations under the Federal Seed Act and applicable state seed laws. Furnish seed in sealed bags or containers bearing the date of the last germination, which shall be less than six months prior to commencement of planting operations. Inspect seeding material upon arrival at the job site. Remove unacceptable material from the job site. Seed shall be from same or previous year's crop. Each variety of seed shall have a weed content of less than 1%, and contain no nuisance seed, such as Purple Loosestrife, Phragmites, or Japanese Knotweed.

C. All plant material shall arrive on the job site in original packaging and shall be labeled with common name, scientific name, and the name and address of the supplier and the date of packaging. Plant material shall be healthy, vigorous, and free from breaks, disease, nutrient deficiencies, infestation, and wind burn. Unacceptable material shall be removed from the job site by the close of business on the day it is rejected.

D. All plant stock shall be stored in aboveground locations in non-construction areas accepted by the REMEDIATION ENGINEER if not directly transplanted. All plant stock shall have soil and mulch placed about roots sufficient to protect from desiccation and to provide nourishment during storage. All plants stored in the field prior to installation shall be kept cool and shall be sheltered from the drying effects of direct sunlight and prevailing winds. Plants should not be subject to freezing or drying. It is the CONTRACTOR's responsibility to supply adequate water for all plant stock in order to maintain it in a healthy and vigorous state suitable for transplanting.

E. Live stakes/cuttings shall be installed within eight hours of the time the material is harvested, unless properly stored. Soak live stakes/cuttings continuously in water if not installed within eight hours of harvesting. Avoid damage to live stakes/cuttings during handling including breakage, and bark abrasion and strippage. Live stakes/cuttings with damage may be rejected by the REMEDIATION ENGINEER. No leaf buds shall have initiated growth beyond ¼ inch and the cambium layer shall be moist, green, and healthy.

F. Conduct subgrade and finished grade surveys in order to verify an appropriate grade and that topsoil thickness has been achieved.

1.05 PROJECT AND SITE CONDITIONS

A. Prior to the start of Work, the CONTRACTOR shall carefully examine the site to determine the full extent, nature, and location of work required to conform to the Design Drawings and Specifications. The CONTRACTOR shall bring any inaccuracies or discrepancies between the Design Drawings and Specifications to the DESIGN ENGINEER's attention in order to clarify the exact nature of the Work to be performed.

B. Restoration Zones:

1. Zone A: upland grassland which will be seeded with a conservation seed mix of native grass and forb species.

2. Zone B: Shrub planting area that will be seeded with a conservation seed mix and planted with native shrub species. Three rows of shrubs will be planted: larger shrubs for the first row near the top of slope and smaller shrubs for the second and third rows to create a layered edge.

3. Zone C: scrub-shrub riparian buffer which will be seeded with a conservation seed mix and planted with native shrubs and trees that can tolerate both wet and dry soil conditions.

4. Zone D: joint plantings zone which will be planted with a variety of willow and dogwood

live stakes in voids between medium stone fill.

C. Field Measurements:

1. Verify that survey benchmark, monuments and intended elevations for the work are as shown on the Design Drawings or as provided by the DESIGN ENGINEER or REMEDIATION ENGINEER.

2. Identify required lines, levels, contours, and datum.

PART 2 - PRODUCTS

2.01 TOPSOIL

A. Refer to Section 32 91 19.13 – Finish Grading, Topsoil, and Seeding.

2.02 BACKFILL MATERIAL

A. Refer to Section 31 00 00 – General Earthwork and Section 31 37 00 – Stone Materials.

2.03 CONSERVATION SEED MIX

A. Refer to Section 32 91 19.13 – Finish Grading, Topsoil, and Seeding.

2.04 PLANT MATERIAL

A. Plant materials required are listed in Tables 2 and 3:

1. Size and grade plants following current edition of American Standard for Nursery Stock approved by American National Standards Institute and available from AmericanHort (ANSI Z60.1).

2. All plants shall have a normal habit of growth and be typically characteristic of their respective kinds.

3. The specified plant sizes shall be the minimum size allowed and shall include plants from that size up to but not including the next larger size. Plants shall not be pruned at the time of digging or before delivery and no plants shall be cut back from larger sizes to meet the sizes specified.

4. Plants shall be free from injury, insect damage, infestation, and disease.

5. Plants listed are available from commercial suppliers.

6. Live stakes/cuttings, unless otherwise indicated on the Design Drawings, shall be ½ to two inch in diameter for shrub species and ¾ to 4 inch in diameter for tree species. Live stakes/cuttings shall be from two to six feet in length.

7. Live stakes/cuttings shall be from freshly cut dormant plants.

8. Live stakes/cuttings shall be obtained from sources approved by the REMEDIATION ENGINEER.

9. Substitute plant species may be required, depending on seasonal constraints and/or supply shortages, etc. Any substitutes must be native to Western New York and be beneficial as a source of food and/or cover for wildlife.

10. Appropriate substitutes must be obtained and submitted to the DESIGN ENGINEER for approval prior to delivery and use. If a significant portion of substitution plant species are required, the DESIGN ENGINEER will need to include notification and consultation with the NYSDEC for approval. Allow time for such approvals.

2.05 MULCH

A. Refer to Section 32 91 19.13 – Finish Grading, Topsoil and Seeding.

2.06 EROSION CONTROL PRODUCTS

A. Refer to Section 31 25 00 – Erosion Control and Section 31 25 14 – Geotextiles and Rolled Erosion Control Products.

B. Biodegradable Erosion Control Materials:

1. Provide 12-inch-diameter coir logs consisting of biodegradable coir mattress fiber and provided in either 10- or 20-foot lengths. The weight shall be a minimum of 5.5 pounds per foot and have a density that is either 7 pounds per cubic foot or 9 pounds per cubic foot.

2. Provide anchor stakes for coir log that consist of hardwood material with a size of 2-inch by 2-inch square and 48 inches long with a point at one end.

PART 3 - EXECUTION

3.01 GENERAL

A. Coordinate work associated with streambed, riparian, streambank, and upland restoration.

3.02 BACKFILL

A. Place backfill, including stone materials and general fill, in areas shown in Design Drawings and in accordance with Section 02 56 13 – Soil Cover Construction, Section 31 00 00 – General Earthwork, and Section 31 37 00 – Stone Materials.

3.03 APPLICATION PROCEDURES

A. Stone backfill:

1. Backfill designated areas to the final grades shown on the Design Drawings, within tolerances of +0.3 / -0.7 feet. At no cost to Owner, the Contractor shall remove stone that exceeds the upper tolerance of +0.3 feet.

2. Conduct subgrade and finished grade surveys in order to verify an appropriate grade has been achieved.

3. Lightly tamp stone into place with a backhoe or excavator bucket.

B. Areas outside channels:

1. Apply cover crop seed and conservation seed mixture to Zones A, B, and C as indicated on Design Drawings and in Table 1.

2. Seeding will be conducted as follows:

a. Prepare the seeding area by providing a rough surface to topsoil.

b. If seed mix is broadcast (i.e., hand or mechanical spreader) applied, apply cover crop seed prior to conservation seed mixtures. Apply cover crop seed mixture immediately following topsoil placement, unless directed otherwise by the REMEDIATION ENGINEER. Lightly rake and roll seed into the surface.

c. If seed mix is hydroseed (optional) applied, apply over conservation seed mixture prior to cover crop. Apply cover crop immediately following conservation seed mixture and immediately following topsoil placement, unless directed otherwise by the REMEDIATION ENGINEER.

3. Apply mulch to designated planting areas in accordance with Section 32 91 19.13 – Finish Grading, Topsoil, and Seeding.

4. Plant trees and scrub-shrub vegetation as specified in Table 2 in the areas designated on Design Drawings.

5. Install live stakes as specified in Table 3 in the areas designated on Design Drawings.

3.04 TOPSOIL

A. Prepare surface and apply topsoil in accordance with Section 32 91 19.13 – Finish Grading, Topsoil, and Seeding.

3.05 SEEDING

A. Do not use moldy or damaged seed.

B. If seed materials arrive before sufficient areas are prepared, provide temporary storage areas sheltered from wildlife, vandalism, theft, and adverse weather.

C. Apply conservation seed mixture uniformly on prepared surfaces with a hand or mechanical spreader at the rate specified in Table 1. Apply the conservation seed mixture immediately following topsoil placement, unless directed otherwise by the REMEDIATION ENGINEER.

D. Lightly rake and roll seed into the surface.

E. Apply hydroseed (optional) uniformly on the prepared surface.

F. Apply mulch or erosion control product uniformly on the prepared surface immediately after seeding. Mulch material shall be placed in a manner such that it will not float or be wind-blown.

3.06 LIVE STAKE/CUTTING INSTALLATION

A. Cut live stakes/cuttings to a point on the basal end for insertion in the ground. The cut shall be made to a 30 to 45 degree bias, measured perpendicular to the stalk.

B. Use a dibble, iron bar, or similar tool to make a pilot hole to prevent damaging the live cutting or live stake during installation in firm soils.

C. Live stakes/cuttings shall be inserted by hand into pilot holes. A dead blow hammer may be used to drive stakes into the ground if necessary. The hammer head should be filled with shot or sand.

D. Minimum of 2 inches and two live buds of the live stakes/cuttings shall be exposed above the finished grade. At least one-half of the live stake/cutting length shall penetrate the soil below the soil surface, including the interface of soil with stone or rip rap.

E. Tamp soil around live cuttings and live stakes.

F. Care shall be taken not to damage the live stakes/cuttings during installation. Those damaged at the top during installation shall be trimmed back to undamaged condition. If after driving at least one-half of the live stake/cutting into the ground, two live buds on at least 2 to 4 inches of undamaged live stake/cutting above the surface are not present, then damaged live stakes/cuttings shall be left in place and supplemented with an intact live stake/live cutting.

3.07 MULCH AND EROSION CONTROL PRODUCTS

A. Place mulch or erosion control products to sloped areas immediately after the application of topsoil and seed. Straw mulch is not permitted unless directed by the REMEDIATION ENGINEER.

1. Install erosion control products as per the manufacturer's recommended procedures.

2. Mulch does not need to be placed in areas of standing water or continuous flowing water. Mulch or erosion control products will be placed in all other areas that are seeded unless otherwise shown on the Design Drawings or directed by the REMEDIATION ENGINEER.

3.08 PLANTING

A. Plant shrubs and trees within restoration areas as specified in Table 2 and Design Drawings. Conduct plantings during the fall (September 1 to November 30) or spring (April 15 to June 15) following remediation.

B. Install live stakes/cuttings and live stakes as specified in Table 3 and Design Drawings. Conduct installation during the fall (October 15 to November 30) or spring (April 15 to June 15) following remediation.

3.09 MAINTENANCE

A. Begin maintenance period immediately after installation of planting materials.

B. Maintain location and stability of all coir logs for the warranty period. Movement or loss of coir logs will be repaired immediately, and surrounding grades restored, as necessary.

C. The seeding establishment period is one year. Re-seed any bare areas in excess of 4 square feet. Re-inspect seeded areas after establishment.

D. During the maintenance period, watering of the seeded areas and trees, shrubs and emergent plant material may be required to maintain health and vigor of the plant material.

E. Annual vegetation assessments of the restored site will be conducted by OWNER for the first three years following remediation. During years two and three, any potential response actions to the presence of unacceptable plant material or cover will be discussed with NYSDEC.

3.10 WARRANTY

A. One year warranty period for topsoil, seed, trees, shrubs, and emergent plant material from the date of substantial completion or correction period. Maintain as necessary including repairs, re-seeding, re-mulching so that acceptable vegetation is established. The REMEDIATION ENGINEER will provide approval during the one-year warranty period.

B. Replace any plant material that does not meet the definition of Acceptable Plant Material below, as determined by the REMEDIATION ENGINEER.

C. Acceptable Plant Material shall appear healthy and exhibit visible signs of growth; shall not appear chlorotic or exhibit signs of desiccation. Leaf margins are predominantly green with limited areas of spots or blotches.

Table 1 –Conservation Seed Mix

Botanical Name	Common Name	PLS[2] oz/ac
Agrostis perennans	Autumn bentgrass	24
Agrostis scabra	Ticklegrass (Rough bentgrass)	24
Andropogon gerardii	Big bluestem	120
Elymus canadensis	Canada wildrye	120
Panicum virgatum	Switch grass	24
Schizachyrium scoparium	Little bluestem	72
Senna hebecarpa	Wild senna	48
Sorghastrum nutans	Indian grass	48
	Total oz/ac (lbs./ac)	**480 (30)**
Cover Crop		
Avena sativa[1]	Oats	720
Secale cereale[1]	Winter/cereal rye	720
Elymus virginicus	Virginia wild rye	80
	Total oz/ac (lbs./ac)	**800 (50)**

[1] Barnyard grass shall be used for spring seeding; winter rye for fall seeding.

[2] Pure live seed.

Table 2 - Planted Vegetation

Botanical Name	Common Name	Size	Spacing
Restoration Zone B Shrubs[1]			
Type 1			8 ft. OC
Staphylea trifolia	Bladdernut	Container Class #1	
Juniperus virginiana	Eastern redcedar	Container Class #1	
Amelanchier canadensis	Shadbush	Container Class #1	
Viburnum trilobum	Highbush cranberry	Container Class #1	
Type 2			
Corylus americana	American hazelnut	Container Class #1	
Aronia arbutifolia	Red chokeberry	Container Class #1	
Rhus aromatica	Fragrant sumac	Container Class #1	
Morella caroliniensis	Northern bayberry	Container Class #1	
Type 3			
Symphoricarpos albus	Common snowberry	Container Class #1	

Botanical Name	Common Name	Size	Spacing
Comptonia peregrina	Sweet fern	Container Class #1	
Ceanothus americanus	New Jersey Tea	Container Class #1	
Rubus odoratus	Purple flowering raspberry	Container Class #1	
Restoration Zone C Shrubs			
Sambucus canadensis	Red elderberry	Container Class #1	
Prunus americana	American plum	Container Class #1	8 ft. OC
Rubus odoratus	Purple flowering raspberry	Container Class #1	
Viburnum trilobum	Highbush cranberry	Container Class #1	
Restoration Zone C Trees			
Alnus incana ssp. rugosa	Speckled alder	Container Class #1	
Salix nigra	Black willow	Container Class #1	
Platanus occidentalis	Sycamore	Container Class #1	
Betula nigra	River birch	Container Class #1	8 ft. OC
Diospyros virginiana	American persimmon	Container Class #1	
Sassafras albidum	Sassafras	Container Class #1	

1 Restoration Zone B shall be planted by Shrub Type. Shrub Type 1 shall be located in a row, parallel to the channel at the top of slope. Shrub Type 2 shall be located in a row parallel to the channel offset 8 feet from Shrub Type 1. Shrub Type 3 shall be located in a row parallel to the channel offset 8 feet from Shrub Type 2.

Table 3 – Live Stake Plantings

Shrubs			
Restoration Zone D			
Botanical Name	**Common Name**	**Size**	**Spacing**
Salix lucida	Shining willow	Live cutting/stake	
Salix discolor	Pussy willow	Live cutting/stake	
Cornus amomum	Silky dogwood	Live cutting/stake	
Cornus racemosa	Gray dogwood	Live cutting/stake	2 ft. OC
Cornus sericea	Red-osier dogwood	Live cutting/stake	

END OF SECTION

SECTION 32 91 19.13

FINISH GRADING, TOPSOIL, AND SEEDING

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of all labor, equipment, tools, materials, services, supervision, and incidentals necessary to complete finish grading and install topsoil and seed as necessary for completion of the Work as described herein, shown on the Design Drawings, or as directed by the DESIGN ENGINEER and REMEDIATION ENGINEER, as applicable. Work in this Section includes, but is not limited to:

1. Provision and placement of imported topsoil to match indicated thicknesses to the indicated finished grade.
2. Placement of fertilizer, seed and mulch, or erosion control products.
3. Repair and restoration of disturbed and/or damaged areas to match indicated thicknesses to the indicated finished grade.

1.02 PERFORMANCE REQUIREMENTS

A. The CONTRACTOR shall comply with all applicable Federal, State, and Local codes, ordinances, regulations, statutes, and standards.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM D6913 – Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis
2. ASTM D2974 – Standard Test Methods for Moisture, Ash and Organic Matter of Peat and Other Organic Soils
3. ASTM D4972 – Standard Test Methods for pH of Soils

B. Rules and Regulations of the Secretary of Agriculture, Part 201 - Federal Seed Act

C. Soil Texture Classes (USDA)

D. New York Department of Transportation - Standard Specifications (US Customary).

1.04 SUBMITTALS

A. The CONTRACTOR shall submit the following in accordance with Section 01 33 00 – Document Submittal Procedure and as elsewhere specified in this Section:

1. Topsoil Source: A written statement giving location and owner of topsoil source meeting Article 2.01.
2. Seed Vendors Certificate: Seed vendor's certified statement for the conservation seed mixture required, stating common name, scientific name, percentage by weight, percentages of purity and germination, date of last germination, and certification of absence of noxious weeds per Article 1.05A.
3. Hydroseeding: Data concerning hydroseeding equipment (if used) including material application rates.

4. Fertilizer: Manufacturer's product data showing contents and test results.
5. Mulch Source: A written statement giving location of mulch source.
6. Temporary Erosion Control Matting: Manufacturer's product data.
7. Seeds and Plants: Refer to Section 32 72 00 – Upland, Riparian, and Streambed Restoration.
8. Installer: Name of Subcontractors (if used) and Qualification Statements.
9. Manufacturer's Certification: Certify that products meet or exceed specified requirements.

1.05 QUALITY CONTROL

A. Label seed in accordance with USDA Rules and Regulations under the Federal Seed Act and applicable State seed laws. Furnish seed in sealed bags or containers bearing the date of the last germination, which shall be less than six months prior to commencement of planting operations. Inspect seeding material upon arrival at the job site. Remove unacceptable material from the job site. Seed shall be from same or previous year's crop. Each variety of seed shall have a purity of more than 85 percent, a percentage of germination more than 90 percent, a weed content of less than 1 percent and contain no noxious weeds such as Purple Loosestrife, Phragmites, or Japanese Knotweed.

B. Conduct subgrade and finished grade surveys in order to verify the required grade and topsoil thickness has been achieved.

1.06 PROJECT AND SITE CONDITIONS

A. The CONTRACTOR shall carefully examine the site to determine the full extent, nature and location of work required to conform to the Design Drawings and Specifications. The CONTRACTOR shall bring any inaccuracies or discrepancies between the Design Drawings and Specifications to the DESIGN ENGINEER's attention in order to clarify the exact nature of the Work to be performed.

B. Field Measurements

1. Verify that survey benchmark, monuments and intended elevations for the work are as shown on the Design Drawings or as provided by the DESIGN ENGINEER or REMEDIATION ENGINEER.
2. Identify required lines, levels, contours, and datum (i.e., NAD 83 and NAVD 88).

PART 2 - PRODUCTS

2.01 TOPSOIL

A. Topsoil shall be natural or manufactured, friable, and fertile soil that meets the USDA basic soil texture classes of loam, silt loam, or sandy loam to be recovered from the A horizon of an in-place soil. Topsoil shall be capable of sustaining healthy plant life and be reasonably free of subsoil, heavy or stiff clay, brush, roots, weeds, other objectionable plant matter, foreign material, stones larger than four inches in greatest dimension, and any other materials unsuitable or harmful for plant growth. Topsoil as delivered to the site or stockpiled shall meet the following requirements:

1. Well graded with a maximum particle size of four inches, 85 to 100 percent passing one inch, 65 to 100 percent passing 1/4 inch, and 20 to 65 percent passing a Number 200 sieve.

2. Organic materials used in the manufacture of topsoil shall meet the requirements of NYSDOT 713-05.

3. pH between 5.5 and 7.6.

4. Percent organic matter: Topsoil shall contain greater than two percent and less than 15 percent organic matter in Restoration Zone A. Topsoil shall contain greater than 10 percent organic matter in Restoration Zones B, C, and D.

5. Contains no nuisance weeds including seeds, stems or rhizomes of Purple Loosestrife, Phragmites, Japanese Knotweed, or any plants on the Federal Noxious Weeds list.

B. Borrow Source and Quality Control Testing

1. REMEDIATION ENGINEER shall conduct borrow source testing of proposed topsoil and quality control testing of topsoil prior to delivery to the site as required in Section 31 00 00 – General Earthwork, including, but not limited to, the following topsoil-specific testing at the frequency specified in Section 31 00 00 – General Earthwork:

Material Property	Test Method
Particle Size Analysis	ASTM D6913
Soil pH	ASTM D4972
Organic Content	ASTM D2974
Atterberg Limits	ASTM D4818

2. REMEDIATION ENGINEER shall perform Analytical Chemistry Testing as per Section 31 00 00 – General Earthwork.

3. REMEDIATION ENGINEER shall approve material property testing results prior to delivery of topsoil to the site. If topsoil is placed prior to approval and the results show a failure, topsoil must be removed and replaced at the CONTRACTOR's expense.

4. Additional Quality Control tests may be required at each visual or textural change in source material, as directed by the REMEDIATION ENGINEER. Test results shall be submitted to the REMEDIATION ENGINEER immediately upon receipt.

2.02 FERTILIZER

A. Fertilizer shall be a starter fertilizer of commercial stock, of neutral character, with elements derived from organic sources. It shall be a complete, prepared, and packaged material and shall contain a minimum of 18 percent nitrogen, 24 percent phosphoric acid, and 6 percent potash. Other fertilizer mixes may be acceptable provided the application rate is adjusted to provide equal quantities. Each bag of fertilizer shall bear the manufacturer's guaranteed statement of analysis.

2.03 COVER CROP SEED MIX

A. Refer to Section 32 72 00 – Upland, Riparian, and Streambed Restoration.

2.04 CONSERVATION SEED MIX

A. Refer to Section 32 72 00 – Upland, Riparian, and Streambed Restoration.

2.05 MULCH

A. Hydromulch shall be Wood Cellulose Fiber Pulp processed to contain no growth or germination inhibitor factors, and dyed an appropriate color to facilitate visual metering of the application

of the materials. Hydromulch shall meet the requirements of NYSDOT 713-11 with the exception that hydromulch manufactured from recycled paper products is acceptable. The CONTRACTOR shall be responsible for assuring that the application of recycled paper mulch is appropriate for the specific application. Mulch shall be applied based on the slope of the area according to the following:

Slope	Mulch Type	Application Rate (lb/ac)
Flat areas – upland	EcoFibre or equivalent	1500
Less than 25%	EcoFibre plus tackifier or equivalent	2500
Greater than 25%	FlexTerra FGM or equivalent	3500

2.06 TEMPORARY EROSION CONTROL PRODUCTS

A. Refer to Section 31 25 00 – Erosion Control.

PART 3 - EXECUTION

3.01 GENERAL

A. Restoration Zones A and B shall receive 6 inches minimum of topsoil and seed, and Zone C shall receive 24 inches minimum of topsoil and seed. Zones B and C shall receive temporary erosion control product unless otherwise shown on the Design Drawings.

1. Finished grades within Restoration Zones A, B, and C (above the 100-year flood elevation) will be within tolerances of +2/10 feet / -0 feet.

B. Restoration Zone D shall be restored with medium stone fill, topsoil and live stake plantings as shown on the Design Drawings and in accordance with Section 32 72 00 – Upland, Riparian, and Streambed Restoration. Placement of stone and topsoil shall be sequenced so that void spaces in stone are filled with topsoil.

1. Finished grades within Restoration Zone D (between the ordinary high water mark [OHWM] and 100-year flood elevation) will be within tolerances of +0.3/-0.7 feet.

C. Revetment Areas

1. Revetment areas (i.e., below the OHWM) shall be brought to finish grade as shown on the Design Drawings and in accordance with Section 31 00 00 – General Earthwork and Section 32 72 00 – Upland, Riparian, and Streambed Restoration.

2. Finished grades within revetment areas shall be within tolerances of +0.3/-0.7 feet. At no cost to the OWNER, CONTRACTOR shall remove stone that exceeds the upper tolerance of +0.3 feet.

3.02 TOPSOIL

A. Till underlying soil parallel to contours to a depth of two inches by disking or harrowing before topsoil placement. Do not till when the ground is frozen or excessively wet.

B. Place topsoil to the depths, lines, grades, and elevations indicated on the Design Drawings and Specifications. Do not spread topsoil if the ground or the topsoil is frozen or excessively wet.

C. There are no compaction requirements for topsoil. Develop and maintain a 50-foot by 50-foot survey grid to control thickness. The required topsoil thickness shown on the Design Drawings

is defined as the thickness after placement is completed and verified by survey. A rough surface will be required.

3.03 FERTILIZER

A. Apply fertilizer with a mechanical spreader at a minimum rate of 200 lbs/acre or in accordance with the manufacturer's suggested rate. Do not apply fertilizer below the OHWM.

B. After topsoil has been spread and the fertilizer applied, scarify or harrow to a depth of two inches and leave in a roughened condition for seeding. Remove and dispose of stiff clods, lumps, roots, litter, and other foreign material.

3.04 SEEDING

A. Refer to Section 32 72 00 – Upland, Riparian, and Streambed Restoration for seeding requirements.

3.05 MULCH AND EROSION CONTROL PRODUCTS

A. Place mulch or erosion control products immediately after the application of topsoil and seed.

1. Apply mulch with a mulch blower at a uniform rate as indicated in Section 2.05. Anchor with a tackifier, as required.

2. Install erosion control products as per the manufacturer’s recommended procedures.

3.06 WARRANTY

A. One year warranty period for topsoil and seed from the date of substantial completion or correction period. Maintain as necessary, including repairs, re-seeding and re-mulching of any bare areas in excess of four square feet so that an acceptable vegetative cover is established.

END OF SECTION

SECTION 33 01 10.81

GROUNDWATER MONITORING WELL ABANDONMENT

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work specified in this Section consists of all labor, equipment, tools, materials, services, supervision and incidentals necessary to perform abandonment of select existing groundwater monitoring wells, recovery wells, and piezometers as necessary for completion of the Work as described herein, shown on the Design Drawings, or as directed by the DESIGN ENGINEER or REMEDIATION ENGINEER, as applicable.

B. REMEDIATION ENGINEER will be responsible for selecting and working with a well drilling subcontractor to perform the monitoring well abandonment work.

1.02 PERFORMANCE REQUIREMENTS

A. Comply with all applicable federal, state and local codes, ordinances, regulations, statutes and standards.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM C150 Standard Specification for Portland Cement.
2. ASTM D5299 Guide for the Decommissioning of Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes and Other Devices for Environmental Activities.

B. New York State Department of Environmental Conservation (NYSDEC) CP-43: “Ground Water Monitoring Well Decommissioning Policy,” November 2009.

1.04 SUBMITTALS

A. The CONTRACTOR shall submit logs for abandoned wells in accordance with Section 01 33 00 – Document Submittal Procedure and as elsewhere specified in this Section.

1.05 PROJECT AND SITE CONDITIONS

A. The CONTRACTOR and their subcontractor shall carefully examine the site to determine the full extent, nature and location of work required to conform to the Design Drawings and Specifications. The CONTRACTOR and their subcontractor shall bring any inaccuracies or discrepancies between the Design Drawings and Specifications to the DESIGN ENGINEER’s attention in order to clarify the exact nature of the Work to be performed.

B. In addition to wells identified for abandonment in place per this specification, additional monitoring wells are located within areas of excavation and shall be removed in their entirety, as described in Section 31 23 16 -- Excavation. Other monitoring wells are located in areas requiring backfill for cap construction and shall require extension as described in Section 33 11 53 – Well Construction.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Grout:

1. Provide a standard Portland Cement/bentonite grout mixture consisting of Portland Cement (ASTM C150 Type I), bentonite and water in the proportions of one 94-pound

bag of Type I Portland Cement, 3.9 pounds of powdered bentonite, and 7.8 gallons of potable water. Slightly more water may be used in order to penetrate a sand pack when a screen transects multiple flow zones. This mixture results in a grout with a bentonite content of four percent by weight and will be used in all cases except in boreholes where excessive use of grout is anticipated. In these cases refer to NYSDEC CP-43, Section 6.2.

B. Bentonite:

1. Provide ½-inch diameter sodium bentonite pellets or equal.

2. Baroid – Ben Seal or equal.

2.02 EQUIPMENT

A. The CONTRACTOR shall use equipment suitable for well abandonment activities.

PART 3 - EXECUTION

3.01 PREPARATION

A. No abandonment activities shall commence without the prior approval of the REMEDIATION ENGINEER.

B. Perform abandonment in accordance with the requirements of the Design Drawings, this Section and of NYSDEC CP-43.

C. Review available information concerning each well and piezometer to be abandoned, including well construction diagram, prior to commencement of work.

3.02 ABANDONMENT

A. Perform abandonment in accordance with the procedures specified for individual monitoring wells and piezometers shown on the Design Drawings.

B. The following description of general procedures refers to all monitoring wells and piezometers that are single-cased. For wells that penetrate into bedrock, multiple abandonment methods may need to be considered for the bedrock and overburden portions of the well. All shall be abandoned by one of the following methods:

1. Grouting In-Place.

2. Perforating the Casing Followed by Grouting In-Place.

3. Grouting In-Place Followed by Casing Pulling.

4. Overdrilling and Grouting With or Without a Temporary Casing.

C. Methods:

1. Grouting In-Place:

a. For the purposes of these procedures, the well-seal is defined as the bentonite seal above the sand pack.

b. If the well-seal is not compromised and there is no confining layer present, grouting in-place is considered a satisfactory abandonment procedure and is the preferred method in this case. This method is also specified for the bedrock portion of wells penetrating into bedrock. For open hole bedrock wells, the procedure involves filling the opening with grout to the top of rock according to the procedures in Sections 3.1 and 5 of NYSDEC CP-43.

c. If the seal is compromised, Method 2 may be necessary.

d. Grouting in-Place Procedure:

1) Do not remove the outer protective casing until grouting is complete.

2) Using a tremie, pump the well casing and screen with grout according to the procedures in Section 6.4 of NYSDEC CP-43.

3) The outer protective steel casing should be removed from either a five-foot depth or below the frostline, whichever is greater.

4) Cut the well casing at a minimum five-foot depth and remove it and any associated well materials.

5) The upper five feet of casing and the outer protective casing may be removed in one operation if a casing-cutter is used.

2. Perforating the Casing Followed by Grouting In-Place:

a. This is the preferred method for well abandonment if the well annulus was either allowed to be backfilled with cuttings, or the grouting documentation is of poor quality.

b. This method involves puncturing, splitting or cutting the well casing and screen, followed by grouting the well as per Section 6.4 of NYSDEC CP-43.

c. If required by DESIGN ENGINEER, the CONTRACTOR shall submit a method for casing and screen perforation based on site conditions for approval.

d. As per ASTM D5299, the following are required:

1) A minimum of four rows of perforations several inches long around the circumference of the pipe; and

2) A minimum of five perforations per linear foot of screen and casing.

3. Grouting In-Place Followed by Casing Pulling:

a. This method of abandonment is to be used when the well assembly must be removed to clear the site.

b. The well construction and depth must be such that pulling will not break the riser.

c. This method is acceptable only when:

1) No contamination is present; or

2) If contamination is present, the well does not penetrate or cross a confining layer.

d. If contamination is likely to cross a penetrating layer during pulling, a temporary casing may be used. (See 4. Overdrilling and Grouting With or Without a Temporary Casing.)

e. Casing Pulling Procedure:

1) If the protective steel casing shall interfere with the down-hole work, it may be removed in a manner that minimizes disturbance to the well casing and surrounding ground.

2) Lower a drill rod down the well and perforate the bottom well cap.

3) Grout as per Section 6.4 of NYSDEC CP-43.

4) Pull the well by grappling the casing with appropriate devices and pulling the casing and well materials as a single unit.

5) Additional grout must be used as the well casing and screen are withdrawn to ensure that the void spaces are adequately filled.

6) If the well is highly contaminated, is installed in a collapsible formation or if the bottom well-cap cannot be punctured, the casing or screen must be perforated prior to pulling.

7) If all of the well materials are not withdrawn during the pulling process, overdrilling of the remaining portions may be required as directed by the DESIGN ENGINEER.

8) At sites in which well casings have been grouted into the top of bedrock, the casing pulling procedure should not be attempted unless the casing can be first cut or freed from the rock.

4. Overdrilling and Grouting With or Without a Temporary Casing.

a. This technique will remove an entire well, its sand pack and old grout column.

b. This technique is to be used where the assembly is expected to sever or break or the well penetrates a confining layer, and the well materials must be removed.

c. A temporary casing may be required prior to drilling, pulling and grouting.

d. The Overdrilling Method should follow the original well borehole, be at least the diameter of the original well borehole, and advance at least 0.5 foot beyond the original well borehole depth.

e. The Overdrilling Method should remove all construction materials.

f. In order to keep the augers centered on the original well borehole, fill the well column with grout after perforating the bottom well-cap, prior to proceeding with overdrilling while the grout is not yet dry.

g. If required by DESIGN ENGINEER, the CONTRACTOR shall submit a method for overdrilling based on site conditions for approval.

h. Refer to Section 2.4 of NYSDEC CP-43 for further details of techniques for the Overdrilling Method.

3.03 COMPLETION

A. Dispose of well and piezometer materials and associated soil cuttings offsite in accordance with Section 02 61 15 – Handling and Disposal of Impacted Materials. Removed and abandoned well materials (i.e., well casings, screens, steel casings, concrete pads, and etc.) shall be cut into 15 foot or shorter sections prior to disposal.

B. Upon completion of grouting, ensure that the final grout level is approximately five feet below land surface. Embed a ferrous metal marker in the top of the grout to indicate the location of the former well. Place a fabric “utility” marking one foot above the grout.

C. Restore the area in the vicinity of each well location as shown on the Design Drawings or as directed by the DESIGN ENGINEER.

D. Complete a well decommissioning record following completion of the Work.

E. Following drilling activities, decontaminate equipment.

END OF SECTION

SECTION 33 05 33.36

HDPE PIPE

PART 1 - GENERAL

1.01 SCOPE

A. This section includes materials and installation requirements for high-density polyethylene (HDPE) pipe as shown on the Design Drawings.

1.02 REFERENCES

A. Latest version of American Society of Testing and Materials (ASTM) standards and other standards noted in this specification.

1.03 SUBMITTALS

A. Submit the following to the REMEDIATION ENGINEER for review not less than 14 calendar days prior to first installation of material under this section:

1. List of materials to be furnished and the names of the suppliers.
2. Origin (resin supplier's name, resin production plant) and identification (brand name, number) of the resin used.
3. Certification that the materials meet the requirements listed in the specification.

B. Submit at least 14 calendar days prior to installation, documentation that trained and qualified personnel will perform HDPE pipe joining operations.

PART 2 - PRODUCTS

2.01 HDPE COMPOUND

A. Furnish HDPE pipe and fittings manufactured from new HDPE resin conforming to ASTM D3350-14, minimum cell classification PE 345464 C and having a Plastic Pipe Institute (PPI) Rating of PE 3408.

2.02 HDPE PIPES AND FITTINGS

A. Dimension Ratio (DR) shall be as indicated on the Design Drawings that conform to ASTM F714-13.

B. Standard laying lengths not exceeding 50 feet.

C. Homogeneous throughout and free of visible cracks, holes (other than intentional manufactured perforations), foreign inclusions, or other deleterious effects, and are uniform in color, density, melt index, and other physical properties.

D. Electrofusion couplings meeting the requirements of ASTM F 1055-16 or as recommended by the electrofusion coupling manufacturer.

2.03 IDENTIFICATION

A. The following information shall be printed on and/or readily available for pipes:

1. Name and/or trademark of the pipe manufacturer;
2. Nominal pipe size and SDR or Schedule;
3. HDPE Pipe: Letters PE followed by the polyethylene grade per ASTM D 1248-12,

4. Manufacturing Standard Reference (e.g., ASTM F 714-13); and

5. A production code from which the date and place of manufacture can be determined.

PART 3 - EXECUTION

3.01 PIPE, FITTINGS, AND APPURTENANCES

A. Deliver pipe, fittings, and appurtenances to the site at least 10 calendar days prior to the planned installation date.

B. Exercise care when transporting, handling, and placing pipe and fittings. Use rope, fabric, or nylon slings and straps when handling pipe. Do not position slings, straps, at butt-fusion joints or at fittings.

C. The maximum allowable depth of cuts, gouges or scratches on the exterior surface of pipe, fittings, or appurtenances is 10 percent of the wall thickness. The interior of the pipe and fittings shall be free of cuts, gouges and scratches. Replace pipe and fittings that become gouged, twisted, or crimped. Remove from the work area damaged pipes and fittings.

D. Store and handle pipes to prevent dirt or debris from accumulating in the pipes. Whenever pipe laying is not actively in progress, close the open ends of all installed pipes using plugs.

3.02 PIPE AND FITTINGS INSTALLATION

A. Carefully examine pipe and fittings for cracks, damage or defects before installation. Do not use cracked, damaged, or defective material.

B. Inspect the interior of all pipe and fittings and remove any foreign material from the pipe interior before the pipe is moved into final position.

C. Field-cut pipes, where required, with a machine specifically designed for cutting pipe. Make cuts carefully without damage to pipe, leaving a smooth end at right angles to the axis of pipe. Taper cut ends and smooth sharp edges. Flame cutting is not allowed.

D. Do not lay or backfill pipe until the REMEDIATION ENGINEER has verified the bedding conditions.

E. Install pipe and fittings in accordance with the Manufacturer's recommendations and the requirements of this Section.

F. Install pipe and fittings to the lines and grades shown on the Design Drawings.

G. Place and compact embedment fill and trench backfill material as shown on the Design Drawings.

H. Provide necessary adapters and/or fittings required when connecting different types and sizes of pipe or when connecting pipe made by different manufacturers.

3.03 HDPE PIPE, FITTINGS, AND APPURTENANCES CONNECTIONS

A. Personnel performing joining operations shall demonstrate proficiency to the satisfaction of the REMEDIATION ENGINEER.

B. Weather Conditions for Joining:

1. Do not join HDPE pipes and fittings at ambient temperatures below 40 degrees Fahrenheit (°F) or above 104°F, unless authorized by the REMEDIATION ENGINEER. For cold (less than 40°F) or hot (greater than 104°F) weather joining, additional procedures/precautions may be needed.

2. Do not join HDPE pipe and fittings during any precipitation, in the presence of heavy fog or dew, or in areas of ponded water.

C. Prior to joining, clean the joint area to be free of moisture, dust, dirt, debris of any kind, and foreign material.

D. Joining equipment shall be approved for the applicable field joining processes. Fusion-welding apparatus shall be an automated device equipped with gauges giving the applicable temperatures and pressures.

E. Join HDPE pipe with thermal butt-fusion joints or electrofusion adapters. Fabricate joints in compliance with ASTM D 2657, ASTM F 1055, the manufacturer's recommendations, and the requirements of this Section.

F. Install flanged connections of HDPE pipe and fittings as shown on the Design Drawings. Thermally butt-fuse HDPE flange connection (flange adapter) to HDPE pipe.

3.04 FIELD INSPECTION

A. HDPE Pipe Inspection:

1. Inspect fusion joints for evidence of excess or insufficient bead size, contamination, offset, or any other evidence of inadequate joining. The surface of the HDPE pipe shall be clean at the time of inspection. Wipe or wash the HDPE pipe surface if surface contamination inhibits inspection.

B. Defects and Repairs:

1. Repair Procedures:

a. Repair any portion of the HDPE pipe exhibiting a flaw, or poor-quality fusion joint by removing bad joint or pipe section and replacing with a new pipe section.

b. When making repairs, satisfy the following:

1) Clean and dry all pipe surfaces immediately prior to repair; and

2) Only use approved fusion equipment or electrofusion fitting.

2. Repair Verification:

a. Inspect each repair. Repair areas that fail the inspection.

3.05 TESTING

A. Test installed pipe at 1.3 times the pressure rating correlating to the dimension ratio and pipe material. The pressure shall correlate to the highest elevation of the pipe.

B. Provide measurement gauges and recording devices for the test, including pump, pipe, connections, and other necessary equipment.

C. Test only after the pipeline has been properly filled, flushed, and purged of air. Apply the test pressure by means of an approved pumping assembly connected to the pipe in a manner satisfactory to the REMEDIATION ENGINEER. Carefully examine the system for leakage while the system is under pressure. Stop leaks. Defective elements shall be repaired, or removed and replaced, and the test repeated until the test requirements have been met.

D. The duration of the test shall be 2 hours.

E. There shall be no loss in pressure over the duration of the test. The REMEDIATION ENGINEER may allow the CONTRACTOR a reasonable amount of time to stabilize the pressure, after which time the pressure must remain steady throughout the duration of the test.

F. Provide a written record of the test.

3.06 TOLERANCES

A. Install pipes to within ±0.1 feet of the pipe elevations indicated on the Design Drawings.

B. Provide positive slope of gravity lines at all locations to within ±10 percent of the slope values indicated on the Design Drawings.

END OF SECTION

SECTION 33 11 53

WELL CONSTRUCTION

PART 1 - GENERAL

1.01 DESCRIPTION

A. REMEDIATION ENGINEER will be responsible for selecting and working with a well drilling subcontractor to perform the well construction work.

B. Provide all labor, materials, equipment, and incidentals as required by this specification to complete the work as described.

C. Install groundwater monitoring wells and Non Aqueous Phase Liquid (NAPL) recovery wells in locations shown on the Design Drawings. Utilize the appropriate equipment to advance the borehole to its completion depth and install the well.

D. Adjust existing monitoring wells to remain within cap area.

E. The final number, location, and screening interval of groundwater monitoring wells and NAPL recovery wells shall be subject to approval by the DESIGN ENGINEER and New York State Department of Environmental Conservation (NYSDEC).

1.02 SUBMITTALS

A. The CONTRACTOR shall submit product data for each component to be used in construction of the wells, including well screen, filter pack, cement and bentonite. Data must include the manufacturers name and the source of the material. Submit data prior to use in well construction.

B. The CONTRACTOR shall submit a list of at least five completed projects of similar construction.

1.03 REFERENCE STANDARDS

A. Title 6, New York Code of Rules and Regulations, Part 360

B. American Society for Testing and Materials

1. ASTM D5092M Standard Practice for Design and Installation of Groundwater Monitoring Wells

PART 2 - PRODUCTS

2.01 CASING

A. Protective Casing. All wells are to be flush-mounted and finished in accordance with the Design Drawings, with appropriate locking protective casings, installed through an impervious surface such as concrete or asphalt. Locks are to be keyed alike to match existing locks on site. Install protective casings as indicted on the Design Drawings.

B. Casing. Install the appropriate diameter stainless steel or PVC pipe. Connections to various sections will be joined by flush threaded ends.

2.02 RISER

A. The riser pipe for NAPL recovery wells shall be four-inch ID, flush joint, threaded, stainless steel or Schedule 40 PVC pipe. The riser pipe for groundwater monitoring wells shall be two-inch ID, flush joint, threaded, stainless steel or Schedule 40 PVC pipe.

2.03 SCREEN

A. The screen for NAPL recovery wells shall be four-inch ID, flush joint, threaded, stainless steel or Schedule 40 PVC pipe. The screen for groundwater monitoring wells shall be two-inch ID, flush joint, threaded, stainless steel or Schedule 40 PVC pipe. The screen sections shall be ten feet in length with a machined slot size of 0.01 or 0.05 inches spaced at 3/16". A five-foot threaded sump will be installed on the recovery wells. Any change to sump length shall be discussed with the DESIGN ENGINEER.

2.04 SAND PACK

A. The sand pack surrounding the screen will be a clean, inert, siliceous material (#2 US Silica sand pack or an approved equal).

2.05 BENTONITE SEAL

A. The seal shall consist of 3/8-inch diameter sodium bentonite pellets or approved equal. In unsaturated conditions, the bentonite pellets shall be hydrated with potable water. The bentonite pellets shall be allowed to hydrate a minimum of 30 minutes after installation.

2.06 GROUT MIXTURE

A. The grout mixture shall be a mixture of Type I, Portland Cement (1-94 lb. bag), minus No. 200 sieve bentonite powder (three pounds), and potable water (seven gallons) in appropriate quantity to fill the borehole. The CONTRACTOR may submit for approval by the DESIGN ENGINEER an alternate grout mixture if deemed necessary.

PART 3 - EXECUTION

3.01 WELL INSTALLATION

A. Well installations and repairs shall be supervised by the REMEDIATION ENGINEER and recorded in a field log book.

B. Install wells using hollow stem auger (HSA) and casing (spin and wash or drive and flush) drilling techniques or air rotary drill techniques. Sufficiently case each well to prevent the downward migration of contaminants without interfering with screened intervals. Screen the wells as indicated below. Collect cuttings and drilling fluids in 55-gallon drums.

C. GROUNDWATER MONITORING WELL INSTALLATION

1. Install groundwater monitoring wells to depths as shown on the Design Drawings or as otherwise determined by the DESIGN ENGINEER and NYSDEC. Install the groundwater monitoring wells where shown on the Design Drawings, unless otherwise directed by the DESIGN ENGINEER and NYSDEC. The final number, location, and screening interval of groundwater monitoring wells shall be subject to approval by DESIGN ENGINEER and NYSDEC.

2. The borehole will be advanced using 6.25-inch diameter HSAs.

3. Following completion of drilling, a two-inch well will be constructed in the six-inch diameter borehole. Each well will consist of:

   a. A two-inch diameter threaded flush joint Schedule 40 PVC or stainless steel riser; and

   b. A two-inch diameter 10 foot length of 0.010-inch slotted Schedule 40 PVC or stainless steel well screen with slots spaced at 3/16 inch increments.

4. The annulus around the outside of the well screen will be backfilled with a properly

sized clean, inert, silica sand (e.g., #0 sand) that extends from six inches below the bottom of the well screen to two feet or 20 percent of the length of the well screen (whichever is greater) above the top of the well screen. A secondary sand pack, composed of finer grained, clean, inert silica sand (e.g., #00 or #000 sand) will be installed six inches above the top of the primary sand pack. Both the primary and secondary sand packs will be placed using methods that avoid bridging and ensure accurate placement of filter materials.

5. A minimum three-foot-thick bentonite pellet seal will be placed above the secondary sandpack, hydrated, if necessary, and allowed to swell a minimum of 30 minutes.

6. After allowing the bentonite seal to swell, cement/bentonite grout will be installed above the bentonite seal to within one to five feet of ground surface. The grout will be placed with a tremie pipe or equivalent method to ensure that it is not diluted by formation water and that any water in the annular space is displaced.

7. Install the flush-mount protective casing. Flush-mounted casing must be secured to an impervious surface, such as concrete or asphalt. Mark " Groundwater Monitoring Well" on the outer cover.

D. NAPL RECOVERY WELL INSTALLATION

Install NAPL recovery well to bedrock. The screens shall be installed from one foot above fractured bedrock to competent bedrock. The well will be completed with a sump up to five feet into competent bedrock. Install the recovery well using the following drilling procedures:

1. The borehole will be advanced through overburden the top of bedrock using 6 ¼-inch HSAs.

2. A 5 7/8-inch borehole will be advanced five feet into competent bedrock to allow for the installation of a four-inch diameter sump.

3. Following completion of drilling, a four-inch well will be constructed in the 5 7/8-inch diameter borehole. Each well will consist of:

   a. A four-inch diameter threaded flush joint stainless steel or Schedule 40 PVC riser;

   b. A four-inch diameter length of 0.050-inch slotted stainless steel or Schedule 40 PVC well screen, with slots spaced at 3/16" increments; and

   c. A sump consisting of a five foot length of four-inch diameter stainless steel or Schedule 40 PVC riser.

4. The top of the sump will be set at the top of competent bedrock elevation. The annular space surrounding the sump will be sealed with grout and allowed to cure for 24 hours prior to placement of filter pack sand. Alternate sealing methods should be discussed with, and approved by, the DESIGN ENGINEER prior to their implementation.

5. The well screen will be set from one foot above fractured bedrock to the top of competent bedrock. The annulus around the outside of the well screen will be backfilled with a properly sized clean, inert, silica sand that extends from the bottom of the well screen to one foot above the top of the well screen. A secondary sand pack, composed of fine grained, clean, inert silica sand will be extended six inches above the top of the primary sand pack. Both the primary and secondary sand packs will be placed using methods to avoid bridging and ensure accurate placement of

filter materials.

6. A 3-foot-thick, minimum, bentonite pellet seal will be placed above the secondary sandpack, hydrated, and allowed to swell a minimum of 30 minutes.

7. After allowing the bentonite seal to swell, cement/bentonite grout will be installed above the bentonite seal to within one to five feet of ground surface. The grout will be placed ensuring that it is not diluted by formation water and that any water in the annular space is displaced.

8. Install the flush-mount protective casing in accordance with the Design Drawings. Flush-mounted casing must be secured to an impervious surface, such as concrete or asphalt. Mark "Recovery Well" on the outer cover.

E. EXISTING GROUNDWATER MONITORING WELL EXTENSIONS

1. Extend the risers of any monitoring wells to remain within the cap area with Schedule 40 PVC or stainless steel riser pipe in accordance with the Design Drawings.

2. Install the flush-mount protective casing in accordance with the Design Drawings. Flush-mounted casing must be secured to an impervious surface, such as concrete or asphalt. Mark "GW Monitoring Well" on the outer cover.

3.02 DEVELOPMENT

A. The CONTRACTOR shall be responsible for developing the wells by a method approved by the REMEDIATION ENGINEER. Development shall be conducted until fine silts and clays are removed from the well to the satisfaction of the REMEDIATION ENGINEER.

B. Liquids collected during development shall be managed in accordance with Section 02 72 00 – Construction Water Management.

3.03 ACCEPTANCE

A. If at any time during the installation of a well the REMEDIATION ENGINEER determines that the well has not been properly installed, the CONTRACTOR shall abandon the hole, slurry grout its full depth as directed by the REMEDIATION ENGINEER, and initiate construction of a new well at a location determined by the DESIGN ENGINEER at no cost to the OWNER.

B. Upon completion of a well, the CONTRACTOR shall demonstrate to the REMEDIATION ENGINEER that the full depth of the well is free from any obstructions, clear of any formation materials, and that the well shall produce clean sediment-free water. If any of these criteria are not met, the well shall be deemed unacceptable, and therefore shall be abandoned and re-drilled at no cost to the OWNER.

3.04 DRILLING RECORDS

A. The REMEDIATION ENGINEER shall record all drilling activities in a log. The log shall contain the following information:

1. A record of the soil materials penetrated and the depth to which they were encountered in accordance with ASTM D5092M.

2. A detailed record of well construction materials used, including lengths of casing, riser, and screen, as well as the location of any packers, plugs and seals.

3. Static groundwater level in the new well and the levels at which water was observed during drilling.

3.05 SURVEYING

A. Vertical and horizontal coordinates of newly installed wells shall be determined by a Professional Land Surveyor licensed in New York State. Each well shall be surveyed from a permanent measuring point inscribed on the riser. Vertical measurements (elevations) shall be measured within +/-0.01 feet, and horizontal measurements shall be measured within 0.1 feet. Measurements shall be tied into the horizontal and vertical control established for the site.

B. Surveying shall be provided by the CONTRACTOR.

3.06 DECONTAMINATION

A. The CONTRACTOR shall not remove any drilling equipment from the site until it is decontaminated. Decontamination shall consist of pressure washing and/or steam cleaning all equipment. The CONTRACTOR shall comply with requests and procedures of the REMEDIATION ENGINEER regarding decontamination.

END OF SECTION

SECTION 35 80 00

TURBIDITY BARRIERS AND MONITORING

PART 1 - GENERAL

1.01 SUMMARY

A. This section describes the CONTRACTOR requirements for ensuring ambient water quality goals are met during remedy implementation, including use of turbidity barriers adjacent to in-water work areas, ambient water quality monitoring and response actions, and meeting permit requirements during the implementation of the work.

B. The CONTRACTOR is responsible for the selection and design of the turbidity barriers meeting the minimum requirements within this section. Turbidity barriers may be incorporated as a component of river flow diversions, if proposed by CONTRACTOR and approved in writing by DESIGN ENGINEER.

1.02 SUBMITTALS

A. Submit daily turbidity monitoring reports in accordance with Article 1.03 of this Section, or at a reduced frequency if requested by the OWNER.

B. Submit a Turbidity Barrier and Monitoring Plan (may be included in the Project Operations Plan) including the following information:

1. Proposed manufacturer's material and equipment specification sheets detailing the materials to be used for the turbidity barriers. Materials and equipment listed in the Plan will vary depending on the type of turbidity barriers chosen by CONTRACTOR, but may include turbidity curtains, including number of curtain panels, length, connections, reefing, and mooring design, pre-cast concrete blocks, geomembranes, non-woven geotextiles, sheet piles, oil sorbent booms, buoys, lights, and other navigational warnings.
2. Proposed manufacturer's material and equipment specification sheets for the turbidity monitoring equipment.
3. Proposed plan for layout, installation, deployment, inspection, and maintenance of the turbidity barriers. At a minimum, the plan shall include requirements in accordance with Articles 1.05 and 3.02 of this Section.
4. Proposed plan for performing and documenting inspections of the turbidity barriers at a minimum of twice per day to ensure the system is free from defects and remains effective during the work performed.
5. Proposed methods and equipment for turbidity barrier installation for lifting anchors/pre-cast concrete blocks, if necessary, and moving turbidity barriers. Methods must also include replacing such structures after moving.
6. Proposed contingency measures to meet water quality requirements in the event that the turbidity barrier is not adequate. At a minimum, the plan shall include contingency measures in accordance with the requirements of Article 1.05 of this Section.
7. Proposed maintenance plan (including repair and replacement of barrier sections, if needed) to ensure adequate performance of the turbidity barriers and contingency systems to meet the performance criteria.

8. Proposed storm management plan to ensure systems and barriers are adequately secured and will not damage the surrounding areas or interfere with normal waterway operations or in-water work during storm events.

9. Proposed plan for removal and final decontamination or characterization/disposal of turbidity barrier prior to demobilization from the project in accordance with Section 31 23 16 – Excavation and Section 02 51 00 – Decontamination Procedures.

1.04 DAILY TURBIDITY MONITORING REPORTS

A. CONTRACTOR shall prepare a turbidity monitoring report anytime in-water work is performed. For this Section, *in-water work* shall be defined as any work activity that results in non-floating mobile equipment (e.g., excavator, loader, skid-steer) breaching the Ordinary High Water Mark (OHWM). Each turbidity monitoring report shall contain at a minimum, the following:

1. CONTRACTOR's name
2. OWNER's name
3. REMEDIATION ENGINEER's name
4. Project name
5. Site name and location
6. The following shall be documented for each day that turbidity monitoring is performed:
    a. Date and day of the week
    b. General location and brief description of work performed at the Site including start and end times of in-water work.
    c. Document weather conditions, including but not limited to, temperature, wind speed, precipitation, and quantity of precipitation in inches.
    d. Weather forecast for the next day that in-water work will be performed, including but not limited to the forecasted temperature, wind speed, precipitation, and quantity of precipitation in inches.
    e. Maximum and minimum flowrate that occurred during in-water work, as measured at the U.S. Geological Survey (USGS) Ford Street Gage (Station Number 04232000)
    c. Turbidity results for each monitoring station and the differential between the upstream and downstream monitoring stations.
    d. Daily maximum differential between the upstream and downstream monitoring stations.
    e. Exceedances (if any) of the action and stop work levels specified in Article 1.05 of this Section. Provide the following:
        1) Time, location, and reading (above background) of exceedance.
        2) General location and brief description of work being performed at time of exceedance.
        3) Source or cause of exceedance, if determined.

4) Corrective actions taken or to be taken in response to exceedance.

5) Date and time verbal or written notification was provided to NYSDEC of the exceedance.

f. Notation of visual observation of turbidity, if any.

B. CONTRACTOR will distribute daily turbidity monitoring reports within three business days after the day covered in the associated report to:

1. OWNER
2. REMEDIATION ENGINEER
3. NYSDEC
4. Others as appropriate

1.05 SITE CONDITIONS

A. The Genesee River (River) flows north through Rochester to Lake Ontario. The flow and elevation of the River are partially controlled in the vicinity of the Site by a series of dams and waterfalls. The Site is located approximately 0.5 miles downstream from the High Falls.

B. Data recorded at the U.S. Geological Survey (USGS) Ford Street Gage (Station Number 04232000) located approximately two miles upstream of the Site indicate that there is significant variability in the River's daily and seasonal flowrate. HEC-RAS modeling performed for the project estimated peak velocities at the positions of turbidity barriers to be as follows:

Description of flow rate	Flow rate in cubic feet per second (cfs)	Peak Velocity (ft/s)
Median flow (downstream gates closed)	1,590	1.3
Median flow (downstream gates open)	1,590	2.6
Average flow (downstream gates closed)	2,786	2.0
Average flow (downstream gates open)	2,786	3.2
2-year return interval flow (overtopping flow) – downstream gates closed	17,500	12.2
2-year return interval flow (overtopping flow) – downstream gates open	17,500	13.5

Note: The presented velocities are on the River side of the diversion and are likely higher than what would be experienced along the work side of the turbidity barriers, as the barriers themselves should provide some level of velocity reduction.

1.06 PERFORMANCE CRITERIA

A. A three-tiered approach (i.e., alert, action, and stop work levels) will be used for turbidity monitoring. The upstream monitoring location will represent the "background" turbidity level and will be compared to measurements at the downstream turbidity monitoring location to assess if there is a quantitative exceedance in water turbidity. Calculated one-hour averages will be used to compare turbidity levels at both locations.

1. The turbidity alert level is a 25-30 Nephelometric Turbidity Units (NTUs) quantitative differential of one-hour averages above background at the downstream monitoring location.

2. The turbidity action level is a 30-100 NTUs quantitative differential of one-hour averages above background at the downstream monitoring location.

3. The turbidity stop work level is a greater than 100 NTUs quantitative differential of one-hour averages above background at the downstream monitoring location.

4. This three-tiered turbidity program allows for early identification of elevated turbidity levels (i.e., 25-30 NTUs above background) with the initiation of specific investigative steps following a turbidity alert level exceedance.

5. Background turbidity is to be measured upstream of the active work area at the abandoned pipe bridge foundation pier located near the River's centerline upstream of the Bausch Memorial Bridge.

6. Downstream turbidity is to be measured downstream of the active work area at the railroad bridge foundation pier located near the River's centerline at the northern end of the B+L property.

B. Design a turbidity barrier system that can meet the turbidity performance criteria.

C. Design the layout and anchoring of the turbidity barrier so that the active work area is fully captured, including adjustments to the layout of the turbidity barrier as work is progressed. The turbidity barrier design and layout must include a method to anchor to pre-cast concrete blocks every 10 feet using ½" 6x7 standard coarse laid steel cable with a minimum breaking strength of 18,000 lbs.

1. Turbidity control installation (i.e., turbidity curtain, oil absorbent boom) shall be installed on/anchored to the remediation side of the diversion barrier. Turbidity curtain shall be of sufficient length to reach the riverbed at the required removal limit or 25 feet, whichever is less. Turbidity curtains and oil booms shall be overlapped at connection points.

D. The turbidity barrier system must have a top alignment elevation of 393 feet NAVD88. This elevation is designed to prevent overtopping during flow events of 17,500 cfs, which is the 2-year return interval storm at the site.

E. The REMEDIATION ENGINEER shall maintain communication with the RG&E Hydro Group and monitor weather conditions to proactively stabilize/protect contaminated materials when overtopping flows are expected.

1. Disturbance of excavated material shall be minimized at all stages of the project as follows:

a. No underwater disturbance will exceed 25 percent of the removal area or 5,000 SF, whichever is less; and

b. Shoreline soil disturbance between the elevation of the diversion barrier (elevation 393 ft NAVD88) and the 100-yr flood plain (elevation ranges from 393 - 397 ft NAVD88) will not exceed the area that can be covered by 100% biodegradable rolled erosion control product (RECP) during one 8-hour shift.

2. In the event of advance notice in which high water or flood conditions may overtop the diversion structure the CONTRACTOR shall prepare exposed excavation areas as follows:

a. Underwater disturbance of fine sediment (excluding bedrock and cobble) will be covered with armor stone with a minimum diameter of 6-inches; and

b. Shoreline soil between the elevation of the diversion barrier (elevation 393 ft NAVD88) and the 100-yr flood plain (elevation ranges from 393 – 397 ft NAVD88) will be covered with 100 percent biodegradable RECP and staked in accordance with manufacturer specifications.

F. The turbidity barrier system must be capable of withstanding typical flow rates of the Genesee River at the Site, up to the two-year return interval storm, as presented in Article 1.04 of this Section.

G. The CONTRACTOR shall provide contingency measures that shall include, at a minimum:

1. CONTRACTOR shall provide and maintain spill kits and unused boom adjacent to the working area. Spill kits and boom shall be accessible to enable immediate deployment in the event of an observed sheen beyond the limits of in-place turbidity controls.

2. CONTRACTOR may propose the use of alternative devices, such as weir oil-skimmers, with approval from the REMEDIAL ENGINEER.

PART 2 - PRODUCTS

2.01 MATERIALS

A. CONTRACTOR shall submit material specifications for turbidity barrier components as a part of the Turbidity Barrier and Monitoring Plan for DESIGN ENGINEER's approval. Material components may include, but are not limited to:

1. Pre-cast concrete blocks
2. Geomembrane
3. Non-woven geotextile
4. Sheet pile
5. Turbidity curtains
6. Oil sorbent booms
7. Anchoring system including anchors, chains, lines, ballast and connecting fasteners
8. Spill kits
9. Any other applicable equipment

B. Turbidity curtains

1. Provide turbidity curtains as required to contain any sheens and prevent the potential migration of pollutants.

2. Turbidity curtain shall be of sufficient length to reach the riverbed at the required removal limit or 25 feet whichever is less..

C. Oil Sorbent booms

1. Provide oil absorbent pads, rolls, and booms as required to contain any sheens and prevent the potential migration of pollutants.

2. At a minimum, maintain onsite sufficient length of sorbent booms to span the length of the turbidity barrier.

3. Install and anchor oil sorbent booms on the work side of the turbidity barrier.

4. CONTRACTOR shall maintain and replace oil sorbent booms as necessary to prevent migration of oils/sheens beyond the boom.

D. Turbidity monitoring system

1. Conduct turbidity monitoring using YSI 220 multi-parameter water quality sondes connected to Thiamis 1000 telemetry units, or equivalent as approved by the REMEDIATION ENGINEER.

2. Provide a monitoring system with cellular/wireless telemetry and data logger with telemetry technology and alarm so that excavation operators can be notified by text message or email automatically of high turbidity levels exceeding the limits.

3. Provide a buoy-based system suitable for open water, supporting the turbidity probes, data loggers, telemetry system, solar panels, and/or battery packs. Include data transmission to a nearby (or remote) computer with a user-friendly software package for data management. The software shall include a report creation tool that can generate customized reports with data from all sensors in the database, including specific information about the monitoring site, location, sensors, and Project, and the ability of reports to be converted to PDF and exported to Microsoft Excel.

E. Moon Pool Turbidity System

1. The CONTRACTOR may utilize a moon pool turbidity system, in addition to the diversion barrier turbidity control requirements, to fully encompass the active dredge area.

a. Generally, moon pool curtains are hung from marine platforms configured into a containment cell that completely encloses a dredge site, capturing all of the contaminants/sediments within. The moon pool curtains are affixed to a platform and can be adjusted to adhere to the bottom during dredge operation.

b. Where the use of a moon pool system is not practicable (i.e., initial shallow excavation), at a minimum, the work area shall be fully encircled with oil boom.

c. The CONTRACTOR is responsible for determining means and methods of moon pool configuration as field conditions dictate.

PART 3 - EXECUTION

3.01 EXAMINATION

A. The CONTRACTOR shall carefully examine the Site to determine the full extent, nature, and location of work required to conform to the Design Drawings and Specifications. The CONTRACTOR shall bring any inaccuracies or discrepancies between the Design Drawings and Specifications to the DESIGN ENGINEER's attention in order to clarify the exact nature of the Work to be performed.

3.02 INSTALLATION

A. Furnish and/or provide all supervision, labor, tools, materials, equipment, services, and appurtenances necessary for the installation, deployment, inspection, movement, and maintenance of the turbidity barrier presented in this Section and shown on the Design Drawings for the duration of the work to the satisfaction of the REMEDIATION ENGINEER.

B. Do not begin work that could result in generation of turbidity or sheens until turbidity barriers are in place per this Section and the Design Drawings.

C. Place turbidity barriers as indicated on the Design Drawings and as specified in this Section, or as recommended by REMEDIATION ENGINEER.

D. Place oil boom as indicated on the Design Drawings and as specified in this Section. Oil boom shall be overlapped at each new boom connection point.

E. CONTRACTOR shall provide and maintain spill kits and unused boom adjacent to the working area. Spill kits and boom shall be accessible to enable immediate deployment in the event of an observed sheen beyond the limits of in-place turbidity controls.

F. Install monitoring stations to monitor turbidity upstream and downstream of the work area. Install the turbidity monitoring sensors at the vertical midpoint of the water column at each monitoring location. Conduct monitoring as follows:

1. Background turbidity monitoring upstream of the active work area at the abandoned pipe bridge foundation pier located near the River's centerline upstream of the Bausch Memorial Bridge to monitor for ambient conditions.

2. Work area turbidity alert, action, and stop work level monitoring downstream of the active work area at the railroad bridge foundation pier located near the River's centerline at the northern end of the B+L property.

3. If the turbidity alert level (downstream one-hour average 25-30 NTUs above background one-hour average) at the downstream monitoring location is exceeded or if minor contrast between the upstream and downstream location or oily sheens on the river bypass side of the barrier are visually observed, CONTRACTOR will notify OWNER and REMEDIATION ENGINEER. CONTRACTOR will investigate the source of turbidity generation and mitigate with engineering controls or best management practices (BMPs), and/or improve turbidity control system. CONTRACTOR will check and maintain engineering controls and employ BMPs until the condition subsides.

4. If the turbidity action level (downstream one-hour average 30-100 NTUs above background one-hour average) is exceeded at the downstream monitoring location, or if there is a qualitative observation of substantial contrast between water quality upstream and downstream, CONTRACTOR will notify OWNER and REMEDIATION ENGINEER, and REMEDIATION ENGINEER will notify NYSDEC. CONTRACTOR will take immediate action to mitigate turbidity generation with engineering controls or BMPs and/or improve turbidity control system, and if necessary, stop work. CONTRACTOR will check and maintain engineering controls and employ BMPs until the condition subsides. If a substantial visible contrast to natural conditions is sustained at the downstream monitoring station, work may be stopped at the direction of the REMEDIATION ENGINEER to address the issues. Work activities may resume after the cause of the substantial visible contrast to natural conditions is identified and corrected and if, after a 30-minute period, substantial visible contrast to natural conditions no longer exists. Stopping work will be conducted at no additional cost to the OWNER.

5. If the turbidity stop work level (downstream one-hour average >100 NTUs above background one-hour average) is exceeded at the downstream monitoring location, CONTRACTOR will immediately stop in-water work and investigate the source of the turbidity. If it is determined that observed conditions at the downstream monitoring station are not attributable to Site activities, but rather due to another explainable cause, work will continue. If the condition can be reasonably attributed to Site activities, turbidity-producing work will be halted, and CONTRACTOR will inspect all

turbidity controls and implement additional BMPs. Work will not start again until engineering controls are inspected and maintained, BMPs are employed, and the CONTRACTOR demonstrates that work can continue without elevated turbidity generation. Stopping work will be conducted at no additional cost to the OWNER.

6. The CONTRACTOR will observe general conditions around the work area. If an abnormal turbidity plume emanating from the deployed resuspension controls is observed, work will be temporary halted at no additional cost to the OWNER until the CONTRACTOR can inspect and address any issues with the resuspension controls.

7. The CONTRACTOR will monitor water quality and compare observations to the background monitoring station located upstream of the work area. The CONTRACTOR will take immediate action to mitigate turbidity generation up to stopping work as described above. Stopping work will be conducted at no additional cost to the OWNER.

8. The CONTRACTOR will conduct calibration and maintenance of turbidity monitoring systems in accordance with manufacturer specifications.

G. Install all turbidity barriers in a manner which minimizes disturbance of the sediments and turbidity.

H. Select anchor weight spacing and submit for approval prior to installation. Any damage to the turbidity barrier or surrounding property due to improper sizing, installation, or moving of the weight anchors or barriers will be the sole responsibility of the CONTRACTOR and will be repaired to the satisfaction of the REMEDIATION ENGINEER at no additional cost to the OWNER.

I. When terminating at shoreline, provide closure with the shore using sandbags or other approved means.

J. Secure oil sorbent booms to the work side of turbidity barriers and pre-cast concrete block walls to address sheens during excavation and restoration work. Oil sorbent booms shall overlap at connection points. Oil sorbent booms and pads shall be on hand for immediate deployment if sheens are observed outside of active work area.

3.03 OPERATION AND MAINTENANCE

A. Conduct real-time turbidity monitoring during excavation and restoration activities at the Site. Collect continuous real-time measurements.

B. Maintain all turbidity barriers in working order. Inspect turbidity barriers twice daily (at the start of and end of each workday) and repair if necessary, to the satisfaction of REMEDIATION ENGINEER.

C. Visually inspect the turbidity barrier and associated components from a boat or vessel during installation and during in-water work at a minimum of twice per day as specified herein. Note the inspection on CONTRACTOR's Daily Inspection Report.

D. Conduct additional inspections at the CONTRACTOR's discretion and/or at the request of the REMEDIATION ENGINEER following storm periods, noticeable turbidity increases outside the system, unexpected barrier position/behavior, contact of the barrier by equipment or debris, or other abnormal events.

E. Conduct diver inspections of the turbidity barrier, at no additional cost to the OWNER, if downstream turbidity levels exceed permitted levels and no obvious system malfunctions were identified from the surface.

F. Instruct CONTRACTOR personnel in the immediate working area to notify the designated CONTRACTOR's representative and the REMEDIATION ENGINEER if a sheen has been identified outside of the extents of turbidity controls.

G. Promptly repair or replace any torn, damaged, or otherwise ineffectively functioning sections of the systems identified during routine inspections as necessary to maintain the performance criteria and all applicable permits and approvals, at no additional cost to the OWNER. In-water work shall not be continued until all controls have been repaired and/or replaced.

H. Inspect the turbidity barrier and oil sorbent booms to ensure they are in working order prior to excavation and restoration operations.

I. Conduct water quality monitoring in accordance with applicable federal, state, and local permits. Communicate the results of this monitoring to the OWNER during Site meetings and when issues arise.

J. Conduct all work in accordance with the water quality requirements outlined in applicable federal, state, and local permits. Stop work and modify work methods, procedures, or operation of the turbidity barrier if the water quality criteria are not being met. Any modifications required to meet water quality criteria shall be performed by the CONTRACTOR at no additional cost to the OWNER.

3.04 REMOVAL AND DISPOSAL

A. Prior to removing the turbidity barrier, ensure that all sheens are removed and that turbidity within the barrier area reaches an acceptable level such that downstream water quality criteria are not exceeded during the removal process.

B. Exercise extreme care in removing turbidity barriers to avoid increasing turbidity.

C. Do not remove turbidity barriers until the water behind the barrier has equal or greater clarity than the waterbody.

D. Properly decontaminate and/or dispose of the turbidity barrier, in accordance with Section 02 61 15 – Handling and Disposal of Impacted Materials and Section 02 51 00 – Decontamination Procedures.

END OF SECTION

APPENDIX C
CONSTRUCTION QUALITY ASSURANCE PLAN (CQAP) (RESERVED)

APPENDIX D
AVANGRID NETWORKS EH&S PROCEDURE: MARINE OPERATIONS & WORK IN PROXIMITY TO WATER

Networks Environmental, Health & Safety

Avangrid Networks EH&S Procedure: Marine Operations & Work in Proximity to Water

FINAL

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AVANGRID	STANDARD OPPERATING PROCEDURE		
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1. PURPOSE

Avangrid Network's (hereafter "Organization") vision is to foster a culture of environmental, health and safety integrity, empowerment, and accountability, providing a foundation for a world class organization. Critical components of achieving this vision are the careful development, implementation and maintenance of environmental and safety manuals and procedures. This document, AVHS-SOP-###, summarizes internal procedures for the management of health and safety risks concerning work in proximity to water. The purpose of this procedure is to: identify and define processes and requirements that the Organization and its Employees will follow when conducting Marine Operations & Work in Proximity to Water.

2. SCOPE

This procedure covers the Organizations work including Marine Operations & Work in Proximity to Water. This procedure is applicable to any work on, near, or over water. This includes but is not limited to work from boats, work on or below bridges, work from dams, dikes, and other structures bordering water and operations near ponds, lakes, and other water bodies. This procedure does not include work in proximity to small bodies of water less than 6 inches in depth. Business units may elect to implement additional controls not prescribed in this procedure so long as they do not interfere with the requirements of this SOP.

3. DEFINITIONS

Certified Anchorage: A fall arrest or fall restraint attachment point designed by a qualified person and capable of withstanding two times the maximum arresting force (multiplied by the number of workers expected to simultaneously utilize the system) considering the following criteria:

- safe areas for people to connect and disconnect to the system
- how the forces of fall arrest will impact the anchorage areas
- existing and anticipated loading weights
- loading paths
- structural strength of anchorage areas
- connection and support strength
- general anchorage stability
- clearance and swing fall requirements
- rescue deflection
- impact on the structural members

Competent Person: One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them

Employee: Any employee of the Organization regardless of title, position, or bargaining unit status.

Environmental Health and Safety (EH&S): The Organizations Environmental Health and Safety Group.

EH&S System of Record: The current Management System software in use by the Organizations EH&S department, past or current examples have included EH&S 360 or Cintellate.

Supervisor: An individual employed by the Organization who oversees Bargaining Unit Employees.

Leadership: Duly employed or appointed representatives of the organization entrusted to make strategic decisions on its behalf. Example titles would include Executive, President, Vice President and Director or any variations thereof.

Lifeline: A ¾ inch polypropylene line anchored by means of physical attachment capable of withstanding a load in excess of 5,000 lbs. and draped in a fashion that the line lays in the water downstream from the work performed/assigned, at a distance that may be reached within 15 seconds notice by the Safety Watch person. The line shall be either yellow or multicolored and shall be maintained free of knots, kinks, or abrasions and/or discoloration caused by Ultraviolet (UV) damage. The lifeline shall be stored in a protective bag when not in use and shall be a minimum of 90 feet in length.

Management: Duly employed representatives of the Organization entrusted to make operations and tactical decisions on its behalf. Example titles would include Manager, Supervisor, Senior Manager, Project Manager, and any variations thereof.

Marine Operations: The use of a boat, ship, or other watercraft to conduct work, other than rescue operations associated with work in proximity to water.

Non-Certified Anchorage: A "tie off point" that is selected by a competent person after a visual inspection of the location. In order for a competent person to designate a point as a non-certified anchorage point, they must visually inspect the location and decide whether or not that area is capable of supporting 5,000 pounds.

Personal Flotation Device (PFD): A wearable device designed to provide buoyance to the wearer when the wearer is submerged or partially submerged in water. PFDs must meet US coast guard and OSHA requirements.

Personal Protective Equipment (PPE): Equipment such as helmets, goggles, gloves, etc. worn on the body to protect it from injury.

Rescue Skiff: A flat bottomed small craft with one end pointed and a hard transom capable of safely supporting a motorized propulsion device.

In all circumstances the Skiff and Life Savings Boats must be appropriate for the intended purpose. Canoes and Jon boats do not provide sufficient stability and are not recommended for use as a rescue skiff or lifesaving boat. An inflatable skiff with a rigid bottom and fixed oars is recommended for use as a rescue skiff. Inflatable skiffs cannot be swamped, provide a stable platform in most conditions, and afford a greater margin of safety than do canoes or Jon boats to would be rescuers and victims. Skiffs should be equipped with a motor having the rating within the manufacture's posted rating. A prop shroud shall be provided for all outboard motors used in rescue. In slow moving waters having a breadth of less than 50 feet oars alone may be appropriately provided.

Ring Buoy (Throw Ring): A throw-able flotation device 30-inch (0.76 m) in diameter. A USCG approved throw ring with a line attached shall be located on each staging and/or readily available on a floating vessel on which work is being performed

United States Coast Guard (USCG): an agency of the United States Government charged with, amongst other duties, the regulation of maritime safety.

Water Rescue Pole: A manufactured pole made for land or boat-based water rescue recovery operations. The rescue pole often prevents water rescue responders from risking their life by entering dangerous fast-

moving waters. Water rescue poles are typically designed with a blunt or rounded hook. They may also have buoyant handles and reflective markings.

Work in Proximity to Water: At minimum if any of the following criteria are met the work must be considered Work in Proximity to Water.

- Work will be conducted outside of a permanent fixed enclosure such as guardrails at a height greater than 4 feet above a body of water greater than 6 inches in depth. This would include work under bridges,
- Work will be conducted outside of any permanent fixed enclosure within and 2 yards (laterally) of a body of water greater than 1 foot in depth or moving at high enough speed to carry the worker away from the work area in event of an accident.

4. RESPONSIBILITIES

4.1. Environmental Health and Safety (EH&S)

- Maintain this procedure
- Assist Business Areas and Management in implementation of this procedure through risk assessment and other means
- Document PPE requirements on the organizations PPE matrix
- Work with business unit management to conduct Job Hazard Assessments when requested.

4.2. Management

- Control Marine Operations and Work in Proximity to Water to ensure risks are effectively managed
- Fund and coordinate licenses and related training for company employees, verify proper licensing for contractors
- Provide PPE and safety equipment needed to safely conduct Work in Proximity to Water
- Ensure employees are trained in the use of PPE and Safety Equipment
- Wherever possible, implement elimination or engineering controls to mitigate risks associated with Marine Operations and Work in Proximity to Water.
- Request Job Hazard Assessment if an exemption from this procedure is required.

4.3. Employees who Work in Proximity to Water

- Follow requirements of this procedure
- Participate in pre work risk assessment and control measures
- Attend training

4.4. Employees who Operate Watercraft on Behalf of the Organization

- Attend training as prescribed
- Maintain appropriate licenses and operators' certificates as issued by State and Federal government
- Conduct pre-operation inspections of vessels

5. PROCEDURE

5.1. General Requirements

5.1.1. Exemption Process

If an exemption from the requirements of this procedure is required the business unit must contact EH&S and have a formal Job Hazard Assessment conducted and documented. Controls identified during that assessment must be implemented prior to the start of work.

5.1.2. Risk Assessment

- All Work in Proximity to Water or marine operations require a pre job risk assessment with sign off from the competent person before starting work.
  - This risk assessment must be reviewed with all participants on the job site.
  - Must include provisions for PPE, means for communication in the event of an emergency, and 911 location, measures taken to prevent slips and falls into water, and appropriate water rescue plans potentially including the provision of a lifesaving skiff that can reach employees within 3 minutes in the event the individual falls into water.

5.1.3. Single Worker

- Single workers shall not conduct Work in Proximity to Water or marine operations (they can work behind guard rails)

5.1.4. Elimination, Substitution and Engineering Controls

- The feasibility of Elimination and Engineering controls must be assessed prior to the commencement of any marine operations or Work in Proximity to Water.
- Examples of Elimination controls include:
  - Use of drones, reaching devices or other tools to prevent employees from needing to work in proximity to water.
- Substitution Controls include:
  - Decision to conduct the work from land or a fixed structure rather than a boat (substitution of lower risk methods)
- Engineering Controls
  - Conducting work from within an enclosed or “railed in” location

5.1.5. Administrative Controls / Work Permit

- Work Permit:
  - Required for all Work in Proximity to Water
  - See ANHS-FOR-080B this permit establishes the minimum acceptable controls that must be implemented prior to commencement of work.
  - Permits are valid for 1 shift and can be extended. A shift is defined as the routine length of work of the crew conducting the work. A shift may vary depending on many factors, it is the discretion of the competent person to determine what constitutes a shift for each permit issued.
  - The manager, supervisor, or a competent and experienced employee of the group conducting the work must authorize the permit.
    - EH&S may review, and sign permits but it is not a requirement.
- Licensing & Training:
  - Employees or Contractors operating powered boats must be trained and licensed to operate the equipment.
  - Boats operated in coastal waters or on the great lakes require greater training as the hazards of operations in this environment are greater.

5.1.6. Minimum PPE

- Whenever conducting marine operations or Work in Proximity to Water the following minimum PPE requirements must be observed by all participating employees.
  - A coastguard approved life jacket or PFD

    Or
  - 100% tie off fall protection that eliminates the possibility of the employee falling into water (note: this method shall not be used when operating a boat)
  - All other task specific PPE such as ANSI Z87.1 Compliant Safety Glasses, hard hat, protective footwear etc. required based on the task and associated hazards.

5.1.7. Communications

Prior to any marine operations and/or work in proximity to water communications methods must be agreed to and necessary equipment provided to employees. These communications must be appropriate for the job to be completed and employees must be trained and familiar with their use. Communications at a small job site may be verbal or dependent upon known hand signals, for job sites where employees will be further than 50 feet apart additional communications measures such as radios must be implemented.

Additionally, a method of communication with 911, emergency services and on-site rescue personnel must be established.

5.2. Work in Proximity to Water

For the purposes of this procedure work in proximity to water includes any work meeting the following parameters.

Any activity whereby employees conduct work (rather than access) above a body of water which given the working situation could present a risk of drowning. If it is foreseeable that an employee could either fall into the water or be rendered incapable of self-rescue during work (knocked unconscious, become entangled, swept away by currents) due to the circumstances of work than the situation is considered work in proximity to water.

At minimum if any of the following criteria are met the work must be considered Work in Proximity to Water.

- Work will be conducted outside of a permanent fixed enclosure such as guardrails at a height greater than 4 feet above a body of water greater than 6 inches in depth. This would include work under bridges,
- Work will be conducted outside of any permanent fixed enclosure within and 2 yards (laterally) of a body of water greater than 1 foot in depth or moving at high enough speed to carry the worker away from the work area in event of an accident.

If your work does not fall within either of the categories described above it is not required to adhere to this SOP.

5.2.1. General

- Horseplay is not allowed when working near water
- A work permit must be completed, and identified controls implemented prior to the start of work

5.2.2. PPE

- Whenever hazards of falling into the water cannot be eliminated by working in an enclosed space a PFD must be worn.
  - All PFDs must be approved by the United States Coast Guard providing sufficient buoyancy to meet the weights of the person, their gear, and tools on their person.
- Whenever possible a fall arrest or work positioning system must be used in conjunction with the PFD to mitigate the risk of falling into water.
  - Harnesses associated with these systems must be compatible with the type of PFD chosen
  - Tie off or securement points must meet OSHA strength requirements
    - Fall Arrest: 5000 lbs. of force for non-certified anchorages, or 2 times the maximum arresting force for Certified Anchorages.
    - Work Positioning System: force of at least 3,000 lbs, or twice the potential impact load, whichever is greater.
- When working in lateral proximity to water a positioning system which prevents workers from reaching the water's edge should be implemented. If this is implemented a PFD shall not be needed.
- In some situations, where employees could fall into or become immersed in cold water specific PPE may be needed consult the PPE table below for recommendations based on water temperature.

Water Temperature in Degrees F (Degrees C)	Loss of Dexterity (with no protective clothing)	Exhaustion or Unconsciousness	Expected Time of Survival	Recommended Cold Water PPE
32.5 (0.3)	Under 2 min.	Under 15 min.	Under 15 to 45 min.	Dry suit with fleece layers, neoprene booties, beanie, gloves
32.5 to 40 (0.3 to 4.5)	Under 3 min.	15 to 30 min.	30 to 90 min.	Dry suit with fleece layers, neoprene booties, beanie, gloves
40 to 50 (4.5 to 10)	Under 5 min.	30 to 60 min.	1 to 3 hrs.	Dry suit with fleece or polypro layers, neoprene booties, beanie, gloves
50 to 60 (10 to 15.5)	10 to 15 min.	1 to 2 hrs.	1 to 6 hrs.	Dry suit with polypro layers or wetsuit plus drytop, neoprene booties, hat
60 and Above	30 to 40 min.	2 to 7 hrs.	2 to 40 hrs.	The need for additional PPE should be considered based on distance to shore.

5.2.3. Minimum Rescue Provisions

At a minimum the following rescue equipment must be available and staged for use and employees or a rescue service must be present and trained in the equipment's operation. It is highly recommended that for work in proximity to moving water a professional rescue service is contracted.

- **Rescue or Ring Buoy:** Whenever work is being done over water or next to the water, ring buoys with at least 90 feet of line must be attached and immediately available. Ring buoys cannot be more than 200 feet apart. A lifeline should be attached to the ring buoy. (Most ring buoys come with a 'throw bag' with line attached.)
- **Skiffs & Lifesaving Boats:** The Organization shall provide a skiff/boat to assist in rescue when it is feasible to do so and when their use does not expose our employees to greater hazards. The **skiff/lifesaving boat must be immediately available for rescue, this means the skiff must be staged at**

the closest safe location to allow minimum travel time to initiate rescue. Skiff operators shall be trained in the safe operation of a skiff/boat when used for rescue. Skiffs and Life Saving Boats are not necessary in the following instances:

- The water is too shallow to navigate a boat.
- Where the geography lacks a safe area to launch a skiff or lifesaving boat or when the water way presents an immediate hazard to the employee (rescuer) operating the skiff or lifesaving boat, e.g., gorge areas and other sheer launch sites, lock areas and waterfalls.
- When other effective means of rescue exist, e.g., in shallow areas, with slow moving water that are close to shore such that an employee can immediately wade into the water or utilize the rescue pole to provide rescue.

- All skiff and lifesaving boat occupants shall wear a proper fitting PFD and shall be trained to row or to operate a motorized skiff or boat. Operators/occupants of a skiff or boat shall be trained to affect rescue or secure the person to the skiff/boat in the water, or if person can be safely moved to shore to provide first aid, until professional rescue services arrive.
  - The rescue skiff/boat operator must be available to immediately perform a rescue without delay at all times that Work in Proximity to Water is being conducted.
- **Lifelines:** In Situations where a skill/lifesaving boat is not feasible and where other effective means of rescue do not exist a lifeline must be implemented.
- **Safety Watch:** In situations where rescue provisions are required a safety watch must be assigned. Their only duty on the job site is to monitor the status of work and raise the alarm / initiate rescue activities in the event an employee falls into the water or become imperilled in a way requiring rescue.

5.3. Work from Boats, Barges, and Floating Work Platforms (FWPs)

Marine Operations / Work from Boats includes all work conducted from any floating platform, barge, boat vessel or ship regardless of motive power except for rescue operations described in section 5.2.3 Minimum Rescue Provisions. This procedure

5.3.1. General:

- All boats, barges, and other watercraft must meet USCG requirements
- Work from Boats, Barges and Floating Work Platforms should be conducted during daylight whenever possible.
- Only licensed and qualified employees or contractors (in accordance to this SOP and if more rigorous federal, state, or local law) shall operate any vessel or barge
- Vessel Maintenance shall be completed following manufacturers recommendations

5.3.2. Barges and Floating Work Platforms (FWPs)

Barges and work platforms provide a means for to conduct various operations from within bodies of water including structure setting, excavation, or inspection work beneath bridges. These pieces of equipment require specific knowledge to properly configure and operate.

- Barges and work platforms shall be enclosed by a guardrail system.
- Anytime work from a barge or work platform involves the use of heavy equipment that equipment must be approved for use on floating work platforms by its manufacturer and secured per the manufactures requirements to prevent its unsafe movement.

- Equipment must be secured as close as possible to the centre of the platform or barge to prevent capsizing.
- PFDs must be worn by all employees working on Barges and FWPs unless they are working in a completely enclosed cab or compartment.

Prior to any work from Barges or Work Platforms a Safety Plan must be prepared and submitted to the area EHS Manager for review and approval prior to work. This plan must include / address the following:

- Competency of operator(s)Load rating capacities
- Design consideration to eliminate risk of capsize
- Motorized equipment capabilities / limitations
- Fall protection requirements and other required PPE
- Use of Controlled Access Zone (CAZ) or perimeter guarding
- Method(s) of anchoring equipment
- Lighting (if necessary)
- Provision of an additional bilge pump
- Access to barge/platform
- Communication devices
- First aid Emergency notification

5.3.3. Work from Boats

Boats can be useful for accessing remote locations or conducting work at structures installed offshore. Boat or Vessel Operations within the networks business fall into two categories inshore or coastal. Inshore operation includes any operation on smaller lakes, rivers, streams etc. while coastal operations include operations in the Ocean, Bays, Great Lakes and other similar features.

5.3.4. Minimum Safety Equipment (including communications, PPE, distress singling devices)

All Boats with an Electric Motor, Outboard, Inboard, Inboard/Outdrive, Jet Drive Engine of Any Length.

- Registration
  - You must have the boat registration certificate on board and validation stickers displayed.
- Life Jackets
  - One for each person, properly sized, readily accessible and in good serviceable condition and US Coast Guard approved. Life Jackets must be worn by all occupants less than 12 years of age when underway on a boat less than 65 feet except when in a fully enclosed cabin.
  - If the boat is less than 21 feet all passengers must wear a PFD from **Nov 1 to May 1.**
- Throwable Flotation Device (Throw Ring)
  - Not required for boats less than 16 feet. If the boat is 16 feet or greater a throwable flotation device (throw ring) is required
- Two-way Radio or Cell Phone
  - Two-way radio or cell phone (or equivalent communication means) shall be on board for emergency communication. Communication means shall be verified prior to beginning work and shall be documented on the job brief and boating operations checklist.

- Locator beacon (Offshore vessels)
- Fenders / Bumpers
- Sound Producing Device (Audible distress signal)
  - All boats under 40 feet should have an efficient sound producing device such as a horn or whistle.
  - A Bell is required on vessels greater than 39 feet in length and is used to signal the location of an anchored or grounded boat during periods of reduced visibility.
- Visual Distress Signals
  - While in Coastal Waters, the Great Lakes, and any U.S. owned boats which are on the high seas, if less than 16 feet in length must carry three approved night signals. Boats over 16 feet must have three day and three-night signals on board. Night signals are required to be onboard between sunset and sunrise.
- Anchor and Line
  - Line length should be appropriate for the expected depth of water. Recommended length is 1 ½ times the known depth of the waterway. Anchor selection should be made based on the type of flow (current)the vessel expects to encounter during anchored operations.
- Backfire Flame Arrestor
  - Required on Inboard and Inboard/Outdrive engines that use gas. Not required on Outboard engines.
- Fire Extinguishers
  - For boats 26 feet and less, it is required to have at least one B-1 type Coast Guard-approved hand portable fire extinguisher. Again, that is the minimum. Boats 26 to 39 feet, two B-1 type or one of the B-2 type USCG approved extinguishers are required.
- Navigation Lights
  - The vessel must carry red (port side) and green (starboard side) side lights, and white masthead and stern lights. The masthead and stern light can be as one all around white light if your boat is less than 39 feet.
  - Small vessels (less than 7 Meters long) capable of no more than 7 knots (8 MPH) may display a single white light visible from all directions and do not need to display green and red side lights.
- Capacity Plate
  - Federal Law requires manufacturers to install a capacity plate to all single hull motorboats less than 20 feet in length. The capacity plate should provide the following information:
    - Maximum number of persons and total passenger weight or
    - Maximum weight capacity of people, gear, and motor, and
    - Maximum engine horsepower on boats designed for outboard motors.

6. TRAINING

6.1. Work in Proximity to Water

Training must be provided prior to work in proximity to water and at minimum must include

- A review of this SOP
- A review of minimum PPE requirements
- Hands on training on the use of PPE including:

- PFDs,
- Fall Arrest and Positioning Systems, (See ANHS-SOP-010 Work at Heights for fall arrest and positioning systems training requirements)
- Ring Buoys,
- any other task specific PPE

- A review of the Work in Proximity to Water Permit
- A review of rescue provisions, if employees will be acting as rescuers this training must include hands on training on the use of all rescue equipment including but not limited to skiffs/boat, ring buoys, lifelines, and rescue poles.
  - Additionally, employees acting as a watch must be trained in the requirements of that role.

6.2. Marine Operations / Work from Boats

All employees who operate vessels must be licensed and trained to do so. Training requirements are defined by regulation and are dependent upon the size of the vessel, its intended use, and the number of personnel onboard. The training requirements presented below are for operations of small watercraft owned by the Organization at the time of writing.

Manner of Operation	**Training Requirement***			
	Connecticut	Massachusetts	Maine	New York
Inshore Operations (Lakes, Rivers etc excluding great lakes) *	CT approved boating safety course Boating Classes (ct.gov)	Mass Boating Safety course Take a Boating Safety Course | Mass.gov	ME approved boating safety course Boating Safety: Safety Courses: Educational Programs: Programs & Resources: Maine Dept of Inland Fisheries and Wildlife	○ NYS Parks Safe Boating Course ○ Power Squadron Boating Safety Course ○ US Power Boating Safety Course **Pick 1**
Coastal / Great Lakes	United States Coast Guard Basic Seamanship Course (or coast guard issued captains license of any capacity)			

** These training requirements are waived if the employee privately holds a higher level of USCG license such as a masters or captain's license.*

6.2.1. Mutual Aid Training

- Employees operating boats while on Storm Mutual Aid are subject to the rules of the State they are working in and the policies of the local utility.

6.2.2. Boat Familiarization Training

- In addition to the training required by law (detailed above) all employees who operate watercraft on behalf of the company must have basic familiarization training with the boat they will operate (prior to first operation) this training must be provided by the business area and must include at minimum:
  - Review of onboard emergency equipment (radio, flares, PFDs, throwable flotation devices, paddles, and oars) it's use and procedures for "man overboard" situations.

- Review of the vessel's controls including throttle, steering, trim adjustment, lights (navigation, anchor, interior and work area) etc.
- Review of storage arrangements for docking lines, anchors, hooks, and other essential tools
- Review of safe riding positions and operating capacities
- Review of procedures for fuelling, starting, stopping, and operating boat systems.

7. RECORDKEEPING and DOCUMENT RETENTION

Documentation related to this procedure and subsequent reviews and revisions will be maintained by EH&S. This procedure will be accessible to field operations both in paper and electronic format. The paper versions of the program will not be document controlled. The official, current version of this program and all procedures prepared under this guidance will be located on the EH&S intranet site.

All versions of audits and reports shall be stored in either SharePoint or in EH&S 360 (should they be performed on that platform). Actions shall be tracked, and records kept for item closures in manual or digital formats and maintained according to the AVANGRID Retention Schedule.

8. MANAGEMENT OF CHANGE

This procedure shall be evaluated at a periodic frequency and updated for changes along with associated inspection and audit questionnaires. The changes shall be tracked in the revision index and the appropriate draft and released versions stored in the Group EH&S Intranet Site and AVANGRID Management System's Portal. Updates to inspection and audit questionnaires shall be reflected in EH&S 360 or whichever method in which they are kept. Please reference AVHS-SOP-008 Management of Change for guidance.

9. ASSOCIATED DOCUMENTS

Document Number	Title
ANHS-FOR-080A	Boat Operation Pre-Trip Inspection Checklist
ANHS-FOR-080B	Work in Proximity to Water Permit

10. SUPERCEDED DOCUMENTS

Document Number	Title

11. REVISION INDEX

Rev.	Section	Description	Date
Initial	All	Initial creation of SOP	5/2022

Preferred Rescue Methods

1) Once **Inadvertent entry into water** is observed immediately shout "Person in Water" to alert others on site to the situation. It is important to keep the victim in sight to assist with rescue. This may involve dismounting apparatus, descending grades, and moving along shorelines. Execute the following plan swiftly and use available time wisely to give the victim the greatest chance of a successful outcome.
2) **Initiate "Emergency Action Plan"** - for water emergencies. Alert Emergency Services (911) via mobile phone or 2-way radio (relayed through ECC) and describe the situation in as much detail as possible. Do not terminate the call until the Emergency Services (911) operator instructs you to do so. While contact is made with Emergency Services (911), others on site may be directed to assist in the rescue. Waiting to notify Emergency Service may waste valuable time that the victim may need for a successful outcome. Many Emergency Services are staffed by volunteers who may take some time to assemble and respond, especially in rural areas.
3) **Reach** - if the victim is able and is close enough to a stable shore, attempt to guide them to a safe location. When a person is near enough, try to reach them with a rescue pole, ladder, shovel, or other long handled item. Ensure proper footing before pulling a victim to safety. When pulling victim to shore, pull in the same direction of the current flow. If the victim is beyond reach: use the throw-able ring.
4) **Throw** - From shore or stable area, throw a ring buoy / Type IV Personal Flotation Device attached to a safety rope / line, or other floating object(s) to victim. Throwing some floating objects near the victim will provide them numerous options to assist them with floating and in the event of total submersion, will serve to mark the area where the victim was last seen for professional rescue services to begin search. Ensure proper footing before attempting to pull victim to safety. When pulling victim to shore, pull in the same direction as the current flow. If throwing object(s) is unsuccessful:
5) **Row** - rescue skiff or boat to victim. Assist victim by helping victim hold onto rescue craft or holding their head above water until additional help arrives, using caution not to capsize the rescue vessel. If rescue craft has only 1 operator, tether craft to shore before leaving shore when possible. If tethered, have someone on shore pull rescue craft to safety. If craft has an operator and an occupant(s), the occupant(s) shall render the assistance to the victim and the operator shall have the responsibility to navigate the rescue craft to safety.

APPENDIX E
SOIL HAULING AND TRAFFIC CONTROL PLAN

SOIL HAULING AND TRAFFIC CONTROL PLAN

for the
East Station Former MGP Site
Rochester, New York

Prepared for:

RG&E

3 City Center Bldg., 5th Floor
180 South Clinton Avenue
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Prepared by:

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NOVEMBER 2024

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ACRONYMS

Acronym	Definition / Description
C&D	construction and demolition
CFR	Code of Federal Regulations
City	City of Rochester
DERA	New York State Diesel Emission Reduction Act
HASP	Health and Safety Plan
MGP	manufactured gas plant
MOT	Maintenance of Traffic
mph	miles per hour
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OSHA	Occupational Safety and Health Administration
PPE	personal protective equipment
RD	Remedial Design
RG&E	Rochester Gas and Electric
Plan	Soil Hauling and Traffic Control Plan
Site	East Station Site at Suntru Street, Rochester, Monroe County, New York
USDOT	United State Department of Transportation
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION AND BACKGROUND

This Soil Hauling and Traffic Control Plan (Plan) has been prepared to support the implementation of remedial activities associated with the Remedy of the Rochester Gas and Electric (RG&E) East Station Site (the Site). The Site is one of three sites included in a New York State Department of Environmental Conservation (NYSDEC) Multi-Site Order on Consent that became effective June 26, 2018 (Index No, C0-8-20180517-48, Site No. 828204). NYSDEC issued a Record of Decision for the Site in June 2022 (NYSDEC 2022) and a Draft Explanation of Significant Difference for the Site.

This Plan describes the soil hauling and onsite and offsite transportation requirements for various waste materials that are anticipated to be generated as a result of the remedial activities described in the 100% Remedial Design Document (RD, Parsons TBD).

The soil loading, hauling, and onsite and offsite transportation requirements for the anticipated waste streams to be generated during remedial construction activities are described in Section 2 of this Plan. Requirements for traffic control are presented in Section 3.

1.1 Applicable Codes, Standards, and Specifications

All soil hauling activities shall be conducted in accordance with all local, state and federal rules, laws and regulations, including:

- United States Environmental Protection Agency (USEPA), including Title 40, Code of Federal Regulations (CFR).
- Occupational Safety and Health Administration (OSHA), including Title 29 CFR, and Parts 1910 and 1926, OSHA, U.S. Department of Labor.
- State of New York Rules and Regulations, including Title 6 of the Official Compilation of Codes, Rules and Regulations (6 NYCRR) Parts 360, 364, 370, and 372 regarding treatment/ disposal, transportation, and management of hazardous waste.
- OSHA regulations contained in 29 CFR Part 1910.120 “Hazardous Waste Operations and Emergency Response.”
- Applicable guidelines of the New York State Department of Health (NYSDOH).
- Transportation regulations, including United States Department of Transportation (USDOT) regulations, including Title 29 Parts 171 and 172 and New York State Department of Transportation (NYSDOT) rules and regulations.
- Applicable federal, state, and local government regulations (including local flow control regulations).

Whenever there is a conflict or overlap of regulatory criteria, the most stringent provision shall apply.

2.0 SOIL LOADING, HAULING AND ONSITE AND OFFSITE TRANSPORTATION

This section presents minimum transporter requirements during loading and transportation of solid non-hazardous and hazardous soil wastes generated by the remedial activities at the Site. In addition to the requirements presented below, additional traffic control requirements are described in Section 3.0.

The term “transfer points” refers to any time material is loaded or unloaded during removal activities. For the purposes of this project, the primary transfer points of concern will be the transfer of soil material from the excavator or processing pad to a waiting truck. The secondary transfer points of concern will be the unloading of the clean soil for use in backfilling and cover installation.

The use of the term “transporter” refers to the transporter and the Contractor if/when the transporter is subcontracted to the Contractor. The transporter will provide all necessary supervision, labor, training, permits, hazardous waste manifests (when required), personal protective equipment (PPE), tools, equipment, materials, and all things incidental and necessary to transport solid and liquid waste from the Site to the permitted disposal facilities. Any truck found unacceptable by RG&E (or the Remediation Engineer) will be rejected, and the cost for any rejected truck shall be incurred by the transporter. If NYSDEC onsite personnel find any trucks unacceptable, NYSDEC should notify RG&E’s project coordinator who shall notify the truck driver.

The transporter shall adhere to the following rules while at the Site, in transit from the Site to the waste disposal facility, and at the waste disposal facility:

- Contaminated material shall be transported in vehicles with current New York State Waste Transporter Permits pursuant to 6 NYCRR Part 364.
- Prior to entry to the Site, truck drivers shall stage trucks only in areas designated by RG&E, the Remediation Engineer, or the Contractor. While staged, truck engines shall be shut off.
- Truck drivers shall announce their arrival at the Site to RG&E, the Remediation Engineer, or the Contractor.
- Truck drivers are generally restricted to their trucks and designated waiting areas. Drivers are not permitted access to the site without permission from RG&E, the Remediation Engineer, or the Contractor.
- Trucks are limited to five minutes idling time.
- Transporters must comply with the New York State Diesel Emission Reduction Act (DERA) and 6 NYCRR 248 when using heavy duty vehicles.
- Truck drivers must supply and wear HARD HATS, SAFETY GLASSES, SAFETY SHOES, HIGH-VISIBILITY VEST AND/OR OUTER GARMENTS, and GLOVES, as a minimum, at all times when outside the truck cab for personal protection. Truck drivers must also wear long pants (e.g., jeans, coveralls) when outside the truck cab.
- Truck drivers shall line the entire waste transport container (e.g., dump truck box, dump trailer, roll-off waste container, etc.) that will be used to haul hazardous solid waste, conditionally exempt manufactured gas plant (MGP) site remediation waste, or non-hazardous waste to top

of the side boards with 6-mil thick polyethylene sheeting. Certain waste transport containers used to haul construction and demolition (C&D) debris may also need to be lined.

- All vehicles transporting contaminated material shall be fully-lined with minimum 6-mil polyethylene sheeting, an equivalent material, or otherwise be water-tight, and shall be equipped with functioning tailgate locks and covered with non-mesh (solid), waterproof tarpaulins. As an additional measure if the soil is especially odorous, odor control foam shall be sprayed on the soil before placing the tarp and prior to departure.
- All waste transport containers shall have a watertight tailgate with a gasket between the box and tailgate, and equipped with lockable (i.e., screw down), tailgate latch assemblies. If free liquids are observed leaking from the container of the truck once loaded, the truck cannot leave the loading area.
- All trucks shall be subject to inspection by the Remediation Engineer upon arrival at the Site. If trucks are not clean (as determined by the Remediation Engineer), trucks will be rejected. Cleaning of trucks is not permitted at the Site.
- All trucks shall be equipped with working audible and visual backup signals.
- Areas for truck loading outside of the asphalt processing pad must be lined with temporary polyethylene sheeting.
- When waste transport containers are being loaded, and when directed by RG&E, the truck engine shall be shut off. The truck engine may be restarted, and the truck driven away only after the “all clear” direction is provided to the driver by the loading equipment operator or by a Site representative.
- No waste transport container shall be loaded above the sideboards and no waste shall be permitted to spill out of the waste transport container. Before trucks leave the loading areas, the exterior of the waste hauling portion of the vehicle and tires shall be cleaned over the asphalt processing area, or a decontamination pad by the Contractor’s Site workers to remove any residual waste. Decontamination pads, if needed in addition to the asphalt processing area, will consist of sand and crushed stone, an impervious geomembrane liner, non-woven geotextile, and a collection sump and pumping system. Hydraulic high-pressure wash equipment, clean water, and/or cleaning appurtenances such as brooms and industrial detergent will be used to decontaminate vehicles.
- The Contractor’s Site workers shall reposition the cover bars over the waste material. DRIVERS SHALL NOT WALK OVER WASTE MATERIAL.
- Drivers shall cover loads before leaving the loading area with a solid fabric (i.e., vinyl, reinforced polyethylene) that extends over the entire load and is secured to resist wind forces at highway speeds.
- Drivers shall obey all traffic signs and notices, obey the posted speed limit, and comply with weight and height restrictions. All trucks entering and leaving the Site will adhere to the posted speed limit, which shall be no more than 10 miles per hour (mph).
- Drivers shall obey rules posted on the Site and contained in any of the site-specific Health and Safety Plans (HASPs) used at the Site by the Contractor and the Remediation Engineer.
- Drivers shall report any accidents to the RG&E project coordinator and cooperate with any subsequent accident investigation.
- No children under 16 years of age shall be allowed at the Site.

- No passengers are allowed in the Contamination Reduction Zone (i.e., loading area).
- Drivers shall slow down and use extra caution during inclement weather (i.e., rain, fog, snow).
- Drivers shall use extra caution around blind corners (watch for pedestrians and construction equipment).
- Eating and/or drinking is not permitted within the Contamination Reduction Zone but may be permitted in designated areas of the Support Zone. Smoking is prohibited on the RG&E property.
- After disposal of waste, the transporter shall be responsible for properly decontaminating the waste hauling portion of the vehicle.

Additionally, the Contractor will perform the following duties related to soil loading, hauling, and transport:

- All trucks leaving the Site to paved areas of the public right-of-way (i.e., sidewalk or street), whether full or empty, will be visually inspected for loose material. Stabilized construction exits will be used to assist with cleaning of truck tires as the vehicles leave the Site. Any loose material is to be removed and placed into the truck trailer.
- Construct stabilized construction roads and entrances in conformance with Section 31 25 00 – Erosion Control, including installing construction entrances at all access points from temporary roads to permanent pavement. Roadways and entrances must be kept clean and free of accumulation to prevent fugitive dust. Ensure that street sweeping operations use enough water to avoid kicking up dust.
- Sidewalks and public rights-of-way, where trucks will need to cross the sidewalk to enter/exit the Site, will be maintained in a “broom clean” condition at all times by using a skid steer loader (e.g., BobCat) equipped with a power broom or manual tools (e.g., push broom, shovels, etc.).
- During loading of impacted soil, the material must be moist during the transfer, and the transfer shall be into an overhead truck trailer only. Spray dusty materials with water during loading and unloading. The loading material drop into the trailer must not exceed 4 feet.
- Decontaminate trucks leaving the Site. Refer to Section 02 51 00 – Decontamination Procedures for specific decontamination steps for trucks leaving impacted areas and those that traveled only over clean areas of the Site.
- Do not overload haul trucks or exceed manufacturer’s load limits.
- Coordinate the scheduling with offsite transportation/disposal facilities, as well as with waste haulers contracted by RG&E.
- Submit Waste Transporter Permits to the Remediation Engineer before mobilization and maintain current copies of those permits onsite for the duration of the project.
- Inspect the transportation vehicles before and after loading to ensure compliance with all federal, state, and local regulations for the safe transport of wastes from the Site to the receiving facility.
- Clean paved surfaces over which construction vehicles travel. Perform cleaning by mechanical sweeping a minimum of once per day when construction vehicles are traveling over roads (or more frequently as directed by Remediation Engineer). Clean public roads that require sweeping and cleaning due to construction operations. Perform dust control.

3.0 TRAFFIC CONTROL

Access to the Site shall be via the Site entrance located at Suntru Street, Rochester, New York. Suntru Street is a steep and narrow road with a masonry/concrete wall on one side and a steep shoulder, wire mesh fence, and utility poles on the other.

To ensure traffic safety is maintained throughout the course of the work, traffic control best management practices will be strictly enforced. Best management practices may include use of flag men, spotters, gates, automatic signal lights, and other methods to control traffic during Site deliveries and transportation and disposal activities.

The Contractor is responsible for designating onsite haul routes and routes for transportation of wastes to offsite disposal facilities, subject to approval by RG&E. The Contractor is also responsible for conducting onsite traffic control, including control of Site entrances and exits, and management of Site traffic in order to prevent nuisance conditions for the surrounding community.

All trucks transporting waste offsite are to take the most efficient and direct route to the disposal facility as possible and proceed directly from the Site to the designated receiving facility. Temporary staging or storage of material at intermediate locations between the Site and the receiving facility is prohibited.

Ensure that the transporters arriving at the Site for loading do not cause undue congestion to local roads. Stage trucks either within the perimeter of the Site or at an offsite staging area approved by the Remediation Engineer. Transporters shall not be accepted at the Site before 7:00 AM and after 5:00 PM.

The Contractor shall maintain all onsite temporary roads and parking areas necessary for performance of the work. Temporary access roads will be repaired as necessary to ensure unimpeded daily operations. This may include, at a minimum, routine cleaning, grading, and repairs to areas subject to settling resulting from Site-related traffic.

The Contractor shall document the existing and final conditions of any existing roads used during the project, and restore these roads as necessary. This will include taking video of local roads along proposed haul routes prior to the initiation of the work and after completion of the work to document the existing condition of the road prior to being exposed to project traffic. The Contractor shall prevent interference with traffic on existing roads and parking areas and keep access roads and entrances serving the Site clear and available. Parking areas for personal vehicles and construction vehicles and equipment shall be designated by the Contractor, subject to the Remediation Engineer's approval. Access roads or Site entrances may not be used for parking or storage of materials or equipment.

The Contractor shall manage disturbances from trucks and mobile equipment by arranging the Site layout in a manner that avoids the need for truck reversing. Drive-through parking and deliveries with a one-way thoroughfare are potential methods to meet this requirement. Deliveries shall be scheduled to minimize use of driveways and Site entrances.

Noise from trucks is a common issue, especially near residences. Scheduling and management of truck movements is important to reduce issues associated with reverse beepers, engine noise, and general Site activity. Operating hours, delivery times, truck routes, and extra considerations for work during sensitive times should also be included in the Contractor's Nuisance Controls and Management

Plan (Section 01 76 50 – Nuisance Controls). The Contractor shall designate a truck route that minimizes noise impacts and clearly communicate to drivers the requirements for arrival times, vehicle movements, idling reduction, and general conduct, and/or include these requirements as a condition of the subcontract. An area away from residential dwellings shall be selected for offsite truck parking when vehicles arrive before Site opening hours. The Remediation Engineer may require that trucks wait away from the Site in a less sensitive area.

The Contractor shall provide temporary traffic controls at intersections of temporary roads, including intersections with other temporary roads, intersections with public roads, and intersections with permanent access roads at the Site. The Contractor will also provide traffic control signs on roads and drives, warning signs on permanent roads and drives and provide "STOP" signs for traffic on temporary roads where required and at entrances to permanent pavement, and all warning signs and traffic controls for long-term road closure in accordance with City Board and City right-of-way permit requirements. Site traffic control will comply with requirements of authorities having jurisdiction, with Contract Specifications, and Section 619 of the NYSDOT Standard Construction Details and Specifications. Public roads shall be passable at all times unless a road closure is allowed in writing by an authority having jurisdiction. The Contractor shall provide temporary, heavy-duty steel roadway plates as needed to protect existing manholes, handholes, valve boxes, vaults, and other underground facilities near to or visible at the ground surface.

The Contractor shall remove temporary roads, walks, and parking areas and restore to pre-construction conditions, including removal of any associated temporary gates, fencing, and traffic controls, unless otherwise indicated in the Contract Documents or requested by RG&E. The Contractor shall repair or replace paving, curbs, gutters, and sidewalks affected by temporary roads and parking, and restore to required conditions in accordance with authorities having jurisdiction, and restore to pre-construction conditions existing roads, walks, and parking areas damaged by the Contractor.

4.0 REFERENCES

NYSDEC. 2017. 6 NYCRR Part 360: Solid Waste Management. Available at: https://www.dec.ny.gov/regulations/118777.html

NYSDEC. 2022. Record of Decision - RGE- East Station State Superfund Project, Rochester, Monroe County, Site No 828204. June.

OSHA. Part 1910 – Occupational Safety and Health Standards.

OSHA. Part 1926 – Safety and Health Regulations for Construction.

Parsons. TBD. Remedial Design Document for the East Station Former MGP Site, Rochester, New York. Prepared for RG&E. TBD.

APPENDIX F
STORMWATER POLLUTION PREVENTIONS PLAN (SWPPP) (RESERVED)

APPENDIX G
COMMUNITY AIR MONITORING PLAN (CAMP)

COMMUNITY AIR MONITORING PLAN

for the
East Station Former MGP Site
Rochester, New York

Prepared for:

RG&E

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NOVEMBER 2024

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ACRONYMS

Acronym	Definition / Description
CAMP	Community Air Monitoring Plan
DOVCP	Dust, Odor, and Vapor Control Plan
MGP	manufactured gas plant
µg/m^3	micrograms per cubic meter
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PM_{10}	particulate matter less than 10 micrometers in diameter
ppm	parts per million
RD	Remedial Design
RG&E	Rochester Gas & Electric
Site	East Station Site at Suntru Street, Rochester, Monroe County, New York
TVOCs	total volatile organic compounds
TWA	time-weighted average
VOC	volatile organic compound

1.0 INTRODUCTION AND BACKGROUND

1.1 Overview

This Community Air Monitoring Plan (CAMP) has been adapted from the New York State Department of Health (NYSDOH) generic CAMP found in DER 10 (NYSDEC 2010) to support the implementation of remedial activities associated with the Remedy of the Rochester Gas and Electric (RG&E) East Station Former Manufactured Gas Plant (MGP) Site (the Site). The Site is one of three sites included in a New York State Department of Environmental Conservation (NYSDEC) Multi-Site Order on Consent that became effective June 26, 2018 (Index No, CO-8-20180517-48, Site No. 828204). NYSDEC issued a Record of Decision for the Site in June 2022 (NYSDEC 2022) and a Draft Explanation of Significant Difference for the Site.

This CAMP describes the monitoring activities that will be performed during completion of the remedial activities described in the 100% Remedial Design Document (RD, Parsons TBD) and was developed in accordance with NYSDEC's DER 10 guidance (NYSDEC 2010).

A CAMP requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses, and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

Specific activities related to monitoring for particulate monitoring are described in Section 2 of this CAMP. Requirements for VOCs are presented in Section 3. Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas. Additional details on measures for minimizing the production and distribution of dust, vapors, and odors are located in Dust, Odor, and Vapor Control Plan (Appendix H). Additional details on specific requirements of the CAMP are located in Appendix B Section 01 35 49 – Community Air Monitoring Plan.

1.2 Community Air Monitoring Plan

The Remediation Engineer will conduct air monitoring on a continuous basis during all dust-generating and/or intrusive work.

"Dust-generating work" means any work with the potential to generate dust. Examples of dust-generating work include, but are not limited to, the following:

- Handling removed material and fill material
- Intrusive work

"Intrusive work" means any work performed below the existing level of the ground or sediment surface, or that involves the disturbance of existing earth, regardless of quantity. Examples of ground-intrusive work include, but are not limited to, the following:

- Clearing/grubbing
- Installation of erosion and sediment controls and other Site preparation activities
- Construction and maintenance of on-site haul roads
- Installation of river diversion barrier system
- Demolition activities
- Excavation and backfilling
- Grading and restoration
- *In situ* stabilization/solidification (ISS) construction

Community air monitoring will include real-time monitoring for total volatile organic compounds (TVOCs) and particulate matter less than 10 micrometers in diameter (PM_{10}), and periodic monitoring for MGP-related odors. Each air monitoring station and meteorological station will be equipped with a telemetry package to allow for real-time management of community air monitoring data by office-based personnel. The Remediation Engineer will employ a qualified air monitoring technician to perform the monitoring work, who will have a minimum of three years direct construction safety or environmental monitoring experience and who will be present at the Site at all times that dust-generating or intrusive work is being performed and dedicated solely to the implementation of the CAMP. Responsibilities of the CAMP technician are further detailed in Section 01 35 49 – Community Air Monitoring Plan (Appendix B). The Remediation Engineer will also be responsible for submitting Daily Air Monitoring Reports (including daily odor monitoring logs), Exceedance Reports, and community air monitoring and weather data, in accordance with Section 01 35 49.

Air monitoring stations will be deployed at the start of each workday before any ground-intrusive or dust-generating work is initiated. At a minimum, one air monitoring station will be positioned at the upwind perimeter of the Site and three air monitoring stations will be positioned at the downwind perimeter of the Site (four air monitoring stations total). Upwind and downwind air monitoring stations will be determined based on predominant wind direction, and the nature and location of work to be performed on a given day. As needed or required by the Remediation Engineer, additional station(s) will be positioned in the immediate vicinity of excavation/work areas to perform localized air monitoring. Wind direction will be monitored through the day, and locations of air monitoring stations will be adjusted if the wind direction shifts more than 60 degrees from the original upwind direction. Additional detail on the composition, movement, protection, and removal of air monitoring and meteorological monitoring stations is located in Section 01 35 49.

The Remediation Engineer will calibrate air monitoring equipment on a daily basis, or other frequency recommended by the manufacturer. All instrument readings, field reference checks, and calibrations will be documented in a dedicated log. During the workday, the Remediation Engineer will perform periodic field checks of monitoring equipment to verify proper function. The date, day, time, and outcome of each field check will be documented in a dedicated log.

Daily reports and exceedance reports will be submitted in an electronic format to the Owner, NYSDEC, and NYSDOH representatives listed in Table 1.

Table 1: CAMP Contact List

Name	Affiliation	Contact Information
Greta Kowalski	NYSDEC	T: (518) 402-2029 greta.kowalski@dec.ny.gov
Anthony Perretta	NYSDOH	T: (518) 402-7880 beei@health.ny.gov
Jeremy Wolf	RG&E (Owner)	T: (585) 450-7957 jeremy_wolf@avangrid.com

2.0 PARTICULATE MONITORING RESPONSE LEVELS AND ACTIONS

Monitoring for particulate matter will be conducted using real-time monitoring equipment capable of measuring PM_{10}. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities. The equipment will be capable of calculating 15-minute TWA concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of PM_{10} at one or more downwind air monitoring station(s) exceeds 100 micrograms per cubic meter ($\mu g/m^3$) above background (upwind) for the 15-minute average, or if visible dust is observed leaving the work area, this will serve as an early warning "alert level." If the alert level is exceeded, the CAMP technician will notify the Contractor, who will identify potential sources of the exceedance, employ additional dust controls while continuing work, and if necessary and appropriate, evaluate and modify construction techniques.
2. If the ambient air concentration of PM_{10} at one or more downwind air monitoring station(s) exceeds 150 $\mu g/m^3$ above background (upwind) for the 15-minute average, this shall serve as an "action level", and work activities must be temporarily halted and monitoring continued. If the PM_{10} level readily decreases (per instantaneous readings) below 150 $\mu g/m^3$ over background, work activities can resume with continued monitoring. If PM_{10} levels at the downwind perimeter of the work area persist at levels in excess of 150 $\mu g/m^3$ over background, work activities must be halted, the Owner and NYSDEC project manager must be notified, the source of dust identified, corrective actions taken to abate emissions, including modifying construction techniques if necessary and appropriate, and monitoring continued. After these steps, work activities can resume provided that PM_{10} levels have fallen below the action level.
3. All 15-minute readings must be recorded and be available for State (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

3.0 VOC MONITORING RESPONSE LEVELS AND ACTIONS

Monitoring for TVOCs will be conducted using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. The equipment will be capable of calculating 15-minute TWA concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of TVOCs at one or more downwind air monitoring station(s) exceeds 2.5 parts per million (ppm) above background (upwind) for the 15-minute average, this will serve as an early warning "alert level." If the alert level is exceeded, the CAMP technician will notify the Contractor, who will identify potential sources of the exceedance, employ additional vapor controls while continuing work, and if necessary and appropriate, evaluate and modify construction techniques.
2. If the ambient air concentration of TVOCs at one or more downwind air monitoring station(s) exceeds 5 ppm above background (upwind) for the 15-minute average, this shall serve as an "action level," and work activities must be temporarily halted and monitoring continued. If the TVOCs level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring. If TVOCs levels at the downwind perimeter of the work area persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the Owner and NYSDEC project manager must be notified, the source of vapors identified, corrective actions taken to abate emissions, including modifying construction techniques if necessary and appropriate, and monitoring continued. After these steps, work activities can resume provided that TVOCs levels have fallen below the action level.
3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shut down, and work shall not resume until authorized by the Owner. All of the above steps detailed for an exceedance of 5 ppm must be taken.
4. All 15-minute readings must be recorded and be available for State (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

4.0 REFERENCES

NYSDEC. 2010. DER-10 Technical Guidance for Site Investigation and Remediation. May 3.

NYSDEC. 2022. Record of Decision - RGE- East Station Stare Superfund Project, Rochester, Monroe County, Site No 828204. June.

NYSDEC. 2024. Explanation of Significant Difference – RG&E East Station MGP, Rochester, Monroe County, Site No 828204. October.

Parsons. TBD. 100% Remedial Design Document for the East Station Former MGP Site, Rochester, New York. Prepared for RG&E. TBD.

APPENDIX H
DUST, ODOR, AND VAPOR CONTROL PLAN

DUST, ODOR, AND VAPOR CONTROL PLAN

for the
East Station Former MGP Site
Rochester, New York

Prepared for:

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ACRONYMS

Acronym	Definition / Description
CAMP	Community Air Monitoring Plan
City	City of Rochester
ISS	*in situ* stabilization/solidification
MGP	manufactured gas plant
mph	miles per hour
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NAVD	North American Vertical Datum
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbons
Plan	Dust, Odor and Vapor Control Plan
RD	Remedial Design
RG&E	Rochester Gas & Electric
ROW	right-of-way
Site	East Station Site at Suntru Street, Rochester, Monroe County, New York
SVOC	semi-volatile organic compound
VOC	volatile organic compound

1.0 INTRODUCTION AND BACKGROUND

This Dust, Odor, and Vapor Control Plan (Plan) has been prepared to support the implementation of remedial activities associated with the Remedy of the Rochester Gas and Electric (RG&E) East Station Site (the Site). The Site is one of three sites included in a New York State Department of Environmental Conservation (NYSDEC) Multi-Site Order on Consent that became effective June 26, 2018 (Index No, CO-8-20180517-48, Site No. 828204). NYSDEC issued a Record of Decision for the Site in June 2022 (NYSDEC 2022) and a Draft Explanation of Significant Difference for the Site.

This Plan describes the dust, odor, and vapor control activities that will be performed during completion of the remedial activities described in the Remedial Design (RD, Parsons TBD) and was developed in accordance with NYSDEC's DER-10 guidance (NYSDEC 2010).

Specific activities to be performed for dust control are described in Section 2 of this Plan. Requirements for odor and vapor control are presented in Section 3. Additional details on specific requirements of the Community Air Monitoring Plan (CAMP) are located in Section 01 35 49 – Community Air Monitoring Plan (Appendix B) and CAMP (Appendix G).

1.1 Site-Specific Conditions

The Site is central to the City of Rochester (City), New York, which is a dense urban environment. The Genesee River runs south to north through the central portion of the City. The City considers the Genesee River a "great water-way" and a "world-class attraction that enhances the quality of life for residents and visitors, preserves and protects the environment, encourages economic investment and is integrated into the fabric of our community" (City of Rochester 1990). The Site is bounded to the south by the Bausch Memorial Bridge which provides views of the Site in its entirety. Several commercial businesses exist in the vicinity of the Site, particularly along the northern border, and have direct visibility to the Site.

All dust, odor, and vapor controls must consider the Site's dense urban environment setting and the Site's high visibility from multiple locations. All dust, odor, and vapor controls will be strictly enforced.

1.2 Applicable Standards and Specifications

All dust, odor, and vapor control activities will be conducted in accordance with all local, state, and federal rules, laws, and regulations, as well as the Contract Drawings and Specifications. Some applicable regulations, plans, and specifications are listed below:

- Occupational Safety and Health Administration (OSHA) regulations, including Title 29 CFR Parts 1910 and 1926, and 29 CFR Part 1910.120 "Hazardous Waste Operations and Emergency Response," OSHA, U.S. Department of Labor.
- DER-10 / Technical Guidance for Site Investigation and Remediation, NYSDEC Program Policy, Office of Remediation and Materials Management.
- Applicable guidelines of the New York State Department of Health (NYSDOH).
- Applicable federal, state, and local government regulations.
- Section 01 35 49 – Community Air Monitoring Plan (CAMP)

- Section 01 51 05 – Temporary Utilities and Controls
- Section 01 76 50 – Nuisance Controls, Management and Corrective Measures

Whenever there is a conflict or overlap of regulatory criteria, the most stringent provision will apply. The point of compliance for fugitive dust, odors, and vapors is the limit of the Site. At the point of compliance, no visible dust or noticeable manufactured gas plant (MGP)-related odors are allowed. Nuisance conditions which represent a potential health and safety concern and/or migration of contaminated materials (e.g., visible dust or air monitoring exceedances) will result in an immediate corrective action. Following a work stoppage, appropriate corrective measures as determined by the Remediation Engineer will be implemented prior to work resuming. A written corrective measures plan will be required for chronic or repeated incidents of nuisance issues, if requested by the Remediation Engineer.

1.3 Responsibilities

The Contractor will be responsible for the following:

- Providing all labor, materials, equipment, services, and incidentals necessary to implement any required response actions to air monitoring exceedances.
- Providing unpaved roads, detours, or haul roads with water treatment to minimize dust.
- Submitting a Nuisance Controls and Management Plan which details nuisance monitoring, complaint resolution, and response/mitigation actions.
- Developing a one-page summary of general practices for nuisance management to clearly display at the Site.
- Integrating nuisance management issues into tail-gate meetings.
- Submitting manufacturer's product data, specifications, and installation instructions for odor/vapor mitigation agents and proposed application and storage equipment for each.
- Maintaining a readily accessible contact point for managing public complaints, notifying Remediation Engineer and RG&E about any complaints, implementing all feasible and reasonable measures to address the issue, and documenting complaints.
- Periodically checking the Site and local area for nuisance problems and actively managing nuisance issues before and as they arise.
- Implementing a dust control training program for all Site personnel in accordance with the CAMP.
- Conducting operations and maintaining the Site so as to minimize the creation and dispersion of visible dust.
- Furnishing and applying vapor mitigation agents and odor suppressant foams and appropriate equipment for controlling air emissions and odors.

The Remediation Engineer will be responsible for the following:

- Performing air monitoring during all ground-intrusive and/or dust-generating remedial work, including providing all labor, materials, equipment, services, and incidentals. This will include installation and maintenance of the monitoring system, performing routine inspections of air monitoring equipment and perimeter checks of the work area to monitor for MGP-related odors, and managing a database of air monitoring and meteorological data.

- Completion of daily air monitoring reports, action level exceedance reports, and daily odor monitoring logs, to be distributed to RG&E, the Contractor, NYSDEC, NYSDOH, and others as appropriate.
- Responding to any complaints from the public related to dust, odors, or other nuisance conditions.
- The Remediation Engineer's CAMP technician will be responsible for notifying RG&E and the Contractor of alert- or action-level exceedances at downwind monitoring locations, or if MGP-related odors are noted at the perimeter of the work area, including any odor complaints from the public.

RG&E will be responsible for the following:

- Determining when work may be resumed after a stop work event.

2.0 DUST CONTROL

"Dust-generating work" means any work with the potential to generate dust. Examples of dust-generating work include, but are not limited to, the following:

- Handling removed material and fill material
- Intrusive work

"Intrusive work" means any work performed below the existing level of the ground or sediment surface, or that involves the disturbance of existing earth, regardless of quantity. Examples of ground-intrusive work include, but are not limited to, the following:

- Clearing/grubbing
- Installation of erosion and sediment controls and other Site preparation activities
- Construction and maintenance of on-site haul roads
- Installation of river diversion barrier system
- Demolition activities
- Excavation and backfilling
- *In situ* stabilization/solidification (ISS) construction
- Grading and restoration

Control of dust will be a high priority during remediation activities. Proactive controls will be instituted to reduce the amount of dust generation during Site activities, including enforcement of low speed limits for vehicular traffic, decontamination of trucks leaving the remediation work areas and height limits for stockpiles. Dust suppression measures will also be preemptively employed where activities are likely to generate dust.

The Contractor will conduct operations and maintain the Site so as to minimize the creation and dispersion of visible dust. Clean, potable water, provided by the Contractor, will be applied to the Site as necessary to prevent dust during excavation, loading/unloading, and backfilling activities. Excavation areas and on-site roadways will be kept damp, as necessary, without creating ponding or mists that travel beyond the defined boundaries of the work. Water will be applied in a manner to prevent runoff. The watering operations will be sufficient to control fugitive dust. Tanker trucks will be utilized to provide and apply clean water as needed.

Bulk material piles that are left on the Site overnight will be tarped as necessary to limit wind-blown dust. All trucks being utilized for transport and disposal of excavated material at the Site are required to be fitted with solid, sliding, or slot-top type covers with no gaps when fully deployed. Trucks will be covered immediately after loading and are to remain covered throughout the transportation and disposal of excavated material. The cover must not contact the excavated material and must be installed in such a way to prevent wind from entering over the leading edge of the trailer rim. During loading of impacted soil, the material must be moist (dust-generating wastes will be sprayed with water as they are loaded), and the transfer will be into an overhead truck trailer only. The material drop into the trailer must not exceed 4 feet. All trucks entering and leaving the Site will adhere to the posted speed limit, which will be no more than 10 miles per hour (mph). All trucks leaving unpaved areas to paved areas of the public right-of-way (ROW) (i.e., sidewalk or street), whether full or empty, will be

visually inspected for loose material. Stabilized construction exits will be used to assist with cleaning of truck tires as the vehicles leave unpaved areas. Any loose material is to be removed and placed into the truck trailer.

Roadways and entrances must be kept clean and free of accumulation to prevent fugitive dust. Sidewalks, rights of way and public roadways, where trucks will need to cross the sidewalk to enter/exit the Site, will be maintained in a "broom clean" condition at all times by using a skid steer loader (e.g., BobCat) equipped with a power broom or manual tools (e.g., push broom, shovels, etc.). Street sweeping operations will use water to avoid generating dust.

Dust control measures specific to the ISS work will be implemented, including careful transfer of Portland cement from delivery trucks to onsite silos, and an alarm installed on Portland cement storage silos to indicate dust migration from the silos. Care must be taken with Portland cement application and mixing with on-site soil.

The Contractor will implement a dust control training program for all Site personnel. This training program will review the potential sources of dust, individual responsibilities, and actions for controlling dust as described in this plan. The training will emphasize the importance of dust control to the overall success of the remedial activities and familiarize Site personnel with the air monitoring requirements and appropriate dust control procedures that must be adhered to in accordance with this plan to minimize dust generation.

3.0 ODOR AND VAPOR CONTROL

The residuals encountered at MGP sites typically contain volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and inorganic constituents. Coal tar or petroleum products present at former MGP sites can produce odor emissions and cause VOCs and semi volatile organic compounds (SVOCs) to volatize into the air during excavation. MGP-related odors may resemble mothballs, roofing tar, or asphalt driveway sealer. Efforts will be taken during remedial construction to minimize odor and vapor generation. The CAMP (Appendix G) includes continual monitoring during field work for VOCs as well as particulates, in order to monitor for any potential releases of constituents that may exceed exposure limits for Site workers and downwind receptors. The CAMP technician will record observations of odors generated during remedial construction in their daily monitoring reports. Odors will be recorded as weak, moderate, or strong, based on olfactory responses. When odors attributable to MGP material are noted in the work area, observations will also be made at the downwind perimeter of the Site, in order to assess the potential for significant odors reaching on site receptors or being transmitted off site. This downwind perimeter monitoring will be performed in conjunction with the VOC and particulate monitoring program described in the CAMP.

The Contractor will furnish vapor mitigation agents and odor suppressant foams described below and appropriate equipment for controlling air emissions and odors associated with excavated soil and sediment, potentially including a pneumatic foam unit, portable tanks, hoses, and other equipment required for the storage and application of odor and vapor mitigation agents and water. The Contractor may propose alternate vapor mitigation and foam products, subject to approval by the Remediation Engineer. At a minimum, foam will be available for daily application for the duration of excavation and waste material handling activities. The Contractor will dispense foam according to the manufacturer's recommended instructions. Foam may not be dispensed onto or into open water. Application of vapor mitigation agents and odor suppressant foams will be performed as follows:

- BioSolve Pinkwater:
  - Prepare a solution of BioSolve Pinkwater concentrate and water in accordance with manufacturer's instructions.
  - Apply when actively handling excavated materials and as required by RG&E, NYSDEC's on-site representative, or the Remediation Engineer.
- RusFoam® OC (AC-645):
  - Prepare a solution of RusFoam OC (AC-645) concentrate and water in accordance with manufacturer's instructions. Apply to uniformly cover excavated materials with minimum three inches of foam.
  - Apply before each work break, at the end of each workday, and as required by RG&E, NYSDEC's on-site representative, or the Remediation Engineer.

Additional operating procedures that can help reduce odors will be employed, potentially including:

- "First-in, first-out" waste handling practices that keep waste on Site only for short periods of time.
- Removing all waste from loading areas by the end of each operating day so that these surfaces can be swept clean and washed down as needed.

- "Good housekeeping" measures, including regular cleaning and disinfecting of surfaces if appropriate and of equipment that comes into contact with waste.
- Hauling materials in properly tarped or watertight containers to prevent odor.
- Limiting haul trucks to five minutes idle time.
- Quickly completing excavated soil loading for transport to the soil staging area.
- Limiting the amount of exposed areas or amount of time materials are exposed to the open atmosphere.
- Limiting Site activities to when specific meteorological conditions prevail, if necessary.
- Turning off equipment that is not in active use.
- Limiting the amount of equipment used at one time while on Site.
- Covering stockpiles and material after activity ceases with poly sheeting & securing with sandbags (or equivalent).
- Setting up Site drainage and preventing standing water.
- Performing Housekeeping; daily cleaning up (free of trash, garbage, and debris) and properly disposing of any odorous material.

The Remediation Engineer's CAMP technician will perform periodic checks around the perimeter of the work area for MGP-related odors. The Contractor will also be encouraged to perform periodic checks for MGP-related odors as part of the Contractor's responsibility of actively managing nuisance issues before and as they arise. If the Remediation Engineer's CAMP technician notices MGP-related odors at the perimeter of the work area, the Remediation Engineer will notify Contractor personnel, and the Contractor will identify the source or cause of the odors. The Contractor will continue work and employ additional odor and vapor controls to mitigate the issue. If necessary and appropriate, the Contractor will modify construction techniques. The CAMP technician will perform more frequent perimeter checks, and if MGP-related odors persist at the perimeter of the work area, the Contractor will stop work until the source of odors can be identified, controlled, and/or mitigated. Work will not resume until authorized by RG&E.

In the event that odor complaints from the public are received, RG&E will immediately be notified. If the Remediation Engineer verifies the legitimacy of the complaint based on the work being performed at the Site, the predominant wind direction, and other climatological factors, the Remediation Engineer will continue monitoring and the Contractor will stop work until corrective measures are implemented to the satisfaction of the Remediation Engineer. If necessary and appropriate, the Contractor will modify construction techniques. The Remediation Engineer will document the time and outcome of any odor complaints in the daily odor monitoring log, and either the Remediation Engineer or RG&E will coordinate with NYSDEC if the odor complaint cannot be resolved.

If the Contractor's means, methods, and facilities are unsuccessful in controlling MGP-related odors and vapors, based on observations or the results of community air monitoring, work will be suspended until appropriate corrective actions are taken by the Contractor to remedy the situation to the Remediation Engineer's satisfaction. RG&E will not be liable for any expense or delay resulting from the Contractor's failure to control MGP-related odors and vapors.

4.0 REFERENCES

City of Rochester. 1990. Local Waterfront Revitalization Program, Amended 2017.

NYSDEC. 2010. DER-10 Technical Guidance for Site Investigation and Remediation. May 3.

NYSDEC. 2022. Record of Decision - RGE- East Station State Superfund Project, Rochester, Monroe County, Site No 828204. June.

Parsons. TBD. Remedial Design Document for the East Station Former MGP Site, Rochester, New York. Prepared for RG&E. TBD.

APPENDIX I
RIVER TURBIDITY MONITORING AND SHEEN RESPONSE PLAN

RIVER TURBIDITY AND SHEEN MONITORING AND RESPONSE PLAN

for the
East Station Former MGP Site
Rochester, New York

Prepared for:

RG&E

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ACRONYMS

Acronym	Definition / Description
BMP	best management practice
cfs	cubic feet per second
fps	feet per second
MGP	manufactured gas plant
NAVD	North American Vertical Datum
NTU	nephelometric turbidity unit(s)
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
RD	Remedial Design
RECP	rolled erosion control product
RG&E	Rochester Gas and Electric
River	Genesee River
Site	East Station Site at Suntru Street, Rochester, Monroe County, New York
SWPPP	Stormwater Pollution Prevention Plan
USGS	United States Geological Survey

1.0 INTRODUCTION AND BACKGROUND

This River Turbidity and Sheen Monitoring and Response Plan has been prepared to support the implementation of remedial activities associated with the Rochester Gas and Electric (RG&E) East Station Site (the Site). The Site is one of three sites included in a New York State Department of Environmental Conservation (NYSDEC) Multi-Site Order on Consent that became effective June 26, 2018 (Index No, C0-8-20180517-48, Site No. 828204). NYSDEC issued a Record of Decision for the Site in June 2022 (NYSDEC 2022) and a Draft Explanation of Significant Difference for the Site.

This Plan describes the turbidity and sheen control, monitoring, and response activities that will be performed during completion of the remedial activities described in the Remedial Design Document (RD, Parsons TBD) and was developed in accordance with NYSDEC's DER Technical Guidance for Site Investigation and Remediation (DER-10). Specific activities to be performed for preventing generation and offsite movement of turbidity and sheens are discussed in Section 2, and water quality monitoring and response actions for the presence of sheens or turbidity are discussed in Section 3.

The Genesee River (River) flows north through the City of Rochester into Lake Ontario. The flow and water surface elevation of the River in the Site vicinity are partially controlled by a series of dams and waterfalls. The Site is located approximately 0.5 miles downstream from the Genesee River High Falls. Data recorded at the U.S. Geological Survey (USGS) Ford Street Gage (Station Number 04232000) located approximately two miles upstream of the Site indicates that there is significant variability in the daily and seasonal flowrate of the River. Additional details on the River flowrate and velocity can be found in Appendix L – HEC-RAS Modeling Memorandum of the RD and Section 35 80 00 – Turbidity Barriers and Monitoring, as well as in the main text of the RD.

1.1 Applicable Standards and Specifications

All turbidity and sheen control, monitoring, and response activities shall be conducted in accordance with all local, state, and federal rules, laws, and regulations, as well as the Design Drawings and Specifications. Select applicable regulations, plans, and specifications are listed below:

- Occupational Safety and Health Administration (OSHA) regulations, including Title 29 CFR Parts 1910 and 1926, and 29 CFR Part 1910.120 "Hazardous Waste Operations and Emergency Response," OSHA, U.S. Department of Labor
- DER-10 / Technical Guidance for Site Investigation and Remediation, NYSDEC Program Policy, Office of Remediation and Materials Management
- Applicable guidelines of the New York State Department of Health (NYSDOH)
- Applicable federal, state, and local government regulations
- Site Stormwater Pollution Prevention Plan (SWPPP)
- Section 01 51 05 – Temporary Utilities and Controls
- Section 01 76 50 – Nuisance Controls, Management and Corrective Measures
- Section 02 51 00 – Decontamination Procedures
- Section 31 23 16 – Excavation
- Section 35 80 00 – Turbidity Barriers and Monitoring

Whenever there is a conflict or overlap of regulatory criteria, the most stringent provision shall apply. The point of compliance for turbidity and sheens is the downstream turbidity monitoring location downstream of the active work area at the railroad bridge foundation pier located near the River centerline at the northern end of the B+L property. At this point of compliance, there may be no Site work-related sheens or exceedances of allowable turbidity levels above background values. Presence of Site work-related sheens or turbidity action level exceedances will result in an immediate corrective action. Following a work stoppage, appropriate corrective measures as determined by the Remediation Engineer will be implemented prior to work resuming. A written corrective measures plan will be required for chronic or repeated incidents of these issues, as requested by the Remediation Engineer.

1.2 Responsibilities

The Contractor will be responsible for the following:

- Selecting and designing turbidity controls and diversion barriers meeting the minimum requirements of Section 35 80 00 – Turbidity Barriers and Monitoring.
- Providing all labor, materials, equipment, services, and incidentals necessary to control and implement any required response actions to sheens or turbidity exceedances.
- Providing all labor, materials, equipment, services, and incidentals necessary to perform turbidity monitoring.
- Submitting a Turbidity Barrier and Monitoring Plan including proposed barrier composition and methods for constructing, maintaining, and removing turbidity barriers.
- Submitting manufacturer's product data and specifications for materials and equipment to be used in the turbidity controls and diversion barriers.
- Submitting daily turbidity monitoring reports to the Remediation Engineer, RG&E, NYSDEC, and others, as appropriate.
- Periodically checking the Site and local area for sheens or visual turbidity emanating from the Site and actively managing any sheens or visual turbidity before and as they arise.
- Conducting operations and maintaining the Site so as to minimize the generation of turbidity and sheens.
- Conducting all work in accordance with the water quality requirements outlined in applicable federal, state, and local permits.
- Conducting water quality monitoring in accordance with applicable federal, state, and local permits. Communicating the results of this monitoring to RG&E during Site meetings and when issues arise.

The Remediation Engineer will be responsible for the following:

- Communicating any observations of sheens or visual turbidity emanating from the Site with the Contractor.

RG&E will be responsible for the following:

- Determining when work may be resumed after a stop work event.

2.0 TURBIDITY AND SHEEN CONTROL AND PREVENTION

The Contractor is responsible for providing all supervision, labor, tools, materials, equipment, services, and appurtenances necessary for the installation, deployment, inspection, movement, and maintenance of turbidity controls and diversion barriers for the duration of the work to the satisfaction of the Remediation Engineer. Work that may result in the generation of turbidity or sheens will not be allowed to occur until the turbidity controls and diversion barriers are in place and have been inspected to ensure the controls and barriers are in working order. All work will be conducted in accordance with the water quality requirements outlined in applicable federal, state, and local permits. If the water quality criteria are not being met, work will be stopped and work methods, procedures, or the operation of the turbidity controls and diversion barriers will be modified. Any modifications required to meet water quality criteria will be performed by the Contractor at no additional cost to RG&E.

Parsons recommends performing sediment removals in the wet at the Site, and during the design process it was generally assumed that this will be the selected method. However, the Contractor will have the option of performing sediment removals in the wet or in the dry, with approvals in writing from the Design Engineer and Remediation Engineer. If sediment removal is performed in the wet, the Contractor will be responsible for designing a River diversion/turbidity barrier system that is sealed by a professional engineer licensed in New York State. The Contractor is responsible for the selection and design of turbidity controls meeting the minimum requirements and performance criteria detailed in this River Turbidity Monitoring and Sheen Response Plan and the Design Drawings and Specifications. The turbidity controls/diversion barrier system must provide a safe work area that prevents the migration of suspended solids and sheen into the River during remedial construction. Turbidity barriers may be incorporated as a component of river flow diversions, if proposed by the Contractor and approved in writing by the Design Engineer and Remediation Engineer.

A turbidity control/diversion barrier detail is provided in Design Drawings (Appendix A) which includes a turbidity curtain and oil absorbent boom with concrete block anchoring placed on top of a medium stone in-water causeway. With approval from the Design Engineer and Remediation Engineer, the Contractor may substitute material components of the turbidity controls and diversion barrier with other materials that will serve to prevent the migration of suspended solids from the removal area to the River. The layout and anchoring of the turbidity control/diversion barrier will be designed to fully enclose the work area, and the layout of the barrier may require adjustments as work progresses. The turbidity control/diversion barrier system will be required to have a top alignment elevation of 393 feet North American Vertical Datum 1988 (NAVD 88). The top alignment elevations are designed to prevent overtopping during flow events of up to 17,500 cubic feet per second (cfs). The Contractor will maintain communication with the RG&E hydro group and will monitor weather conditions to proactively stabilize/protect contaminated materials when overtopping flows are expected. The turbidity control/diversion barrier system must be capable of withstanding typical flow rates of the River at the Site, up to the 2-year return interval storm (i.e., 17,500 cfs and 13.5 feet per second [fps]).

In order to proactively stabilize and protect contaminated materials when overtopping flows are expected, the disturbance of excavated material will be minimized during all stages of the project. Underwater disturbance will be maintained as under 25% of the removal area or under 5,000 square feet, whichever is less. Shoreline soil disturbance between the elevation of the diversion barrier (elevation 393 feet NAVD 88) and the 100-year flood plain (elevation ranges from 393 – 397 feet NAVD 88) will not exceed the area that can be covered by 100% biodegradable rolled erosion control product (RECP) during one 8-hour shift. In the event of advance notice in which high water or flood conditions may overtop the turbidity control/diversion barrier system, the Contractor will prepare the exposed excavation area by covering underwater disturbance areas of fine sediment with minimum 6-inch diameter armor stone, and by covering shoreline soil between the elevation of the turbidity control/diversion barrier system and the 100-year flood plain with 100% biodegradable RECP and staking in accordance with manufacturer's specifications.

During dredging, the active dredge area is not to exceed 5,000 square feet. The dredge area will be fully encircled with oil absorbent boom only. Turbidity curtains and oil absorbent boom will be installed and inspected by the Contractor at the start and end of each workday, with additional inspections as field conditions dictate (i.e., after weather events, during potential for loss of contamination from the remediation area), or as directed by the Remediation Engineer. If sheen is identified outside of the dredge area the Contractor will deploy additional oil absorbent booms and may implement contingency measures such as use of a moon pool turbidity system. A moon pool turbidity system may be utilized as a contingency measure to control turbidity and sheen. Generally, moon pool curtains are hung from marine platforms configured into a containment cell that completely encloses a dredge site, capturing all of the contaminants/sediments within. The moon pool curtains are affixed to a platform and can be adjusted to adhere to the bottom during the dredge operation. The Contractor will determine means and methods of moon pool configuration as field conditions dictate.

The Contractor will submit a Turbidity Controls and Monitoring Plan including proposed manufacturer's material and equipment specification sheets detailing the materials to be used for the turbidity controls/diversion barriers and for monitoring equipment, a proposed plan for layout, installation, maintenance, and removal/movement of the turbidity controls/diversion barriers, proposed plan for performing and documenting daily inspections of the turbidity controls/diversion barriers, proposed contingency measures in the event that the turbidity control/diversion barrier is not adequate to meet water quality requirements, and a proposed storm management plan.

The Contractor will be required to install all turbidity controls/diversion barriers in a manner that minimizes disturbance of the sediments and turbidity generation. Such minimization includes limiting productivity to avoid soil and/or sediment discharge. River flow and field conditions will dictate diversion barrier installation means and methods. Turbidity curtains and oil absorbent booms will be installed on/anchored to the remediation side of the concrete blocks. The turbidity curtain will be of sufficient length to reach the riverbed and oil absorbent booms will be overlapped at connection points. Oil absorbent booms will also be secured to the work side of turbidity controls/diversion barriers to address sheens during dredging and restoration work. Additional oil absorbent booms shall be on hand for immediate deployment if sheens are observed. All turbidity controls/diversion barriers must be maintained in working order, and inspected in accordance with the schedule discussed above, including repair of any ineffectively functioning sections. The inspection(s) will be documented in the Contractor's Daily Inspection Report. The Contractor will conduct additional inspections at their

discretion and/or at the request of the Remediation Engineer following storm periods, noticeable turbidity increases outside the system, unexpected barrier position/behavior, contact of the barrier by equipment or debris, or other abnormal events.

The Contractor will periodically check the Site and local area for nuisance problems and actively manage nuisance issues before and as they arise. Contractor staff (i.e., machine operator, labor, management staff) will be directed to notify Contractor supervision and the Remediation Engineer if a sheen has been identified outside of the turbidity controls/diversion barriers and oil boom will immediately be deployed to contain the sheen. Spill kits with additional boom will be maintained on the shore adjacent to the remedial work areas to enable immediate deployment in the event of an observed sheen beyond the limits of in-place turbidity controls. If an abnormal turbidity plume emanating from the deployed turbidity control/diversion barrier is observed, work will be temporary halted at no additional cost to RG&E until the Contractor can inspect and address any issues with the turbidity control/diversion barrier. The Contractor will take immediate action to mitigate turbidity/sheen generation, potentially including measures such as slowing the rate of material placement, inspection and repair of the turbidity control/diversion barrier, deployment of an additional row of turbidity control, or other mitigation measures, including weir oil-skimmers or other devices deemed appropriate for the project.

The Contractor will ensure that all sheens are removed and that the turbidity within the barrier area has reached an acceptable level such that downstream water quality criteria will not be exceeded during the removal process prior to removing the turbidity controls/diversion barriers. Extreme care will be exercised in removing turbidity controls/diversion barriers to avoid increasing turbidity. Turbidity controls/diversion barriers will not be removed until the water behind the barrier has equal or greater clarity than the waterbody. Pre-cast concrete blocks and access berms will be removed to avoid channelization of impounded water to the extent practicable. Blocks will be removed generally from downstream to upstream direction and will be completed during low water conditions. The turbidity control/diversion barrier will be properly decontaminated and/or disposed of, in accordance with Section 02 61 15 – Handling and Disposal of Impacted Materials and Section 02 51 00 – Decontamination Procedures.

A moon pool turbidity system may be utilized as a contingency measure to control turbidity and sheen. Generally, moon pool curtains are hung from marine platforms configured into a containment cell that completely encloses a dredge site, capturing all of the contaminants/sediments within. The moon pool curtains are affixed to a platform and can be adjusted to adhere to the bottom during the dredge operation.

3.0 MONITORING AND RESPONSE ACTIONS

The Contractor will conduct real-time turbidity monitoring during excavation and restoration activities at the Site. Water quality monitoring will be conducted in accordance with applicable federal, state, and local permits. The Contractor will communicate the results of this monitoring to RG&E during Site meetings and when issues arise.

A three-tiered approach (i.e., alert, action, and stop work levels) will be used for turbidity monitoring. The upstream monitoring location will represent the background turbidity level and will be compared to measurements at the downstream turbidity monitoring location to assess if there is a quantitative exceedance in water turbidity. Calculated one-hour averages will be used to compare turbidity levels at both locations. Turbidity alert, action, and stop-work levels are as follows:

- Alert Level: 25-30 Nephelometric Turbidity Unit (NTU) quantitative differential of one-hour averages above background at the downstream monitoring location.
- Action Level: 30-100 NTU quantitative differential of one-hour averages above background at the downstream monitoring location.
- Stop Work Level: Greater than 100 NTU quantitative differential of one-hour averages above background at the downstream monitoring location.

This three-tiered turbidity program allows for early identification of elevated turbidity levels (i.e., 25-30 NTUs above background) with the initiation of specific investigative steps following a turbidity alert level exceedance. Background turbidity will be measured upstream of the active work area at the abandoned pipe bridge foundation pier located near the River centerline upstream of the Bausch Memorial Bridge The downstream turbidity monitor will be installed downstream of the active work area at the Conrail abandoned railroad bridge foundation pier located near the River centerline at the northern end of the B+L Property. Monitoring stations will be installed at the vertical midpoint of the water column at each monitoring location. The Contractor will conduct calibration and maintenance of turbidity monitoring systems in accordance with manufacturer specifications.

Monitoring will be conducted using YSI 220 multi-parameter water quality sondes connected to Thiamis 1000 telemetry units, or equivalent equipment approved by the Remediation Engineer. The turbidity sondes and other necessary equipment will be supported by a buoy-based system suitable for open water. The monitoring system will include cellular/wireless telemetry and a data logger with telemetry technology and an alarm so that excavation operators can be notified by text message or email automatically of high turbidity levels exceeding the limits.

If the turbidity alert level is exceeded or if minor contrast between the upstream and downstream location, or oily sheens on the bypass side of the turbidity control/diversion barrier are visually observed, the Contractor will notify RG&E and the Remediation Engineer. The Contractor will investigate the source of turbidity generation and mitigate with engineering controls or best management practices (BMPs), and/or improve the turbidity control system. The Contractor will check and maintain engineering controls and employ BMPs until the condition subsides.

If the turbidity action level is exceeded, or if there is a qualitative observation of substantial contrast between water quality upstream and downstream, the Contractor will notify RG&E and the Remediation Engineer, who will notify NYSDEC. The Contractor will take immediate action to mitigate

turbidity generation with engineering controls or BMPs and/or improve the turbidity control system, and if necessary, stop work. The Contractor will check and maintain engineering controls and employ BMPs until the condition subsides. If a substantial visible contrast to natural conditions is sustained at the downstream monitoring station, work may be stopped at the direction of the Remediation Engineer to address the issues. Work activities may resume after the cause of the substantial visible contrast to natural conditions is identified and corrected and if, after a 30-minute period, substantial visible contrast to natural conditions no longer exists. Stop work will be conducted at no additional cost to RG&E.

If the turbidity stop work level, the Contractor will immediately stop in-water work and investigate the source of the turbidity. If it is determined that observed conditions at the downstream monitoring station are not attributable to Site activities, but rather due to another explainable cause, work will continue. If the condition can be reasonably attributed to Site activities, turbidity-producing work will be halted, and the Contractor will inspect all turbidity controls and implement additional BMPs. Work will not start again until engineering controls are inspected and maintained, BMPs are employed, and the Contractor demonstrates that work can continue without elevated turbidity generation. Stop work will be conducted at no additional cost to RG&E.

The Contractor will be responsible for preparing daily turbidity monitoring reports, which will include the work performed for that day, turbidity results at each station and the differential between upstream and downstream monitoring stations, the daily maximum differential, details of any exceedances of the action or stop work levels and the actions taken in response to the exceedance, and notations on any visual observations of turbidity. The Remediation Engineer will submit these reports to RG&E, NYSDEC, and others as appropriate. Daily turbidity monitoring reports may be submitted at a reduced frequency if requested by RG&E.

4.0 REFERENCES

NYSDEC. 2022. Record of Decision - RGE- East Station State Superfund Project, Rochester, Monroe County, Site No 828204. June.

Parsons. TBD. Remedial Design Document for the East Station Former MGP Site, Rochester, New York. Prepared for RG&E. TBD.

APPENDIX J
MATERIALS HANDLING AND MANAGEMENT PLAN

MATERIAL HANDLING AND MANAGEMENT PLAN

for the
East Station Former MGP Site
Rochester, New York

Prepared for:

RG&E

3 City Center Bldg., 5th Floor
180 South Clinton Avenue
Rochester, NY 14604

Prepared by:

PARSONS

301 Plainfield Road, Suite 350
Syracuse, New York 13212

NOVEMBER 2024

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ACRONYMS

Acronym	Definition / Description
ACM	Asbestos Containing Material
ASTM	ASTM International, formerly American Society for Testing and Materials
BTU	British thermal unit
CFR	Code of Federal Regulations
CWTP	construction water treatment plant
DER	Department of Environmental Remediation
DRO	diesel range organics
ESMI	Environmental Soil Management Inc.
GRO	gasoline range organics
LTTD	low- temperature thermal desorption
MGP	manufactured gas plant
NAPL	nonaqueous phase liquid
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OHWM	Ordinary High Water Mark
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PPE	personal protective equipment
RCRA	Resource Conservation and Recovery Act
RG&E	Rochester Gas & Electric
SCO	Soil Cleanup Objective
Site	East Station Site at Suntru Street, Rochester, Monroe County, New York
SVOC	semivolatile organic compound
TCLP	Toxicity Characteristic Leaching Procedure
TLM	tar-like material
TPH	total petroleum hydrocarbons
USDOT	United State Department of Transportation
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

1.0 INTRODUCTION AND BACKGROUND

This Material Handling and Management Plan has been prepared to support the implementation of remedial activities associated with the Remedy of the Rochester Gas & Electric (RG&E) East Station Site (Site). The Site is one of three sites included in a New York State Department of Environmental Conservation (NYSDEC) Multi-Site Order on Consent that became effective June 26, 2018 (Index No, C0-8-20180517-48, Site No. 828204). NYSDEC issued a Record of Decision for the Site in June 2022 (NYSDEC 2022) and a Draft Explanation of Significant Difference for the Site.

This Plan describes the characterization, handling, treatment, and disposal requirements for various waste materials that are anticipated to be generated as a result of the remedial activities described in the Remedial Design Document (RD, Parsons TBD).

The on-site management requirements for the anticipated waste streams to be generated during remedial construction activities including treatment and disposal are presented in Section 2.

1.1 Applicable Codes, Standards, and Specifications

All waste management activities shall be conducted in accordance with all local, state, and federal rules, laws, and regulations, including:

- United States Environmental Protection Agency (USEPA), including Title 40, Code of Federal Regulations (CFR).
- Occupational Safety and Health Administration (OSHA), including Title 29 CFR, and Parts 1910 and 1926, OSHA, U.S. Department of Labor.
- State of New York Rules and Regulations, including Title 6 of the Official Compilation of Codes, Rules and Regulations (6 NYCRR) Parts 360, 364, 370, and 372 regarding treatment/ disposal, transportation, and management of hazardous waste.
- NYSDEC's Management of Coal Tar Wastes and Coal Tar Contaminated Soil and Sediment from Former Manufactured Gas Plants (DER-4).
- OSHA regulations contained in 29 CFR Part 1910.120 "Hazardous Waste Operations and Emergency Response."
- Applicable guidelines of the New York State Department of Health (NYSDOH).
- Transportation regulations, including United States Department of Transportation (USDOT) regulations, including Title 29 Parts 171 and 172 and New York State Department of Transportation (NYSDOT) rules and regulations.
- Applicable federal, state, and local government regulations (including local flow control regulations).
- RG&E waste management and recycling procedures for conducting work at company facilities.

Whenever there is a conflict or overlap of regulatory criteria, the most stringent provision shall apply.

1.2 Material Handling and Management Responsibilities

The Contractor will be responsible for the following:

- Provide all labor, materials, equipment, and incidentals as shown, specified and required for removal and handling of impacted materials in the Work Area.
- Handle, segregate, dewater, temporarily store, and load waste for transport to appropriate RG&E-selected or RG&E-approved facilities in accordance with laws and regulations.
- Properly transport and dispose of all items to appropriate disposal facilities, including obtaining appropriate permits and equipment.
- Submit a Material Handling Plan detailing procedures, materials, and equipment to be used for dewatering, transportation, consolidation, and disposal of waste materials and stockpiling of screened cobbles and boulders.
- Submit a Waste Management Plan describing the means and methods for managing material after removal and arranging for transportation of all generated waste as a result of remediation activities to the offsite processing and disposal facilities.
- Submit waste transporter permits, disposal records, and a weekly tracking summary report for waste disposal.
- Separate and stockpile cobbles and boulders 6 inches or greater in size for reuse during restoration.
- Construct asphalt processing pad, and decontamination pads as needed.
- Perform decontamination of trucks leaving impacted areas of the Site.
- Chip timber/woody material on-site.

The Remediation Engineer will be responsible for the following:

- Prepare waste profiles for RG&E-selected disposal/treatment/recycling facilities, using analytical data collected from previous sampling activities or additional waste characterization sampling.
- Contract with a laboratory for the analysis of soil, water, and other waste samples, as appropriate.
- Collect additional waste characterization samples, as necessary, and submit samples for laboratory analysis.
- Sign waste manifests, as an agent for RG&E.

RG&E will have the following waste management responsibilities:

- Act as the “Generator” for material resulting from the remedial activities for off-site treatment and/or disposal of the waste.
- RG&E shall contract directly with waste transporters and disposal vendors and will incur costs directly associated with transportation and disposal of project-related waste. Exceptions include the following:
    - As part of the project’s Temporary Facilities the Contractor shall provide a waste receptacle at the Site for general refuse (e.g., trash, office waste, food waste, etc.) for disposal at a

sanitary landfill. The Contractor shall be responsible for coordinating transportation and disposal of general refuse.

- As part of the project's Temporary Facilities and Green Remediation Practices the Contractor shall provide a recycling receptacle at the Site for on-site recycling program for Site-generated recyclable materials (e.g., paper products, consumables containers, etc.) for recycling at an appropriate facility. The Contractor shall be responsible for coordinating transportation and recycling of recyclable products.

2.0 MATERIAL HANDLING AND TREATMENT/ DISPOSAL

Materials that are anticipated to be generated during the remedial activities include:

- Excavated soil and sediment not suitable for reuse
- Demolition and excavated debris
- Clearing and grubbing debris
- Remediation water
- Non-aqueous phase liquid (NAPL)
- Excavated soil, sediment, and cobbles/boulders potentially suitable for reuse
- Materials potentially suitable for recycling/reclamation
- Miscellaneous waste

The following subsections describe the material handling activities specific to each of the above-listed material types.

2.1 Excavated Soil, Sediment, and Cobbles/Boulders Potentially Suitable for Reuse

Excavated material (i.e., native material) outside of the soil and sediment removal areas identified on the Design Drawings that does not contain visual manufactured gas plant (MGP)-related impacts or odors shall be placed within the on-site material staging area to facilitate waste characterization sampling by the Remediation Engineer (to evaluate the potential reuse of non-visually impacted material as backfill). Topsoil from within the excavation limits is assumed to be impacted and may not be used for on or off-site reuse. The Contractor shall stage excavated material potentially suitable for reuse in approximately 200 cubic yard piles.

Large diameter cobbles and boulders removed from the Genesee River (River) shall be screened to remove gravel and sediment that is smaller than 6 inches in diameter. Screened cobbles and boulders greater than 6 inches in diameter shall be inspected by the Contractor and Remediation Engineer to verify that they are free of NAPL and Tar Like Material (TLM) and reused for restoration. Screened cobbles and boulders greater than 6 inches in diameter shall be sprayed (e.g., pressure washed or equivalent) in the decontamination area or processing pad and inspected prior to reuse to verify that they are free of NAPL and TLM and to the satisfaction of the Remediation Engineer, RG&E, and/or NYSDEC. Decontamination wash water shall be collected and treated on-site at the temporary construction water treatment plant (CWTP). Fine-grained material not suitable for reuse (i.e., material less than 6 inches in diameter and/or coated with un-washable visible impacts) will be stockpiled for additional dewatering. Concrete fragments and other inert construction materials will be managed similarly and, if visually verified, may be used as backfill above the Ordinary High Water Mark (OHWM).

The Remediation Engineer shall collect and submit composite waste characterization samples at an approximate frequency of one sample per 200 cubic yards of material potentially suitable for site reuse. Excavated material free of visual impacts and odors and that does not exhibit concentrations in exceedance of the 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs) can

potentially be reused as subsurface backfill within the excavation areas. The Contractor will not backfill excavation areas using excavated material as on-site subsurface fill until approval is obtained from RG&E, the Remediation Engineer, and NYSDEC.

2.2 Excavated Soil and Sediment Not Suitable for Reuse

Excavated soil and sediment from the soil and sediment removal areas not suitable for reuse will be transported off-site for disposal as a non-hazardous waste at a permitted solid waste landfill or will be sent off-site for treatment and disposal at a permitted low-temperature thermal desorption (LTTD) facility. The Remediation Engineer will perform analytical waste characterization sampling at the quantity and frequency required by waste disposal facilities in order to determine if excavated soil and sediment may be disposed of as non-hazardous waste at a solid waste landfill or will need to undergo treatment at an LTTD facility. The Contractor shall provide adequate quantities of excavated material to the Remediation Engineer to perform this sampling on the same day that the material was removed. Material handling requirements for these two waste streams are provided in the following subsections.

A manifest (hazardous or non-hazardous, as appropriate) will be prepared by the Remediation Engineer for each load of waste material to be transported offsite for treatment/disposal. Each manifest will be signed by RG&E (as the Generator) or an authorized agent. Counter-signed waste manifests and facility disposal receipts (indicating the actual quantity of waste received at the treatment/disposal facility) will be maintained by the Remediation Engineer onsite in the project file.

2.2.1 Non-Hazardous Disposal at Solid Waste Landfill

Excavated soils and sediments are anticipated to require off-site disposal as non-hazardous waste at a solid waste landfill. Excavated soil and sediment that does not exhibit contaminants at concentrations above those acceptable at a non-hazardous solid waste landfill shall be staged within the on-site staging area

In general, soil to be disposed as a non-hazardous waste is anticipated to be analyzed for the following:

- Toxicity Characteristic Leaching Procedure (TCLP) Volatile Organic Compounds (VOCs) using USEPA Method 8260
- TCLP Semivolatile Organic Compounds (SVOCs) using USEPA Method 8270
- TCLP Metals using USEPA Method 6010
- TCLP Mercury using USEPA Method 7471B
- Total Polychlorinated Biphenyls (PCBs) using USEPA Method 8082A
- Total VOCs using USEPA Method 8260
- Total SVOCs using USEPA Method 8270

If additional sampling and analysis is requested by the non-hazardous disposal facility, the Remediation Engineer will coordinate with the disposal facility to review site-specific sampling analytical and frequency requirements. The Contractor will be responsible for all stabilization and dewatering activities associated with excavated soils prior to the transportation of such materials to the selected off-site disposal facility. The Contractor will appropriately containerize (including completely lining and covering bulk waste hauling vehicles) the soils in accordance with applicable rules and regulations.

2.2.2 LTTD Treatment

Excavated soils and sediments are anticipated to exhibit contaminants at concentrations above those acceptable at a non-hazardous solid waste landfill and will be transported off-site for LTTD treatment. The Contractor will stage soil in the on-site staging area prior to receiving results for waste characterization sampling, and if the materials exhibit contaminants at concentrations above those acceptable at a non-hazardous solid waste landfill, the materials will undergo transportation for off-site treatment/disposal at an LTTD facility (i.e., Environmental Soil Management Inc. [ESMI's] Fort Edward Facility). Excavated sediments are anticipated to require on-site dewatering and stabilization in a processing/dewatering pad to be located on the Bausch + Lomb portion of the Site.

This waste stream will be treated/disposed in a manner consistent with the NYSDEC program policy, DER-4, *Management of Coal Tar Waste and Coal Tar Contaminated Soils and Sediment from Former Manufactured Gas Plants* (NYSDEC 2002). The policy outlines criteria wherein soils and sediments that have been contaminated with coal tar waste from MGPs exhibiting only the hazardous waste toxicity characteristic for benzene (D018) may be excluded from the requirements of 6 NYCRR Parts 370 through 374 and 376 when they are destined for permanent thermal treatment.

If additional sampling and analysis is requested by ESMI, the Remediation Engineer will coordinate with ESMI to review site-specific sampling analytical and frequency requirements. In general, soil to be disposed at ESMI Fort Edward will be analyzed for the following:

- Total Petroleum Hydrocarbons (TPH) gasoline range organics and diesel range organics (GRO and DRO) using USEPA Method 8015
- Total VOCs using USEPA Method 8260
- Total SVOCs using USEPA Method 8270
- Total PCBs using USEPA Method 8082A
- Total Metals using USEPA Method 6010
- Total Mercury using USEPA Method 7471B
- Total Cyanide using USEPA Method 9012B
- Percent Sulfur using ASTM Method D129-18
- British thermal unit (BTU) using ASTM D240-19
- Percent solids by Standard Method 2540G-97

In the event that any characterization results or field observations indicate that certain soils are unsuitable for off-site LTTD treatment/disposal or disposal at a non-hazardous solid waste landfill, as determined by RG&E and the Remediation Engineer, in consultation with the treatment/disposal facility, RG&E will arrange for off-site incineration and/or disposal at a facility in accordance with applicable rules and regulations (including local flow control regulations). With the exception of MGP impacted soils and sediments that exhibit a toxicity characteristic for benzene and are suitable for the LTTD treatment/disposal exemptions specified in DER-4, any soils or sediment that exhibit any of the characteristics of hazardous waste defined in 40 CFR 261 Subpart C and/or 6 NYCRR Part 371 – Identification and Listing of Hazardous Wastes, will be treated as required to remove land disposal restrictions and disposed of at a permitted Resource Conservation and Recovery Act (RCRA) Subtitle C hazardous waste landfill.

The Contractor will be responsible for all stabilization and dewatering activities associated with excavated soils and sediments prior to the transportation of such materials to the off-site treatment facility. The Contractor will appropriately containerize (including completely lining and covering bulk waste hauling vehicles) the soils in accordance with applicable rules and regulations and the Soil Hauling and Traffic Control Plan (**Appendix E**).

2.3 Dewatering of Removed Material

Removed material will be stabilized and dewatered to remove free liquids and meet the requirements of the selected off-site treatment/disposal facility (e.g., paint filter test, additional moisture content requirements), prior to the transportation of such materials to the off-site permitted treatment/disposal facility. Dewatering will include gravity dewatering and the use of approved drying agents. The Contractor will perform dewatering of dredged sediment and excavated soil, as necessary, on the asphalt processing pad. Amending agents (e.g., cement kiln dust, lime kiln dust, or approved non-biodegradable sorbent) will be used as necessary to stabilize excavated and dredged materials that will be disposed of off-site as a solid waste. The drying agent will not be added to impacted material outside of designated processing areas (e.g., impacted material staging area, container), and will not be added to the ground surface within the removal areas. The drying agent will not be applied to excavation areas with open water. Any liquids, including excavated and dredged materials not passing the Paint Filter Test will be transported in USDOT and NYSDOT compliant containers constructed for the shipment of liquids.

2.4 Demolition and Excavated Debris

Excavated debris generated during the remedial activities is anticipated to include former building foundations, brick, concrete, and/or stone. Such materials will be segregated (as appropriate) from other excavated materials, downsized (as appropriate), and handled separately, where practicable. Non-visually impacted material may be used as subsurface fill within the removal areas above the OHWM. Material greater than 6 inches in diameter may be used as described in Section 2.1.

Asbestos Containing Material (ACM) is any material containing greater than one percent asbestos. ACM or suspected ACM will be handled in accordance with 12 NYCRR Part 56. Brick and other suitable hard rubble generated at the Site that is not ACM may be used as fill subject to the approval of RG&E and the Remediation Engineer. For debris not suitable for site reuse, the Contractor will downsize (as required by the waste transportation and disposition vendors), and appropriately containerize (e.g., cover waste hauling vehicles) the debris to facilitate transportation to the off-site disposal/recycling facility based on the characterization results (if necessary, to be conducted by the Remediation Engineer) and in accordance with applicable rules and regulations (including local flow control regulations) and the Soil Hauling and Traffic Control Plan (**Appendix E**).

2.5 Clearing and Grubbing Debris

Above-grade timber will be chipped on-site and stockpiled for use for soil stabilization and/or drainage material for dewatering pads and other purposes, unless otherwise directed by the Remediation Engineer and approved by NYSDEC. Wood chips from ash trees may not be used for these purposes. Wood chips used for sediment dewatering will be removed and managed in accordance with

Section 02 61 15 – Handling and Disposal of Impacted Materials and all applicable federal, state, and local codes, ordinances, regulations, statutes, and standards.

Below-grade woody material located inside the Limits of Excavation, including, but not limited to roots, stumps, and other materials will be excavated concurrently with the soils/sediment, chipped and ground or otherwise managed, and combined with contaminated soils/sediment for off-site disposal.

2.6 Remediation Water

Water generated during the remedial activities is anticipated to include surface water and groundwater that is extracted from and/or accumulated within the excavation areas and equipment/personnel decontamination wash water. All water generated during the remedial activities shall be collected and treated by the temporary CWTP, to be operated by the Contractor. Treated water will be discharged to the Monroe County combined sanitary/storm sewer under a Monroe County Sewer Use Permit, to be obtained by the Contractor prior to the remedial construction activities. Based on previous project experience, batch testing of treated water from each removal area will be required prior to the discharge of the treated water. Final discharge criteria and sampling frequencies will be provided by Monroe County as part of the Sewer Use Permit.

2.7 NAPL

NAPL collected during excavation/material dewatering activities or that settles in the water treatment system influent tanks and oil/water separators will be collected by the Contractor, if present in sufficient quantities to be recovered, and placed in appropriate containers (e.g., 55-gallon drums) and staged on-site for characterization by the Remediation Engineer prior to off-site disposal. NAPL-containing containers will be stored in a secure storage area equipped with secondary containment (generally consisting of an impermeable liner and run- on/run-off control) and including appropriate signage to identify it as a hazardous waste storage area. A hazardous waste label, with generator information, accumulation start date, and other required information, will be completed by the Contractor and affixed to each container. Following characterization, the Remediation Engineer shall coordinate with the RG&E-selected off-site disposal facility for the transportation and disposal of the containerized NAPL.

2.8 Material Potentially Suitable for Recycling/ Reclamation

Material potentially suitable for recycling/reclamation includes, but is not limited to, miscellaneous steel encountered during excavation activities, concrete, asphalt, and rebar within the concrete slab. All metals (e.g., steel, copper, wiring, piping, etc.) potentially suitable for recycling/reclamation shall be the property of RG&E. The Contractor will remove concrete from the structural steel to the extent practicable and stockpile the steel on-site. The Remediation Engineer will coordinate with RG&E to arrange for the transportation of the structural steel to an RG&E-selected recycling/reclamation facility. The Contractor will be responsible for the on-site loading of structural steel. Any credit/profit from the recycling/reclamation facility will be provided directly to RG&E.

2.9 Miscellaneous Wastes

Miscellaneous waste will consist of materials that are not contaminated with NAPL and will be managed as a non-hazardous waste that will be disposed of off-site at a non-hazardous solid waste disposal facility (e.g., Mill Seat Landfill). Miscellaneous Waste may include, but are not limited to, the following:

- Materials used to construct the material staging and decontamination areas
- Temporary erosion and sediment control measures (e.g., silt fencing, straw bales)
- Turbidity curtains and oil sorbent booms
- Scrap geotextile
- Used disposable equipment
- Used personal protective equipment (PPE)
- Used sampling equipment

NAPL contaminated waste materials including personal protective equipment (PPE) and poly sheeting will be containerized by the Contractor (e.g., in 55-gallon drums) to facilitate waste characterization sampling (as appropriate) by the Remediation Engineer. The Remediation Engineer will arrange for the transportation and disposal of the collected and containerized miscellaneous waste based on the characterization results and in accordance with applicable rules and regulations (including local flow control regulations). The Remediation Engineer will determine if the miscellaneous waste can be transported/disposed under the existing waste profiles or if a new waste profile(s) is required. If a new waste profile(s) is required, RG&E (or the Remediation Engineer) will be responsible for preparing new waste profiles and manifest forms. As part of the project's Temporary Facilities the Contractor will provide a waste receptacle at the site for general refuse (e.g., trash) for disposal at a sanitary landfill. The Contractor will be responsible for the fees and coordination for transportation and disposal of general refuse.

3.0 REFERENCES

NYSDEC. 2002. Management of Coal Tar Waste and Coal Tar Contaminated Soils and Sediment (DER-4). January 11, 2002.

NYSDEC. 2006. 6 NYCRR Part 370: Hazardous Waste Management System. Available at: https://www.dec.ny.gov/chemical/100401.html

NYSDEC. 2022. Record of Decision - RGE- East Station State Superfund Project, Rochester, Monroe County, Site No 828204. June.

OSHA. Part 1910 – Occupational Safety and Health Standards.

OSHA. Part 1926 – Safety and Health Regulations for Construction.

Parsons. TBD. Remedial Design Document for the East Station Former MGP Site, Rochester, New York. Prepared for RG&E. TBD.

APPENDIX K
CITIZEN PARTICIPATION PLAN (CPP)

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

New York State Superfund Program

Citizen Participation Plan
for
Rochester Gas and Electric
East Station Former Manufactured Gas Plant Site

November 2024

Site No. 828204 (formerly V00358-8)
Suntru Street
Rochester
Monroe County, New York

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* * * * *

Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's investigation and cleanup process.

Responsible Party: **Rochester Gas and Electric (RG&E) ("Responsible Party")**
Site Name: **Rochester Gas and Electric East Station Former Manufactured Gas Plant Site ("Site")**
Site Address: **Suntru Street, Rochester**
Site County: **Monroe**
Site Number: **828204 (formerly V00358-8)**

1. What is New York's State Superfund Program?

New York's State Superfund Program (SSF) identifies and characterizes suspected inactive hazardous waste disposal sites. Sites that pose a significant threat to public health or the environment, such as the site identified above, undergo a process of investigation, evaluation, cleanup, and monitoring.

The New York State Department of Environmental Conservation (NYSDEC) administers the SSF Program with assistance and input from the New York State Department of Health (NYSDOH). When the parties responsible for the contamination of the site are known ("responsible parties"), they often pay for or perform the investigation and evaluation of cleanup options under an enforceable consent order. At sites where responsible parties cannot be found or are unable or unwilling to fund an investigation, the State pays for the investigation and may try to recover costs from a responsible party after the investigation and cleanup are complete.

The SSF program contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. For more information about the SSF program, go online at: http://www.dec.ny.gov/chemical/8439.html.

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well-being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision makers form or adopt final positions.

Involving citizens affected and interested in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment.

- Improving public access to, and understanding of, issues and information related to a particular site and that site's remedial process.

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process.

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community.

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the site identified above.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information that relate to the site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC web site. If this occurs, NYSDEC will inform the public in fact sheets distributed about the site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.

The site contact list includes, at a minimum:

- chief executive officer and planning board chairperson of each county, city, town, and village in which the site is located;
- residents, owners, and occupants of the site and properties adjacent to the site;
- the public water supplier which services the area in which the site is located;
- any person who has requested to be placed on the site contact list;
- the administrator of any school or day care facility located on or near the site for purposes of posting and/or dissemination of information at the facility; and
- location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

Note: The first site fact sheet (usually related to the Remedial Investigation) is distributed both by paper mailing through the postal service and through DEC Delivers, its email listserv service. The fact sheet includes instructions for signing up with the appropriate county listserv to receive future notifications about the site. See http://www.dec.ny.gov/chemical/61092.html.

Subsequent fact sheets about the site will be distributed exclusively through the listserv except for households without internet access that have indicated the need to continue to receive site information in paper form. Please advise the NYSDEC site project manager identified in Appendix A if this is the case. Paper mailings may continue during the investigation and cleanup process for some sites, based on public interest and need.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the site's investigation and cleanup program. The flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

The public is encouraged to contact project staff at any time during the site's investigation and cleanup process with questions, comments, or requests for information.

This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

The site identified above poses a significant threat to public health or the environment, so that a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying community group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being, or enjoyment of the environment may be affected by a release or threatened release of contamination at the site.

For more information about TAGs, go online at:
http://www.dec.ny.gov/regulations/2590.html .

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows on the next page:

Citizen Participation Activities	Timing of CP Activity(ies)
Before Start of Remedial Investigation (RI):	
• Prepare site contact list • Establish document repository • Prepare Citizen Participation (CP) Plan • Place approved RI Work Plan in document repository • Distribute fact sheet to site contact list that announces availability of RI Work Plan and describes upcoming RI field work	Previous CP Plans were completed in July 2011 and July 2022. The current CP Plan was drafted and finalized in November 2024.
When NYSDEC Approves Remedial Investigation Report:	
• Distribute fact sheet to site contact list that describes RI results • Place approved RI Report in document repository	NYSDEC approved the RI in August 2018
When NYSDEC Releases Proposed Remedial Action Plan (PRAP)	
• Place PRAP in document repository • Distribute fact sheet to site contact list that describes PRAP and announces 30-day comment period and public meeting • Conduct 30-day public comment period • Hold public meeting about PRAP	A Fact Sheet announcing the selection of the PRAP and 30-day comment period and public meeting was distributed in March 2022. The 30-day public comment period was held from March 30 to April 28, 2022.
When NYSDEC Issues Record of Decision (ROD):	
• Place ROD in document repository • Distribute notice to site contact list that announces availability of ROD. ROD includes responsiveness summary of significant comments about PRAP	NYSDEC issued the ROD in June 2022.
Before Start of Remedial Action:	
• Distribute fact sheet to site contact list that describes upcoming remedial action	Before start of remedial action at the site
When NYSDEC Certifies Cleanup Requirements Achieved:	
• Distribute fact sheet to site contact list that announces cleanup requirements achieved • If Certificate of Completion (COC) is issued, announce in fact sheet • If COC is issued, place copy in document repository	When NYSDEC certifies cleanup requirements achieved, or within 10 days after NYSDEC issues COC or other similar site closure document.
If NYSDEC Reclassifies the Site	
• If reclassifying site, may announce in fact sheet announcing achievement of cleanup requirements	At time NYSDEC proposes to reclassify the site
If NYSDEC Proposes to Delist the Site from the Registry of Contaminated Sites	
• Publish notice in Environmental Notice Bulletin about proposal and 30-day public comment period • Distribute notice to site contact list. May announce proposal in fact sheet announcing achievement of cleanup requirements • Conduct 30-day public comment period about proposed delist • Distribute notice to site contact list when site is delisted	At time NYSDEC proposes to delist the site

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the site. Additional major issues of public concern may be identified during the course of the site's investigation and cleanup process.

The Site is part of a Potential Environmental Justice Area (PEJA). Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Environmental justice efforts focus on improving the environment in communities, specifically minority and low-income communities, and addressing disproportionate adverse environmental impacts that may exist in those communities.

The following major issues of public concern were identified: air quality, health of workers and community, nuisance odors, noise, and construction-related traffic. These issues are of the most concern to adjacent property businesses and residents. These issues will be addressed in the Remedial Action Work Plan, a Community Air Monitoring Program, and/or a site-specific Project Safety, Health, and Environmental Plan for the project to be approved by the NYSDEC prior to the work.

4. Site Information

Appendix C contains a map identifying the location of the site. Select Site-related documents be found at https://www.dec.ny.gov/data/DecDocs/828204/.

Site Description

The Former Manufactured Gas Plant (MGP) Site is located at the foot of Suntru Street in an industrial/commercial area of Rochester, Monroe County, New York. The approximately 13.15-acre parcel is located on the eastern bank of the Genesee River and downstream of the High Falls dam and upstream of the Middle Falls dam.

The Former MGP Site is owned by RG&E and is bordered to the north by a former Bausch + Lomb (B+L) manufacturing facility (B+L Property), to the east by the Genesee River gorge wall and Suntru Street, and to the south by the Bausch Memorial Bridge. A 2.25-acre parcel owned by the State of New York is located west of the Former MGP Site along the Genesee River. The New York State Office of General Services asserts ownership and the right to license or permit the use of the shoreline of navigable waters that were initially part of New York State, which includes the Genesee River.

The Former MGP Site is relatively flat with the Genesee River gorge wall rising to the

east and the Genesee River to the west. The majority of the Former MGP Site is open space with four vacant RG&E buildings located in the northern portion of the parcel. A high-pressure gas main is located in the central portion of the Former MGP Site while a natural gas regulator station is located in the northeastern quadrant.

The B+L Property located immediately north of the Former MGP Site covers approximately 7.8 acres and is currently vacant and free of buildings except for some concrete floor slabs and a few sub-slab vaults and basement areas on the western half of the parcel. The B+L Property is gently graded with a raised, uneven area of soil piles in the southeast portion of the property and a steep, 4-to-8-foot (ft) high embankment and retaining wall in the western portion of the property along the Genesee River. The Former MGP Site and B+L Property are separated by a chain link fence, locking gates, and Suntru Street.

History of Site Use

MGPs were operated between the 1800s and mid-1900s, before the development of natural gas systems, to convert coal and oil into gas for heating, lighting, and cooking. Manufactured gas-production byproducts (i.e., coal tar) often account for the majority of the impacts at former MGP sites. Visual characterization of media and laboratory analysis of environmental samples is a useful way of identifying the nature and extent of environmental media affected by coal tar.

The East Station MGP was first developed as a coal carbonization plant in 1872. The MGP was expanded a number of times in the late 19th century. Gas production using the carbureted water gas process began in the 1903. A light oil facility (i.e., Light Oil Plant) was constructed in the southwestern corner of the Former MGP Site adjacent to the Genesee River and used to produce trinitrotoluene (TNT) compounds during World War I and was then later used to produce Bengas, a gasoline substitute.

By the mid-1920s, gas production operations at the East Station MGP facility were reduced, and gas produced at the West Station MGP, located on the western side of the Genesee River, was piped to the East Station Site for purification and storage.
Coal gas manufacturing at the Former MGP Site ceased around 1952. A catalytic reforming process was used at the Former MGP Site for combining natural gas and manufactured gas produced at the West Station MGP for customer distribution. The catalytic reformation plant was active for approximately 25 years, until gas operations ceased at the Former MGP Site in 1976.

The Former MGP had several gas holders and gas manufacturing plant buildings which have since been demolished and the foundations filled in. Four existing buildings remain on-site. The Former MGP Site is currently unoccupied, except for RG&E personnel occasionally accessing a natural gas regulator station. The adjacent B&L Property and New York State-owned property are unoccupied.

History of Site Investigation and Cleanup

Five investigations and two interim remedial measures (IRMs) as well as supporting investigations have been completed at the Former MGP Site since 1992.

1992 Site Investigation

The investigation included a soil gas survey, test pit excavations, surface and subsurface soil sampling, soil and bedrock borings, monitoring well installations, and groundwater sampling to evaluate Former MGP Site conditions. The 1992 Site Investigation identified the presence of MGP residuals in surface soil, subsurface soil, and groundwater.

1998 and 2000 Focused Remedial Investigation

The 1998 and 2000 Focused Remedial Investigation was conducted to identify sources of non-aqueous phase liquid (NAPL) found along the Genesee River shoreline adjacent to the Former MGP Site, identify preliminary remedial alternatives, characterize the contents of the tar well, identify remedial alternatives for the tar well, and further evaluate groundwater quality.

The Focused Remedial Investigation included a shoreline survey to identify areas of NAPL seeps. It consisted of soil and bedrock borings, subsurface soil sampling, installing piezometers and monitoring wells, test pit excavations, and groundwater sampling.

The Focused Remedial Investigation identified the presence of light non-aqueous phase liquid (LNAPL) and dense non-aqueous phase liquid (DNAPL) in soil and bedrock beneath the Former MGP Site. NAPL was also observed along the Genesee River shoreline.

2003 Multi-Site Cleanup Voluntary Cleanup Agreement

RG&E was subject to a multi-site voluntary cleanup agreement for the Site on April 10, 2003.

2004 and 2005 Tar Well Removal IRM

An IRM to address coal-tar impacts in the Former Tar Well area, located in the southeast portion of the Former MGP Site, was performed between 2004 and 2005. The IRM included the removal of approximately 20,000 tons of impacted soil/fill material and the removal of the Former Tar Well structure. IRM activities also included the construction of a circular perimeter slurry wall surrounding the tar well, soil excavation immediately outside the tar well to the inside of the slurry wall, and excavation dewatering and off-site disposal of approximately 978,000 gallons of groundwater.

2007 and 2008 ISS IRM to Mitigate NAPL Seeps

An IRM to mitigate seeps along the bank of the Genesee River was completed in 2007 and 2008 and included in-situ solidification (ISS) of approximately 18,000 cubic yards (cu yd) of soil to immobilize MGP residuals (including NAPL) in the overburden material near the riverbank and the installation of a slurry wall and DNAPL collection trench with 22 NAPL recovery/monitoring wells east of the ISS area. Approximately 27,000 tons of overburden soil containing purifier box material was also removed and transported to an off-site disposal facility as part of the project.

2008 and 2009 Sediment Investigation

Sediment investigations were completed in the Genesee River in 2008 and 2009. The investigation included portions of the Genesee River adjacent to the Former MGP Site. NAPL was found in sediment immediately along the shoreline at the southern portion of the Former MGP Site and in a limited area adjacent to the B+L Property.

2010 through 2014 Remedial Investigation

The Remedial Investigation was performed between December 2010 and August 2014 to build upon past investigations, IRMs, and monitoring completed at the Former MGP. The overall field investigation consisted of test pit excavations, the use of the Tar-specific Green Optical Screening Tool, or TarGOST®, to investigate and define the distribution of NAPL in the subsurface, soil borings, installing overburden wells, drilling bedrock core holes, and installing bedrock monitoring wells, collecting groundwater samples, sediment probing, and sediment coring.

The investigation identified the presence of NAPL in overburden in three areas of the Former MGP Site and one area of the B+L Property. NAPL was typically observed near the weathered bedrock and overburden interface in these areas. NAPL and sheen were observed in competent bedrock to a maximum depth of 154 feet below ground surface. NAPL and sheen were also observed in sediment adjacent to the Former MGP Site and B&L Property.

Structures associated with the former MGP operations were present in the Former MGP Site subsurface but did not appear to be sources of impacts to soil and groundwater.

2014 Multi-Site Cleanup Voluntary Cleanup Agreement Amendment

The 2003 multi-site voluntary cleanup agreement for the Site was amended and restated on December 23, 2014.

2018 Multi-Site Order on Consent

NYSDEC terminated the Voluntary Cleanup Program in its entirety, which required execution of an Order on Consent under the SSF Program for the Former MGP Site on May 17, 2018.

2023 through 2024 Pre-design Investigation

A pre-design investigation was performed from August 2023 through January 2024 to further delineate the extent of soil/sediment removal and inform the remedial design.

Site Health Assessment

The Former MGP Site and B+L Property are currently fenced. However, people who enter either property could contact contaminants in the soil by walking on the soil, digging or otherwise disturbing the soil. People may come in contact with contaminants present in the sediments.

People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination.

Compounds in soil vapor (air spaces within the soil) may move into overlying buildings and affect indoor air quality. Currently there are no occupied buildings on the Former MGP Site, but a soil vapor intrusion evaluation is recommended if existing buildings become re-occupied or new buildings are developed on the Former MGP Site.

5. Investigation and Cleanup Process

Investigation

A detailed study of the site will be performed by the responsible party under a consent order, with oversight by NYSDEC and NYSDOH. This detailed study is called a “Remedial Investigation”. The investigation work plan is called a “Remedial Investigation Work Plan” and is available for public review at the “Locations of Reports and Information” identified in Appendix A.

The site investigation has several goals:
1) define the nature and extent of contamination in soil, surface water, groundwater and any other parts of the environment that may be affected;
2) identify the source(s) of the contamination;
3) assess the impact of the contamination on public health and the environment; and
4) provide information to support the development of a proposed remedy to address the contamination.

NYSDOH reviews and recommends activities that will be performed during the investigation to ensure that a complete picture of potential health impacts is understood. Such activities include identifying the ways contamination can reach people, such as through direct contact, eating, drinking, or breathing.

The information collected during the site investigation will be summarized in a report.

Feasibility Study

After the site investigation has begun, the responsible party, with oversight by NYSDEC will conduct a “Feasibility Study.” This study uses information developed during the site investigation to develop and evaluate potential ways to clean up contamination related to the site. Another possibility is that the information collected during the site investigation may support the conclusion that no action, or no further action, is needed to address site-related contamination.

Proposed Remedy

The evaluation of possible remedies ends with a recommended proposal to eliminate the threat posed by contaminants at the site. NYSDEC approves or prepares this proposal, called a “Proposed Remedial Action Plan” (PRAP). The PRAP describes the remedy preferred by NYSDEC, or a no action or no further action alternative. The PRAP summarizes the decision that led to the recommendation of the preferred remedy by discussing each alternative and the reasons for choosing or rejecting it. The goal of any cleanup plan is to protect public health and the environment. NYSDEC will present the PRAP to the public for its review and comment during a 30-day comment period and at a public meeting.

Selected Remedy

NYSDEC considers public comments as it selects the remedy to address contamination related to the site. The selected remedy will be described in a document called a “Record of Decision” (ROD). The ROD will explain why the remedy was selected and respond to public comments. This document will be placed in the location of reports and information. If the selected remedy is no action or no further action, NYSDEC may then take steps to reclassify the site or remove the site from its list of contaminated sites.

Cleanup Action

If the Record of Decision for the site calls for cleanup action, the project then moves to designing and performing the actions to address the site contamination. When cleanup actions have been completed, NYSDEC will approve or prepare a Final Engineering Report that describes the cleanup actions undertaken and certifies that cleanup requirements have been achieved or will be achieved.

Certificate of Completion

Upon approval of the Final Engineering Report, NYSDEC may issue a Certificate of Completion (COC). The COC would recognize the findings of the Final Engineering

Report and note that the cleanup program achieved a cleanup level consistent with specific categories of use for the site. The recipient of the COC would be entitled to limited liability as long as it complied with the terms of the COC, and other conditions.

A COC may be modified or revoked if, for example, the recipient does not comply with the terms of the COC, or if the recipient commits fraud regarding its certification that it has met cleanup levels.

Site Management

Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management may be conducted by NYSDEC, or by the responsible party under NYSDEC oversight, if contamination will remain in place. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan.

An *institutional control* is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the site suitable for some, but not all uses.

An *engineering control* is a physical barrier or method to manage contamination. Examples include: caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that pumps and treats groundwater. Site management continues until NYSDEC determines that it is no longer needed. During the site management phase, NYSDEC may also take steps to reclassify the site or delist the site from the Registry.

Appendix A - Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Greta Kowalski
Project Manager
NYSDEC Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7014
(518) 402-2029
greta.kowalski@dec.ny.gov

Maureen Wren
Public and Media Affairs
NYSDEC Central Office
625 Broadway
Albany, NY 12203
(518) 402-8000
maureen.wren@dec.ny.gov

New York State Department of Health (NYSDOH):
Anthony Perretta
Project Manager
NYSDOH
ESP, Corning Tower, Rm 1787
Albany, NY 12237
(518) 402-7880
beei@health.ny.gov

Locations of Reports and Information

The facilities identified below are being used to provide the public with convenient access to important project documents:

Central Library of Rochester
Rundel Library Rundel Branch
115 South Avenue, 4th Floor
Rochester, NY 14604-1896
Phone: (585) 226-2466
www.libraryweb.org
Hours:
Monday, 9 am – 8:30 pm
Tuesday, 9 am – 6 pm
Wednesday, 9 am – 8:30 pm
Thursday, 11 am – 6 pm
Friday, 9 am – 6 pm
Saturday/Sunday, Closed

NYSDEC Region 8
6274 E. Avon-Lima Road
Avon, NY 14414-9516
Phone: (585) 226-2466
Hours: Monday - Friday 8:30 am - 4:45 pm (call for appointment)

Online repositories (DECDOCS):
https://www.dec.ny.gov/data/DecDocs/828204/
https://www.dec.ny.gov/data/DecDocs/V00358/

Appendix B - Site Contact List

Local Officials

City of Rochester

City Council
City Hall, Room 301A
30 Church St.
Rochester, NY 14614
Council@cityofrochester.gov

Mayor Malik Evans
Mayor's Office
City Hall, Room 307A
30 Church St.
Rochester, NY 14614
info@cityofrochester.gov

David M. Smith
Chief of Police
Public Safety Building
185 Exchange Blvd.
Rochester, NY 14614
Rpd.chief@CityofRochester.Gov

Stephano Napolitano
Fire Chief
Public Safety Building
185 Exchange St.
Rochester, NY 14614
Fireweb@cityofrochester.gov

Richard Perrin
Commissioner
Dept. of Environmental Services
City Hall, Room 300B
30 Church St.
Rochester, NY 14614
Richard.Perrin@CityofRochester.Gov

Kevin Kelley
City Planning
City Hall, Room 223B
30 Church St.
Rochester, NY 14614
Kevin.Kelley@CityOfRochester.gov

Anne Spaulding
City of Rochester –
Div. Of Environmental Quality,
Office of Environmental Remediation
City Hall, Room 300B
30 Church St.
Rochester, NY 14614
anne.spaulding@cityofrochester.gov

John McMahon
N/E Quadrant Neighborhood Service Center
500 Norton St.
Rochester, NY 14621
John.McMahon@CityofRochester.gov

Geoffrey Gugel, Director
City of Rochester
Bureau of Water
10 Felix St.
Rochester, NY 14608
geoffrey.gugel@cityofrochester.gov

Monroe County

Monroe County Water Quality
Coordinating Committee
111 Westfall Rd., Room 976
Rochester, NY 14620

Jamie Romeo
Monroe County Clerk
101 County Office Bldg.
39 W. Main St.
Rochester, NY 14614 -1476
MCClerk@monroecounty.gov

Adam Bello
Monroe County Executive
110 County Office Bldg.
39 W. Main St.
Rochester, NY 14614 -1476
countyexecutive@monroecounty.gov

Dr. Marielena Velez de Brown
Acting Commissioner
Dept. of Public Health
111 Westfall Rd., Room 952
Rochester, NY 14692
mchealth@monroecounty.gov

Starr O'Neil
Environmental Management Council
111 Westfall Rd., Room 916
Rochester, NY 14692
soneil@monroecounty.gov

Stormwater Coalition of Monroe County
Andy Sansone
asansone@monroecounty.gov

Mr. Michael Garland
Director
Dept. of Environmental Services
7100 City Place
50 W. Main St.
Rochester, NY 14614
mcdes@monroecounty.gov

Timothy Henry
Deputy Director of Public Safety &
County Emergency Manager
Office of Emergency Management
1190 Scottsville Rd., Suite 200
Rochester, NY 14624

NYS Representatives

Jeremy A. Cooney NYS Senate
280 East Broad St., Suite 110
Rochester, NY 14604
cooney@nysenate.gov

Representative Demond Meeks NYS Assembly
107 Liberty Pole Way
Rochester, NY 14604
meeksd@nyassembly.gov

The Honorable Charles Schumer
United States Senate
3040 Federal Bldg.
100 State St.
Rochester, NY 14614

The Honorable Kirsten Gillibrand
United States Senate
4195 Federal Building
100 State St.
Rochester, NY 14614

The Honorable Joseph Morelle
U.S. House of Representatives
3120 Federal Building
100 State St.
Rochester, NY 14614

Media

News Director
WXXI Public Broadcasting Council
280 State St. – PO Box 30021
Rochester, NY 14603-3021

News Editor
Democrat and Chronicle Media Group
245 E. Main St.
Rochester, NY 14604

News Editor
Rochester Business Journal
16 W. Main St.
Suite 341
Rochester, NY 14614

News Editor
CITY News
280 State St.
Rochester, NY 14614

News Director
WROC-TV 8 & Fox 31
201 Humboldt St
Rochester, NY 14610

News Director
NewsRadio WHAM 1180
100 Chestnut St.
Rochester, NY 14604

News Director
WHAM-TV 13
4225 W. Henrietta Rd.
Rochester, NY 14623

News Director
WHEC-TV
191 East Ave.
Rochester, NY 14604

News Director
Spectrum News
71 Mt. Hope Ave.
Rochester, NY 14620

Recreational Groups

Sierra Club
Rochester Regional Group
PO Box 10518
Rochester, NY 14610-0518
SierraClubRocNY@gmail.com

ROC the Riverway Advisory Board Co-Chair Robert Duffy
Greater Rochester Chamber of Commerce
150 State St., Suite 400
Rochester, NY 14614
rduf fy@greaterrochesterchamber.com

Development Groups

Empire State Development
400 Andrews St., Suite 300
Rochester, NY 14604
nys-fingerlakes@esd.ny.gov

Rochester Downtown Development Corporation
Five Star Bank Plaza
100 Chestnut St., Suite 1910
Rochester, NY 14604
rddc@rddc.org

Environmental Groups

Center of Environmental Information, Inc.
249 Highland Ave.
Rochester, NY 14620
cei@ceinfo.org

Citizen's Environmental Coalition
Western New York Office
33 Central Ave.
Albany, NY 12210

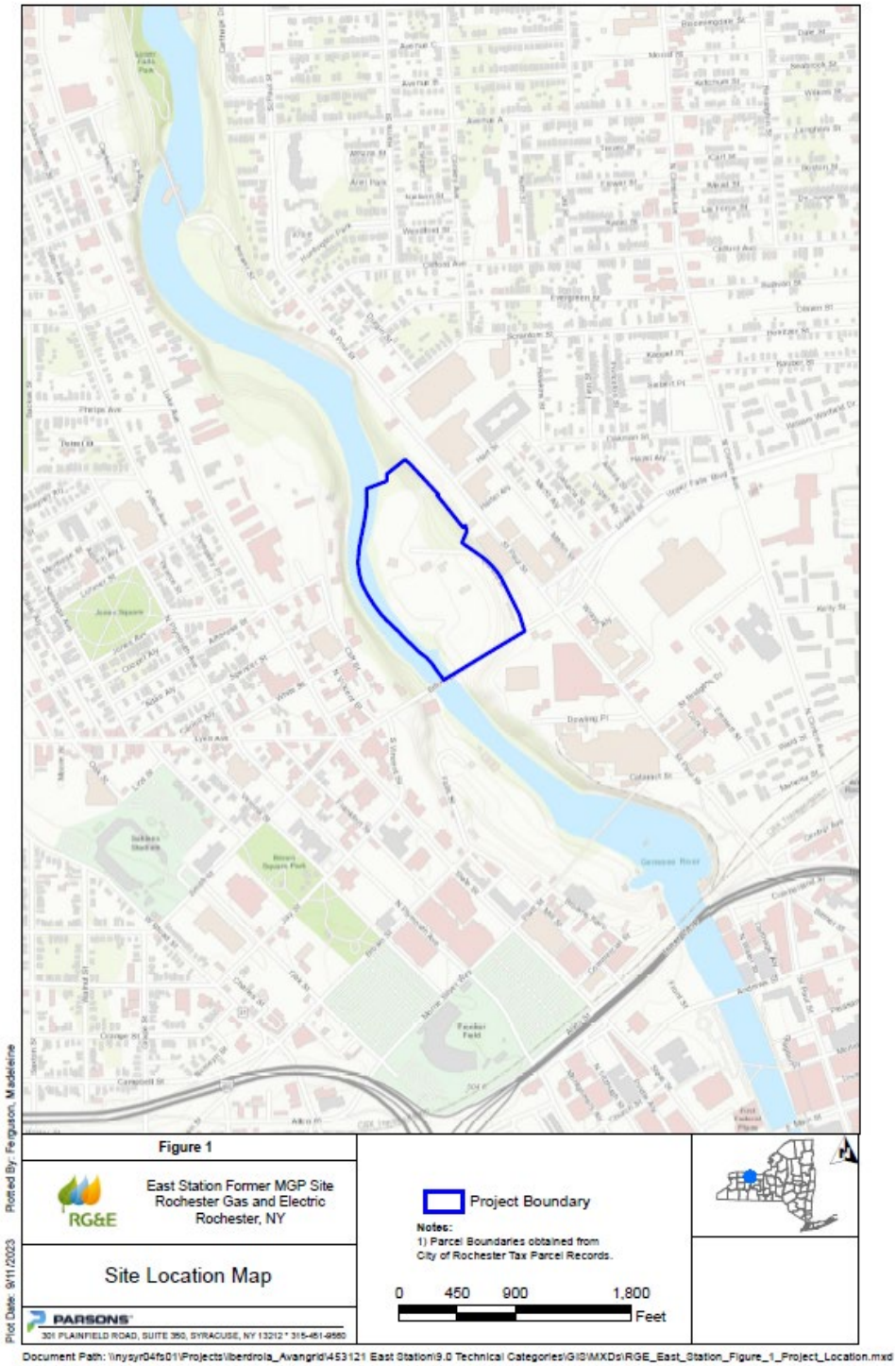
Genesee RiverWatch
700 West Metro Park
Rochester, NY 14623

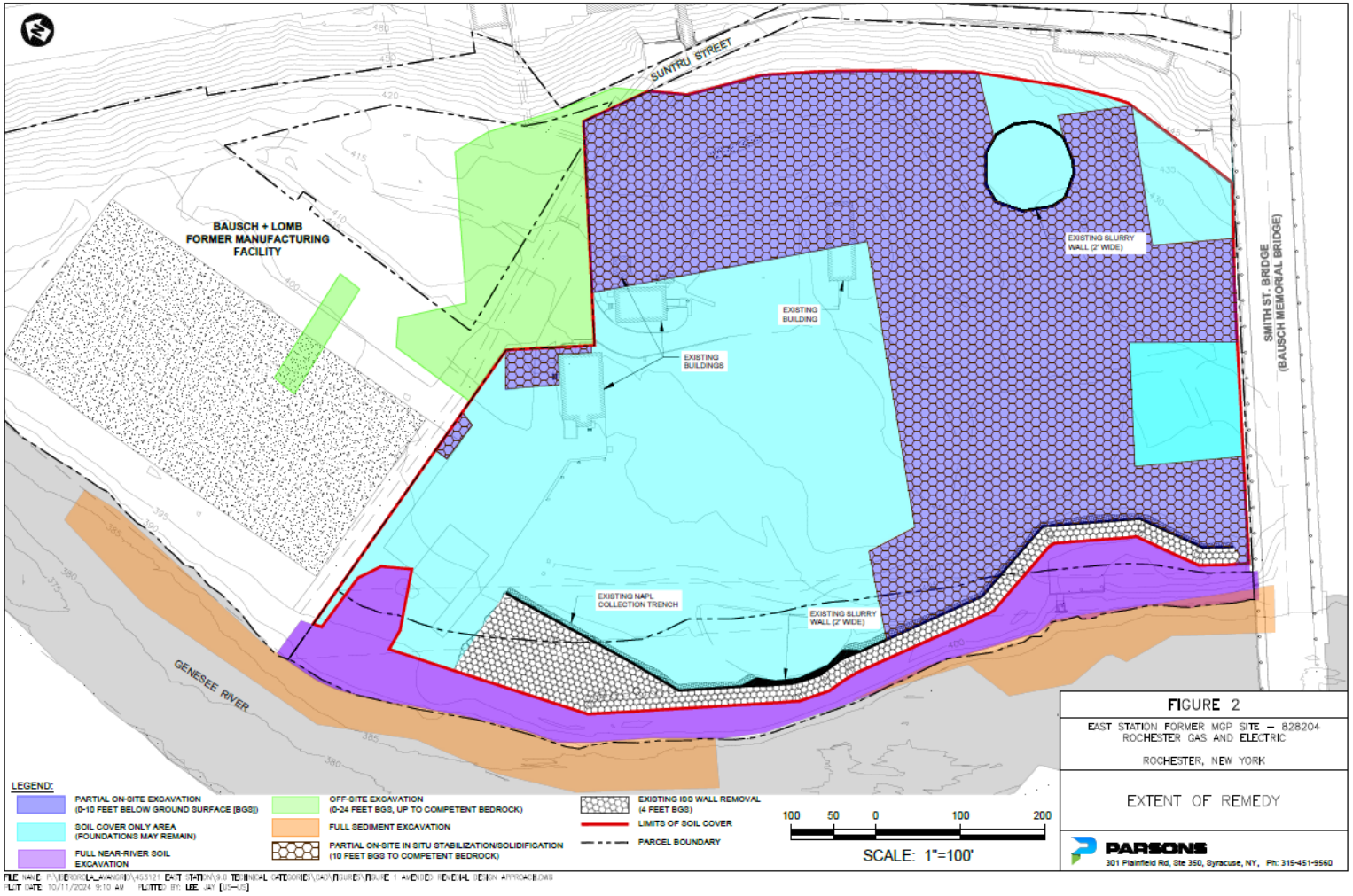
Federation of Monroe County Environmentalists
348 Ripplewood Dr.
Rochester, NY 14616
fmce.org@gmail.com

Greentopia
74 Browns Race
Rochester, NY 14614
info@greentopia.org

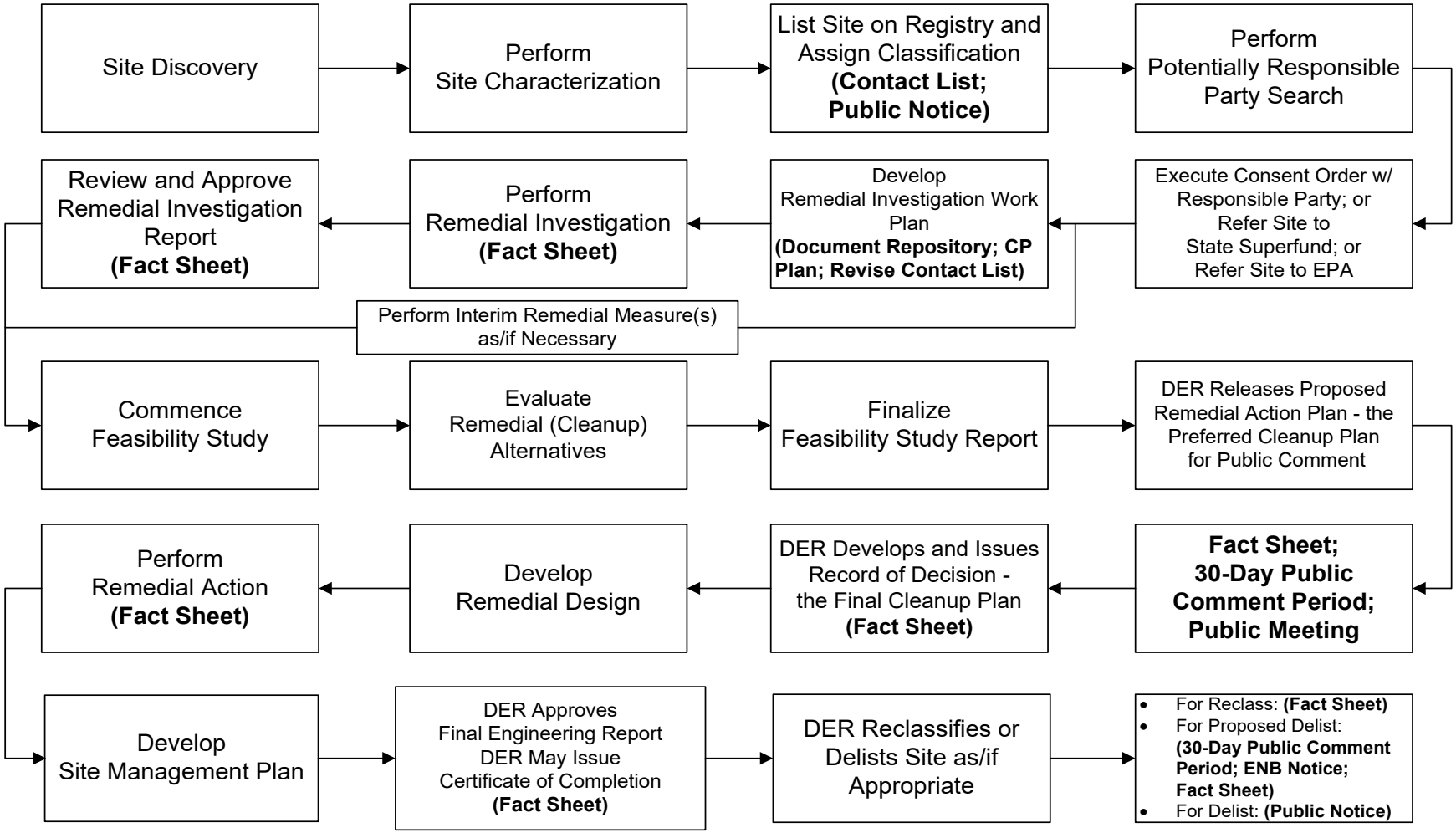
The Nature Conservancy
Rochester Office
274 N. Goodman St., Suite B261
Rochester, NY 14607
gholtz@tnc.org

Appendix C - Site Location Map




SUNTRU STREET
BAUSCH + LOMB
FORMER MANUFACTURING
FACILITY
EXISTING BUILDING
EXISTING BUILDINGS
EXISTING SLURRY WALL (2' WIDE)
EXISTING NAPL COLLECTION TRENCH
EXISTING SLURRY WALL (2' WIDE)
SMITH ST. BRIDGE
(BAUSCH MEMORIAL BRIDGE)
GENESEE RIVER
LEGEND:
PARTIAL ON-SITE EXCAVATION (0-10 FEET BELOW GROUND SURFACE [BGS])
SOIL COVER ONLY AREA (FOUNDATIONS MAY REMAIN)
FULL NEAR-RIVER SOIL EXCAVATION
OFF-SITE EXCAVATION (0-24 FEET BGS, UP TO COMPETENT BEDROCK)
FULL SEDIMENT EXCAVATION
PARTIAL ON-SITE IN SITU STABILIZATION/SOLIDIFICATION (10 FEET BGS TO COMPETENT BEDROCK)
EXISTING ISS WALL REMOVAL (4 FEET BGS)
LIMITS OF SOIL COVER
PARCEL BOUNDARY
100 50 0 100 200
SCALE: 1"=100'
FIGURE 2
EAST STATION FORMER MGP SITE – 828204
ROCHESTER GAS AND ELECTRIC
ROCHESTER, NEW YORK
EXTENT OF REMEDY
PARSONS
301 Plainfield Rd, Ste 350, Syracuse, NY, Ph: 315-451-9560

Appendix D - State Superfund Program Remedial Process



Note: CP Activities are in **Bold**.

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APPENDIX L
HEC-RAS MODELING MEMORANDUM

301 Plainfield, Suite 350, Syracuse, New York 13212
Office: +1 315.451.9560 / Fax: +1 315.451.9570 / parsons.com

Technical Memorandum

To: Rochester Gas and Electric (RG&E)

From: Parsons – Groundwater Modeling Team

Date: November 8, 2024

Subject: RG&E East Station 60% Design – Genesee River HEC-RAS Modeling

The following document details the Hydrologic Engineering Center's River Analysis System (HEC-RAS) (USACE 1994) modeling analyses for the RG&E East Station (Site) 60% Remedial Design. For a full description of the Design, please refer to the 60% Remedial Design Report to which this memorandum is appended.

PURPOSE AND OBJECTIVES

Due to the proximity of the Site to the Genesee River, an understanding of the flow dynamics of the River is required for a constructable design and safe construction conditions. A HEC-RAS flow model was developed and applied for the following primary purpose:

- To estimate the flow conditions under which flow diversions would provide moderate isolation and protection for remediation areas along the east bank during the remedial action

The HEC-RAS model construction and results are presented below.

MODEL CONSTRUCTION

A full two-dimensional (2D) HEC-RAS unsteady flow model was developed using HEC-RAS version 5.0.7 for simulating Genesee River conditions at the RG&E East Station Site, using a prior HEC-RAS model developed for the RG&E West Station Remedial Design (Parsons 2022). As opposed to a one-dimensional (1D) unsteady flow model, which involves river reaches, stations, and cross sections, a 2D HEC-RAS model requires a complete digital elevation model (DEM) and a 2D computational mesh, and is solved using 2D Diffusion Wave equations. The mesh is bounded by boundary line conditions which are defined using the traditional HEC-RAS 1D unsteady flow boundary conditions (flow hydrograph, stage hydrograph, normal depth, etc.). The roughness coefficient or Manning's N values are applied to the 2D mesh allowing for discrete zones of different Manning's N. The following section details the model DEM, 2D mesh, boundary conditions, and Manning's N values used in the RG&E East Station HEC-RAS model.

Digital Elevation Model

In order to accurately depict the bathymetry of the Genesee River near the Site, bathymetric data were collected on the Genesee River on October 6, 2023. The site bathymetric survey was performed using acoustic surveying techniques by Aqua Survey, Inc. The bathymetric data was merged with a land-based survey to create a Site DEM with horizontal resolution of 0.5 feet. The survey and resulting DEM are referenced horizontally to the North American datum of 1983, 2011 adjustment (NAD83/2011)

and projected on the New York State Plane coordinate system (west zone) and vertically to the North American Vertical datum of 1988 (NAVD88). The extents of the site survey and DEM are provided in Figure 1A.

A 2D mesh was constructed in HEC-RAS over the entire area between the Upper and Middle Falls. Each grid cell was approximately 10 feet by 10 feet, with smaller cells in areas of rapid elevation change. This resulted in 21,735 cells with an average cell area of 98 square feet and a total active flow area of approximately 0.074 square miles. Break lines were applied to selected channel boundaries, shoreline features, walls, weirs, and other topographic features to orientate and refine the 2D mesh in these areas (Figure 1C).

Boundary Conditions and Solver

The upstream boundary condition in the HEC-RAS model was simulated using a flow hydrograph. For the purposes of scenario development, pseudo-steady flow conditions of 1,000, 2,000, 3,500, 5,000, 7,500, 10,000, 13,500, 17,500, 21,300, 23,000, 26,400, 28,400, and 30,300 cubic feet per second (cfs) were simulated. The 17,500, 21,300, 23,000, 26,400, and 28,400 cfs flow events correspond to the two-year, five-year, ten-year, 25-year and 50-year recurrence intervals for the Genesee River at Rochester (USGS gage 04232000). The Genesee River exhibits flow seasonally, with highest average flows typically in March and April, and lowest flows from July through September. However, storms may produce high flow events in any month. For reference purposes, flow exceedance curves for selected all months are provided in Figure 2.

The downstream boundary condition was simulated using a stage hydrograph. The stage hydrograph is used to represent the downstream river elevation when the Middle Falls Dam is in operation. A constant stage was applied to the entire simulation period to model the dammed conditions. The primary stage applied is the target pool elevation during normal operations (389.5 NAVD88, or 391.5 barge canal datum [BCD]). To evaluate the effect of dam operations, additional scenarios were ran: 1) with boundary elevations two feet below the normal pool elevation; and 2) with dam gates open. In scenario 2, a normal flow condition was applied rather than a stage hydrograph. Boundary condition locations are presented in Figure 1A.

Parameters

Manning's N values were assigned to the discrete zones within the 2D mesh based on riverbed substrate and presence of obstructions and vegetation obtained through photos and Site visits, as well as regional geology and river morphology. Selection of appropriate Manning's N values was guided by professional judgement and methods described in publications such as Barnes (1967) and USACE (1994). The selected Manning's N-values and zones are presented in Figure 1B.

Model Calibration

The model was calibrated previously as part of the RG&E West Station design (Parsons 2022). The calibration was checked against the previously results and the current model results. The model was modified to account for a new site DEM, as well as to model theoretical scenarios where a cofferdam

would be constructed along the east bank of the Site. As such, recalibration was not required for the new Ordinary High Water Mark (OHWM). Observations during the RG&E West Station construction demonstrated that the diversion wall overtopped at a similar value as predicted in the 2022 HEC-RAS model, therefore verifying the model accuracy.

RESULTS

Influence of the Middle Falls Dam

The Middle Falls Dam exerts significant influence on the River downstream of the Island. With most or all of the gates open, as was the case during past repairs, the River in the vicinity of RG&E East Station is less than three feet deep in most places. With the gates closed and operating at what is believed to be the normal high-water level of 389.84 NAVD88 (391.5 BCD), the water levels downstream of the weirs (STA > 11+50) are 3 to 5 feet higher under low flow conditions. Model predictions of water levels along the RG&E East Station shoreline under various flow conditions and Middle Falls Dam operational scenarios are provided in Tables 1A through 1D.

Flow Diversion Assessment

The model was also applied to evaluate a cofferdam flow diversion to protect and partially isolate construction areas from the River. These diversions will not be water-tight but should serve to limit the loss of contaminated sediment into the River during construction activities. The cofferdam is not planned to be de-watered. Illustrations of the cofferdam can be found in the 60% Remedial Design Report.

Table 3 summarizes the flows above which the diversions are predicted to be overtopped. Model simulations indicate that even after being overtopped, the diversions continue to provide substantially reduced flow velocities inside the diversion, as illustrated in Figure 3.

Shear Stress

Shear stresses and velocities were extracted from the model along the cofferdam under various high flow conditions to assist in determination of stone substrate size to provide erosion protection for the post-remediation restored banks. The scenarios simulated included flood flows with return intervals of 2, 5, 10, 25, and 50 years, under various operating conditions of the Middle Falls Dam. The highest velocities and shear stresses along the cofferdam are summarized in Table 2A. The model predicts that velocities and shear stresses increase with higher flows and lower pool elevations at the Middle Falls Dam.

REFERENCES

Barnes, H.H. 1967. *Roughness Characteristics of Natural Channels*. U.S. Geological Survey Water-Supply Paper 1849. Washington, DC.

Parsons. 2022 100% Design Document for the West Station Former MGP Site. Rochester, New York. February.

U.S. Army Corps of Engineers. 1994. Hydraulic Design of Flood Control Channels. EM 1110-2-1601, Washington, DC.

TABLES

TABLE 1A PREDICTED WATER ELEVATIONS ALONG SHORELINE UNDER VARIOUS FLOW CONDITIONS WITH DAM POOL AT NORMAL HIGH WATER LEVEL OF 389.84 FEET

	Station					
Flow (cfs)	45+00	40+50	38+00	33+00	29+00	23+00
1,000	389.51	389.51	389.51	389.52	389.53	389.54
2,000	389.52	389.53	389.54	389.57	389.60	389.67
3,500	389.57	389.59	389.61	389.70	389.79	389.99
5,000	389.65	389.68	389.72	389.89	390.06	390.40
7,500	389.82	389.88	389.98	390.30	390.62	391.18
10,000	390.04	390.15	390.30	390.79	391.24	391.98
13,500	390.43	390.61	390.86	391.55	392.15	393.07
17,500	390.94	391.20	391.55	392.44	393.17	394.22
21,300	391.47	391.79	392.22	393.24	394.09	395.22
23,000	391.71	392.07	392.52	393.58	394.48	395.65
26,400	392.20	392.62	393.14	394.27	395.23	396.47
28,400	392.48	392.94	393.48	394.67	395.67	396.93

TABLE 1B PREDICTED WATER ELEVATIONS ALONG SHORELINE UNDER VARIOUS FLOW CONDITIONS WITH DAM POOL AT 391.84 FEET

	Station					
Flow (cfs)	45+00	40+50	38+00	33+00	29+00	23+00
1,000	391.84	391.84	391.84	391.85	391.85	391.86
2,000	391.85	391.86	391.86	391.87	391.88	391.91
3,500	391.88	391.89	391.90	391.93	391.97	392.05
5,000	391.92	391.93	391.96	392.03	392.10	392.25
7,500	392.01	392.05	392.10	392.25	392.41	392.70
10,000	392.14	392.20	392.29	392.53	392.79	393.24
13,500	392.36	392.47	392.62	393.00	393.43	394/03
17,500	392.68	392.85	393.08	393.61	394.16	394.47
21,300	393.04	393.27	393.56	394.26	394.90	395.84
23,000	393.21	393.48	393.77	394.56	395.26	396.21
26,400	393.56	393.87	394.25	395.12	395.92	396.95
28,400	393.77	394.12	394.52	395.46	396.26	397.39

TABLE 1C PREDICTED WATER ELEVATIONS ALONG SHORELINE UNDER VARIOUS FLOW CONDITIONS WITH DAM POOL AT 387.84 FEET

	Station					
Flow (cfs)	45+00	40+50	38+00	33+00	29+00	23+00
1,000	387.85	387.85	387.86	387.87	387.89	387.94
2,000	387.88	387.89	387.90	387.98	388.04	388.22
3,500	387.96	387.99	388.03	388.22	388.40	388.80
5,000	388/09	388.14	388.22	388.55	388.85	389.44
7,500	388.37	388.46	388.62	389.20	389.66	390.49
10,000	388.71	388.88	389.12	389.92	390.49	391.46
13,500	389.28	389.53	389.87	390.84	391.57	392.67
17,500	389.96	390.29	390.75	391.86	392.73	393.93
21,300	390.64	391.02	391.56	392.75	393.72	394.99
23,000	390.93	391.36	391.92	393.08	394.13	395.43
26,400	391.52	391.98	392.61	393.85	394.97	396.28
28,400	391.86	392.35	393.00	394.30	395.40	396.73

TABLE 1D PREDICTED WATER ELEVATIONS ALONG SHORELINE UNDER VARIOUS FLOW CONDITIONS WITH DAM GATES OPEN

	Station						
Flow (cfs)	45+00	40+50	38+00	33+00	29+00	23+00	Dam Pool
1,000	381.15	381.19	381.37	383.62	383.96	384.85	376.89
2,000	382.25	382.32	382.59	384.52	385.09	386.12	377.27
3,500	383.38	383.51	383.88	385.62	386.31	387.48	377.72
5,000	384.25	384.46	384.87	386.50	387.31	388.55	378.09
7,500	385.39	385.66	386.14	387.69	388.58	389.86	378.62
10,000	386.32	386.66	387.19	388.72	389.66	390.96	379.09
13,500	387.42	387.84	388.45	389.93	390.97	392.27	379.67
17,500	388.48	388.98	389.58	391.19	392.22	393.62	380.20
21,300	389.41	389.94	390.65	392.20	393.28	394.71	380.74
23,000	389.78	390.40	391.05	392.63	393.74	395.15	380.96
26,400	390.52	391.11	391.91	393.44	394.62	396.03	381.31
28,400	390.94	391.57	392.36	393.93	395.06	396.54	381.54

TABLE 2A SHEAR STRESS AND VELOCITY ALONG SHORELINE (OHWM) FOR SEVERAL HIGH FLOW RETURN INTERVALS –IN VICINITY OF COFFERDAM

		Station 5 (Downstream) Pool Elevation			
					Dam Gates Open
	NAVD88	391.84	389.54	387.84	>376.09
Flow Return Interval	Flow in cfs	Maximum Shear Stress in lbf/ft²			
2-YR	17,500	0.91	1.19	1.38	1.60
5-YR	21,300	1.17	1.46	1.63	1.84
10-YR	23,000	1.29	1.58	1.73	1.95
25-YR	26,400	1.52	1.79	1.94	2.14
50-YR	28,400	1.65	1.91	2.05	2.24
		Maximum Velocity in ft/s			
2-YR	17,500	10.63	12.00	12.78	13.83
5-YR	21,300	12.20	13.47	14.10	14.95
10-YR	23,000	12.83	14.01	14.63	15.39
25-YR	26,400	14.00	15.09	15.61	16.26
50-YR	28,400	14.64	15.68	16.15	16.76

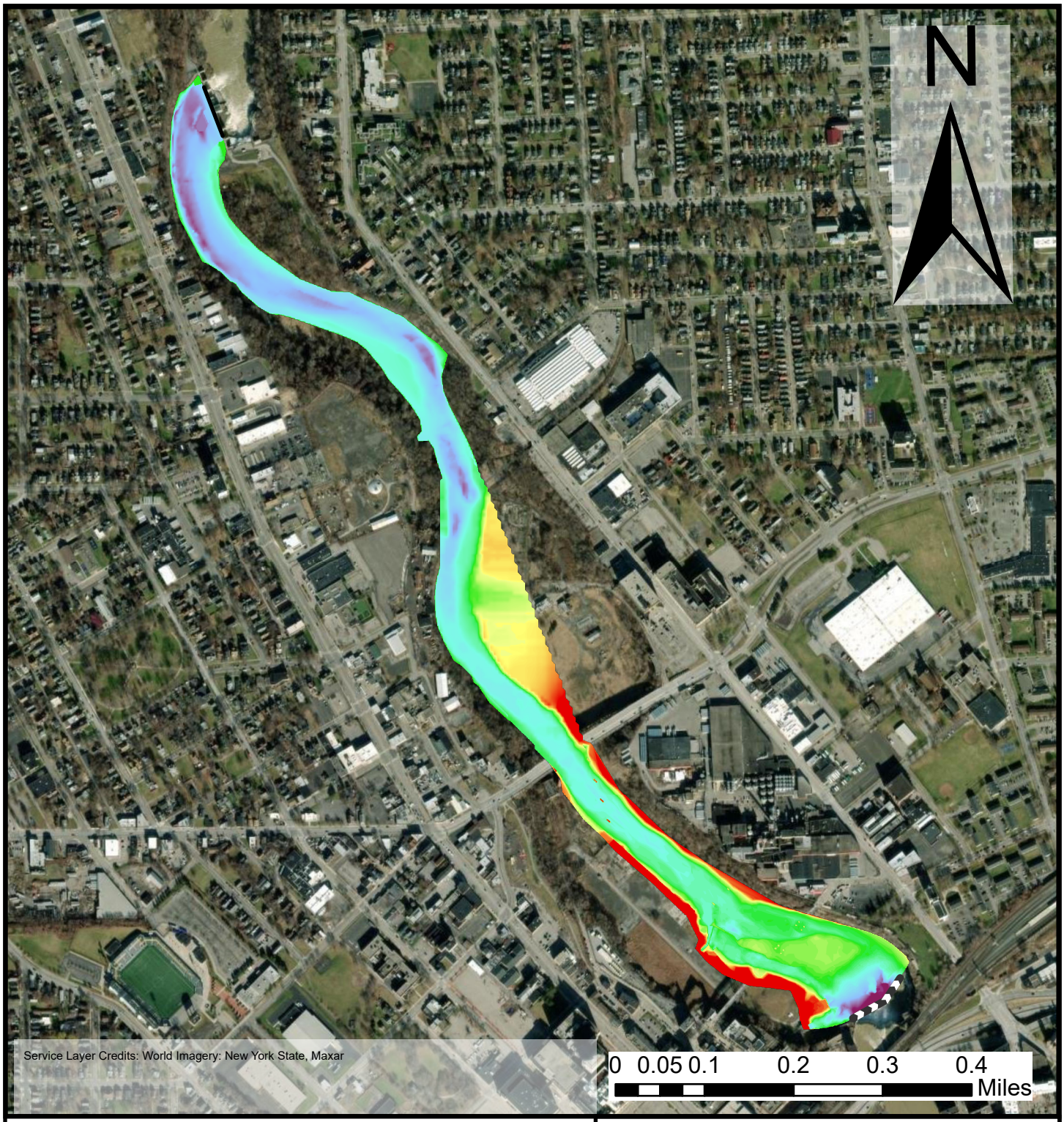
TABLE 2B SHEAR STRESS AND VELOCITY ALONG SHORELINE (OHWM) FOR 50 YEAR RECURRENCE INTERVAL – 28,400 CFS

		Station 5 (Downstream) Pool Elevation	
			Dam Gates Open
	NAVD88	389.54	>376.09
Station	Flow in cfs	Maximum Shear Stress in lbf/ft²	
23+00	28,400	1.12	1.20
29+00	28,400	1.24	2.40
33+00	28,400	1.83	2.25
38+00	28,400	1.87	2.41
40+50	28,400	1.39	1.88
45+00	28,400	0.92	1.31
OHMW	28,400	0.45	0.60
		Maximum Velocity in ft/s	
23+00	28,400	11.90	12.42
29+00	28,400	12.65	13.42
33+00	28,400	15.32	16.72
38+00	28,400	13.29	15.18
40+50	28,400	11.52	12.65
45+00	28,400	10.61	12.56
OHWM	28,400	7.11	8.19

TABLE 3 HIGH FLOWS IN WHICH DIVERSIONS ARE PREDICTED TO BE OVERTOPPED

Diversion (with design elevation NAVD88)	Flows Overtop (cfs)
Cofferdam – Dam Gates Open	17,500
Cofferdam – Dam Gates Closed (387.84 ft)	17,500
Cofferdam – Dam Gates Closed (389.54 ft)	17,500
Cofferdam – Dam Gates Closed (391.84 ft)	10,000

FIGURES



Boundary Conditions

DS outflow BC

Upstream Flow

DEM: Feet - NAVD88

416.062

360.062

FIGURE 1A

DEM and Boundary Conditions

East Station
Appendix L -
HEC-RAS Modeling

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Mannings N Values

Value

- 0.033
- 0.05
- 0.04
- 0.03

FIGURE 1B

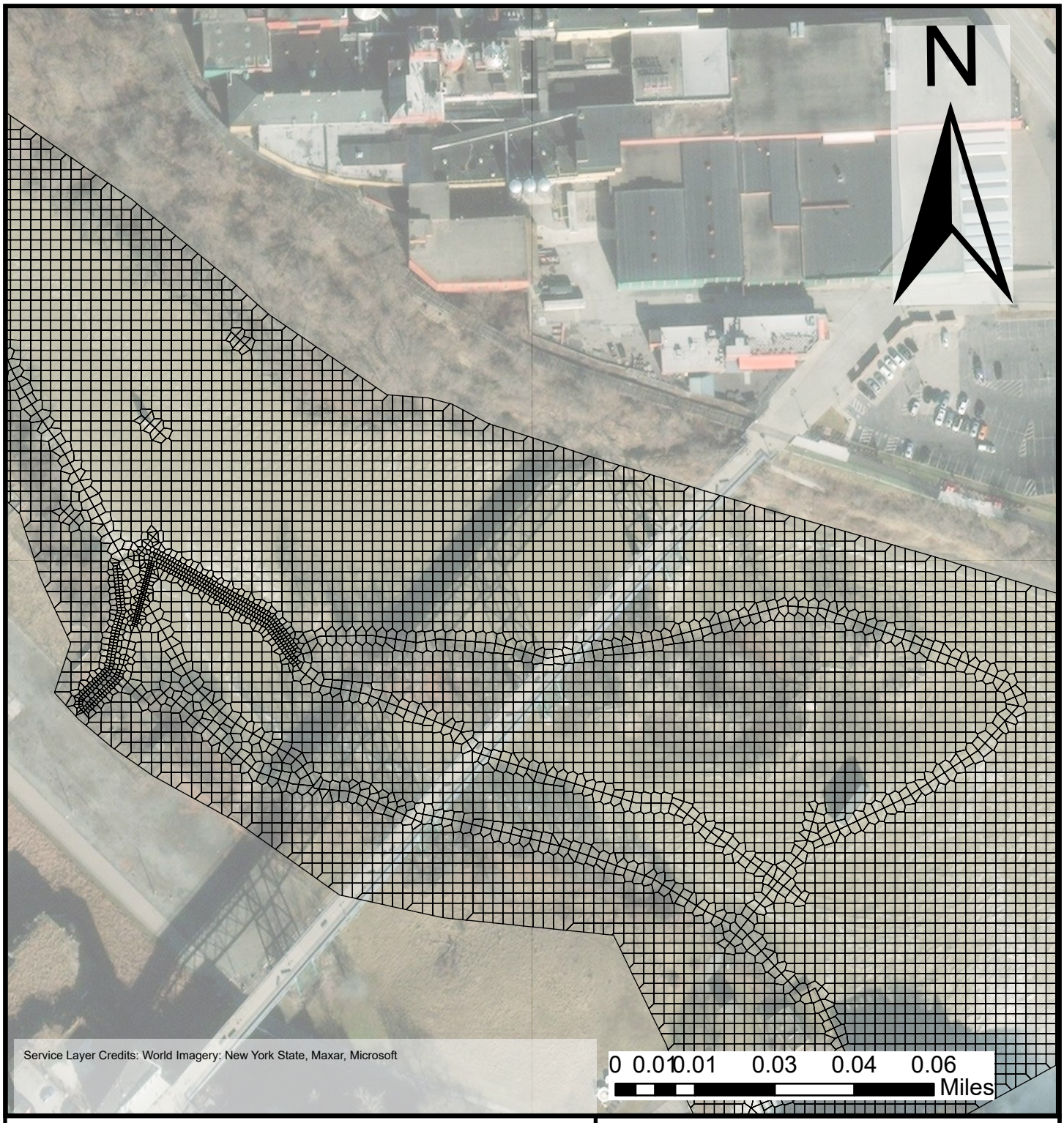
Mannings N Values

East Station
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Computation Points

FIGURE 1C

Computational Break Points

East Station
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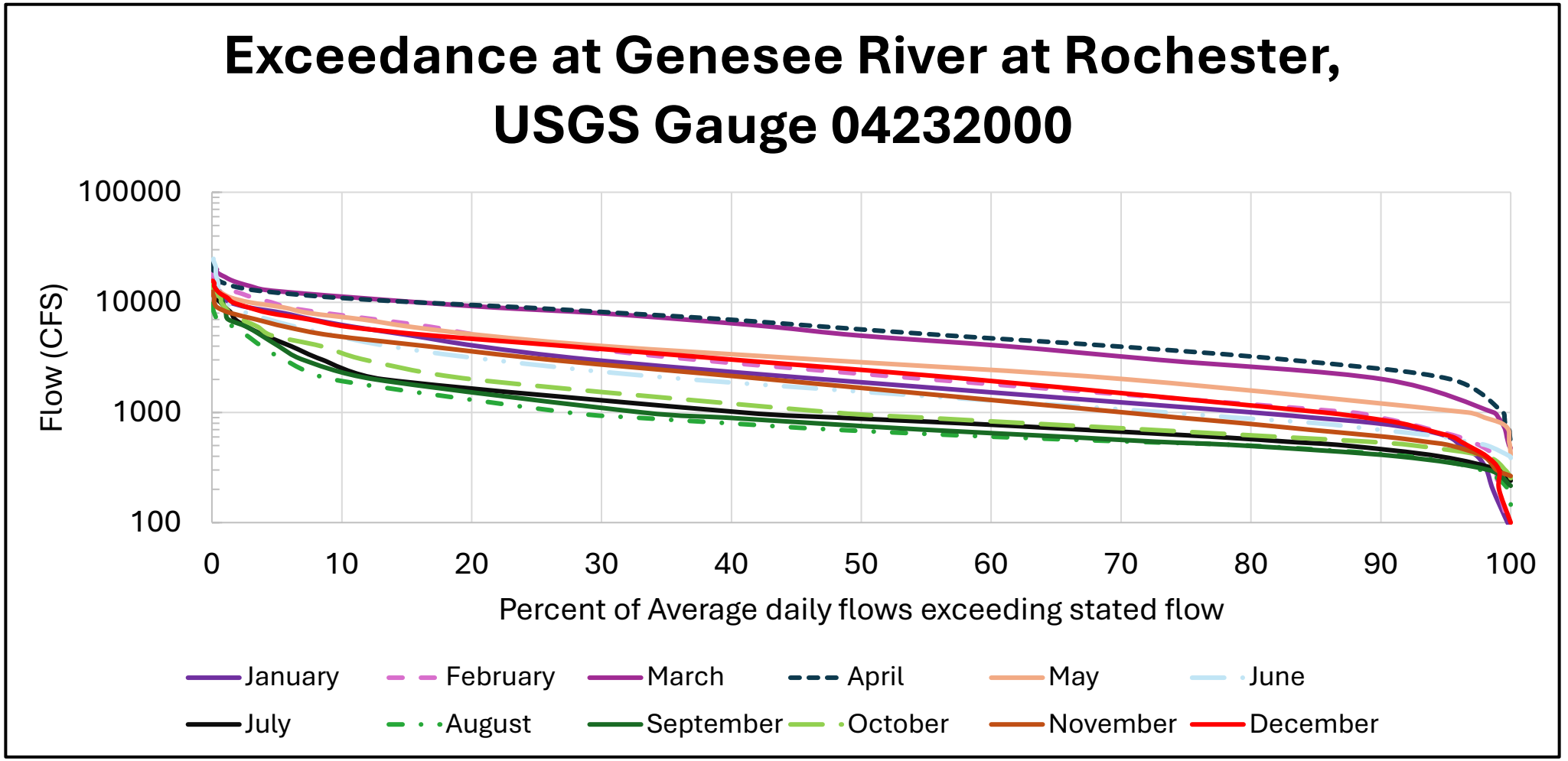


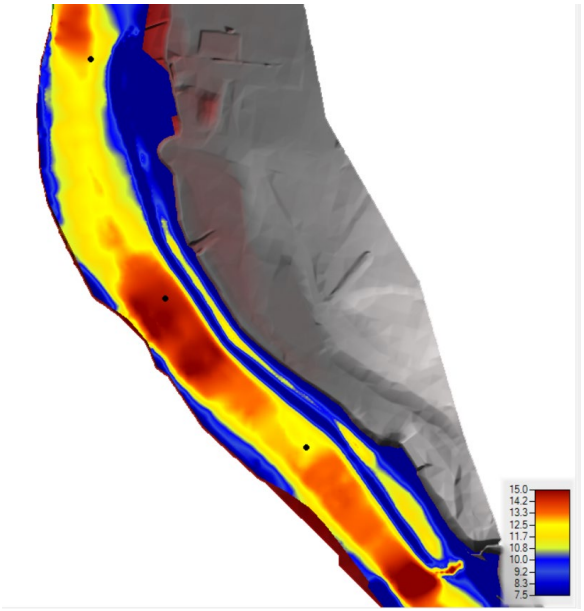
FIGURE 2

Exceedance Curves for Genesee River

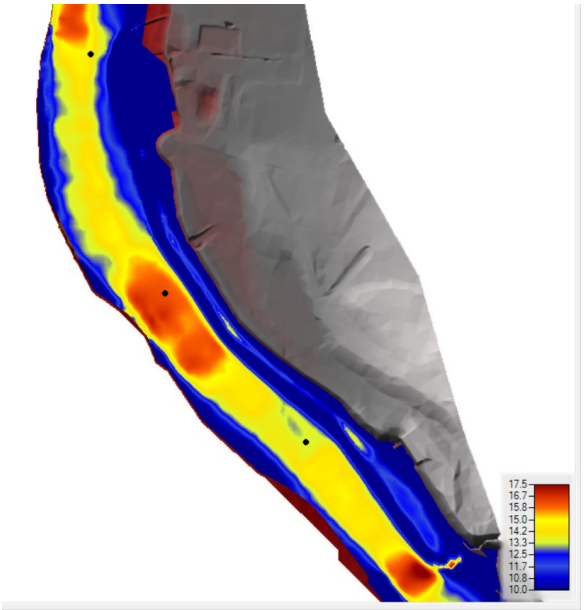
East Station
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HEC-RAS Modeling

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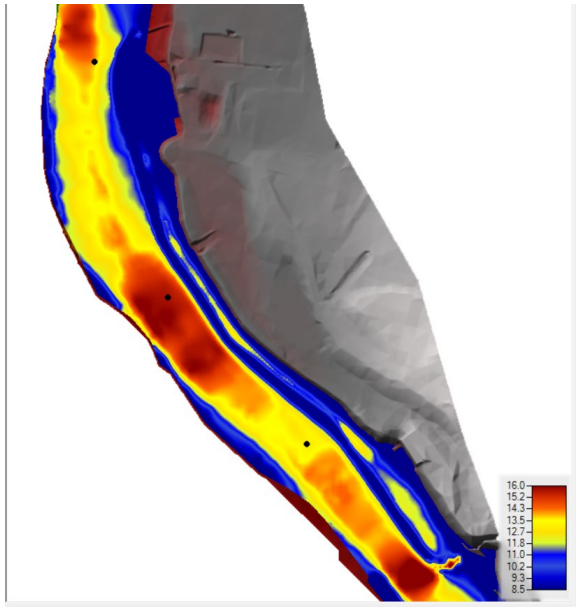
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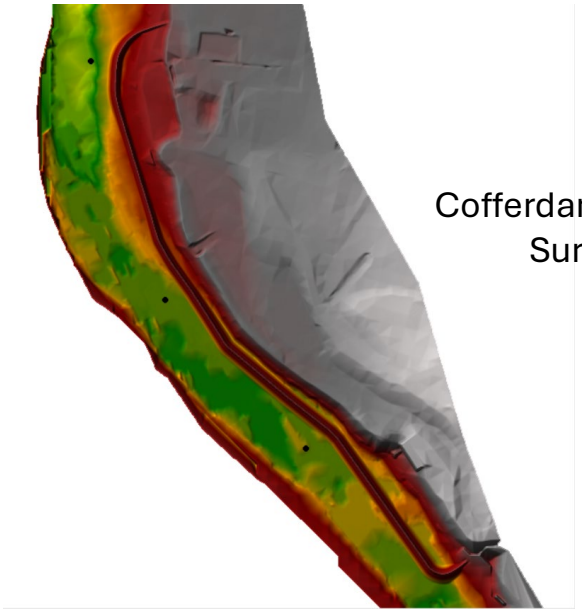
391.84 ft NAVD88 – Closed Dam



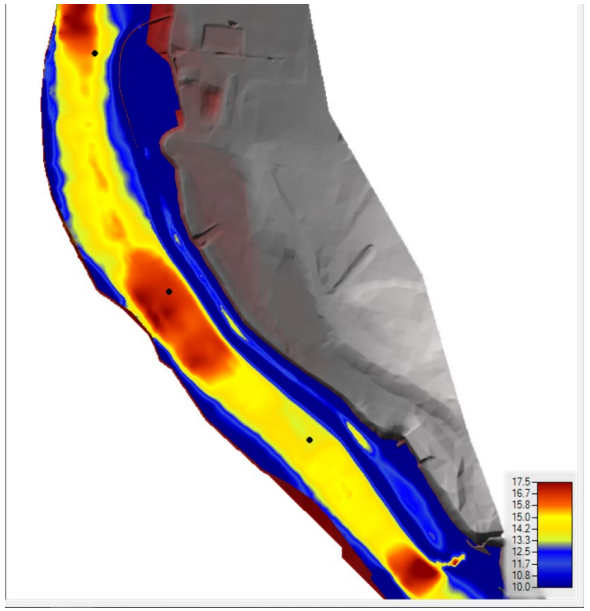
387.84 ft NAVD88 – Closed Dam



389.54 ft NAVD88 – Closed Dam



Cofferdam – Terrain Surface



Open Dam Gates – Pool elevation 381.54 ft

FIGURE 3
Velocities within Flow Barrier
East Station Appendix L – HEC-RAS Modeling
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APPENDIX M
GROUNDWATER MODELING MEMORANDUM

Technical Memorandum

To: East Station Design Team

From: Parsons – Groundwater Modeling Team

Date: November 8, 2024

Subject: RG&E East Station Former MGP Site 60% Design – Groundwater Model

The groundwater modeling update and analyses for the 60% Remedial Design for the RG&E East Station Former MGP Site (Site) in Rochester, New York, are detailed below.

PURPOSE AND OBJECTIVES

The purpose of the groundwater model was to:

1. Understand groundwater flow dynamics at the site
2. Provide further insight on the potential effects of the excavation and proposed work at the site

The efforts described in this memorandum depict a novel groundwater model that was developed for the site in support of remedial design decision making.

MODEL DEVELOPMENT

A geological model was developed using borehole data of on-site wells, using the Seequent Leapfrog 2023.3.2 software program to develop a geological model of the site for integration into a MODFLOW model. The geological model was bounded by utilizing the elevation surface provided in the design base mapping representative the existing ground surface. In areas where borehole data was not available, Leapfrog smoothed out the geological units to not introduce bias in the stratigraphic units in the model. The geological model became the framework for a MODFLOW-USG (Panday et al 2017) grid for unstructured MODFLOW simulations. With a developed grid, prepared by Leapfrog, it was then imported into Groundwater Vistas to be used as the Graphical User Interface (GUI) for running MODFLOW-USG.

Groundwater model properties (Table 1) were assigned in Groundwater Vistas, including hydraulic conductivity, recharge, hydrostratagraphic units, storage, and porosity. The model utilized a constant head boundary to represent the Genesee River at a stage of 389.5 ft (NAVD88), and an upgradient boundary comprised of constant head cells that are set to the lower value of a fixed value of 415 ft (NAVD88) or 1 foot less than the top elevation of the model cell they occupy. The model domain is depicted in Figures 1A-1H.

CALIBRATION EFFORTS

Efforts to calibrate the groundwater model began with manual calibration methods, checking hydrogeological property values against expected values from typical plausible values, ensuring that discretization of the model domain is in line with what is known/expected of the site. From the sensitivity analysis, automated calibration efforts were undertaken using the Highly Parallelized Parameter Estimation Tool (PEST_HP) (Doherty 2015). PEST_HP runs similar to the Parameter Estimation Tool, except it utilizes Parallel Model runs to increase the

speed at which PEST can converge to a solution. Parameters that were calibrated in PEST included the hydraulic conductivity zones and the associated values for Kx/Ky and Kz. The results of the model calibration via PEST_HP and manual calibration methods yielded a scaled Root Mean Square Error (RMSE) of 0.090, which indicated agreement between the modeled data and the observed data (See figure 2).

REMEDIAL DESIGN – FLOW RATES

Following groundwater model calibration, the proposed excavation areas (Figure 3) were added to the groundwater model as Drain Cells. Drain Cells represent the lack of geological media for water to flow through effectively removing water from the aquifer. The result is a decrease in head condition. The Drain Cells were selected to represent the proposed excavation areas. The Drain Cells were set to the elevations that match the proposed excavation depths and were distributed uniformly across the limits of proposed excavation. Flow through the proposed Bausch and Lomb excavation area was estimated to be approximately 10 gallons per minute (gpm). The proposed ISS was added to this model (Figure 4), assigned as a hydraulic conductivity of $1x10^{-6}$ cm/s or ~0.0028 ft/day. With the ISS incorporated into the model, the flow through the proposed ISS was approximately 2 gpm in the model under post-construction conditions.

ASSUMPTIONS

The following assumptions were made for the groundwater model:

- Potential for historical building foundations to alter groundwater patterns, which are not accounted for in the model.
- The ISS wall is represented with a hydraulic conductivity zone of $1x10^{-6}$ cm/s, without permeability specified. If the permeability of the existing ISS barrier wall is significantly lower than what was simulated, mounding behind the wall is expected to be greater post-construction.
- Recharge is distributed uniformly throughout the model domain

REFERENCES

Doherty, J., 2015. Calibration and uncertainty analysis for complex environmental models. Watermark Numerical Computing, Brisbane, Australia. 227pp. ISBN: 978-0-9943786-0-6

Panday, S., Langevin, C.D., Niswonger, R.G., Ibaraki, M., and Hughes, J.D. 2017, MODFLOW-USG version 1.4.00: An unstructured grid version of MODFLOW for simulating groundwater flow and tightly coupled processes using a control volume finite-difference formulation: U.S. Geological Survey Software Release, 27 October 2017, https://dx.doi.org/10.5066/F7R20ZFJ

TABLES

Table 1. Groundwater Model Specifications
East Station - 2024 Groundwater Modeling Investigation

	Input Parameter	Value				Unit	Notes
Grid Properties	Number of Columns (NCOL)	248				-	The model is processed using MODFLOW USG, so it does not have columns, rows, and layers as would be standard, but instead it is discretized over unstructured nodes. The structure of the model still follows the typical row, column, layer discretization in the visualization.
	Number of Rows (NROW)	392				-	
	Number of Layers (NLAY)	5				-	
	Total Active Cells	329,655				-	
	Total Cells	486,080				-	
	Total Model Area	2,430,400				ft^2	
	deltax (DELR)	5				ft	
	deltay (DELC)	5				ft	
	deltaz (DZ)	Variable				ft	
Physical Properties	**Zones**	**Initial Values**		**Calibrated Values**		**Unit**	**Notes**
		K_{xy}	K_z	K_{xy}	K_z		
	Hydraulic Conductivity Zone 1	3.28E+02	3.28E+01	1.50E+03	1.50E+02	ft/d	Gravelly-Sand mixture
	Hydraulic Conductivity Zone 2	1.64E+02	1.64E+01	8.26E-01	8.26E-02	ft/d	Gravelly-Silty-Sand
	Hydraulic Conductivity Zone 3	3.28E+01	3.28E+00	1.50E+01	1.50E+00	ft/d	Silty Gravels
	Hydraulic Conductivity Zone 4	3.28E-02	3.28E-03	0.16405	0.016405	ft/d	Clayey Sands
	Hydraulic Conductivity Zone 5	4.92E+01	4.92E+00	8.25E+01	2.83E+01	ft/d	Gravelly-sands
	Hydraulic Conductivity Zone 6	2.83E-03	2.83E-04	2.83E-03	2.83E-04	ft/d	ISS
	Hydraulic Conductivity Zone 7	2.83E-02	2.83E-03	2.27E-01	2.27E-02	ft/d	Weathered Bedrock
	Hydraulic Conductivity Zone 8	2.83E+00	2.83E-01	N/A	N/A	ft/d	Fill
	Recharge (Regional)	0.0016		0.0016		ft/d	See Figure 2.3-1 for additional recharge zones
	Effective Porosity	0.2		0.2		Unitless	
MODFLOW Parameters	**Property**	**Value / Method**				**Unit**	**Notes**
	Stress Period	Steady State				-	Standard values were used for model convergence, and the base model is processed in steady state for current calibration purposes.
	Solver	USG				-	
	Head Change criteria for outer iterations	0.001				m	
	Head Change criteria for inner iterations	0.00001				m	
	Inner iterations	250				-	
	Outer iterations	500				-	
	Volumetric Water Balance from MODFLOW	0				%	
Calibration Results	**Calibration Type**	**Value**				**Unit**	**Notes**
	Pre-Calibration Scaled RMSE	0.169				m	Scaled RMSE is a standard error determination for a groundwater model, which is calculated by dividing the RMSE by the maximum range of observed calibration targets.
	Post-Calibration Scaled RMSE	0.139				m	
	Pre-Calibration RMSE Scaled (Weighted)	0.102				m	
	Post-Calibration RMSE Scaled (Weighted)	0.09				m	

Notes:

K_{xy}: Horizontal hydraulic conductivity
K_z: Vertical hydraulic conductivity
ft: Feet
ft^2: Square Feet
ft/d Feet per day
N/A Not applicable
RMS Root mean square error
USG Unstructured grid

FIGURES



Legend

- No Flow Cells
- Drains
- Constant Head Cells
- GRID

FIGURE 1A

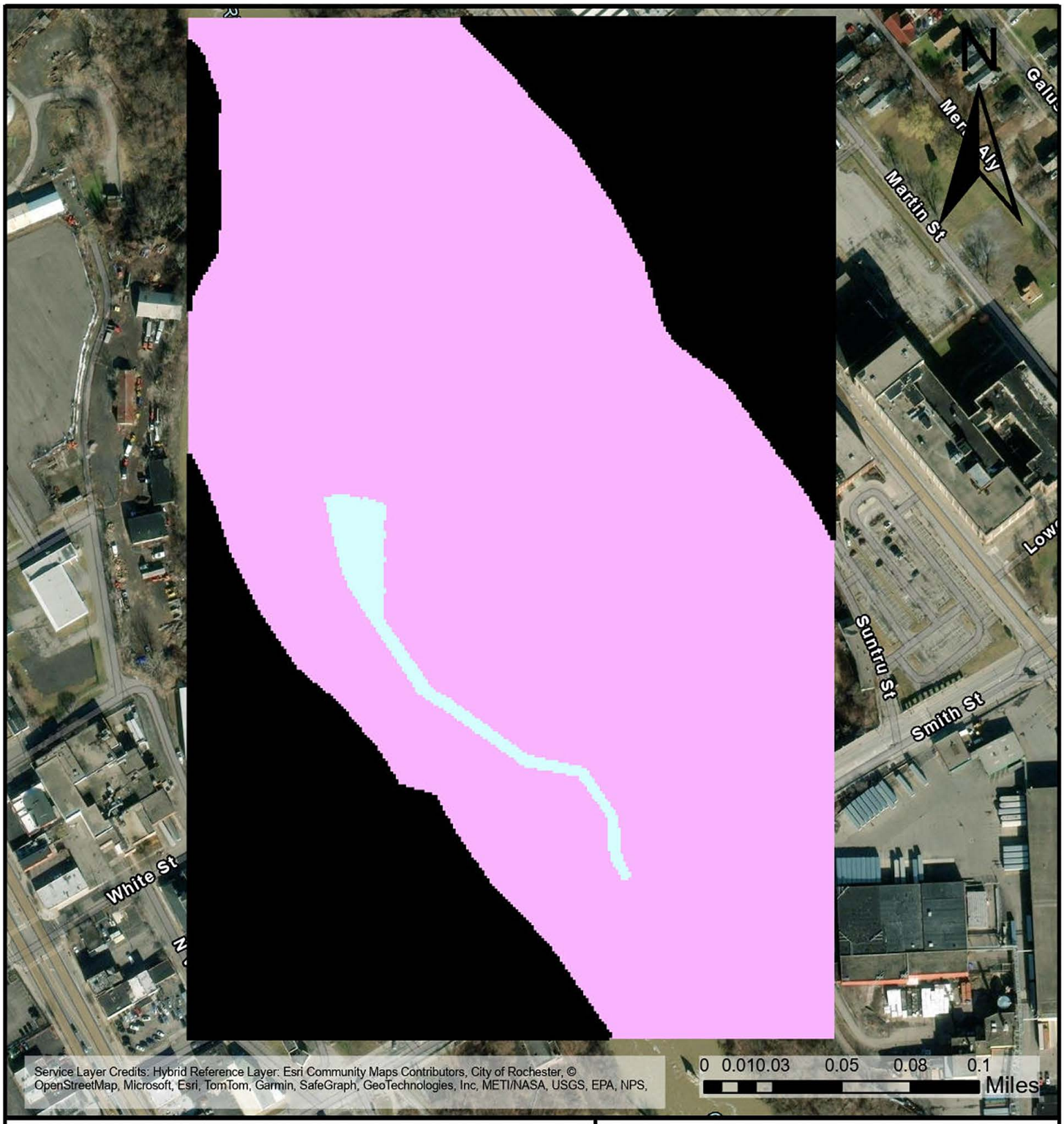
Cell Grid and Boundary Conditions

East Station
Appendix M -
Groundwater Modeling

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Legend

- No Flow Cells

Kx

- 0.002835
- 1500

Note: K is in feet per day

FIGURE 1B

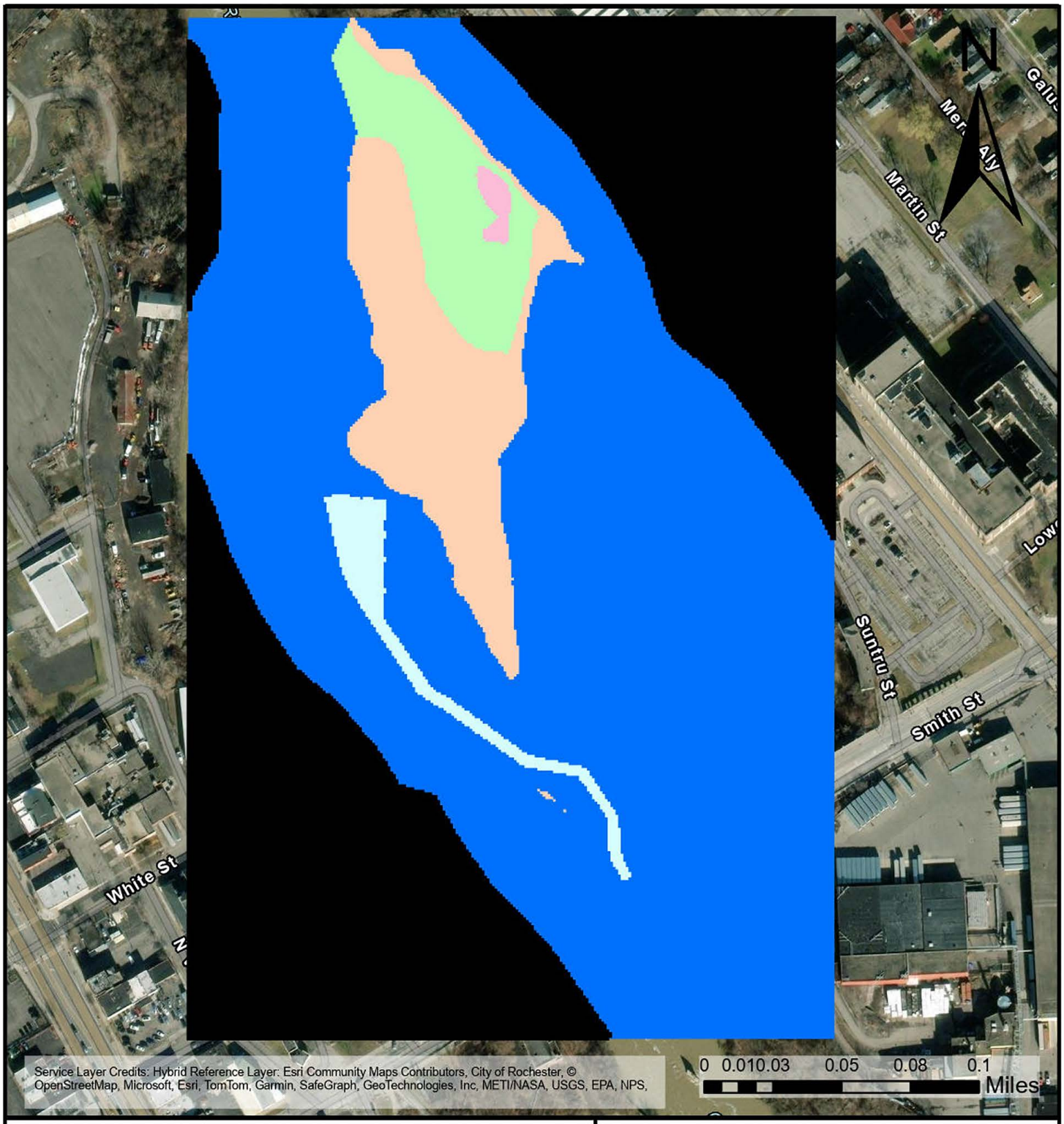
Hydraulic Conductivity - Layer 1

East Station
Appendix M -
Groundwater Modeling

PARSONS

File path:\\nybuf03fs01\PCTGprojects\East Station\GIS_Data\East_Station.aprx

Date Saved: 11/5/2024 10:55 AM



Legend

- No Flow Cells

Kx

- 0.002835
- 0.16405
- 0.826278
- 15
- 82.531366

Note: K is in feet per day

FIGURE 1C

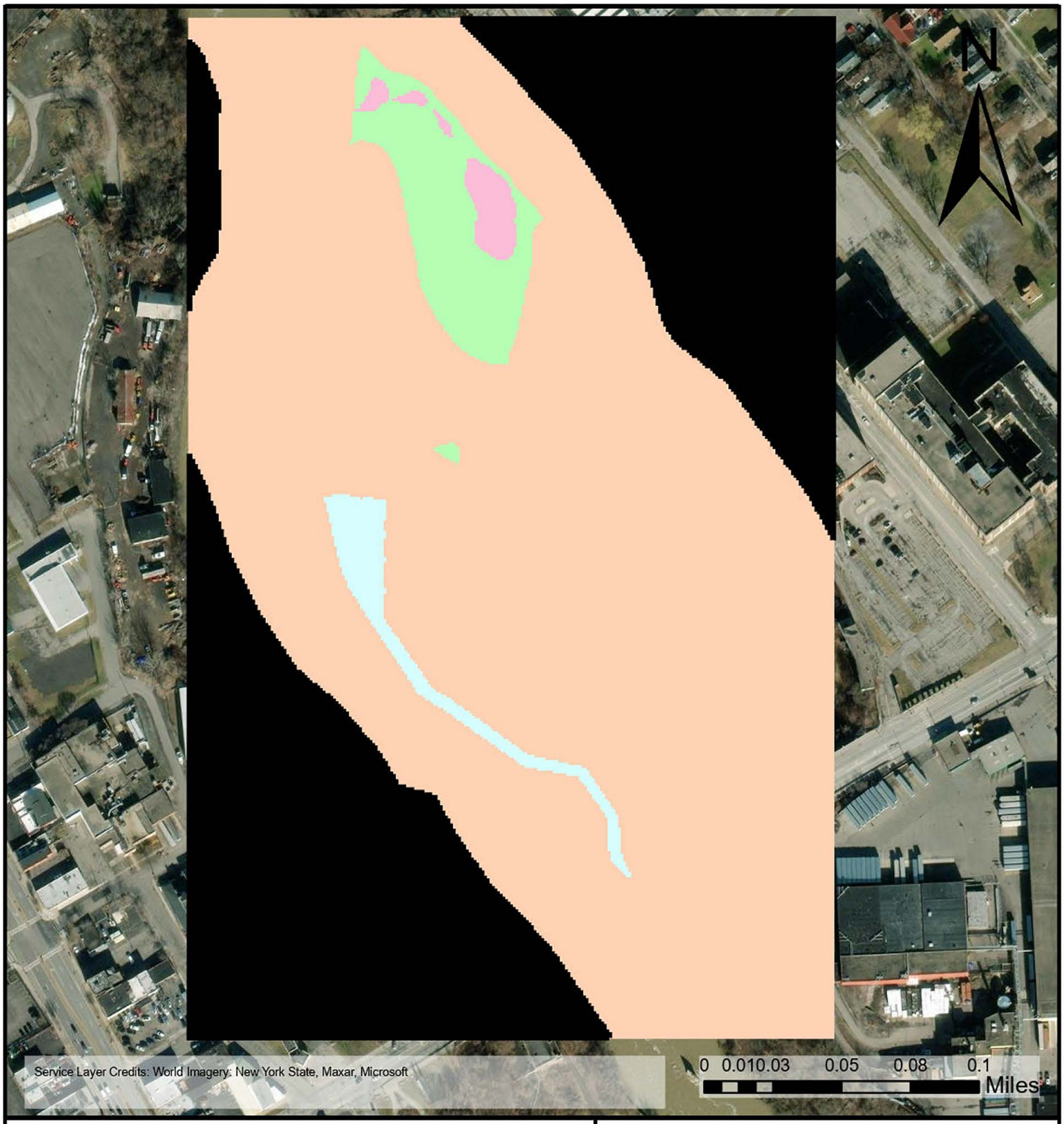
Hydraulic Conductivity - Layer 2

East Station
Appendix M -
Groundwater Modeling

PARSONS

File path:\\nybuf03fs01\PCTGprojects\East Station\GIS_Data\East_Station.aprx

Date Saved: 11/5/2024 10:55 AM



Legend

- No Flow Cells

Kx

- 0.002835
- 0.16405
- 0.826278
- 82.531366

Note: K is in feet per day

FIGURE 1D

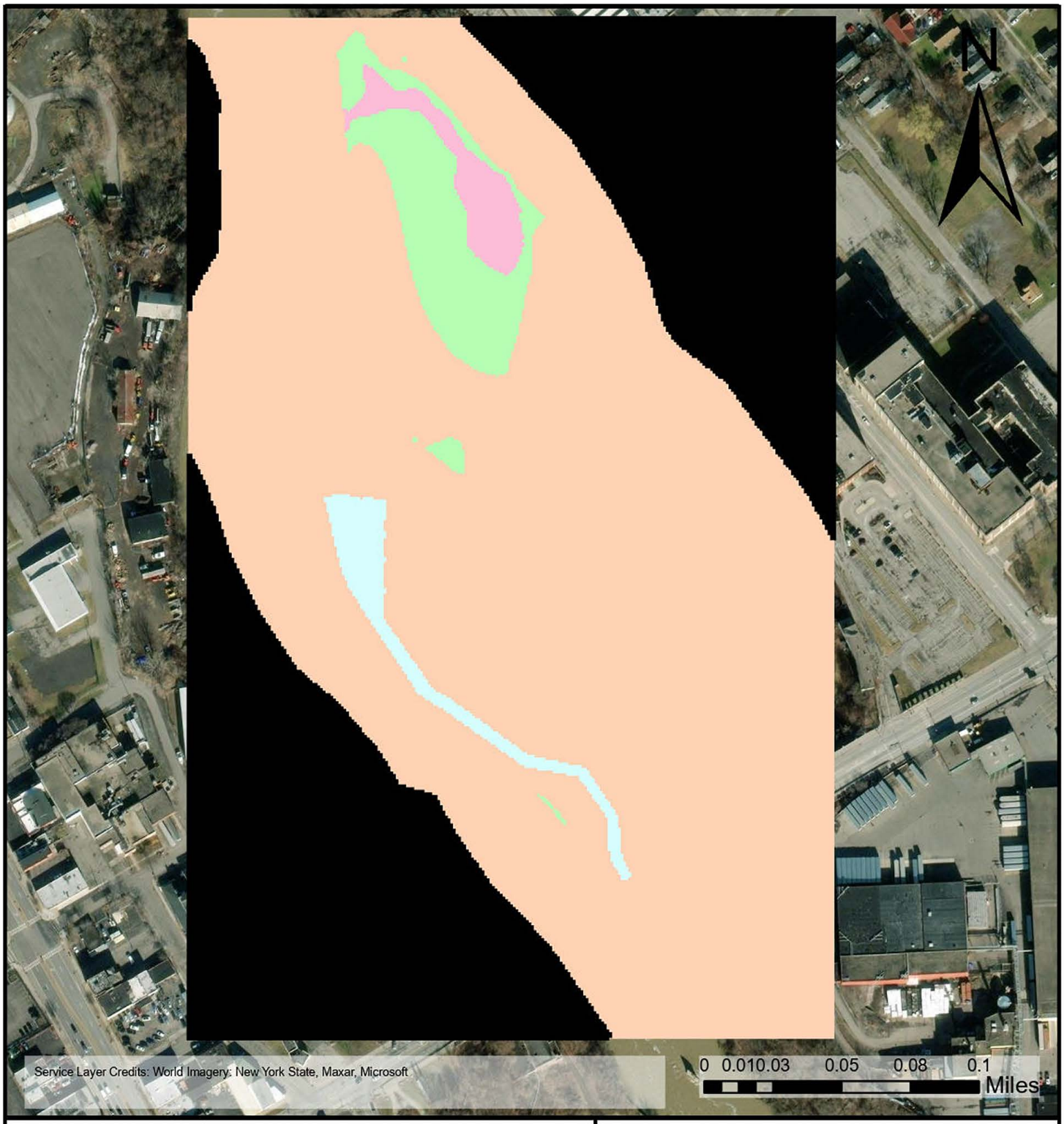
Hydraulic Conductivity - Layer 3

East Station
Appendix M -
Groundwater Modeling

PARSONS

File path:\\nybuf03fs01\PCTGprojects\East Station\GIS_Data\East_Station.aprx

Date Saved: 11/5/2024 10:55 AM



Legend

- No Flow Cells

Kx

- 0.002835
- 0.16405
- 0.826278
- 82.531366

Note: K is in feet per day

FIGURE 1E

Hydraulic Conductivity - Layer 4

East Station
Appendix M -
Groundwater Modeling

PARSONS

File path:\\nybuf03fs01\PCTGprojects\East Station\GIS_Data\East_Station.aprx

Date Saved: 11/5/2024 10:55 AM



Legend

- No Flow Cells

Kx

- 0.002835
- 0.226931

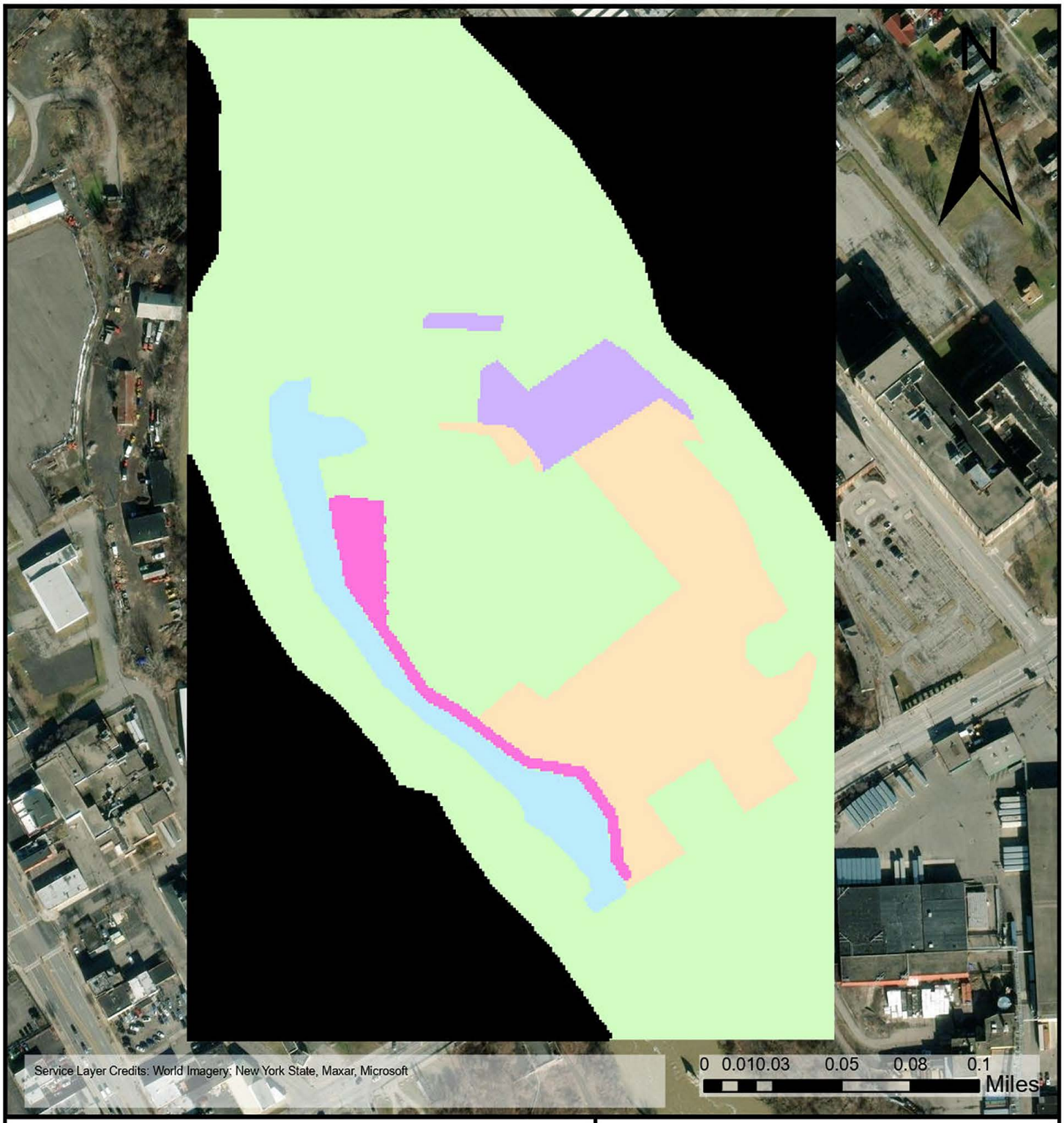
Note: K is in feet per day

FIGURE 1F

Hydraulic Conductivity - Layer 5

East Station
Appendix M -
Groundwater Modeling

PARSONS



Legend

- No Flow Cells

HydroStrat

- Background
- Bausch and Lomb Excavation
- Shoreline ISS
- Shoreline Excavation
- Proposed ISS

Note: Layer 5 (bottom layer) is a separate HSU

FIGURE 1G

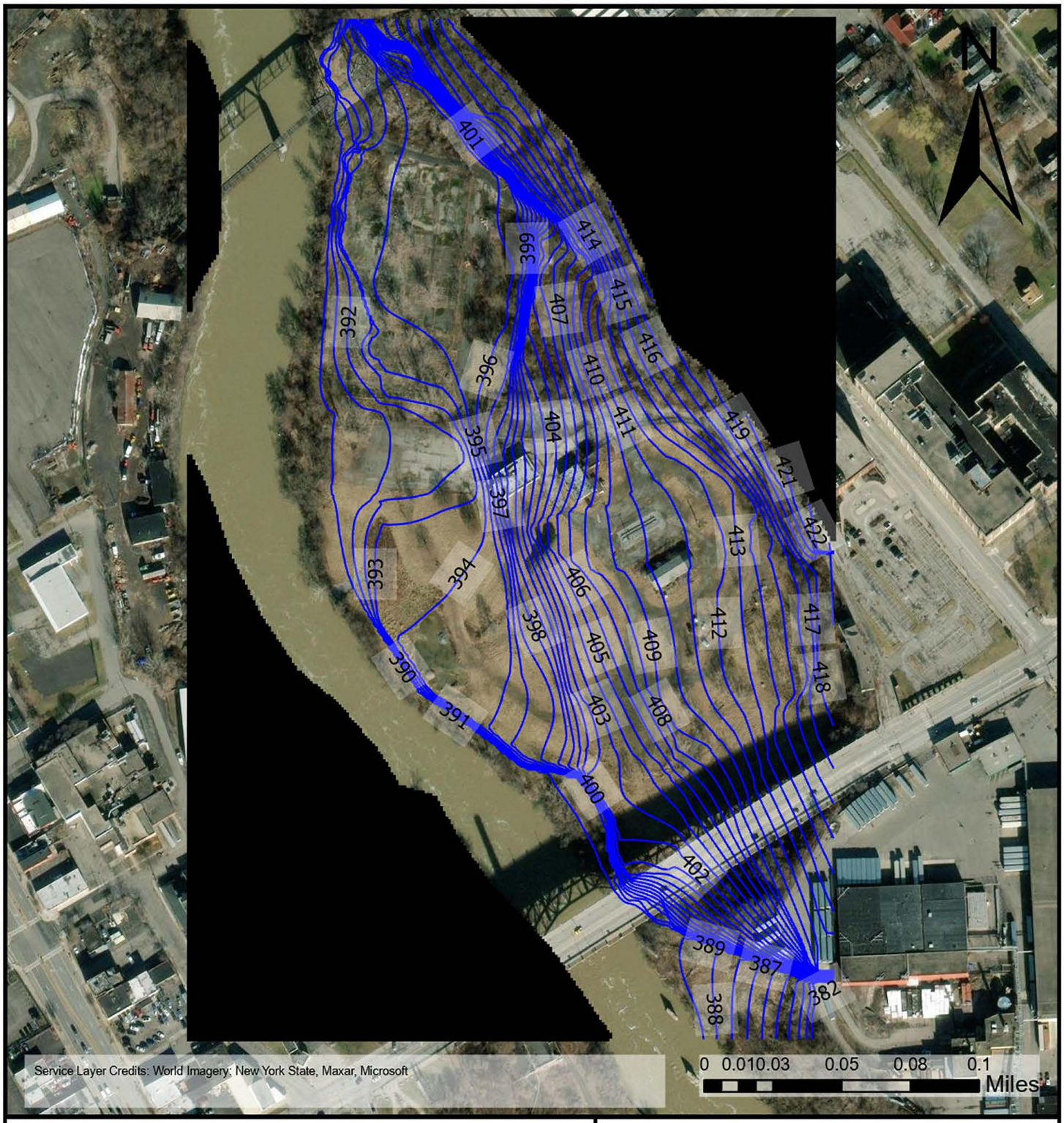
HSU zones, Layers 1-4

East Station
Appendix M -
Groundwater Modeling

PARSONS

File path:\\nybuf03fs01\PCTGprojects\East Station\GIS_Data\East_Station.aprx

Date Saved: 11/5/2024 10:55 AM



Legend

- No Flow Cells
- Groundwater Head

Note: Groundwater Elevation is NAVD88

FIGURE 1H

Groundwater Elevation - Modeled

East Station
Appendix M -
Groundwater Modeling

PARSONS

File path:\\rybuf03fs01\PCTGprojects\East Station\GIS_Data\East_Station.aprx

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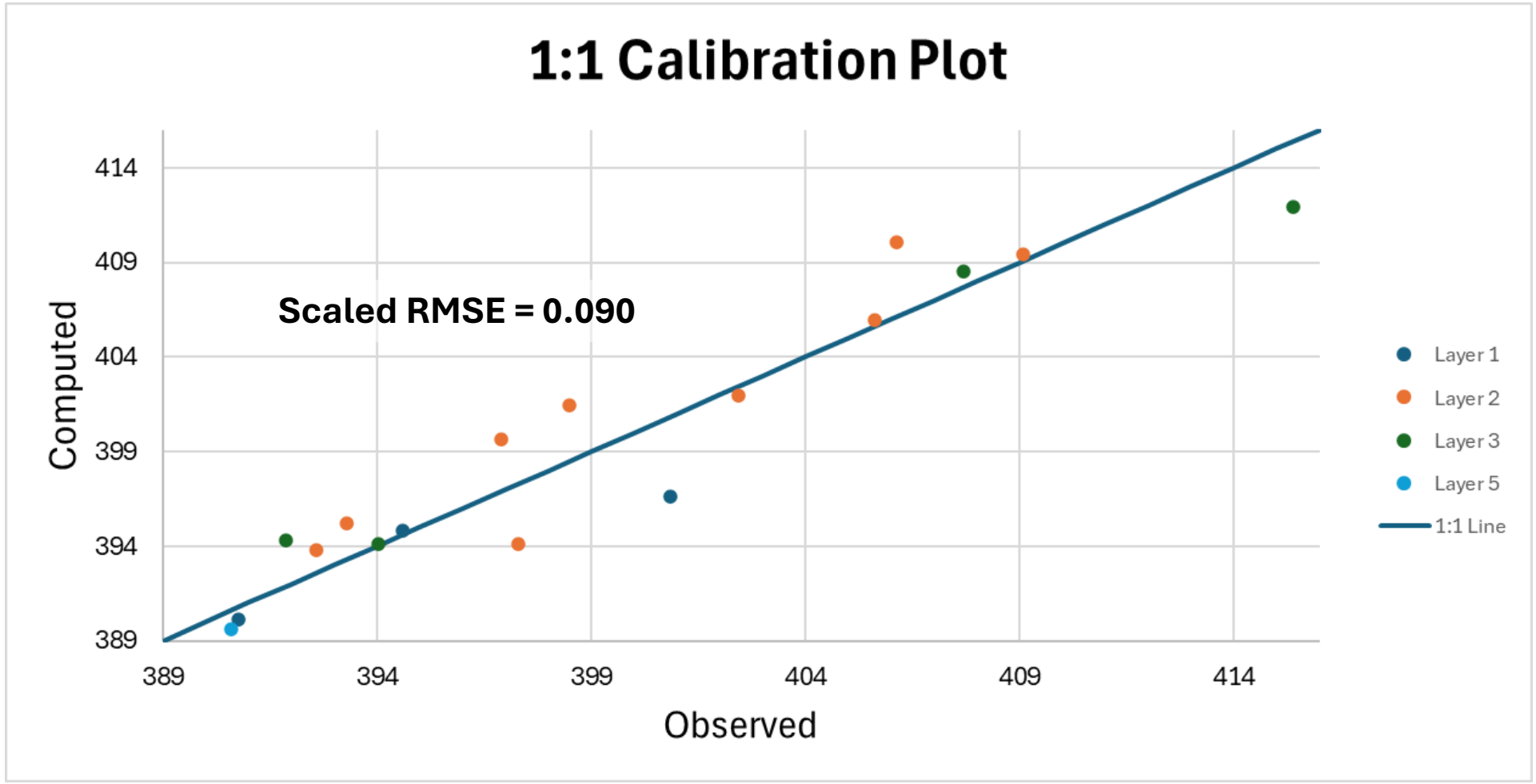
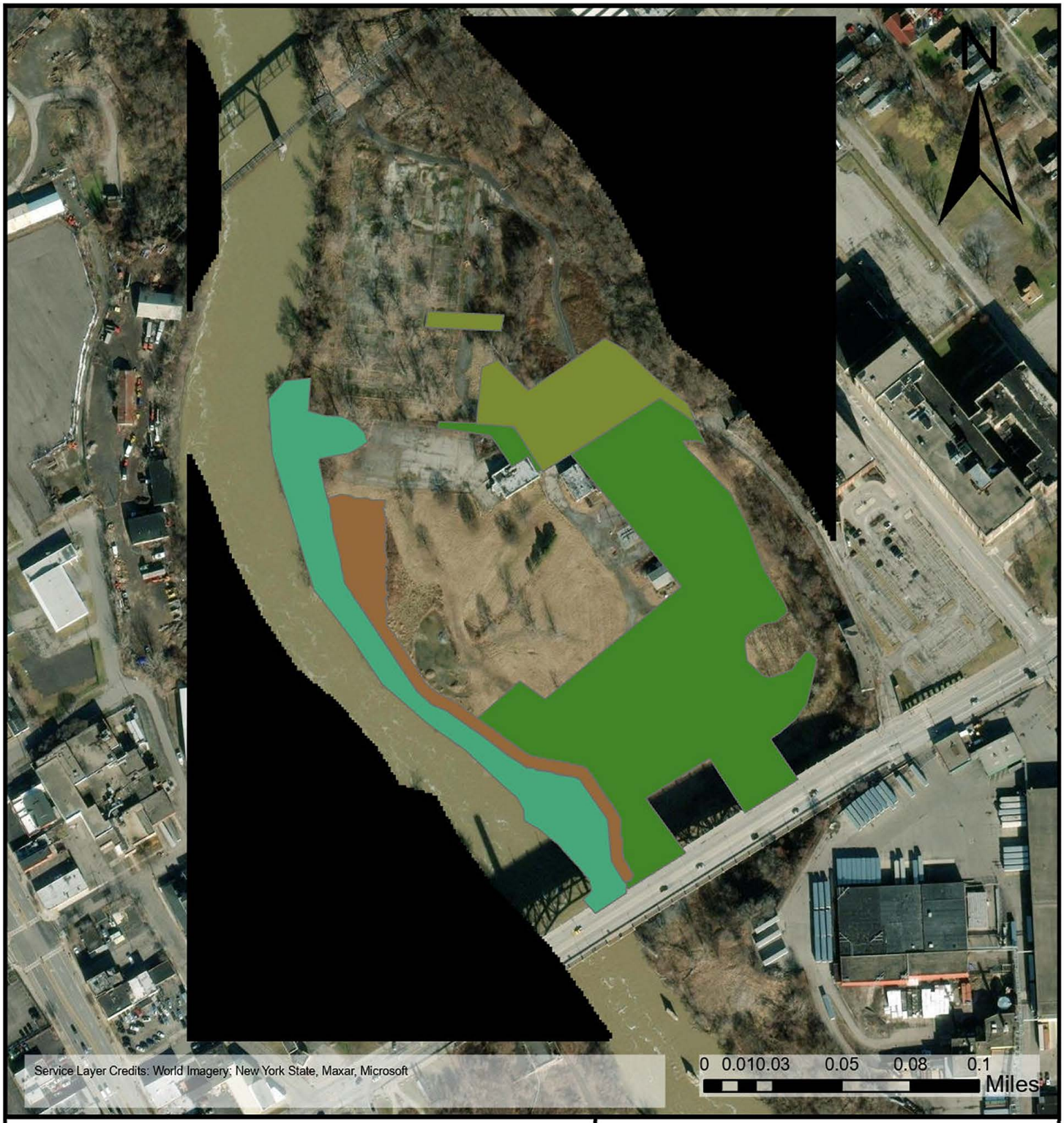


FIGURE 2

Calibration Plot

East Station
Appendix M –
Groundwater Modeling

PARSONS



Legend

- No Flow Cells
- Existing ISS Excavation
- Shoreline Excavation
- Bausch and Lomb Excavation
- Upland Excavation

FIGURE 3

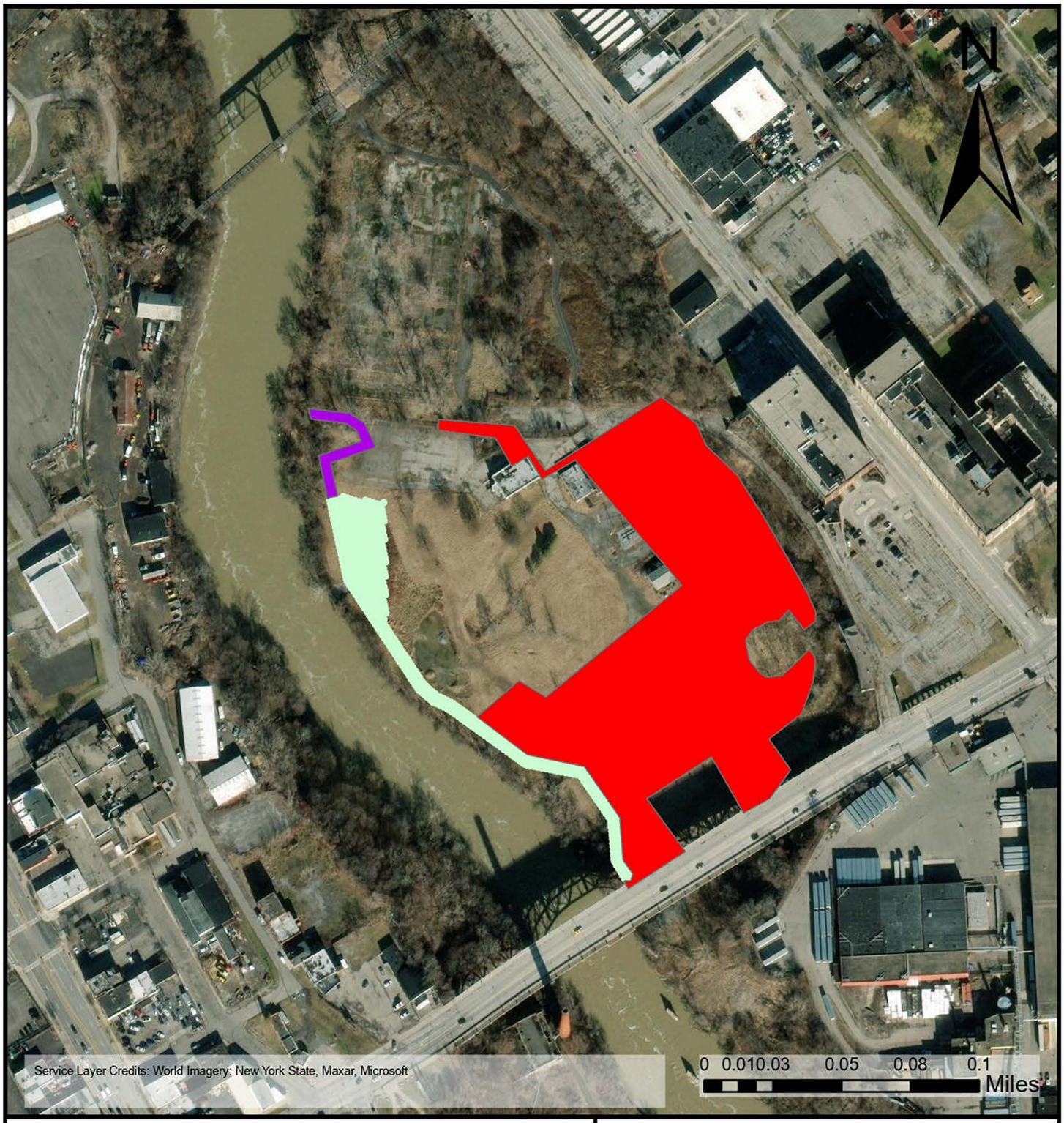
Excavation Areas

East Station
Appendix M -
Groundwater Modeling

PARSONS

File path:\\nybuf03fs01\PCTGprojects\East Station\GIS_Data\East_Station.aprx

Date Saved: 11/5/2024 10:55 AM



Legend

- Proposed ISS
- ISS Extension
- Existing ISS

Note: ISS assigned K of 1x10^-6 cm/s

FIGURE 4

ISS Zones

East Station
Appendix M -
Groundwater Modeling

PARSONS

File path:\\ryb\uf03fs01\PCTGprojects\East Station\GIS_Data\East_Station.aprx

Date Saved: 11/5/2024 10:55 AM

APPENDIX N
GORGE ROAD STABILITY ANALYSIS (RESERVED)

APPENDIX O
WETLAND DELINEATION AND HABITAT ASSESSMENT REPORT

WETLAND DELINEATION AND HABITAT ASSESSMENT REPORT FOR THE EAST STATION FORMER MGP SITE - 828204

ROCHESTER, MONROE COUNTY, NEW YORK

Prepared For:

RG&E

Prepared By:

PARSONS

301 Plainfield Road, Suite 350
Syracuse, New York 13212

SEPTEMBER 2024

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LIST OF ACRONYMS

ACRONYM	Definition
APT	Antecedent Precipitation Tool
B+L	Bausch and Lomb Incorporated
DBH	Diameter at Breast Height
ECL	Environmental Conservation Law
ECOS	Environmental Conservation Online System
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FWW	Freshwater Wetland(s)
GPS	Global Positioning System
HUC-12	Hydrologic Unit Code - 12
IPaC	Information for Planning and Conservation
MGP	Manufactured Gas Plant
NAVD88	North American Vertical Datum of 1988
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
NYNHP	New York Natural Heritage Program
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
OHWM	Ordinary High-Water Mark
Parsons	Parsons Environment & Infrastructure Group
R2UBH	Riverine Lower Perennial Unconsolidated Bottom Permanently Flooded
RG&E	Rochester Gas and Electric Corporation
ROW	Right of Way
Section 10	Section 10 of the Rivers and Harbors Appropriation Act of 1899
Section 404	Section 404 of the Clean Water Act
SFHA	Special Flood Hazard Area
TNW	Traditional Navigable Water
Ub	Urban Land
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
W	Water
WOTUS	Waters of the United States
WSS	Web Soil Survey

1.0 INTRODUCTION

The Rochester Gas and Electric Corporation (RG&E) East Station Former Manufactured Gas Plant (MGP) Site (Site) is located in the City of Rochester, Monroe County, New York.

Industrial manufacturing activities including coal carbonization and coal gas manufacturing occurred at the Site from approximately 1872 to 1976. The Site is one of three sites included in a New York State Department of Environmental Conservation (NYSDEC) Multi-Site Order of Consent that became effective June 26, 2018 (Index No, C0-8-20180517-48, Site No. 828204). NYSDEC issued a Record of Decision for the Site in June 2022 (NYSDEC 2022a). In accordance with the Record of Decision, the Site will be remediated and restored.

Parsons Environment & Infrastructure Group (Parsons) has prepared this Wetland Delineation and Habitat Assessment Report for the Site (**Figure 1**). A comprehensive habitat investigation and wetland delineation was conducted by Parsons at the Site from August 14, 2023, to August 17, 2023, to determine the extent of potential impact on State and Federally regulated waters and wildlife habitat in the Site. During the design phase for the Site, the delineated ordinary high-water mark (OHWM) was found to be in inconsistent with previous field surveys and was resurveyed on August 29, 2024. Qualified field biologists performed the field investigation and wetland delineation under the supervision of a registered Professional Wetland Scientist. The field investigation was performed in accordance with the NYSDEC-approved Pre-Design Investigation Work Plan (Parsons 2023). Personnel resumes are provided in **Appendix A**.

2.0 SITE CHARACTERIZATION

2.1 Site Description

The Site is located in Rochester, Monroe County, New York (43.167582531, -77.620444002), at approximate elevation of 400 feet (U.S. survey feet North American Vertical Datum of 1988) (**Figure 2**). The Site includes the RG&E former MGP property, a former Bausch and Lomb Incorporated (B+L) property, and a New York State (NYS)-owned property (**Figure 1**). The RG&E property is 13.15 acres and is located south and west of Suntru Street. The B+L property is 7.82 acres and is located north of the RG&E property and Suntru Street. The NYS-owned property is a 2.25-acre band of the east bank of the Genessee River, along the western boundary of the RG&E property. All three properties will be remediated and restored, in accordance with the Record of Decision. The Site is a mostly flat terrace between the banks of the Genessee River to the west and the Genesee River gorge wall to the east. The Site is bordered to south by the Bausch Memorial Bridge and to the north by an abandoned railroad bridge that crosses the Genessee River. Four small buildings remain on the RG&E property, where Suntru Street ends. The remaining buildings are no longer occupied.

The banks of the Genessee River are a mix of steep, unconsolidated slopes and concrete retaining walls, dominated by non-native trees. South of Suntru Street, the Site is composed of old field vegetation communities and urban forest stands, with a system of unimproved, overgrown roads and vegetated swales that drain toward the Genessee River. North of Suntru Street, the aboveground structures on the B+L property have been removed, but a large field of ground-level concrete slabs remain. Holes and crevices are found throughout, through which non-native and weedy trees are growing. At the time of the assessment, there were no barriers to public access north of Suntru Street, so apparent unauthorized dumping sites are present throughout[1].

2.1 Soils

According to the Natural Resource Conservation Services (NRCS) online websoil survey (WSS), which was assessed on December 5, 2023, one soil type occurs within the Site (**Figure 3**) (United States Department of Agriculture [USDA] 2023). The review of the WSS indicated that this soil type found within the Site is not classified as a hydric soil. The WSS map information is provided in **Table 1**.

Table 1 Soil Characterization

Soil Symbol	Soil Name	Hydric
Ub	Urban Land	No
W	Water	N/A

[1] An access gate was installed on Suntru Street in December 2023 to prevent unauthorized public access.

2.2 Hydrology

The Site borders the Main Stem of the Lower Genesee River, between the High Falls and the Lower Falls. The Lower Genesee River flows north, and is approximately 12 miles long, from the outlet of the river at Lake Ontario to the intersection with the Erie Canal (NYSDEC 2023a).

The Main Stem of the Lower Genesee River fall within the Hydrologic Unit Code-12 (HUC-12) watershed code 041300030704, which encompasses approximately 2,373 acres within New York (NYSDEC 2023b).

According to National Oceanic and Atmospheric Administration (NOAA) records, the Genesee River watershed and Monroe County overall do not often experience flooding events. NOAA records indicate that Monroe County annual precipitation averaged 35.46 inches from 2000 to 2023 (NOAA 2023).

3.0 METHODOLOGY

3.1 Agency Consultation

Federal and state agencies were consulted to determine what, if any, critical habitats and/or state or federally protected species exist within the Site. The desktop analysis was used to develop a habitat investigation plan.

3.1.1 United States Fish and Wildlife Service

The United States Fish and Wildlife Services (USFWS) Environmental Conservation Online System (ECOS) Information for Planning and Conservation (IPaC) webpage was accessed on May 1, 2023 (USFWS 2023a). This tool was utilized to determine which federally protected species and critical habitats, if any, were potentially present within the Site.

3.1.2 New York State Department of Environmental Conservation

An information request was submitted to the New York Natural Heritage Program (NYNHP) on April 25, 2023. This tool was utilized to determine which state protected species and significant natural communities, if any, were potentially present within the Site.

3.2 Aquatic Resources

3.2.1 Wetlands

The wetland delineation was conducted in accordance with the *1987 United States Army Corps of Engineers (USACE) Wetland Delineation Manual*, as well as the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Northeastern and Northcentral Region*, Version 2.0 (Environmental Laboratory 1987, USACE 2012). The indicator status of each plant species was identified within the wetland determination plots using the National Wetland Plant List for Northeast and Northcentral (Lichvar et. al. 2016). Wetlands were classified according to the Cowardin Code (Cowardin et al. 1979). The USACE Antecedent Precipitation Tool (APT) was used to determine whether field data was collected under normal climatic conditions. Wetland determination plots were performed in areas with the highest likelihood of developing wetland indicators (e.g., low areas, areas with wetland indicator species).

3.2.2 Woodland Pools

Woodland pools are small, isolated, ephemerally flooded wetlands that provide critical habitat to many frog, toad, turtle, and salamander species. These pools are flooded for a sufficient period of time to develop hydric soil characteristics and the primary and secondary indicators of wetland hydrology (NYNHP 2022a). As such, woodland pools were delineated in the same manner as wetlands discussed in Section 3.2.1. Woodland pool boundaries, if occurring within the Site, were field delineated.

3.2.3 Streams

Other aquatic environments include water bodies that do not have characteristics (e.g., wetland hydrology and soil, and hydrophytic vegetation) to be delineated as a wetland. Such environments include streams (perennial, intermittent, and ephemeral), rivers, and some ponds. Streams were preliminarily identified in the vicinity of the Site by review of United States Geological Survey (USGS) topographic maps (**Figure 2**), aerial photographs, and existing Federal Emergency Management Agency (FEMA)/ Flood Insurance Rate Maps (FIRM) floodplain maps (**Figure 4**), NYSDEC Environmental Resources maps (**Figure 5**), and USFWS National Wetland Inventory (NWI) maps (**Figure 6**). During the field investigation, The OHWM of identified streams was determined primarily using physical evidence (i.e., shelving, scouring, wracking, deposition, etc.) as outlined in the *USACE Regulatory Guidance Letter 05-05* (USACE 2005), and the *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Interim Version* (USACE 2022).

3.2.4 Floodplains

Special Flood Hazard Areas (SFHAs) are defined by FEMA as areas having special flood, mudflow, or flood-related erosion hazards. SFHAs are presented on FEMA/FIRM floodplain maps. SFHAs within the Site were identified in a desktop analysis by producing a FEMA/FIRM Floodplain Map (**Figure 4**).

3.2.5 Culverts, Ditches, and Swales

Because of landscape changes due to urbanization, additional waterways exhibiting a defined bed and bank, such as ditches, swales, and culverts, if occurring within the Site, were identified during field investigation and classified as either ephemeral, intermittent, or perennial. Culverts, ditches, and swales were identified using aerial imagery, historical construction information, and data from Site reconnaissance. During the field investigation, culvert diameter, length, and location were recorded. Data on vegetation, soils, and hydrology were collected using the same methodology described in Section 3.2.1.

3.3 Habitat and Endangered, Threatened, and Rare Species Assessment

3.3.1 Habitat Surveys

The goals of the habitat investigation were to describe ecological community types, fish and wildlife resource requirements and value, and invasive species presence, as well as to identify potential impacts to the identified fish and wildlife resources in the commission of the work. Vegetation types and land-use cover types were initially reviewed using agency resource maps and aerial imagery, and further identified in the field by compiling vegetation lists for distinct areas and identifying areas of significant invasive species cover. Direct field observation in conjunction with review of associated species and habitat preference was used to assess fish and wildlife resources.

3.3.2 Tree Survey

A tree survey was performed on trees and shrubs greater than three inches in diameter at breast height (DBH) within the Site. Data collected for each tree included location recorded with a global positioning system (GPS), estimated height, DBH, condition of the tree, and visual inspection of potential roosting bat habitat (i.e.,

exfoliating bark, fissures, holes, cracks, or any other suitable bat habitat). Collected data were recorded on the attached Potential Bat Roost Survey Datasheet. Trees that were determined to provide potential roost habitat were flagged with blue and pink ribbon.

3.3.3 Milkweed Abundance and Diversity

Significant populations of common milkweed, swamp milkweed (*Asclepias incarnata*), and/or butterfly weed (*Asclepias tuberosa*) were identified, delineated, and mapped within the Site using a GPS. A significant population of milkweed is defined as being equal to or more than 50 stems per acre and was mapped with a GPS. Observations of the Monarch Butterfly were reported under the wildlife observation list.

3.3.4 Nuisance and Invasive Species

Moderate to significant stands of nuisance and/or invasive species were identified within the Site. A moderate stand is defined as equal to or more than 25 stems per acre, while a significant stand is defined as equal to or more than 50 stems per acre. Areas of overlapping invasive species were identified and located with a GPS.

4.0 RESULTS

4.1 Agency Results

4.1.1 United States Fish and Wildlife Service

On May 1, 2023, Parsons generated a USFWS IPaC Trust Resource Report for the Site (**Appendix B**). The results of the report are summarized below:

Proposed, Candidate, Threatened, and Endangered Species

The report suggests that the Site may be inhabited by a total of one federally protected species: the Northern Long-eared Bat. Additionally, the report suggests that one candidate species, the Monarch Butterfly, may inhabit the Site.

Critical Habitats

According to the USFWS IPaC Trust Resource Report, the Site does not contain any critical habitat areas.

Migratory Birds

According to the USFWS IPaC Trust Resource Report, a total of 15 migratory bird species of conservation concern may inhabit the Site, including the Bald Eagle (*Haliaeetus leucocephalus*), Belted Kingfisher (*Megaceryle alcyon*), Black-billed Cuckoo (*Coccyzus erythropthalmus*), Bobolink (*Dolichonyx oryzivorus*), Canada Warbler (*Cardellina canadensis*), Cerulean Warbler (*Dendroica cerulea*), Chimney Swift (*Chaetura pelagica*), Evening Grosbeak (*Coccothraustes vespertinus*), Golden Eagle (*Aquila chrysaetos*), Golden-winged Warbler (*Vermivora chrysoptera*), Lesser Yellowlegs (*Tringa flavipes*), Pectoral Sandpiper (*Calidris melanotos*), Prairie Warbler (*Dendroica discolor*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), and Wood Thrush (*Hylocichla mustelina*).

4.1.2 New York State Department of Environmental Conservation

4.1.2.2 New York Natural Heritage Program

On June 8, 2023, Parsons received a response from the NYNHP information request (**Appendix C**). The results of the report are summarized below:

Rare or State-listed Plant Species

According to the NYNHP report, there are no rare or State-listed plant species occurrences within the Site or within one mile of the Site.

Natural Heritage Priority Sites

According to the NYNHP report, there are no Natural Heritage Priority Sites within the Site or within one mile of the Site.

Rare or State-listed Wildlife Species

According to the NYNHP report, the Site does not include habitat for any rare or state-listed wildlife species. However, the state endangered Peregrine Falcon (*Falco peregrinus*) has been documented nesting within 1/2 mile of the Site.

4.1.2.3 NYSDEC Environmental Resource Mapper

The NYSDEC Environmental Resource Mapper was accessed on May 1, 2023 to assess additional rare or imperiled species. Results indicated the Genesee River as an imperiled mussel screening stream, meaning it is known to contain mussel species that are rare, threatened, or endangered in New York State.

4.2 Aquatic Resources

During the course of the field investigation, no wetlands or woodland pools were identified within the Site. The Genessee River, which borders the Site along its western boundary, was surveyed for OHWM (**Appendix D**). A total of four wetland determination plots were sampled in representative areas of the Site. The USACE datasheets are presented in **Appendix E**. Photographic documentation for each feature may be found in **Appendix F**. A wetland and stream delineation map is presented in **Figure 7**.

4.2.1 Wetlands

No mapped wetlands are present within the Site as identified on NYSDEC Environmental Resources maps (**Figure 5**) or USFWS NWI maps (**Figure 6**). No wetlands were identified during the course of the field investigation. A total of four USACE wetland determination plots were surveyed throughout the Site to characterize hydrology, soils, and vegetation. None of the plots were determined to be wetlands. Wetland determination datasheets can be found in **Appendix E**. The output from the USACE APT is presented in **Appendix G.** The results from the APT show that data for plots 1U, 2U, and 3U were collected under normal climatic conditions on August 14, 2023, and that data for plot 4U was collected under "wetter than normal" conditions on August 16, 2023. Wetter than normal conditions may impact hydrologic indicators (saturation, water table depth), favoring a false positive for wetland hydrology. However, since plot 4U showed no signs of wetland hydrology, the wetter climatic conditions had no impact on the determination.

All areas throughout the Site, with the exception of portions of the Genesee River bank, consist of unconsolidated urban fill materials that are up to 20 feet deep. Much of the Site consists of impervious surfaces including asphalt, concrete, and hard-packed gravel. The remainder of the Site consists of old fields, stands of weedy or invasive trees, and the steep, forested banks of the Genesee River and its gorge walls. No wetland fringe was present above the OHWM. Four wetland determination plots were performed in areas with plausible wetland characteristics (swales, low areas). Plots 1U, 2U, and 4U displayed no indicators of wetland hydrology, hydrophytic vegetation, or hydric soils. Plot 3U displayed wetland hydrology and hydrophytic vegetation but did not have hydric soils. Plot 3U is located in a common reed-dominated area along a drainage swale, where the vegetated swale meets a rock-lined outlet to the Genesee River. Although the common reed-dominated area has some wetland characteristics, it is not poorly drained enough to develop indicators of hydric soil. Because soils are non-native, they are inconsistent, but generally consisted of silt and sand loams, often underlain by coarse aggregates. No soil cores displayed prominent redox features or other indicators of hydric soil.

4.2.2 Woodland Pools

No woodland pools were identified during the field reconnaissance.

4.2.3 Streams and Rivers

The Genessee River borders the Site to the west for approximately 1,600 feet. The Genesee River is listed on USFWS NWI maps as riverine lower perennial unconsolidated bottom permanently flooded (R2UBH). At the Site, the Genesee River is approximately 200 feet wide. Flow conditions are highly variable, but water depths within the channel range from approximately six to 20 feet in the reach of the Genesee River adjacent to the Project Area. The western bank of the Genessee River along this reach consists of steep slopes and cliffs rising above the water. The eastern bank of the Genesee River at the Site are steep, ranging from 10 to 20 feet above the water, and consisting of slopes of hard fill (rock, brick, debris) and concrete retaining walls. The banks of the Genesee River have been colonized by non-native or weedy trees including tree of heaven (*Ailanthus altissima*), Norway maple (*Acer platanoides*), and box elder (*Acer negundo*). The man-made banks of the Genesee River have resulted in a discrete OHWM, and no fringe wetlands were identified above the OHWM.

As previously indicated, the OHWM of the Genesee River along the Site boundary was delineated in August 2023. However, after review of the collected data, it was determined that the identified OHWM was inconsistent with available hydrological data and data from nearby OHWM determinations (i.e., RG&E West Station Former MGP Site - 828205). A verification of the OHWM was performed on August 29, 2024 to investigate the discrepancy and it was determined that the August 2023 OHWM delineation (average 396 U.S. survey feet of North American Vertical Datum of 1988 [NAVD88]) was inaccurate. The OHWM was re-delineated during the August 2024 field effort. The average elevation of the August 2024 delineated OHWM along this reach of the Genesee River was 391 U.S. survey feet NAVD88. The updated OHWM is shown in **Figure 7**, and photographs showing diagnostic evidence (i.e., shelving, scouring, wracking, deposition, etc.) of the OHWM is shown in **Appendix F**, Photographs 32 through 35.

4.2.4 Floodplains

According to the FEMA/FIRM Floodplain Map (Panel Number 36055C0211G, eff. 8/28/2018), the banks of the Genessee River, and the western edge of the Site, are within a SFHA Regulatory Floodway (**Figure 4**).

4.2.5 Culverts, Ditches and Swales

Several unmaintained drainage swales are present in the southern half of the Site (**Figure 8**). The drainage swales travel west and north through the Site, draining the RG&E property south of Suntru Street, and terminating at a rock-lined outlet into the Genesee River. Herbaceous vegetation is the main cover throughout the swales, with occasional clumps of clonal trees. Sampling wells are present throughout the drainage swales. Three wetland determination plots were performed throughout the drainage swales (**Appendix E**, plots 1U, 2U, and 3U) to characterize the hydrology, vegetation, and soils in the swales. As described in Section 4.2.1, no wetlands were identified within the drainage swales. The drainage swales were dry throughout, and showed no signs of prolonged inundation, indicating that they are likely ephemeral and transport stormwater only during rainfall events. No culverts, ditches, or swales were identified north of Suntru Street.

4.3 Habitat and Endangered, Threatened, and Rare Species Assessment

4.3.1 Habitat Surveys

The following subsections describe present land uses within the Site (i.e., ecological community types) (**Figure 8**). A list of plant species encountered in each ecological community can be found in **Appendix H**. Wildlife species encountered can be found in **Appendix I**.

Impervious Surface (**Appendix F**, Photographs 2, 4, 5, 6, 9, 10, 14, 16, and 18)

The Site contains large swaths of impervious surface throughout. Suntru Street, several structures, and paved parking lots bisect the north and south halves of the Site. South of Suntru Street, large areas of the RG&E property consist of hard-packed gravel surfaces, access roads, and the foundations of former structures. North of Suntru Street, the aboveground structures on the B+L property have been removed, however a large area with ground-level concrete slabs remains. Impervious surfaces occupy approximately 40 percent of the Site. The impervious surface areas have no dominant vegetation and are largely bare. In the B+L concrete slab area, cracks and holes in the concrete allow weedy and invasive trees to grow including tree of heaven, and black locust (*Robinia pseudoacacia*).

Old Field (**Appendix F**, Photographs 7, 13, 19, and 23)

The Site contains several areas of old field vegetation. The old fields occupy approximately 35 percent of the Site. The dominant vegetation type in the old fields is herbaceous, including common timothy (*Phleum pratense*), black knapweed (*Centaurea nigra*), tufted vetch (*Vicia cracca*), mugwort (*Artemisia vulgaris*), and turf grasses (*Poa* sp.). Other common herbs in the old fields include common bird's foot trefoil (*Lotus corniculatus*), black medic (*Medicago lupulina*), and Queen Anne's lace (*Daucus carota*). Notably, several stands of common milkweed (*Asclepias syriaca*), the obligate larval host of the Monarch Butterfly, are present throughout the old field areas south of Suntru Street. Although uncommon, several weedy tree species also occur throughout the old field areas including tree of heaven and black locust.

Urban Forest (**Appendix F**, Photograph 15)

The Site contains two stands of urban forest dominated by invasive clonal trees and early successional trees. Urban forest occupies 10 percent of the Site. The urban forest tree layer is dominated by tree of heaven, black locust, and box elder. The shrub layer is dominated by many saplings and root suckers of tree of heaven. The herb layer is dominated by common white snakeroot (*Ageratina altissima*). Subdominant tree species include northern catalpa (*Catalpa speciosa*), Norway maple (*Acer platanoides*), and eastern cottonwood (*Populus deltoides*). These urban forests have very little native vegetation, and the most common species is tree of heaven. The forest floor is composed of a thin soil layer over fill material, with litter and debris scattered throughout.

Drainage Swale (**Appendix F**, Photographs 12, 17, and 22)

South of Suntru Street, several connected drainage swales drain the RG&E property, ultimately to the Genesee River via a rock-lined outlet. Drainage swale occupies five percent of the Site. The dominant cover type is herbaceous, composed of grasses such as common timothy and turf grasses, and forbs such as Queen Anne's lace and Canada thistle (*Cirsium arvense*). In low areas, occasional stands of common reed (*Phragmites australis*) have become established. Soils are composed of inconsistent silt and sand loams over a layer of hard fill or rock. Sampling wells are located throughout the drainage swale that runs north/south toward the rock-lined outlet.

Confined River (**Appendix F**, Photographs 3 and 20)

The Genessee River borders the Site to the west for approximately 1,600 feet. Along the reach that borders the Site, the Genesee River is a large, confined river within the Genesee River gorge. The confined river area includes the river and banks below the delineated OHWM. At the Site, the Genesee River is approximately 200 feet in width, with channel depths ranging from approximately six to 20 feet. The confined river area occupies approximately three percent of the Site. The western bank of the Genessee River along this reach consists of the steep slopes and cliffs of the gorge wall. Along the western edge of the NYS-owned property, south of Suntru Street, the banks of the river are steep, consisting of hard fill (rock, brick, debris). In this southern half of the reach, tree of heaven, Norway maple, and box elder are the dominant tree species, with vines including riverbank grape (*Vitis riparia*), oriental bittersweet (*Celastrus orbiculatus*), and poison ivy (*Toxicodendron radicans*). Along the B+L property, a vertical concrete retaining wall is the flagged OHWM. Below the retaining wall, a flat strip of vegetated streambank is dominated by box elder and crack willow (*Salix* x *fragilis*), often blanketed with riverbank grape and oriental bittersweet. The herbaceous layer in the northern half of the reach contains patches of reed canary grass (*Phalaris arundinacea*), green-fruited clearweed (*Pilea pumila*), hybrid cattail (*Typha x glauca*) and rice cut grass (*Leersia orzyoides*).

Municipal Right of Way (ROW) (**Appendix F**, Photograph 23)

A strip of municipal ROW is located at the southern edge of the Site beneath the Bausch Memorial Bridge. The municipal ROW occupies approximately three percent of the Site. The area beneath the bridge is mostly bare, composed of rock fill and debris. Occasional invasive and non-native weedy trees are present including black locust and tree of heaven. Patches of weedy herbs are also present including mugwort, butter and eggs (*Linaria vulgaris*), common bird's foot trefoil, and black medic.

Forested Riparian (**Appendix F**, Photographs 3, 20, and 21)

The western boundary of the Site borders the Genesee River. The steep banks of the river are dominated by riparian tree species and vines. The forested riparian area occupies four percent of the Site. The composition of species in the forested riparian area is mostly non-native, invasive, or weedy early-successional species. The dominant tree species in the forested riparian area is tree of heaven, Norway maple, and box elder. Throughout the forested riparian area, vines including riverbank grape, oriental bittersweet, and eastern poison ivy are found climbing trees and blanketing dead snags. In some areas, black swallowwort (*Vincotoxicum nigrum*) blankets forest floor. The banks of the Genesee River along this reach are man-made, consisting of slopes of hard fill (rock, brick, debris) and concrete retaining walls.

Ecological community type, associated dominant plant species, and representative percentage of Site are summarized in **Table 2.**

Table 2 Land Use

Ecological Community Type	Dominant Plant Species	Percentage of Site
Impervious Surface	None	~40%
Old Field	Mugwort (*Artemisia vulgaris*) Black knapweed (*Centaurea nigra*) Common Timothy (*Phleum pratense*) Turf grass (*Poa* sp.) Tufted vetch (*Vicia cracca*)	~35%
Urban Forest	Tree of heaven (Ailanthus altissima) Boxelder (*Acer negundo*) Black locust (*Robinia psuedoacacia*) White snakeroot (*Ageratina altissima*)	~10%

Ecological Community Type	Dominant Plant Species	Percentage of Site
Drainage Swale	Common Timothy (*Phleum pratense*) Turf grass (*Poa* sp.) Queen Anne's lace (*Daucus carota*) Canada thistle (*Cirsium arvense*) Common reed (*Phragmites australis*)	~5%
Confined River	Tree of heaven (*Ailanthus altissima*) Boxelder (*Acer negundo*) Norway maple (*Acer platanoides*) Hybrid crack willow (*Salix* x *fragilis*) Eastern poison ivy (*Toxicodendron radicans*) Oriental bittersweet (*Celastrus orbiculatus*) Riverbank grape (*Vitis riparia*)	~3%
Municipal ROW	None	~3%
Forested Riparian	Tree of heaven (*Ailanthus altissima*) Norway maple (*Acer platanoides*) Boxelder (*Acer negundo*) Oriental bittersweet (*Celastrus orbiculatus*) Riverbank grape (*Vitis riparia*) Eastern poison ivy (*Toxicodendron radicans*)	~4%

4.3.2 Tree Survey

A total of 358 trees were identified within the Site on August 15 and 16, 2023. In total, 23 species were identified during the survey, with the most common species being box elder (94 trees), tree of heaven (93 trees), and eastern cottonwood (55 trees). The survey identified 260 trees in excellent condition, 59 in good condition, 10 in fair condition, 19 in poor condition, and 10 dead. A total of nine trees were considered suitable for bat roosting habitat due to the presence of exfoliated bark or nesting holes (**Appendix J**).

4.3.3 Milkweed Abundance and Diversity

Several stands of milkweed, constituting greater than 50 stems per acre, were identified within the Site during the habitat investigation. Waypoints of the milkweed stands are presented on **Figure 8**.

4.3.4 Nuisance and Invasive Species

Two herbaceous invasive species were noted in significant amounts throughout the Site during the habitat investigation. Additionally, three invasive tree species were identified throughout the Site in dominant clusters and along the Genesee River. Approximately 40% of the Site contained invasive species (**Figure 9**).

Common Reed

Common reed was observed in three significant stands in the southern portion of the Site. All stands were located in an old field area near drainage ditches. Locations of common reed are identified on **Figure 9**.

Mugwort

Mugwort was observed dominating an old field area in the northeast corner of the Site. Significant stands of mugwort were mixed with piles of debris throughout the area. The location of mugwort is presented on **Figure 9**.

Invasive Trees and Vines

The invasive tree species tree of heaven and Norway maple were identified throughout the Site. Additionally, the invasive trees were often accompanied by the invasive vine oriental bittersweet. Invasive trees and vines dominated the B+L property, the banks of the Genesee River, and the urban forest areas.

5.0 DISCUSSION

5.1 Jurisdiction

Based on the evaluations conducted to determine the extent of potential impact on existing wetlands, streams, or other water bodies in the Site, the Genessee River is the only identified feature in the Site that is jurisdictional. A discussion of the jurisdiction of the Genessee River and associated features is provided in the following subsections.

5.1.1 Federal Jurisdiction

Section 404 of the Clean Water Act (Section 404) establishes a program to regulate the discharge of dredged or fill material into Waters of the United States (WOTUS), including wetlands. Activities under this program include fill for development, water resource projects (such as dams and levees), infrastructure development, and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into WOTUS, unless the activity is exempt from Section 404 regulation (e.g., certain farming and forestry activities).

Although the Genesee River has several nearby waterfalls, the Genesee's large size likely categorizes it as a Traditional Navigable Water (TNW). No wetlands were identified in the Site.

Since the Genesee River is a WOTUS (i.e., TNW), and work is proposed below the OHWM (the average elevation across field-delineated OHWM flags was 396 U.S. survey feet North American Vertical Datum of 1988), the USACE has jurisdiction to regulate the proposed project activities under Section 404.

Section 10 of the Rivers and Harbors Appropriation Act of 1899 (Section 10) prohibits the obstruction, excavating or filling, or in any manner altering or modifying the course, location, condition, or capacity of any navigable WOTUS. Although not all recognized waters are navigable throughout their entire length, the entire length of these waters are still regulated by Section 10. The Buffalo District of USACE considers the Genesee River to be navigable from its mouth at Lake Ontario to Black Creek, approximately 120 miles upstream of the mouth (USACE 1999). Therefore, the USACE has jurisdiction to regulate the proposed project under Section 10.

5.1.2 State Jurisdiction

The Freshwater Wetlands Act, Article 24 of the Environmental Conservation Law (ECL) of the New York Consolidated Laws, regulates the use and development of freshwater wetlands (FWWs) located in the State of New York. Use and development activities are subject to regulation within FWWs and within the 100-foot adjacent area of FWWs (ECL § 24-0701). The Freshwater Wetlands Act defines FWWs as lands and waters of the state as shown on the FWWs map (as promulgated by the NYSDEC) and, among others, as lands containing aquatic or semi-aquatic vegetation (i.e., hydrophytic vegetation) or submerged lands containing remnants of dead not aquatic or semi-aquatic vegetation (ECL § 24-0107).

No portions of the Site are located within mapped areas of FWWs, or their 100-foot adjacent areas (**Figure 5**), and no FWWs were identified in the Site at the time of the field investigation.

Title 5 of Article 15 of the ECL of the New York Consolidated Laws regulates activities that may adversely affect water resources of the State of New York (ECL § 15-0105). Waters include "lakes, bays, sounds, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic Ocean within the territorial limits of the state of New York, and all other bodies of surface or underground water,

natural or artificial, inland or coastal, fresh or salt, public or private…" (ECL § 15-0107). Among others, the NYSDEC under the Protection of Waters Program regulates:

- The disturbance of the bed or banks of a protected stream or other watercourse, as identified by a classification of AA, A or B, or with a classification of C with a standard of (T) or (TS) (NYSDEC 2022c).
- The excavation or placement of fill in navigable waters of the state (lakes, rivers and other waterways and water bodies on which water vessels with a capacity of one or more persons are operated or can be operated) and their adjacent and contiguous marshes and wetlands (NYSDEC 2022c).
- The issuance of a water quality certification for placing fill or undertaking activities resulting in a discharge to WOTUS, most commonly required when a project also requires a permit from the USACE under Section 404 for the placement of fill in WOTUS (NYSDEC 2022c).

Activities that disturb the bed or banks of the Genesee River are regulated under the Protection of Waters Program since the Genesee River is a navigable water of the state and is a classification B watercourse. Because the Site is being remediated under the New York State Superfund Program, formal Protection of Waters authorization is not required to complete the work; however, the substantive requirements of the Protection of Waters Program must still be met.

5.2 Habitat and Endangered, Threatened, and Rare Species Assessment

One federally-listed species (Northern Long-eared Bat), one state listed species (Peregrine Falcon), and one federal candidate species (Monarch Butterfly) were identified in the USFWS IPaC Trust Resource Report and/or the NYNHP report as having the potential to utilize habitat in or near the Site. Additionally, the USFWS IPaC Trust Resource Report identified 15 migratory bird species (Bald Eagle, Belted Kingfisher, Black-billed Cuckoo, Bobolink, Canada Warbler, Cerulean Warbler, Chimney Swift, Evening Grosbeak, Golden Eagle, Golden-winged Warbler, Lesser Yellowlegs, Pectoral Sandpiper, Prairie Warbler, Red-headed Woodpecker, and Wood Thrush) with the potential for habitat use within the Site. Following a review of habitat preferences for each species, the Site was examined during the habitat assessment for potential nesting or foraging sites for each species.

The Site contains potential habitat for the Northern Long-eared Bat, Peregrine Falcon, Monarch Butterfly, and nine of the migratory bird species, however, of the identified species, only the Monarch Butterfly was observed during the habitat assessment. Additional migratory bird species and all wildlife observations are described in **Appendix I**.

5.2.1 Northern Long-eared Bat

The USFWS IPaC Trust Resource Report suggests that the Site has the potential to be inhabited by the Northern Long-eared Bat. On November 29, 2022, the USFWS issued a final rule to reclassify the Northern Long-eared Bat as endangered under the Endangered Species Act (ESA); the rule took effect on March 31, 2023. Breeding occurs during late summer/early autumn utilizing large trees with cavities or loose bark for roosting (USFWS 2023b). This species undergoes delayed fertilization, and females do not give birth until the following summer, from May to July, in small colonies within forested habitat (USFWS 2023b). Northern Long-eared Bats feed after dusk on insects, utilizing forest understory as foraging habitat (USFWS 2023b). The Northern Long-eared Bat hibernates in caves during the winter and summer habitat includes forested areas (USFWS 2023b). There is no critical habitat listed in the Site for the Northern Long-eared Bat (**Appendix B**).

A total of nine trees present at the Site were noted as having suitable features for roosting. Therefore, utilization of the Site for roosting by Northern Long-eared Bats is possible, however no direct evidence of bat utilization was noted.

5.2.2 Monarch Butterfly

The USFWS IPaC Trust Resource Report suggests that the Site has the potential to be inhabited by the Monarch Butterfly. The Monarch Butterfly is a candidate species for listing under the ESA. Monarch Butterfly habitat includes meadows and other cleared areas, and the species depends on milkweed species as an obligate host during the Monarch's year-round breeding season (USFWS 2023c). Suitable Monarch Butterfly habitat is typically characterized by open meadows and fields and must contain significant stands of milkweed. Multiple stands of milkweed were observed during the assessment, making it likely for Monarchs to be utilizing the Site. Two Monarch Butterfly individuals were visually observed during the habitat assessment.

5.2.3 Migratory Birds

Bald Eagle

The Bald Eagle is federally delisted due to recovery; however, it is federally protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (USFWS 2023d; USFWS 2023e). In New York, the Bald Eagle is listed as threatened, however it is not considered a Bird of Conservation Concern (NYSDEC 2023c). Bald Eagles breed between September 1 and August 31 and breed and winter in forested areas near large bodies of water utilizing large, super-canopy roost trees (USFWS 2023f). Bald Eagles typically are found in undisturbed areas near large lakes and reservoirs, marshes, and swamps, or along rivers (NYSDEC 2023c). Food habits of Bald Eagles are highly varied and are based on prey species availability (Audubon 2024).

The Site is located along the Genesee River however it is lacking appropriate roost trees for Bald Eagles, so it is unlikely that the Site supports potential breeding or nesting sites for Bald Eagles.

Belted Kingfisher

The Belted Kingfisher is not listed federally or in New York State, however it is federally protected under the Migratory Bird Treaty Act and is a Bird of Conservation Concern in Bird Conservation Regions in the continental United States (USFWS 2024d; USFWS 2021). No critical habitat is listed for Belted Kingfishers at the Site. Belted Kingfishers breed between March 15 and July 25, utilizing long horizontal tunnels dug in sandy soil for nesting (Audubon 2024). Food habits of Belted Kingfishers consist of mainly small fish and some crayfish, frogs, and aquatic insects (Audubon 2024).

Belted Kingfishers are typically found near streams, lakes, bays, and coasts, and in the winter or during migration can utilize most waterside habitat (Audubon 2024). The Site is located near the Genesee River, making habitat use by Belted Kingfishers possible, but more likely to occur in the winter.

Black-billed Cuckoo

The Black-billed Cuckoo is not listed federally or in New York State but is considered a Species of Greatest Conservation Need in New York (NYSDEC 2015). The Black-billed Cuckoo is federally protected under the Migratory Bird Treaty Act and is a Bird of Conservation Concern in the continental United States and Alaska (USFWS 2021). No critical habitat is listed for Black-billed Cuckoos in the Site. Black-billed Cuckoos breed between May 15 and October 10, utilizing concealed nesting trees. Food habits of Black-billed Cuckoos include large insects seasonally and fruit and seeds during the winter (USFWS 2023g).

Black-billed Cuckoos are typically found near marshes, rivers, or young deciduous/coniferous woods (USFWS 2023g). The Site is located along the Genesee River, making Black-billed Cuckoos utilization of the Site possible.

Bobolink

The Bobolink is not listed federally or in New York State, however, the Bobolink is federally protected under the Migratory Bird Treaty Act and is a Bird of Conservation Concern in the continental United States and Alaska (USFWS 2021). They can be found throughout northern United States and migrate to southeastern United States and South America (USFWS 2023a). No critical habitat is listed for the Bobolink at the Site. Bobolinks breed between May 20 and July 31 utilizing open grasslands (NYSDEC 2023d). Food habits of Bobolinks include insects, seeds, and grains.

Bobolinks are typically found in open grasslands or former hayfields with only medium-tall grasses or small shrubs. The Site does contain old-field areas, so there is potential for Bobolinks to utilize the Site.

Canada Warbler

The Canada Warbler is not listed federally but is considered a Species of Greatest Conservation Need in New York (NYSDEC 2015). The Canada Warbler is federally protected under the Migratory Bird Treaty Act and is a Bird of Conservation Concern in the continental United States and Alaska (USFWS 2021). Canada Warblers can be found in northeastern United States and into Canada and migrate into northern South America (USFWS 2021). No critical habitat is listed for the Canada Warbler in the Site. Canada Warblers breed between May 20 and August 10 utilizing dense shrubs, and food habits of Canada Warblers include insects and spiders, and occasionally fruits.

Canada Warblers are typically found in moist, mixed deciduous-coniferous forests with dense shrub understories (NYSDEC 2014). Because the Site does not contain an area of well-developed shrub understory, it is unlikely for Canada Warblers to utilize the Site.

Cerulean Warbler

The Cerulean Warbler is not listed federally but is a Species of Special Concern in New York (NYSDEC 2015). The Cerulean Warbler is federally protected under the Migratory Bird Treaty Act and is a Bird of Conservation Concern wherever found (USFWS 2021). No critical habitat is listed for the Cerulean Warbler at the Site. Cerulean Warblers are present in southern New York during their breeding season, between April 27 and July 20. Two principal breeding areas for the Cerulean Warbler remain in New York: the Finger Lakes highlands and the lowland plain south of Lake Ontario (NYSDEC 2023e). They utilize mature hardwoods either in uplands or along streams to breed. They forage in high trees, and feed on insects.

Cerulean Warblers are typically found in large deciduous forest tracts, particularly in river valleys (Audubon 2024). The Site contain areas of deciduous trees along the Genesee River, however these tracts are not large, so it is unlikely that Cerulean Warblers inhabit the Site.

Chimney Swift

The Chimney Swift is not listed federally or in New York State. The Chimney Swift is federally protected under the Migratory Bird Treaty Act and is a Bird of Conservation Concern in the continental United States and Alaska (USFWS 2021). No critical habitat is listed for Chimney Swift at the Site. Chimney Swifts breed between March 15 and August 10, utilizing chimneys and other structures for nesting. Food habits of Chimney Swifts include a variety of insects and spiders (Audubon 2024).

Chimney Swifts are typically found in open skies over cities or towns (Audubon 2024). The Site is located near a suburban area, however there are no adequate structures for nesting in the Site, making Chimney Swift nesting within the Site possible but unlikely.

Evening Grosbeak

The Evening Grosbeak is not listed federally or in New York State. The Evening Grosbeak is federally protected under the Migratory Bird Treaty Act and is a Bird of Conservation Concern in the continental United States and Alaska (USFWS 2021). No critical habitat is listed for Evening Grosbeak in the Site. Evening Grosbeaks breed between March 15 and August 25, utilizing horizontal branches or vertical forks in trees anywhere from 10 to 100 feet above ground. Food habits of Evening Grosbeaks include mostly seeds and some berries, insects, and tree buds (Audubon 2024).

Evening Grosbeaks are typically found in conifer forests or mixed forests, and in the winter or during migration found in deciduous groves and semi-open areas (Audubon 2024). The Site does deciduous trees and open area, making utilization of the Site by Evening Grosbeaks possible in the winter, if at all.

Golden Eagle

The Golden Eagle is not listed federally but is listed as endangered in New York State and is federally protected by the Bald and Golden Eagle Protection Act (USFWS 2023e). Golden Eagles are not known to breed in New York, however there is a potential for habitat use in winter (Audubon 2024). Golden Eagles typically utilize cliff ledges and large trees for nesting (Audubon 2024). Food habits of Golden Eagles include small mammals, gamebirds, snakes, and occasionally carrion (Audubon 2024).

Golden Eagles are typically found in open terrain such as open mountains, foothills, and plains (Audubon 2024). The Site does contain open areas, however there is a lack of sufficient nesting trees, making habitat use unlikely.

Golden-winged Warbler

The Golden-winged Warbler is not listed federally but is considered a Species of Special Concern in New York (NYSDEC 2015). The Golden-winged Warbler is federally protected under the Migratory Bird Treaty Act and is a Bird of Conservation Concern in the continental United States (USFWS 2021). Golden-winged Warblers can be found in eastern United States and into Canada. No critical habitat is listed for the Golden-winged Warbler in the Site. Golden-winged Warblers breed between May 1 and July 20 utilizing early successional fields with a combination of shrubby and open areas. Food habits of Golden-winged Warblers consist of mainly insects.

Golden-winged Warblers are typically found in early succession abandoned farmlands and scrub/shrub wetlands (NYSDEC 2023f). The Site does contain a mixture of open areas however it does not contain the necessary shrub cover, making breeding and nesting of Golden-winged Warblers unlikely.

Lesser Yellowlegs

The Lesser Yellowlegs is not listed federally or in New York State, however it is federally protected under the Migratory Bird Treaty Act and is a Bird of Conservation Concern in the continental United States (USFWS 2023h; USFWS 2021). No critical habitat is listed for the Lesser Yellowlegs at the Site (**Appendix B**). Lesser Yellowlegs spend winters on the eastern coast before moving north into Canada for the breeding season (Audubon 2024). Lesser Yellowlegs utilize dry, open areas for ground nesting and the food habits of Lesser Yellowlegs consist of insects, small fish, and crustaceans (Audubon 2024).

Lesser Yellowlegs are typically found in marshes and ponds, or in the summer found in open boreal woods (Audubon 2024). The Site is not the species primary breeding habitat; however, it does border the Genesee River and contains a dry, open area, providing potential but unlikely winter nesting habitat.

Pectoral Sandpiper

The Pectoral Sandpiper is not listed federally or in New York State, however it is federally protected under the Migratory Bird Treaty Act and is a Bird of Conservation Concern in the continental United States (USFWS 2023a; USFWS 2021). No critical habitat is listed for the Pectoral Sandpiper at the Site. Pectoral Sandpipers breed in

northern Canada and Alaska but may utilize habitats in New York during migration (Audubon 2024). Pectoral Sandpipers utilize ground nests hidden in grass and the food habits of Pectoral Sandpipers consists of mainly insects and occasionally amphipods and seeds (Audubon 2024).

During migration, Pectoral Sandpipers are typically found in prairie pools, muddy shores, or near marshes, favoring grassy places along shores or occasionally dry prairies (Audubon 2024). The Site does not contain the muddy or grassy shores, marshes, or pools typically utilized, making usage by Pectoral Sandpipers during migration unlikely.

Peregrine Falcon

The Peregrine Falcon is not listed federally but is listed as endangered in New York State (NYSDEC 2015). The Peregrine Falcon is federally protected under the Migratory Bird Treaty Act (USFWS 2023d). Peregrine Falcons can be found in western United States and northern Canada during breeding, but can be found throughout the United States and Canada during migration (Audubon 2024). No critical habitat is listed for the Peregrine Falcon at the Site. Peregrine Falcons utilize cliff edges and hilltops for nesting and occasionally use ledges of buildings or bridges (Audubon 2024). Food habits of Peregrine Falcons consist mostly of birds and occasionally small mammals (Audubon 2024).

Peregrine Falcons are typically found in open country near cliffs, and sometimes in cities depending on prey availability (Audubon 2024). The Site is not in the typical range for Peregrine Falcons, however it is in a suburban area with bridges adjacent to the Site, making utilization of the Site possible during migration.

Prairie Warbler

The Prairie Warbler is not listed federally or in New York State but is considered a Species of Special Concern in New York (NYSDEC 2015). The Prairie Warbler is federally protected under the Migratory Bird Treaty Act and is a Bird of Conservation Concern in the continental United States and Alaska (USFWS 2023a; USFWS 2021). Prairie Warblers can be found in eastern and south-central United States. No critical habitat is listed for the Prairie Warbler at the Site. Prairie Warblers breed from May 1 to July 31 utilizing shrub/scrub areas and food habits of Prairie Warblers consist of mainly insects (Audubon 2024).

Prairie Warblers are typically found in dry upland early successional forests, overgrown fields, and upland shrub habitats (Audubon 2024). The Site does contain overgrown areas of herbaceous vegetation, making breeding and nesting possible.

Red-headed Woodpecker

The Red-headed Woodpecker is not listed federally but is considered a Species of Special Concern in New York (NYSDEC 2015). The Red-headed Woodpecker is federally protected under the Migratory Bird Treaty Act and is a Bird of Conservation Concern in the continental United States and Alaska (USFWS 2023a; USFWS 2021). Red-headed Woodpeckers can be found from central to eastern United States (Audubon 2024). No critical habitat is listed for the Red-headed Woodpecker in the Site. Red-headed Woodpeckers breed from May 10 to September 10 utilizing roosting cavities in dead trees from slightly above ground to 65 feet or taller (Audubon 2024). Food habits of Red-headed Woodpeckers consist of a wide variety of insects, nuts, seeds, berries, and sometimes small rodents or the eggs of other birds (Audubon 2024).

Red-headed Woodpeckers are typically found in groves, open country, and forest edges (Audubon 2024). The Site does contain areas of trees which could be utilized by Red-headed Woodpeckers, making habitat use possible.

Wood Thrush

The Wood Thrush is not listed federally or in New York State but is considered a Species of Greatest Conservation Need in New York State (NYSDEC 2015). The Wood Thrush is federally protected under the Migratory Bird Treaty Act and is a Bird of Conservation Concern in the continental United States and Alaska and can be found from central to eastern United States (USFWS 2023a; USFWS 2021; Audubon 2024). No critical habitat is listed for the Wood Thrush in the Site. Wood Thrushes breed from May 10 to August 31 utilizing woody understories and food habits of Wood Thrushes consist of insects and berries (Audubon 2024).

Wood Thrushes are typically found in damp deciduous woodlands with sub-canopy shrub layers, occasionally nesting in suburban areas with large trees (Audubon 2024). The Site does not contain damp, deciduous woodlands. Although unlikely, due to the presence of occasional large trees and old fields, it is possible that Wood Thrushes utilize the Site.

5.2.4 Imperiled Freshwater Mussels

Although there is mussel occurrence information upstream and downstream of the project Site, little is known about mussel occurrence in this section of the Genesee River. Thirteen species of mussels considered imperiled in New York (**Table 3**) (mussel species ranked as S1[2] or S2[3] by the NYNHP) are known to inhabit the Genesee River basin, although many occur in habitats that are not present in the Genesee River gorge.

To ensure that populations of imperiled mussel species are not impacted or harmed by the proposed work, a mussel survey will be conducted in accordance with the *New York State Freshwater Mussel Survey Guidelines for Waterbody Disturbance Projects* (NYSDEC 2022b) to determine if any imperiled mussel species are present at the Site. As part of the 90 percent Remedial Design, and once in-water limits of disturbance have been established, a mussel survey plan will be developed and submitted to NYSDEC, Region 8 for review/approval for issuance of a License to Collect and Possess for Freshwater Mussels. If the survey identifies the presence of imperiled mussel species, a relocation site survey will be conducted, and a relocation plan developed. The relocation effort would be conducted to move imperiled mussel species to a safe location before in-water work is started.

Table 3 Summary of Imperiled Freshwater Mussel Species Known to Inhabit the Genesee River Basin.

Species		Listing			Habitat
Common Name	Scientific Name	State	State	Federal	
Green Floater	*Lasmigona subviridis*	S1S2	THR	-	Inhabits small to medium size streams and rivers. Found in a variety of different flowing-water systems but is more likely to be found where there are stable, fine substrate particles including gravel, sand, and silt. It is intolerant of strong currents and often is found in slow runs and eddies with gravel and sand substrate, often near stream margins.
Fragile Papershell	*Leptodea fragilis*	S2S3	-	-	Inhabits large streams, rivers, and lakes and uses a wide range of substrates from sandy mud to cobble.

[2] Critically imperiled in the state because of extreme rarity (often five or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.

[3] Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.

Species		Listing			Habitat
Common Name	Scientific Name	State	State	Federal	
Deertoe	*Truncilla truncata*	S1	-	-	Prefers habitats within rivers with moderately swift current and firm mud, sand, and gravel; occasionally found in small streams.
Lilliput	*Toxolasma parvum*	S1	-	-	Found in backwater areas of lower reaches of rivers, lakes, ponds and slower moving areas of streams and medium rivers. Typically found in sandy and muddy substrates or fine gravel.
Paper Pondshell	*Utterbackia imbecillis*	S1	-	-	Usually found in ponds, lakes, or mud-bottomed pools and backwater areas of creeks and rivers.
Threeridge	*Amblema plicata*	S1	-	-	Found in small to large rivers with a wide variety of substrates including mud, sand, and gravel.
Wabash Pigtoe	*Fusconaia flava*	S2	-	-	Prefers creeks, streams, and rivers with moderate current up to depths of 15 feet. Prefers stable, firm bottoms consisting of mud, coarse sand, and gravel but tolerates a variety of substrates.
Black Sandshell	*Ligumia recta*	S2	-	-	Found in large streams, rivers, and lakes. In rivers and streams, usually in fast current areas including riffles and raceways. Preferred substrates include sandy mud, firm mud, coarse sand and gravel, and cobble.
Eastern Pondmussel	*Ligumia nasuta*	S2	-	-	Usually found in protected areas of lakes and ponds, in slackwater areas of rivers, slow moving streams, and in canals over a wide range of substrates but seems to prefer fine sand and mud. Usually found in depths ranging from one to15 feet.
Pink Heelsplitter	*Potamilus alatus*	S2	-	-	Inhabits medium to large rivers and lakes and is often found in mud, sand, and gravel substrates.
Plain Pocketbook	*Lampsilis cardium*	S2S3	-	-	Found in flowing waters with moderate to strong current, and stable substrates of mud, silt, sand, or gravel.
Rainbow	*Villosa iris*	S2S3	-	-	May occur in a broad range of habitats with substrates ranging from gravel to soft silt or clay in areas of low to strong current velocity. Is sometimes found along the edges of emergent vegetation beds
Yellow Lampmussel	*Lampsilis cardium*	S2S3	-	-	Occurs in small to large rivers, especially in or near riffles. Uses clean, firm substrates of gravel, fine gravel, and sand, often in combination with cobble

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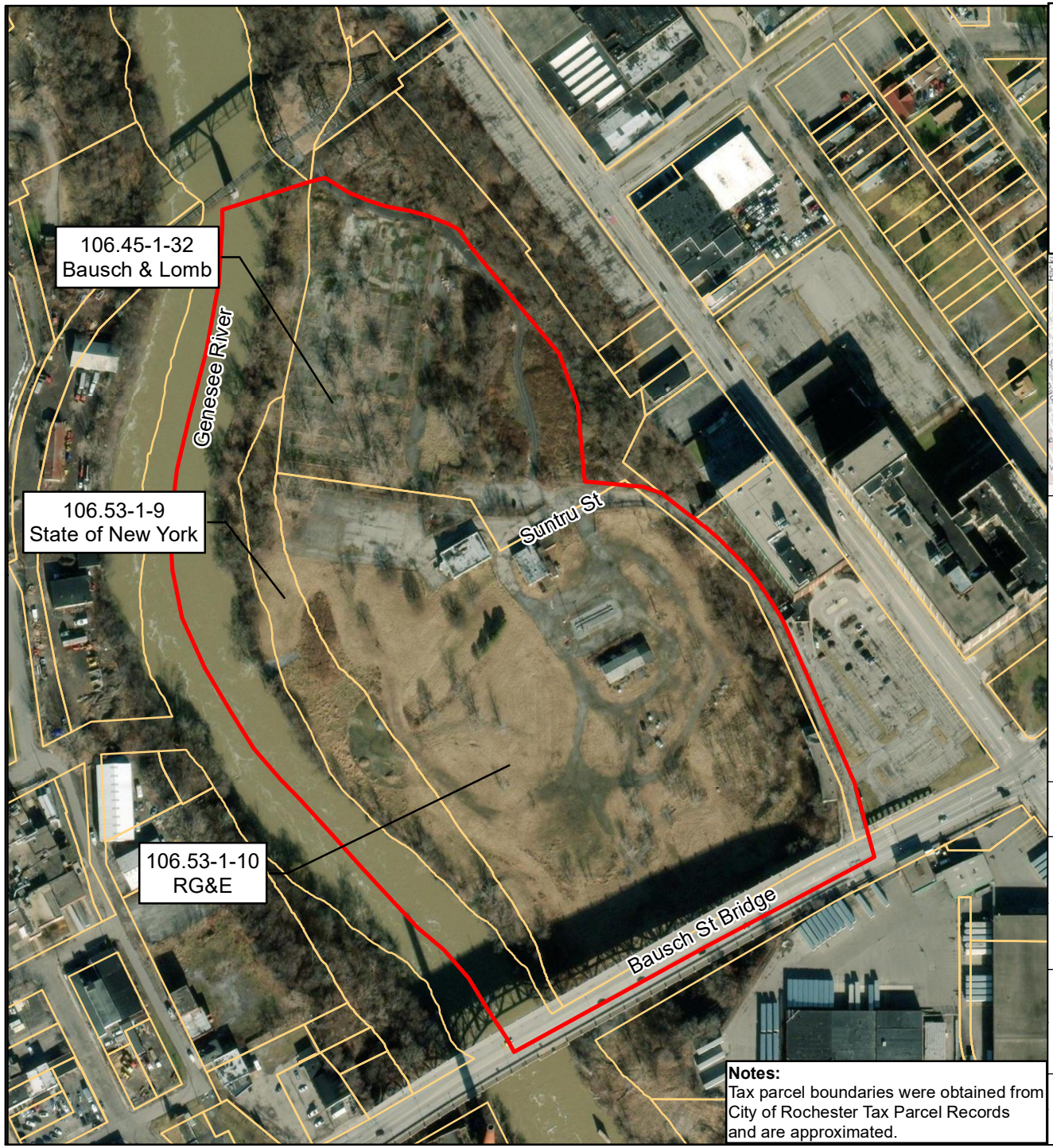
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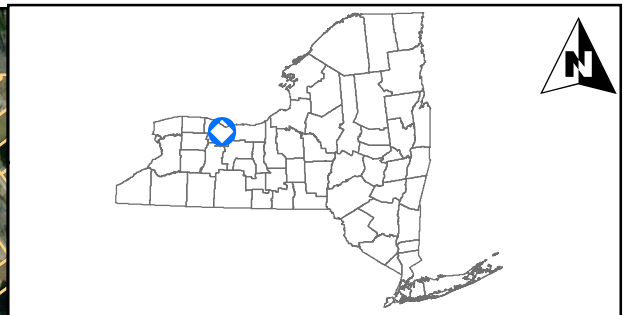
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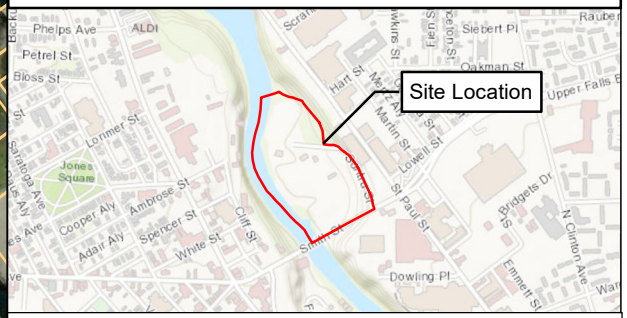
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FIGURES







Project Boundary

Tax Parcel Boundaries

Latitude: 43° 10' 3.3"N
Longitude: 77° 37' 13.6"W

0 150 300 600

Feet

Figure 1

RG&E

East Station Former MGP Site
Rochester Gas and Electric
Rochester, NY

Project Area Location

Notes:
Tax parcel boundaries were obtained from City of Rochester Tax Parcel Records and are approximated.

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 315-451-9560

Plotted By: Ferguson, Madeleine

Plot Date: 1/18/2024

Document Path: \\nysyr04fs01\Projects\Iberdrola_Avangrid\453121 East Station\8.0 Reports\8.3 Wetland Delineation, Vegetation Survey, and Habitat Assessment\Technical Categories\MXD\RGE_East_Station_Figure_1_Site_Location.mxd

EAST ROCHESTER
NY
7.5-MINUTE

77°37'30" 287000m E 88 89 290 77°35' 91 92 93 77°32'30" 94 95 96 97 77°30'
43°15' 4791000m N 90 89 88 87 86 85 84 83 43°12'30" 82 81 4780 79 43°7'30"
296000m E 77°37'30" 87 78 88 89 290 77°35' 91 92 93 77°32'30" 94 95 97 77°30' 43°15' 91 4790 97 89 88 43°12'30" 87 86 85 84 83 43°10' 82 81 4780 79 4778000m N 43°7'30"

Rock Beach
Forest Lawn
Lake Ontario
Oklahoma Beach
Rattlesnake Point
Durand Lake
Sea Breeze
Stony Point
German Village
Point Pleasant
Ides Cove
Genesee River
IRONDEQUOIT
Birds and Worms
Big Massaug Cove
Inspiration Point
Helds Cove
Irondequoit Bay
Newport
Glen Edith
Point Lookout
West Webster
Bay View
Hobbie Creek
Rochester General Hospital School of Medical Technology
Glen Haven
Dersmore Creek
Snider Island
ROCHESTER
Irondequoit Creek
Monroe County Hall of Justice
Talmudical Institute of Upstate New York
Cobbs Hill
Pinnacle Hill
Colgate Rochester Crozer Divinity School
Twelve Corners
Allen Creek

USGS The National Map: 3D Elevation Program. USGS Earth Resources Observation & Science (EROS) Center: GMTED2010. Data refreshed March, 2021., USGS The National Map: Orthoimagery. Data refreshed December, 2021.

Coordinate System: NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

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Topo Map Vector Data 38197 Rochester East NY.....USGS, 2023
Contours.....National Elevation Dataset, 2023

U.S. National Grid
100,000-m Square ID
TN
Grid Zone Designation
18T

SCALE 1:24,000
1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 500 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 50 FEET

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

Project Boundary
East Rochester, NY
2024

NEW YORK
QUADRANGLE LOCATION

Braddock Heights	Rochester East OE N	Ninemile Point
Rochester West	Rochester East	Webster
West Henrietta	Pittsford	Fairport

ADJOINING QUADRANGLES

Figure 2

East Station Former MGP Site
Rochester Gas and Electric
Rochester, NY

USGS Topographic Map

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 315-451-9560

Soil Map—Monroe County, New York

77° 37' 23" W

77° 37' 2" W

43° 10' 14" N



43° 9' 54" N

77° 37' 23" W

77° 37' 2" W

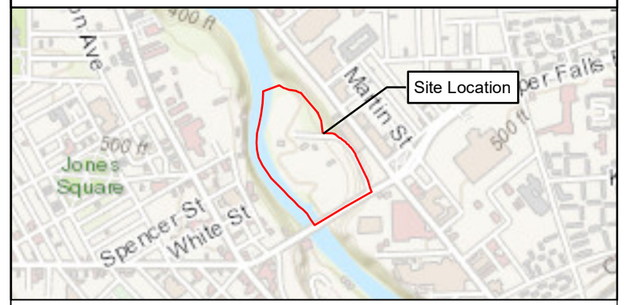
USDA Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey

1/18/2024

Note: Mapping information obtained from NRCS Web Soil Survey online mapping tool on 01/18/2024





Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines Soil

Map Unit Points

Map Scale: 1:3,060 if printed on A portrait (8.5" x 11") sheet.

Meters: 0 45 90 180 270

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84

Figure 3

East Station Former MGP Site
Rochester Gas and Electric
Rochester, NY

USDA NRCS Soils Map

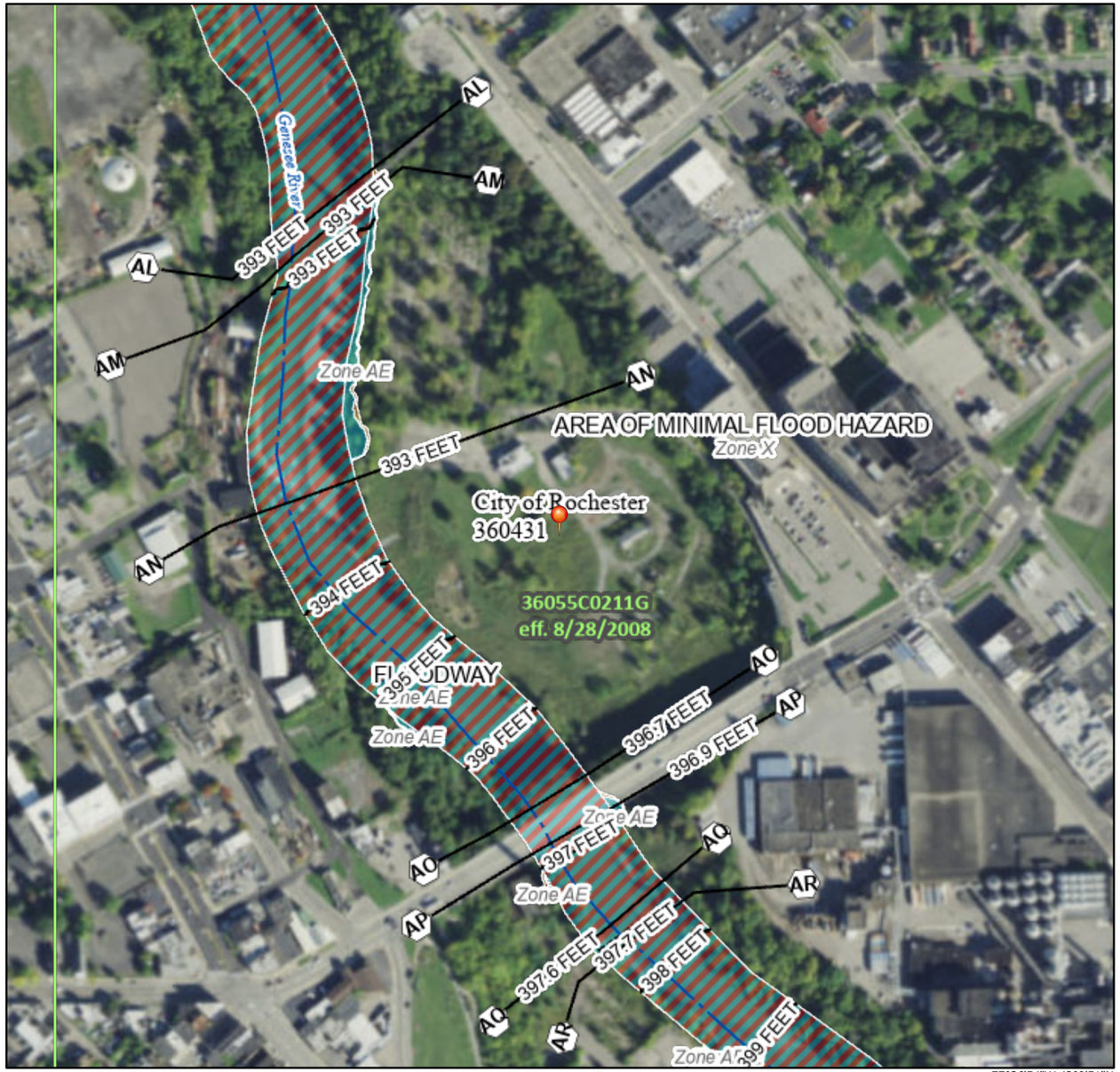
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301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560

Plot Date: 1/18/2024 Plotted By: Ferguson, Maddie

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National Flood Hazard Layer FIRMette

77°37'32"W 43°10'17"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

77°36'54"W 43°9'51"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

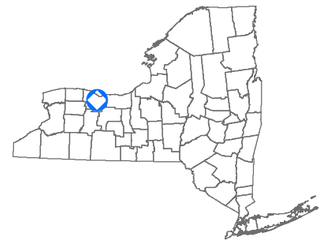
MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/9/2024 at 11:12 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



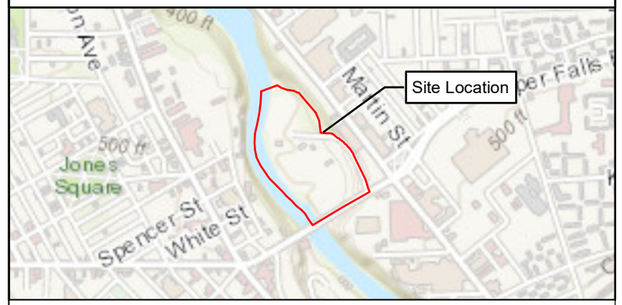


Figure 4

RG&E

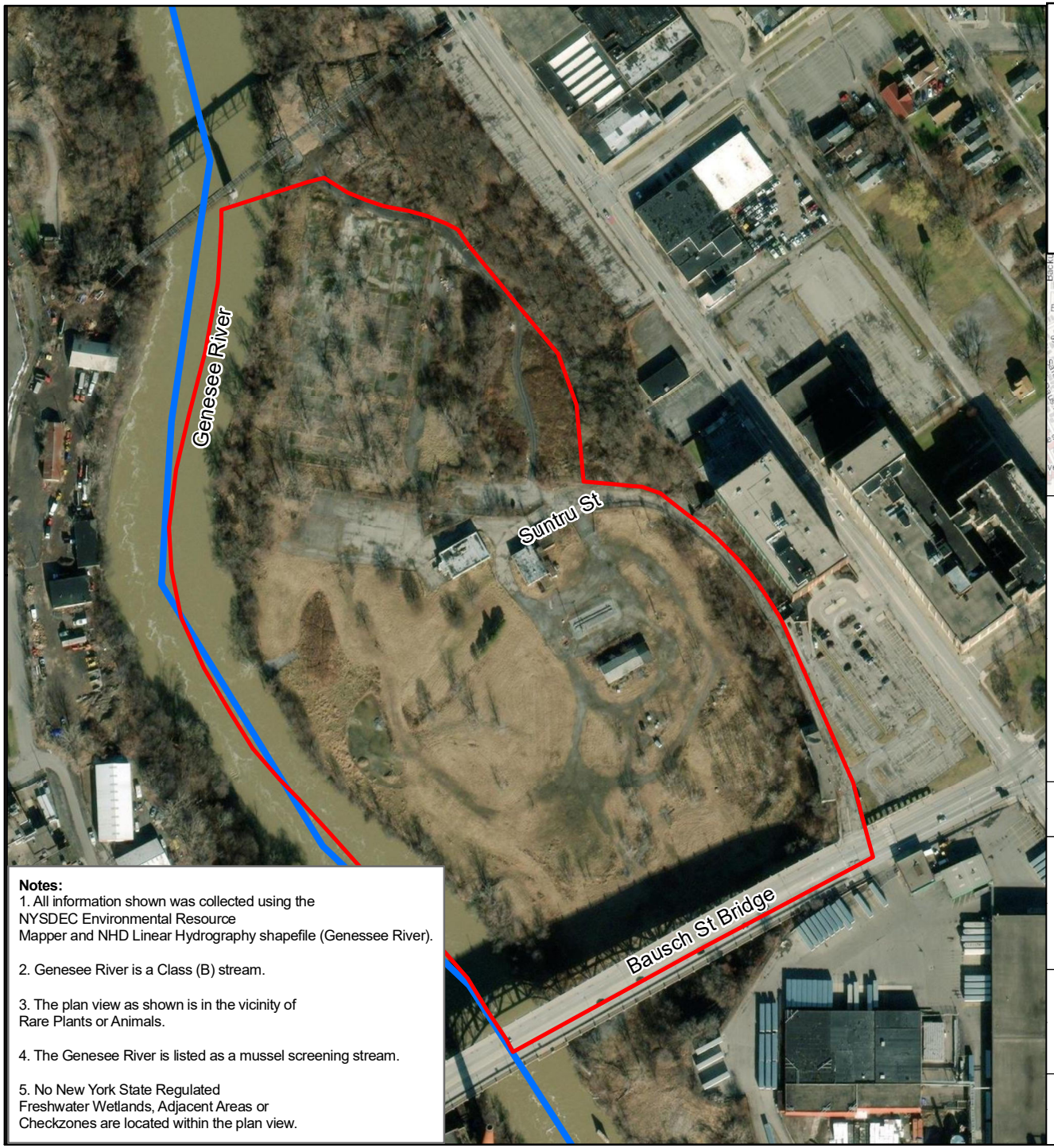
East Station Former MGP Site
Rochester Gas and Electric
Rochester, NY

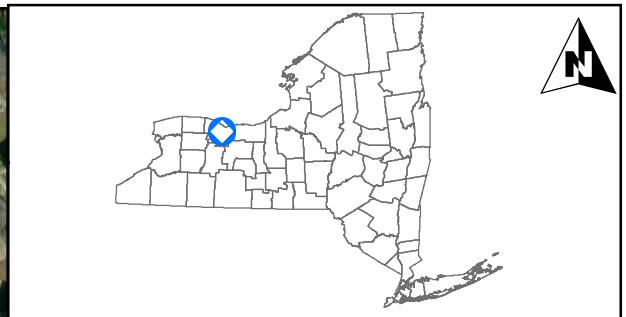
FEMA/FIRM Floodplain Map

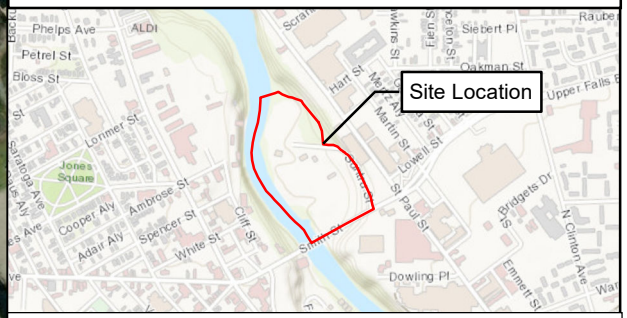
PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560

Plot Date: 1/18/2024 Plotted By: Ferguson, Maddie

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Project Boundary

Water Feature

0 150 300 600

Feet

Figure 5

RG&E

East Station Former MGP Site
Rochester Gas and Electric
Rochester, NY

NYSDEC Environmental Resources Map

Notes:
1. All information shown was collected using the NYSDEC Environmental Resource Mapper and NHD Linear Hydrography shapefile (Genessee River).

2. Genesee River is a Class (B) stream.

3. The plan view as shown is in the vicinity of Rare Plants or Animals.

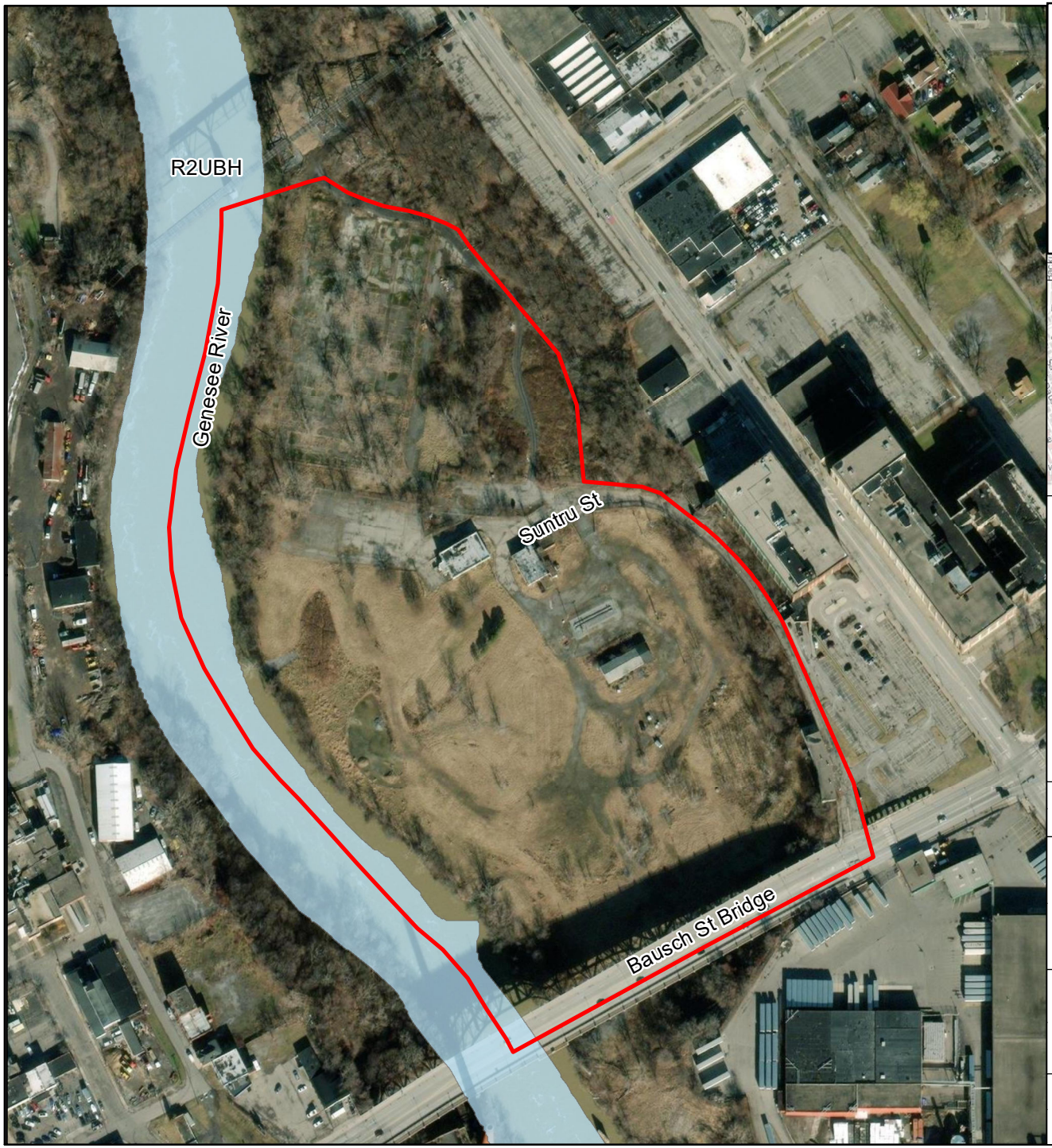
4. The Genesee River is listed as a mussel screening stream.

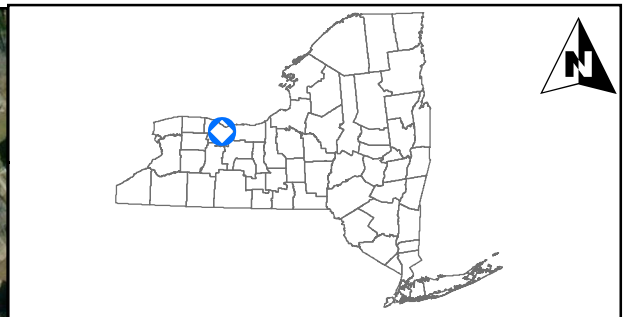
5. No New York State Regulated Freshwater Wetlands, Adjacent Areas or Checkzones are located within the plan view.

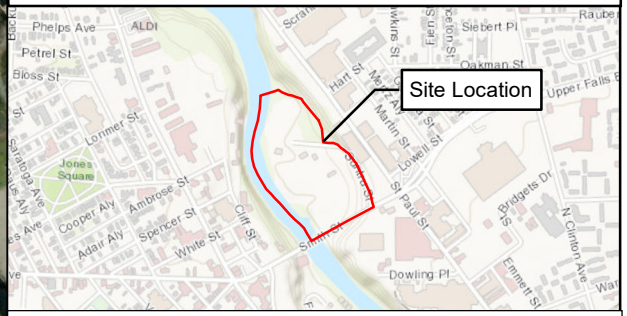
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301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 315-451-9560

Plot Date: 1/16/2024 Plotted By: Ferguson, Madeleine

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Project Boundary

NWI Wetlands

Riverine

0 150 300 600

Feet

Figure 6

East Station Former MGP Site
Rochester Gas and Electric
Rochester, NY

USFWS National Wetland Inventory Map

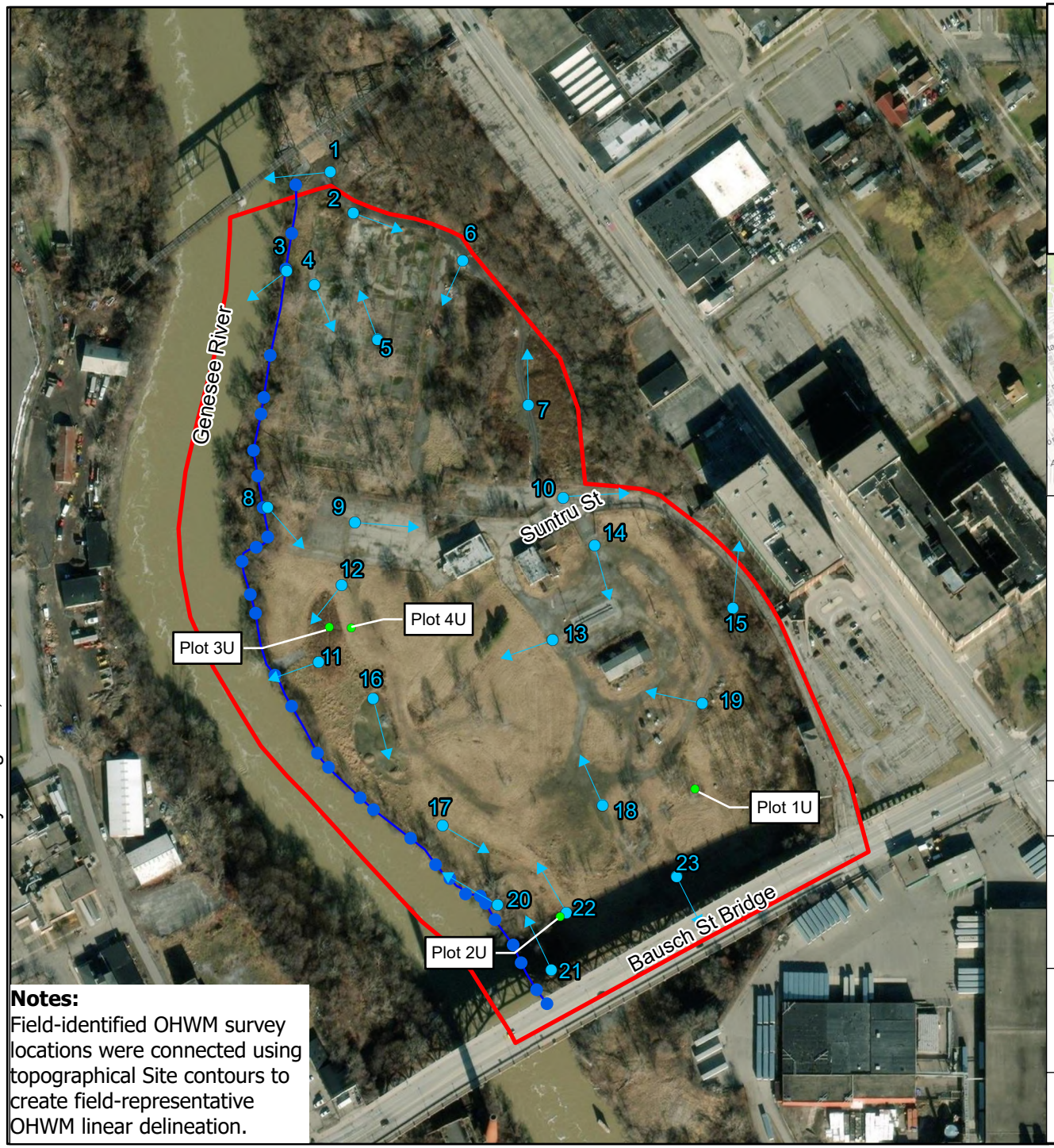
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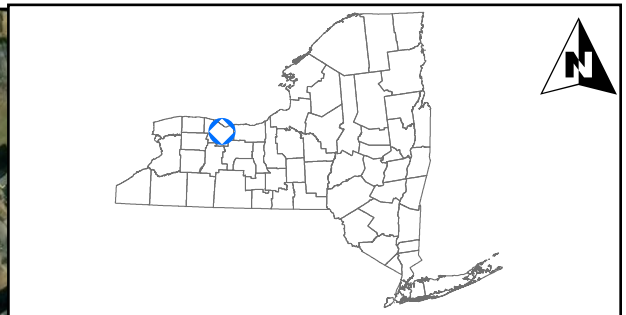
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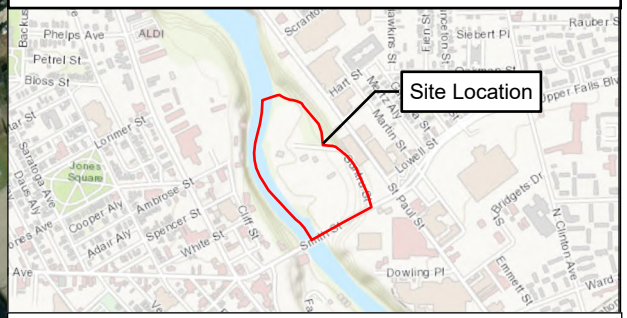
Plotted By: Ferguson, Madeleine

Plot Date: 1/19/2024

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Project Boundary
Photo Location
Photo Direction
Wetland Determination Plot
Ordinary High Water Mark Line
Ordinary High Water Mark Point

0 150 300 600
Feet

Notes:
Field-identified OHWM survey locations were connected using topographical Site contours to create field-representative OHWM linear delineation.

Figure 7

RG&E

East Station Former MGP Site
Rochester Gas and Electric
Rochester, NY

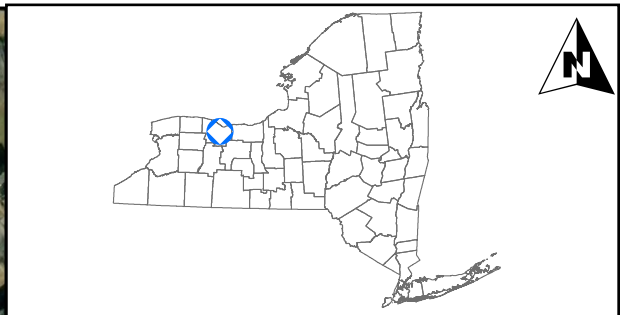
Wetland and Stream Delineation Map

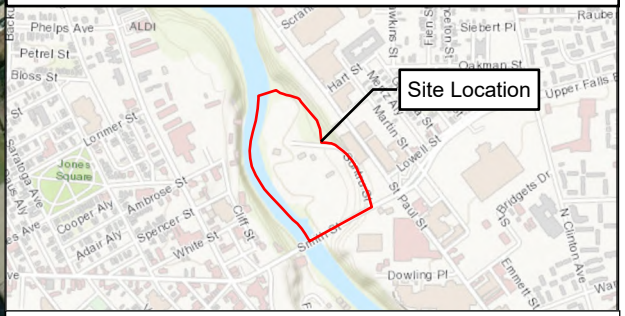
PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 315-451-9560

Plotted By: Ferguson, Madeleine
Plot Date: 9/10/2024

Document Path: \\nysyr04fs01\Projects\Iberdrola_Avangrid\453121 East Station\8.0 Reports\8.3 Wetland Delineation, Vegetation Survey, and Habitat Assessment\REV 1\Technical Categories\MXD\RGE_East_Station_Figure_7\RGE_East_Station_Figure_7.aprx







- Project Boundary
- Significant stand of milkweed *(Asclepias sp.)*
- Impervious Surface
- Old Field
- Forested Riparian
- Confined River
- Drainage Swale
- Urban Forest
- Municipal ROW (Below Bridge Infrastructure)

0 150 300 600 Feet

Figure 8

RG&E

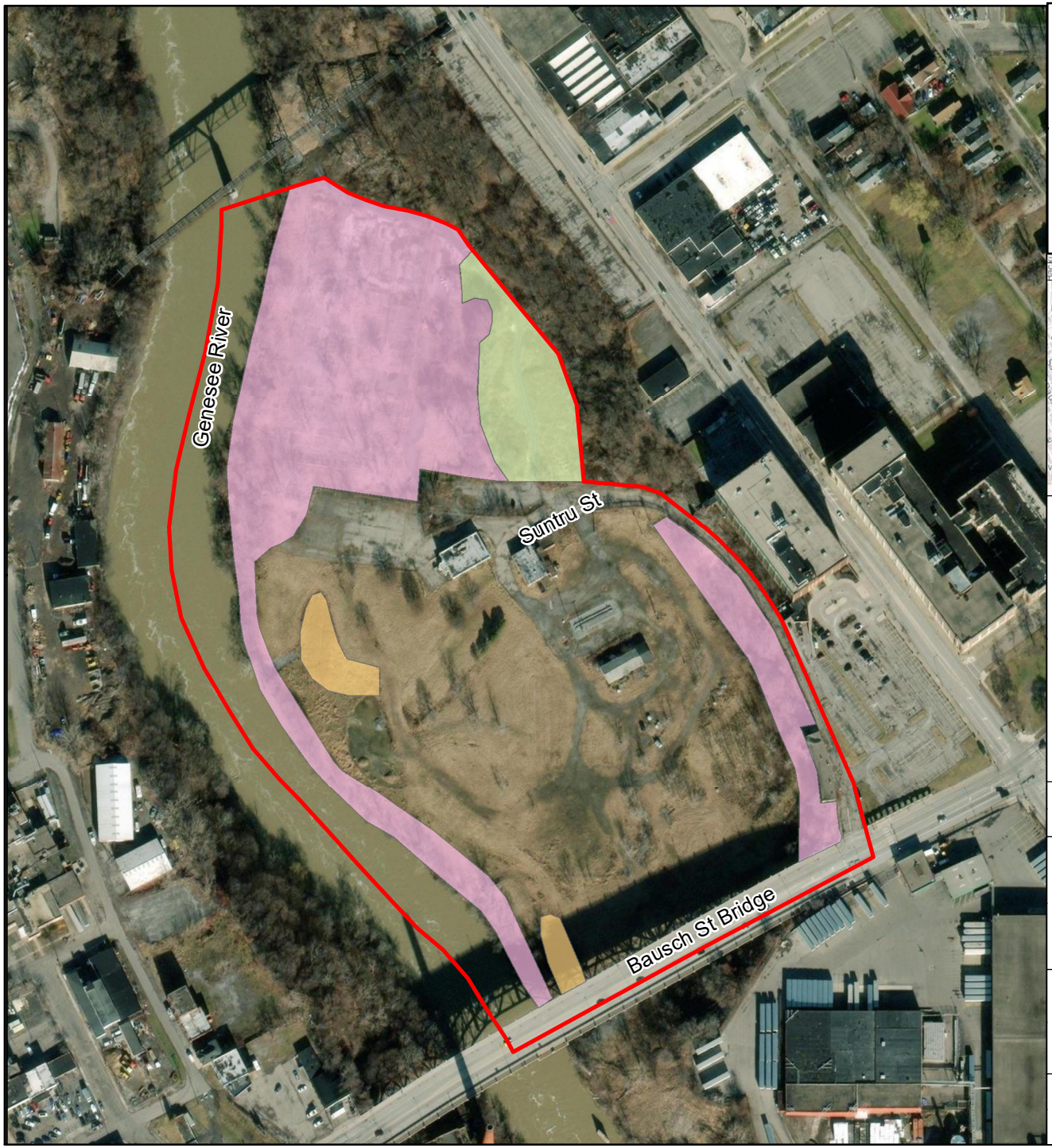
East Station Former MGP Site
Rochester Gas and Electric
Rochester, NY

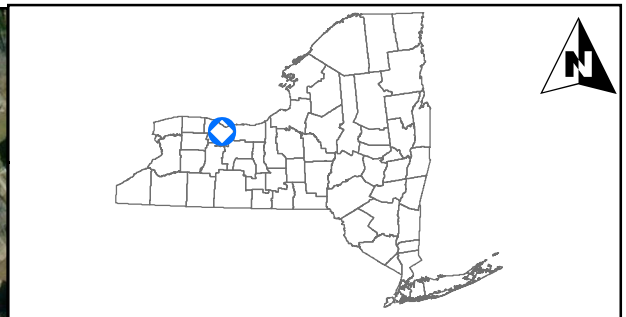
Ecological Communities Map

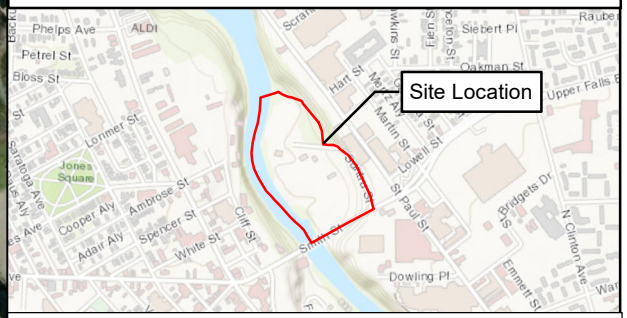
PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 315-451-9560

Plotted By: Ferguson, Madeleine
Plot Date: 9/10/2024

Document Path: \\nysyr04fs01\Projects\Iberdrola_Avangrid\453121 East Station\8.0 Reports\8.3 Wetland Delineation, Vegetation Survey, and Habitat Assessment\REV 1\Technical Categories\MXD\RGE_East_Station_Figure_8\RGE_East_Station_Figure_8.aprx







Project Boundary
Common Reed *(Phragmites australis)*
Mugwort *(Artemisia vulgaris)*
Invasive Trees

0 150 300 600
Feet

Figure 9

RG&E

East Station Former MGP Site
Rochester Gas and Electric
Rochester, NY

Nuisance and Invasive Species Map

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 315-451-9560

Plot Date: 1/19/2024 Plotted By: Ferguson, Madeleine

Document Path: \\nysyr04fs01\Projects\Iberdrola_Avangrid\453121 East Station\8.0 Reports\8.3 Wetland Delineation, Vegetation Survey, and Habitat Assessment\Technical Categories\MXD\RGE_East_Station_Figure_9_Nuisance_Invasive_Species.mxd

APPENDIX A STATEMENT OF QUALIFICATIONS (I.E., RESUMES)

KAREN A. FIELDS, PWS

PROJECT SCIENTIST

Karen Fields is experienced in conducting wetland assessments and delineations and ecological and human health risk assessments. Her experience includes natural resource management, including habitat restoration and regulatory compliance. Karen has been responsible for preparing wetland permit applications and mitigation plans; siting applications for major utilities; risk assessments for Resource Conservation and Recovery Act and Comprehensive Environmental Response, Compensation, and Liability Act sites; environmental site assessments; and media sampling. She is a registered professional wetland scientist who has worked throughout the United States for Fortune 500 companies and various US Government agencies and departments. Karen has also presented the results of her work at various technical conferences in the United States and Australia.

Work Experience

Quality Inspector. Confidential Multinational Conglomerate Corporation, Hudson River Environmental Remediation Project, New York, United States. 10/2007-12/2016.
Employer: Parsons

Parsons' scope of work included dredging more than 2 million cubic yards of sediment, on-river transportation of dredged sediments to a processing area, filter press processing of dredged materials and off-site disposal via a railcar, and mechanical cap placement. Karen served as lead inspector for habitat restoration work for Phase I of this project. Provided oversight for restoration of submerged aquatic vegetation in the Hudson River and shoreline and wetland restoration planting and seeding. Performed invasive species surveys and conducted monthly monitoring using underwater videography to determine survival of planted species. Prior to the implementation phase, reviewed and evaluated proposals from prospective contractors for habitat restoration work and assisted with developing habitat restoration plans for the river and associated wetlands and riparian habitats.

Biologist. New York State Department of Environmental Conservation, William Street Park Site Characterization, Corning, New York, United States. 10/2020-05/2021.
Employer: Parsons

Parsons performed preliminary site characterization activities, including collecting 16 surface soil samples, performing one day of trenching and excavations, and installing 16 soil borings to 16 feet below ground surface, with 8 of the soil borings being converted into monitoring wells. Karen was responsible for preparing a standard operating procedure report describing the methods and approach for delineating the mean high water mark along the Chemung River.

Biologist and Risk Assessor. Confidential Multinational Conglomerate Corporation, Tonawanda Coke Plant Site 108 Remedial Investigation, Tonawanda, New York, United States. 10/2020-06/2021.
Employer: Parsons

Parsons is completing a focused remedial investigation and preparing a final remedial investigation report for the Tonawanda Coke Plant Site 108 (Operable Unit 3) under the New York State Superfund Program. Work includes providing project management, overseeing field investigations, preparing draft and final remedial investigation reports for New York State

YEARS OF EXPERIENCE

Total: 32

With Parsons: 20

EDUCATION

- Master, Natural Resource Ecology, Duke University, North Carolina, 1988
- Bachelor, Biology, Kenyon College, Ohio, 1985

CERTIFICATIONS

- Project Manager Certification, Parsons
- Professional Wetland Scientist (PWS) No. 297, Society of Wetland Scientists Professional Certification Program, Inc.

PROFESSIONAL AFFILIATIONS

- Society for Ecological Restoration (SER), Member, 2019-Present
- Society of Environmental Toxicology and Chemistry (SETAC), Member, 2005-Present
- Society of Wetland Scientists (SWS), Member, 1991

COMPUTER/SOFTWARE SKILLS

- Microsoft Office

Department of Environmental Conservation review and approval, creating and managing an electronic database for remedial investigation analytical data, and validating analytical data in accordance with the project quality assurance project plan. Karen is responsible for overseeing the fieldwork to delineate wetlands and map ecological habitat at this former industrial site. Following field data collection, work includes preparing a fish and wildlife impact analysis report to summarize ecological receptors at the site and potential exposure pathways

Wetland Scientist and Ecologist. Confidential International Oil Company Pipeline Division, Pipeline Engineering and Maintenance Projects, Nationwide United States. 03/2008-Present.
Employer: Parsons

Parsons has provided environmental consulting services since 2004 for facilities belonging to the pipeline division of a confidential international oil company. Services included wetlands evaluation, permitting, and delineation; sensitive area and endangered species habitat evaluations; land disturbance and stormwater permit preparation; National Pollutant Discharge Elimination System permitting and compliance activities; hydrotest water treatment; stormwater pollution prevention plan and spill prevention, control, and countermeasure plan preparation; water permitting and discharge requirement evaluations; and health, safety, security, and environmental plan preparation for more than 35 locations in nine states and the Gulf of Mexico Region. Karen evaluated areas adjacent to a pipeline stream crossing to determine if the areas may be impacted by planned repair work in and adjacent to the stream as part of water permitting requirements.

Principal Wetland Scientist. Waste Management of Kentucky, Wetlands Permitting, Cincinnati, Ohio, United States. 01/2001-Present.
Employer: Parsons

Parsons prepared Section 401 and 404 permit applications for potential impacts to 40 acres of bottomland hardwood forest and designing a mitigation plan for 90 acres of replacement wetlands. The project was approved with a specially obtained permit expiration date of 50 years from permit issuance to accommodate master design plans. Tasks included preparing mitigation design plans, reviewing and selecting contractors to implement the design, overseeing selected contractors during construction, and implementing a five-year monitoring program to determine project success.

Ecologist. Confidential International Oil Company, Former Refinery Operations, Maintenance, and Monitoring, Western, Ohio, United States. 06/2017-Present.
Employer: Parsons

Karen inspects three natural habitat restoration areas for the presence of invasive species. Areas inspected include three prairie habitats and one wetland ecosystem. Recommendations are made semi-annually for control measures at each site.

Environmental Scientist. City of Fort Wright, Amsterdam Road Reconstruction Phase 1, Fort Wright, Kentucky, United States. 04/2017-08/2018.
Employer: Parsons

Parsons provided environmental services for the Amsterdam Road Reconstruction project between Redwood Drive and General Drive in the city of Fort Wright. Parsons' scope of work included an environmental analysis and an alternatives summary. Karen prepared a Level 1 categorical exclusion document for 2,200 linear feet of improvements to a major connecting road in Fort Wright, Kentucky. Also conducted ecological and wetland surveys to identify and evaluate potential Waters of the United States and to identify potential habitat for endangered bat species and running buffalo clover.

Principal Biologist/Scientist. Kleingers & Associates, Inc., Safe Routes to School Projects, Master Services Agreement, Cincinnati, Ohio, United States. 10/2011-04/2015.
Employer: Parsons

Parsons provided environmental investigations and National Environmental Policy Act documentation for several pedestrian and bicycling improvement projects under the Safe Routes to School program. Parsons completed environmental documentation, including environmental site assessments, ecological screening reports, cultural resources packages, and Section 4(f) concurrence letters for projects in Sugarcreek Township (District 8), Colerain Township (District 8), and the Village of Plain City (District 6). Karen evaluated the presence of endangered and threatened species and other natural resources, including wetlands and surface water bodies that may have been impacted by improvements associated with road improvements and construction in accordance with Ohio Department of Transportation guidelines at various sites throughout Ohio.

Ecologist. Confidential International Oil Company, Former Refinery Land Use Redevelopment, Cincinnati, Ohio, United States. 03/2006-04/2006.
Employer: Parsons

Karen provided technical support for developing wetland and wildlife habitat restoration plans for this closed petroleum refinery along the banks of the Great Miami River. The site was certified by the Wildlife Habitat Council and nominated for the Corporate Habitat of the Year.

Principal Biologist/Scientist. Charlotte Area Transit System, Charlotte Light Rail Transit Preliminary Engineering, Charlotte, North Carolina, United States. 08/2002-03/2003.
Employer: Parsons

Parsons provided preliminary engineering, environmental study, and final design services for a 12-mile-long light rail transit project between downtown Charlotte and Pineville, North Carolina. The project was initiated with an alternative definition phase that included refining the 12-mile alignment and examining 19 potential station locations for optimal transit- and pedestrian-oriented development opportunities, which were carried through to the final design. Karen was responsible for conducting ecological and wetland surveys. The surveys included identifying wetland areas and significant ecological habitat, including potential occurrences of endangered species along the preferred route and several alternates that extended approximately 14 miles. The results were presented in a separate technical memorandum and in a draft environmental impact statement for the project.

DuPont Site Representative. Confidential Global Chemical Manufacturing Company, Peters Cartridge Facility Remediation, Northeastern , United States. 10/2010-03/2018.
Employer: Parsons

Parsons has performed environmental services at a 71-acre parcel of land at a former ordnance manufacturing facility Superfund site contaminated with metals and semi-volatile organic compounds located adjacent to a state and national scenic river since 2009. A high-traffic bike path owned by the state runs through the site, and the terrain is rugged and densely vegetated. Work included determination of extent of shallow impacted soils to be relocated to a containment area constructed on-site, designed in accordance with Ohio industrial landfill regulations; demolition of select site facilities; excavation, stabilization, and on-site consolidation of lead-contaminated soil; design and construction of a 4-acre on-site consolidation waste cell; and site restoration. Parsons is completing ongoing operations and maintenance, including site inspections and groundwater monitoring. Karen was responsible for overseeing contractors implementing the site remediation plan, including excavation, slope stabilization, habitat restoration, and safety

audits. Habitat restoration required intense agency involvement at both the federal and local levels because the site is located adjacent to a National and State Scenic River.

Principle Risk Assessor. New York State Department of Environmental Conservation, Eastman Business Park RCRA Facility Investigation and Corrective Measures Study, Rochester, New York, United States. 08/2014-03/2017.
Employer: Parsons

The project involved a 4-mile-long stretch of the Lower Genesee River impacted by silver and other contaminants resulting from operations at a former business park. The project site included impacted channel sediments and adjacent wetland areas, encompassed an active industrial navigational channel and numerous large marinas, and involved multiple stakeholders. Parsons performed remedial investigation activities, including a bathymetry and side scan sonar survey, a sediment investigation, surface water sampling, adjacent wetland and floodplain assessments, aquatic habitat assessments and tissue sampling, a toxicity study, human health and ecological risk assessments, and sediment transport modeling. Karen completed a risk assessment for the Lower Genesee River area of concern as part of a remedial investigation for the site. Constituents detected in groundwater, surface water, sediments, floodplains, and fish tissue were compared to identified screening levels to identify constituents, receptors, and pathways of concern. Constituents of concern included silver, arsenic, mercury, polychlorinated biphenyls, and polycyclic aromatic hydrocarbons. Pathways of exposure included recreational use of the river, including swimming, boating, and fishing. Based on the results of the risk assessment, remedial action objectives for the river were identified.

Wetland Scientist. Confidential International Oil Company, Landfill Operations, Maintenance, and Monitoring, Northwestern, Kentucky, United States. 01/2008-02/2009.
Employer: Parsons

Parsons provided remediation management services at a landfill that produces impacted groundwater that has historically seeped from the toe of the landfill slope, resulting in stressed vegetation and surface contamination. A groundwater collection trench and wet well were installed to collect the groundwater, and a storage tank was added in the late 1990s to facilitate transfer of the collected groundwater to tank trucks for transportation and off-site disposal. Parsons was responsible for operation of the groundwater collection system. Work included conducting an alternatives evaluation of the existing leachate collection system to mitigate leachate generation and designing and constructing the selected alternative; designing and installing a 2.3-acre improved landfill cap that consisted of a high-density polyethylene membrane, drainage swales with V-notch flumes, and passive soil gas vents over an existing clay cap to reduce the volume of leachate produced; investigating options for improvements to leachate handling and disposal, such as adding new leachate storage facilities and telemetry and supervisory control and data acquisition system controls, improving access roads and secondary containment, and providing on-site treatment using traditional and biological processes; and designing an impermeable cover system with associated drainage features to replace the existing stormwater management system. Primary chemicals of concern were cyanide and fluoride. Karen prepared an evaluation for using created wetlands to treat arsenic- and fluoride-contaminated leachate generated from this former potliner landfill. Based on the evaluation, wetlands were selected as part of the final remedy for the landfill.

Wetland Scientist. Confidential International Chemical Company, Ventron/Velsicol Superfund Site Operable Unit 1 Design, Wood-Ridge and Carlstadt, New Jersey, United States. 06/2007-04/2008.
Employer: Parsons

Parsons provided design and construction management for an 18-acre solid waste landfill cover system to promote runoff and serve as a non-contact cover surface for underlying contaminated waste materials. The scope included design of a site-wide stormwater management system, including lined swales, and construction of a tide gate in a drainage swale to mitigate the effects of flooding in and around a warehouse facility. Work included excavation and disposal of more than 66,000 cubic yards of mercury-contaminated soil, installation of 1,250 linear feet of steel sheet pile for a vertical hydraulic barrier wall, construction of a soil cap, construction of a 50,000-square-foot reinforced concrete cap, and various other site work components. Karen prepared habitat restoration plans and completed a wetland assessment for freshwater and tidal wetlands affected by implementation of remedial activities for this former industrial site adjacent to Berry's Creek.

Principal Wetland Biologist. Confidential International Oil Company, Mid-Michigan Oilfield Remediation, Closure, and Restoration, Central , Michigan, United States. 01/2007-04/2007.
Employer: Parsons

This project was part of a program in which Parsons managed remediation of more than 800 former oilfield sites, including 506 former oil wells, tank battery sites, and spill areas in central Michigan. Parsons also provided program management, investigation, remedial engineering, and construction oversight services and restored more than 9,225 acres of land to nearly original condition under US Environmental Protection Agency and Michigan Department of Environmental Quality and Department of Natural Resources requirements. Karen evaluated abandoned oil field sites to determine the need for Section 10, 404, and 401 permits from the state and prepared joint permit applications for the US Army Corps of Engineers and state.

Wetland Scientist. Waste Management, Inc., Laurel Ridge Landfill, Lily, Kentucky, United States. 05/2003-12/2006.
Employer: Parsons

Parsons conducted a wetland delineation and water body evaluation at the Laurel Ridge Landfill for an approximately 45-acre mostly undeveloped proposed expansion area that borders the Little Laurel River. The wetland delineation and water body evaluation were conducted as part of a Notice of Intent to expand the landfill. All wetlands were identified and a determination was made as to whether or not the wetlands fulfilled the jurisdictional requirements of the US Army Corps of Engineers, Nashville District. Other potentially regulated water bodies of the state (i.e., streams and ponds) were identified within the proposed expansion area. Identified wetland boundaries were flagged by Parsons and surveyed for plotting on a base map. A report of the findings was prepared for review by landfill staff and forwarded to the US Army Corps of Engineers for verification of the delineated wetland boundaries and identified water bodies of the state. Parsons also assisted with completing the notice of intent for expansion prior to submission to the Kentucky Department of Environmental Protection. Karen was responsible for delineating wetlands and determining impacts to those wetlands and other water bodies at the facility in response to a planned expansion. Prepared applications to the state and US Army Corps of Engineers for required permits to affect these water bodies.

Ecologist. Confidential International Oil Company, Former Refinery Land Use Redevelopment, Cincinnati, Ohio, United States. 03/2006-04/2006.
Employer: Parsons

Karen provided technical support for developing wetland and wildlife habitat restoration plans for this closed petroleum refinery along the banks of the Great Miami River. The site was certified by the Wildlife Habitat Council and nominated for the Corporate Habitat of the Year.

Publications/Presentations

Presentations

"Lower Genesee River RFI Investigation Overview," Ninth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, Louisiana, 2017 (co-presenters L. Thomas, M. Vetter, T. Drachenberg, K. Fields, S. Bupp, K. Dean, M. Rondinelli, C. Kriegner, and T. Towey).

"Designing Successful Forested Wetlands That Can Provide Floodplain Compensation In Urban Areas," American Water Resources Association Annual Conference, Albuquerque, New Mexico, 2011.

"Use of No-Purge Sampling Techniques to Eliminate Health and Safety Concerns and Reduce Cost," SPE Americas E&P Environmental and Safety Conference, San Antonio, Texas, 2009.

"Using Mitigation Wetlands to Improve Water Quality at a Solid Waste Landfill in Louisville, Kentucky," Society of Wetland Scientists Catchments to Coast Conference, Cairns, Australia, 2006.

"Tracking, Performance Criteria and Long-Term Monitoring," Association of State Wetland Managers, National Symposium: Wetlands 2002 – Restoring Impaired Wetlands and Other Waters, Indianapolis, Indiana, 2002.

JAMES MOLLOY

SENIOR SCIENTIST

James Molloy is an environmental scientist with experience on a variety of environmental remediation and restoration projects. James has provided support for efforts throughout New York State performing environmental and water quality field work, wetland delineation, fish and wildlife resources impact analysis, stream assessment, mean high water mark (MHWM) determination, restoration design, reporting writing, and permitting development. Prior to joining the Parsons team, James received a master's degree from The State University of New York, College of Environmental Science and Forestry (SUNY ESF) in Environmental and Forest Biology. James' relevant coursework includes advanced courses in ecological monitoring and biodiversity assessment, plant ecology and watershed ecology management, dendrology, limnology and the study of inland waters, wetland plant communities, watershed hydrology, freshwater wetland ecosystems, and soils.

James has worked as a scientist for the Parsons Corporation for five years. He has performed numerous wetland delineations with Mr. Joseph McMullen, Professional Wetland Scientist (PWS), throughout Onondaga County and has led multiple delineations under the guidance of Ms. Karen Fields, PWS throughout New York State. James has been the primary author of the resulting wetland delineation reports. James is proficient in the identification of the aquatic and terrestrial plants of the Northeastern United States, the characterization of soils, and the hydrologic indicators of wetlands and floodplains.

Work Experience

Senior Scientist. Confidential International Chemical Company, Avtex Fibers Superfund Site, Front Royal, Virginia.

James performed annual wetland monitoring at constructed wetlands, habitat assessment, determined species of concern, and identified maintenance needs.

Senior Scientist. AVANGRID, Inc., East Station Former Manufactured Gas Plant Site, Rochester, New York, United States.

James completed wetland delineation determinations and habitat assessment surveys. He conducted soil assessments, stream assessments, determined species of concern, conducted Waters of the U.S. (WOTUS) surveying, and created associated reports.

Scientist. Orange and Rockland Utilities, Inc., Transmission/Distribution Line Shoreline Stabilization, Mahwah, New Jersey.

James completed wetland delineation determinations and habitat assessment surveys for Orange and Rockland Utilities, Inc. shoreline stabilization efforts at multiple locations. He conducted soil assessments, stream assessments, determined species of concern, conducted WOTUS surveying, created reports, and developed permits on numerous sites.

Scientist. Orange and Rockland Utilities, Inc., Transmission/Distribution Line Shoreline Stabilization, Rockland County, New York.

James completed wetland delineation determinations and habitat assessment surveys for Orange and Rockland Utilities, Inc. shoreline stabilization efforts at multiple locations. He

YEARS OF EXPERIENCE

Total: 5

With Parsons: 4

EDUCATION

- Master of Professional Studies, Environmental and Forest Biology, SUNY ESF, New York, 2020
- Bachelor of Science, Conservation Biology, SUNY ESF, New York, 2016

CERTIFICATIONS

- 40-Hour HAZWOPER, current
- New York State Erosion and Sediment Control Certificate (NYSESCC)

conducted soil assessments, stream assessments, determined species of concern, conducted WOTUS surveying, created reports, and developed permits on numerous sites.

Scientist. Confidential Multinational Conglomerate Corporation, Onondaga Lake Natural Resources Restoration, Lake Habitat Enhancements, Syracuse, New York.

James aids with Natural Resource Damages habitat enhancement project. He has performed multiple wetland delineations, led field teams, developed and implemented native species restoration plans, performed quantitative vegetation assessments, created reports, and developed permits.

Scientist. Confidential Multinational Conglomerate Corporation, Onondaga Lake Remedial Goal Monitoring, Syracuse, New York.

James completes projects related to Onondaga Lake remedial goal monitoring. Responsibilities include performing multiple wetland delineations, conducting invasive species removal, surface water and sediment sampling, fish tissue collection, wildlife monitoring, and quantitative vegetation assessments.

Scientist. AVANGRID, Inc., West Station Former Manufactured Gas Plant Remedial Design, Rochester, New York, United States.

James performed ordinary high water mark determination, wetland delineation, tree survey, and habitat assessment. Assisted in restoration components of the design.

Associate Scientist. Confidential Multinational Conglomerate Corporation, Tonawanda Coke Plant Site 108 Remedial Investigation, Tonawanda, New York.

James conducted site reconnaissance and wetland delineation determinations for the Tonawanda Coke Plant Site 108 under the New York State Superfund Program. Responsibilities included soil assessments, habitat and stream assessments, WOTUS surveying, and fish and wildlife and wetland delineation report creation.

Associate Scientist. New York State Department of Environmental Conservation, Corning International Site Remedial Construction Oversight.

James performed field oversight and performed MHWM determinations for study areas along the Chemung River.

Technician. Upper Susquehanna Coalition. 05/2016 – 12/2016.

The Upper Susquehanna Coalition is a group consisting of 22 Soil and Water Conservation Districts that perform stream stabilization and install planted buffers to protect and improve water quality and natural resources in the Upper Susquehanna River Basin. James performed invasive species control, buffer plantings, plant identification and U.S. Army Corps of Engineers data collection, and stream buffer construction.

KAITLYN E. MORANZ

SCIENTIST

Kaitlyn Moranz is an environmental scientist with experience on a variety of environmental remediation and restoration projects. Kaitlyn has provided support for efforts throughout New York State performing environmental and water quality field work, restoration design, AutoCAD and geographic information system (GIS) drawing creation, wetland delineation, safety permitting, reporting writing, and permitting development. Prior to joining the Parsons team, Kaitlyn received a master's degree from Rochester Institute of Technology in environmental science, obtained wetland delineation training through The Swamp School, LLC, and held positions in municipal government and civil engineering.

In her four years as a scientist with Parsons Corporation, Kaitlyn has performed multiple wetland delineations with Mr. Joseph McMullen, Professional Wetland Scientist (PWS) throughout Onondaga County and has led multiple delineations under the guidance of Ms. Karen Fields, PWS throughout New York State. Kaitlyn is proficient in the use of routine on-site inspection methodologies outlined in the U.S. Army Corps of Engineers Wetlands Delineation Manual and the Northcentral Northeast Region's Regional Supplement to the Corps of Engineers Wetland Delineation Manual.

YEARS OF EXPERIENCE

Total: 9

With Parsons: 4

EDUCATION

- Master of Science, Environmental Science, Rochester Institute of Technology, New York, 2016
- Wetland Delineation & Regional Supplement Training, Swamp School, LLC, 2016
- Bachelor of Science, Environmental Science, Rochester Institute of Technology, New York, 2014
- New York State Erosion and Sediment Control Certificate (NYSESCC)

Work Experience

Scientist. Orange and Rockland Utilities, Inc., Transmission/Distribution Line Shoreline Stabilization, Rockland County, New York.

Kaitlyn completed wetland delineation determinations and habitat assessment surveys for Orange and Rockland Utilities, Inc. shoreline stabilization efforts at multiple locations. She conducted soil assessments, determined species of concern and any potential impacts to each, conducted waters of the U.S. (WOTUS) surveying, created reports, developed permits, and created GIS figures for documentation.

Scientist. Orange and Rockland Utilities, Inc., Transmission/Distribution Line Shoreline Stabilization, Mahwah, New Jersey.

Kaitlyn completed wetland delineation determinations and habitat assessment surveys for Orange and Rockland Utilities, Inc. shoreline stabilization efforts at multiple locations. She conducted soil assessments, determined species of concern and any potential impacts to each, conducted WOTUS surveying, created reports, developed permits, and created GIS figures for documentation.

Scientist. Confidential Multinational Conglomerate Corporation, Onondaga Lake Natural Resources Restoration, Lake Habitat Enhancements, Syracuse, New York.

Kaitlyn aids with Natural Resource Damages habitat enhancement projects leading field teams, conducting multiple wetland delineation determinations, developing and implementing native species restoration plans, creating AutoCAD/GIS drawings, and developing permits. She also has conducted multiple Phase I and II surveys, completing both field work and figure creation.

Scientist. Confidential Multinational Conglomerate Corporation, Onondaga Lake Remedial Goal Monitoring, Syracuse, New York.

Kaitlyn completes projects related to Onondaga Lake remediation. Responsibilities include leading field teams of undergraduate-level interns, conducting wetland delineation determinations, implementing native species restoration plans, AutoCAD/GIS drawing creation, surface water and sediment sampling, global positioning systems (GPS) surveying, and wildlife monitoring.

Associate Scientist. Confidential Multinational Conglomerate Corporation, Tonawanda Coke Plant Site 108 Remedial Investigation, Tonawanda, New York.

Kaitlyn conducted site reconnaissance and wetland delineation determinations for the Tonawanda Coke Plant Site 108 under the New York State Superfund Program. Responsibilities included soil assessments, habitat assessments, WOTUS surveying, and fish and wildlife and wetland delineation report creation. Additionally, Kaitlyn provided oversight of sub-contractors conducting soil core collection and performed soil analysis preparation.

Associate Scientist. New York State Department of Environmental Conservation, Orphan Well Plugging Project Construction Oversight, New York.

Kaitlyn assisted with permitting completion for multiple Orphan Well Plugging projects. She created GIS/AutoCAD figures for permit packages, conducted invasive species assessments, and compiled photographic documentation for projects.

Deputy Clerk. Village of Pittsford. 06/2017-05/2018.

Kaitlyn held a position with the Village of Pittsford as a deputy clerk. She provided GIS instruction, completed data entry projects, and participated in Village Board meetings. She aided in the design of the village website and implemented Department of Public Works and Building/Code Enforcement software updates. She additionally developed manuals for the use of the new software.

Civil Engineering Assistant. Professional Engineering Group. 09/2017-04/2018.

Kaitlyn held a position with Professional Engineering Group completing projects in Ontario and Monroe Counties, New York. She had responsibilities in permit writing, AutoCAD design drawing and GIS mapping, habitat assessments, hydrology calculations, and municipality board meeting presentations.

Undergraduate/Graduate Researcher. Waste Management/Rochester Institute of Technology. 05/2012-08/2016.

Kaitlyn held a position as a researcher for Rochester Institute of Technology in cooperation with Waste Management completing tasks as a field lead and as part of a team such as: wetland invasive species management, wetland delineations, GIS map creation, native species planting design and implementation, public outreach programs, and analysis of bathymetry, species diversity, and other measures of wetland health.

MADELEINE FERGUSON

ENVIRONMENTAL PERMITTING AND COMPLIANCE ASSOCIATE

Madeleine Ferguson is an environmental professional with experience on a variety of environmental remediation and restoration projects. Madeleine has provided support for efforts throughout New York State (NYS) performing environmental and water quality field work, reporting writing, geographic information systems (GIS) mapping, and permitting development. Madeleine is proficient in the identification of the birds common to the Northeastern United States, and the identification of hydric soils, wetland hydrology, and wetland vegetation.

YEARS OF EXPERIENCE

Total: 2

With Parsons: 1

EDUCATION

- Bachelor of Arts, Environmental Studies, Hobart and William Smith, 2021

CERTIFICATIONS

- 40-Hour HAZWOPER, current

Work Experience

Orange and Rockland Utilities, Inc., Transmission/Distribution Line Shoreline Stabilization, Rockland County, New York.

Parsons developed the designs for the installation of shoreline stabilization for transmission and distribution infrastructure to address erosion concerns in five municipalities. Madeleine's responsibilities included completing GIS figures and review; assisting wetland delineation determinations and habitat assessment surveys; preparing compliance documentation; and preparing permit applications for shoreline stabilization efforts.

Orange and Rockland Utilities, Inc., Transmission Line Shoreline Stabilization, Mahwah, New Jersey.

Parsons is developing the designs for the installation of shoreline stabilization for transmission infrastructure to address erosion concerns at multiple locations. Madeleine's responsibilities included completing GIS figures and review; assisting wetland delineation determinations and habitat assessment surveys; preparing compliance documentation; and preparing permit applications.

AVANGRID, Inc., East Station Former Manufactured Gas Plant Remedial Design, Rochester, New York.

Parsons is developing the design for the NYS Superfund dredge and cap effort to address historical contamination of the riverbed and associated upland areas of the Genesee River. Madeleine's responsibilities included completing GIS figures and review; assisting wetland delineation determinations and habitat assessment surveys; preparing compliance documentation; and preparing permit applications.

APPENDIX B USFWS FEDERAL IPAC SYSTEM RESULTS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To:
Project Code: 2023-0076165
Project Name: RGE East Station Site

May 01, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

PROJECT SUMMARY

Project Code: 2023-0076165
Project Name: RGE East Station Site
Project Type: Non-NPL Site Remediation
Project Description: Rochester Gas and Electric Corporation (RG&E) intends to complete Pre-Design Investigation (PDI) activities to assess the potential release of contaminants from the RGE East Station Site (Site) located at Suntru Street in the City of Rochester, Monroe County, New York. As a part of the PDI, Parsons has been contracted by RG&E to obtain environmental and other relevant permits for the Site. Parsons is submitting this request for a project screening as part of an environmental assessment for permit issuance.

The PDI is being implemented in accordance with the requirements of a Multi-Site Order on Consent (Index# CO-8-20180517-48) governed by the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Superfund Program. The scope of work of the PDI generally includes survey, soil and sediment boring installation and sampling, and other related field investigations.

The Site is an approximately 13.4-acre area located along the east bank of the Genesee River (latitude 43.167582531, longitude -77.620444002) and is currently vacant. The Site and other properties in the immediate vicinity have long histories of industrial and commercial use.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.1682128,-77.62070844887828,14z



Counties: Monroe County, New York

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Parsons Corporation
Name: james Molloy
Address: 301 Plainfield Road, Suite 350
City: Syracuse
State: NY
Zip: 13212
Email james.molloy@parsons.com
Phone: 3157298755

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army Corps of Engineers

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

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Project information

NAME

RGE East Station Site

LOCATION

Monroe County, New York



DESCRIPTION

Some(Rochester Gas and Electric Corporation (RG&E) intends to complete Pre- Design Investigation (PDI) activities to assess the potential release of contaminants from the RGE East Station Site (Site) located at Suntru Street in the City of Rochester, Monroe County,

New York. As a part of the PDI, Parsons has been contracted by RG&E to obtain environmental and other relevant permits for the Site. Parsons is submitting this request for a project screening as part of an environmental assessment for permit issuance. The PDI is being implemented in accordance with the requirements of a Multi-Site Order on Consent (Index# CO-8-20180517-48) governed by the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Superfund Program. The scope of work of the PDI generally includes survey, soil and sediment boring installation and sampling, and other related field investigations. The Site is an approximately 22-acre area located along the east bank of the Genesee River (latitude 43.167582531, longitude -77.620444002) and is currently vacant. The Site and other properties in the immediate vicinity have long histories of industrial and commercial use.)

Local office

New York Ecological Services Field Office

(607) 753-9334
(607) 753-9699
fw5es_nyfo@fws.gov

3817 Luker Road
Cortland, NY 13045-9385

https://www.fws.gov/northeast/NYFO/

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Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of

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Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

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Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

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Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

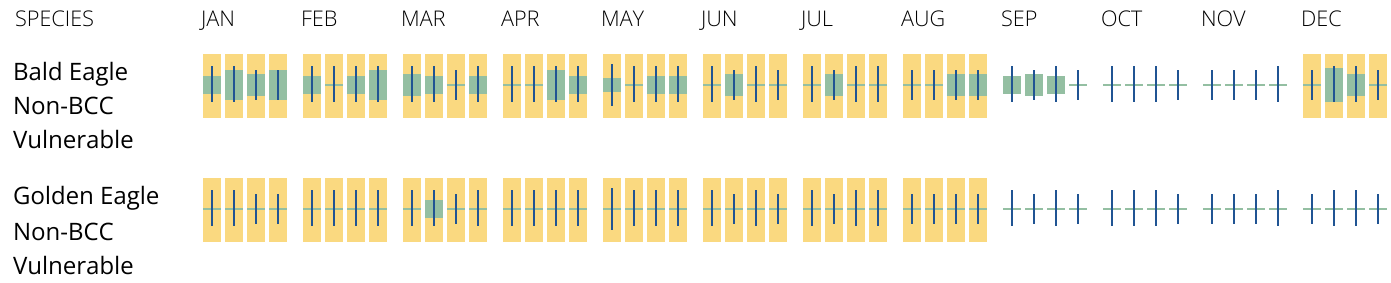
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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▪ probability of presence ▪ breeding season | survey effort – no data



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

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Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

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For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31

Belted Kingfisher Megaceryle alcyon — Breeds Mar 15 to Jul 25
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Black-billed Cuckoo Coccyzus erythropthalmus — Breeds May 15 to Oct 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9399

Bobolink Dolichonyx oryzivorus — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Canada Warbler Cardellina canadensis — Breeds May 20 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Cerulean Warbler Dendroica cerulea — Breeds Apr 20 to Jul 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/2974

Chimney Swift Chaetura pelagica — Breeds Mar 15 to Aug 25
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Evening Grosbeak Coccothraustes vespertinus — Breeds May 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Golden-winged Warbler Vermivora chrysoptera — Breeds May 1 to Jul 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8745

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Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Pectoral Sandpiper Calidris melanotos This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Prairie Warbler Dendroica discolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

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Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted

Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ( )
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

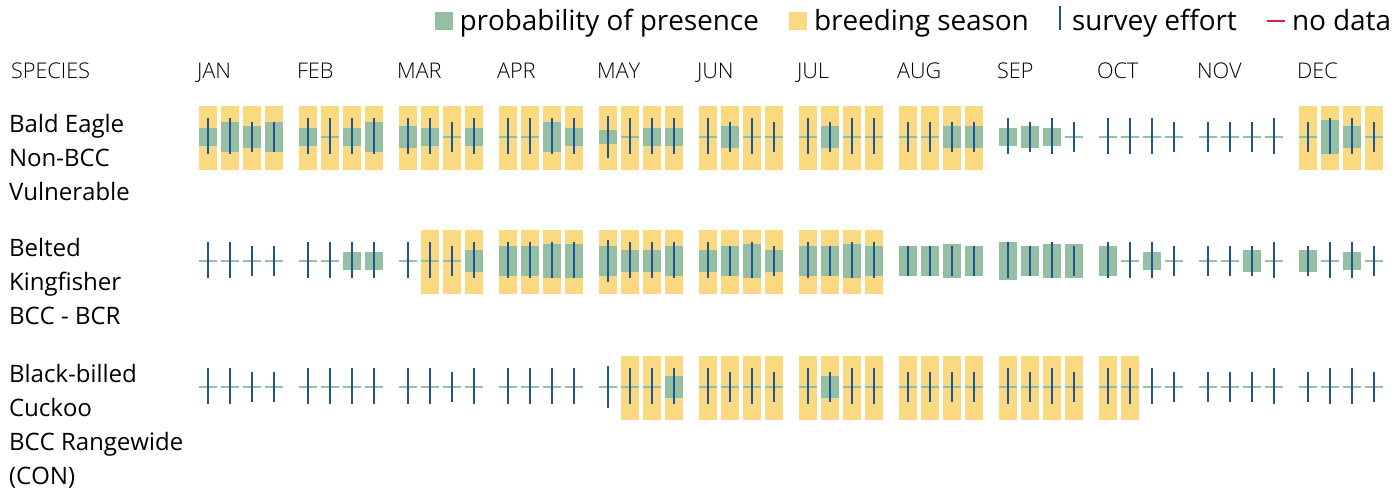
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

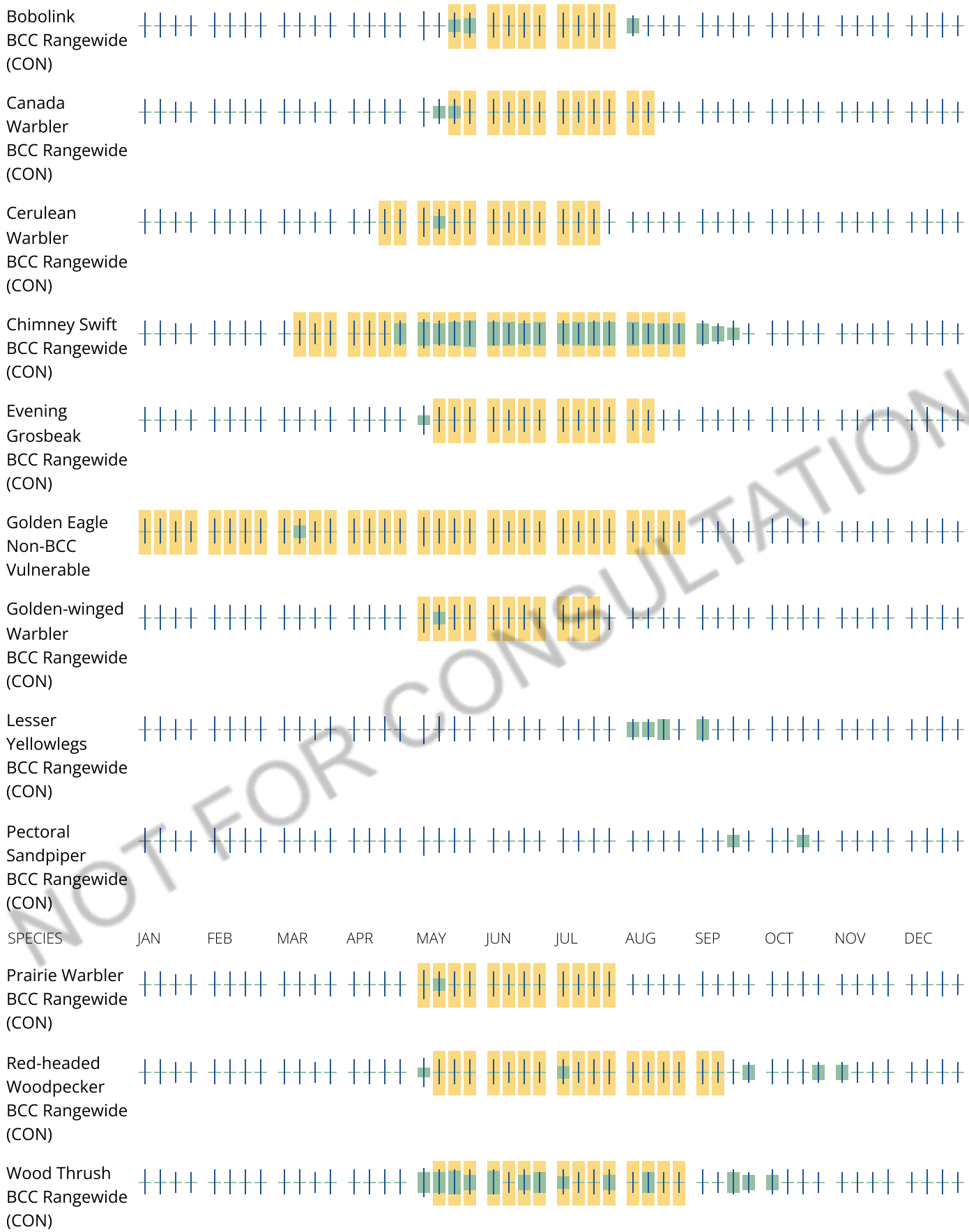
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

NOT FOR CONSULTATION





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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);

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2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

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Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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APPENDIX C NYNHP RESULTS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

June 8, 2023

Amy Ruta
Parsons
301 Plainfield Road, Suite 350
Syracuse, NY 13212

Re: Rochester Gas and Electric Corporation -- RGE East Station Site (Site No. 828204)
County: Monroe Town/City: Rochester

Dear Amy Ruta:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

We have no records of rare or state-listed animals or plants, or significant natural communities at the project site.

Peregrine falcon (*Falco peregrinus*, state listed as Endangered) has been documented nesting within 1/2 mile of the project site. For information about any permit considerations for your project, please contact the Permits staff at the NYSDEC Region 8 Office, Division of Environmental Permits, at dep.r8@dec.ny.gov.

For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other resources may be required to fully assess impacts on biological resources.

For information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the Permits staff at the NYSDEC Region 8 Office as described above.

Sincerely,

Heidi Krahling
Environmental Review Specialist
New York Natural Heritage Program

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APPENDIX D STREAM FEATURE TABLE

APPENDIX D - STREAM FEATURE TABLE
EAST STATION FORMER MGP SITE

STREAMS

STREAM IDENTIFICATION	CLASSIFICATION	COWARDIN CODE	STREAM NAME	LOCATION		HYDROLOGICAL CONNECTIVITY	JURISDICTION				
							NYSDEC		USACE		
				LATITUDE	LONGITUDE		CLASS	TROUT	ELIGIBLE	MAPPED	DESCRIPTION
Genesee River	Non-Trout	R2UBH	Genesee River	43.168006	-77.622708	Tributary to Lake Ontario	Non-Trout	No	Yes	Yes	The Genesee River is a large, TNW that outlets to Lake Ontario.

APPENDIX E USACE WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: East Station Former MGP Site City/County: Rochester, Monroe County Sampling Date: 8/14/2023

Applicant/Owner: Rochester Gas and Electric Corporation State: NY Sampling Point: 1U

Investigator(s): Kaitlyn Moranz, Jim Molloy, Madeleine Ferguson Section, Township, Range: NA

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR L, MLRA 101 Lat: 77°37'8.678"W Long: 43°10'1.78"N Datum: NAD 83

Soil Map Unit Name: Urban Land (Ub) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**		
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	**Yes** ____	**No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:		

Remarks: (Explain alternative procedures here or in a separate report.)
Over 100 years of industrial activities have changed site characteristics dramatically. Site soils consist of a thick layer of urban fill, often consisting of aggregates and other debris. Sampling point located within unmaintained drainage swale. Clonal trees including cottonwood, tree of heaven, and black locust forming clumps throughout. Plot performed within drainage channel to investigate the presence of wetland characteristics.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Drainage channel displaying no signs of prolonged hydrology, and likely channels only stormwaters.

PARSONS

VEGETATION – Use scientific names of plants. Sampling Point: 1U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	30	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	30	=Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size:)			
1. *Poa* sp.	40	Yes	
2. *Phragmites australis*	20	Yes	FACW
3. *Artemisia vulgaris*	20	Yes	UPL
4. *Cynanchum rossicum*	5	No	UPL
5. *Asclepias syriaca*	5	No	UPL
6. *Daucus carota*	5	No	UPL
7. *Fraxinus pennsylvanica*	2	No	FACW
8.			
9.			
10.			
11.			
12.			
	97	=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	22	x 2 =	44
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	35	x 5 =	175
Column Totals:	87 (A)		309 (B)

Prevalence Index = B/A = 3.55

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

PARSONS

SOIL

Sampling Point: 1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	100					Loamy/Clayey	Silt loam
4-8	10YR 4/2	95					Sandy	Fine sand
	10YR 4/2	5						Silt loam pockets in the fine sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 8

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

The drainage swale was likely lined with rock and sand. Soils include a shallow 4-inch layer of silt loam over fine sand and coarse stone at 8-inches depth.

PARSONS

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: East Station Former MGP Site City/County: Rochester, Monroe County Sampling Date: 8/14/2023

Applicant/Owner: Rochester Gas and Electric Corporation State: NY Sampling Point: 2U

Investigator(s): Kaitlyn Moranz, Jim Molloy, Madeleine Ferguson Section, Township, Range: NA

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR L, MLRA 101 Lat: 77°37'11.922"W Long: 43°9'59.335"N Datum: NAD 83

Soil Map Unit Name: Urban Land (Ub) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**		
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	**Yes** ____	**No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:		

Remarks: (Explain alternative procedures here or in a separate report.)
Over 100 years of industrial activities have changed site characteristics dramatically. Site soils consist of a thick layer of urban fill, often consisting of aggregates and other debris. Sampling point located within unmaintained drainage swale. Plot performed within drainage channel to investigate the presence of wetland characteristics.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Drainage channel displaying no signs of prolonged hydrology, and likely channels only stormwaters.

PARSONS

VEGETATION – Use scientific names of plants.

Sampling Point: 2U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. *Gleditsia triacanthos*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5 =Total Cover		
Herb Stratum (Plot size:)			
1. *Phleum pratense*	40	Yes	FACU
2. *Vicia cracca*	30	Yes	UPL
3. *Poa* sp.	20	Yes	
4. *Artemisia vulgaris*	20	Yes	UPL
5. *Glechoma hederacea*	15	No	FACU
6. *Ailanthus altissima*	5	No	UPL
7. *Asclepias incarnata*	5	No	OBL
8. *Lotus corniculatus*	5	No	FACU
9. *Cynanchum rossicum*	5	No	UPL
10. *Verbena urticifolia*	2	No	FAC
11. *Cirsium vulgare*	2	No	FACU
12. *Melilotus officinalis*	2	No	FACU
	151 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	0	x 2 =	0
FAC species	7	x 3 =	21
FACU species	64	x 4 =	256
UPL species	60	x 5 =	300
Column Totals:	136 (A)		582 (B)

Prevalence Index = B/A = 4.28

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Dominated by grasses and weedy herbs.

PARSONS

SOIL

Sampling Point: 2U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Loamy/Clayey	Silt loam
3-10	10YR 4/2	95	5YR 3/4	2			Loamy/Clayey	Sandy silt loam
	10YR 6/8	3						Silt loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 10

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

The drainage swale was likely lined with rock and sand. Coarse stone at 10 inches depth.

PARSONS

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: East Station Former MGP Site City/County: Rochester, Monroe County Sampling Date: 8/14/2023

Applicant/Owner: Rochester Gas and Electric Corporation State: NY Sampling Point: 3U

Investigator(s): Kaitlyn Moranz, Jim Molloy, Madeleine Ferguson Section, Township, Range: NA

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR L, MLRA 101 Lat: 77°37'17.895"W Long: 43°10'4.45"N Datum: NAD 83

Soil Map Unit Name: Urban Land (Ub) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area**		
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	**Yes** ____	**No** X
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID:		

Remarks: (Explain alternative procedures here or in a separate report.)
Over 100 years of industrial activities have changed site characteristics dramatically. Site soils consist of a thick layer of urban fill, often consisting of aggregates and other debris. The sampling point is located in a low spot at the end of a drainage swale, where grass-lined swale meets the rock lined outfall to Genessee River. Common reed has become established in the low area in a monospecific stand. Although the area likely pools water during rainfall, hydric soil indicators have not developed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 9 inches

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
A small, low area, dominated by common reed, at the end of a drainage swale along the Genessee River. The area is slightly lower than the rock lined outfall to the river.

PARSONS

VEGETATION – Use scientific names of plants.

Sampling Point: 3U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size:)			
1. *Phragmites australis*	100	Yes	FACW
2. *Poa* sp.	20	No	
3. *Equisetum arvense*	15	No	FAC
4. *Carex* sp.	2	No	
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	137	=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	115 (A)		245 (B)

Prevalence Index = B/A = 2.13

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Dominated by grasses and weedy herbs.

PARSONS

SOIL

Sampling Point: 3U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Loamy/Clayey	Clayey loam
6-9	10YR 4/3	80					Loamy/Clayey	Sandy clay loam
	7.5YR 4/4	20						Sand
9-18	7.5YR 4/4	100					Sandy	Sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

The sampling point is located in a low spot at the end of a drainage swale, where grass-lined swale meets the rock lined outfall to Genessee River. Common reed has become established in the low area, dominating. Although the area likely pools water during rainfall, indicators of hydric soil have no developed, indicating that the area does not retain water long enough to develop wetland characteristics.

PARSONS

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: East Station Former MGP Site City/County: Rochester, Monroe County Sampling Date: 8/16/2023

Applicant/Owner: Rochester Gas and Electric Corporation State: NY Sampling Point: 4U

Investigator(s): Kaitlyn Moranz, Jim Molloy, Madeleine Ferguson Section, Township, Range: NA

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR L, MLRA 101 Lat: 77°37'17.37"W Long: 43°10'4.428"N Datum: NAD 83

Soil Map Unit Name: Urban Land (Ub) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**		
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	**Yes** ____	**No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:		

Remarks: (Explain alternative procedures here or in a separate report.)
Over 100 years of industrial activities have changed site characteristics dramatically. Site soils consist of a thick layer of urban fill, often consisting of aggregates and other debris. Up the slope from the depression at sampling point 3U. Grassy slope dominated by weeds.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Uphill of the depression at sampling point 3U. No idicators of wetland hydrology, soils are very dry and sandy, draining toward the depression.

PARSONS

VEGETATION – Use scientific names of plants.

Sampling Point: 4U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size:)			
1. *Poa* sp.	60	Yes	
2. *Cirsium arvense*	30	Yes	FACU
3. *Lotus corniculatus*	20	No	FACU
4. *Phleum pratense*	15	No	FACU
5. *Vicia cracca*	10	No	UPL
6. *Daucus carota*	5	No	UPL
7. *Phragmites australis*	5	No	FACW
8. *Rumex crispus*	2	No	FAC
9. *Tragopogon* sp.	2	No	
10.			
11.			
12.			
	149	=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	2	x 3 =	6
FACU species	65	x 4 =	260
UPL species	15	x 5 =	75
Column Totals:	87 (A)		351 (B)

Prevalence Index = B/A = 4.03

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Dominated by grasses and weedy herbs.

PARSONS

SOIL

Sampling Point: 4U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	70					Loamy/Clayey	Silt loam
	10YR 5/6	30						Fine sand
10-18	10YR 4/4	100					Sandy	Fine sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

PARSONS

APPENDIX F PHOTOGRAPHIC DOCUMENTATION

APPENDIX F PHOTOGRAPHIC DOCUMENTATION

EAST STATION FORMER MGP SITE



Title: Photograph 1.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking west at the abandoned railroad bridge over the Genesee River.



Title: Photograph 2.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking southeast at the B&L property and impervious surface areas.



Title: Photograph 3.
Location: Rochester, New York.
Date: August 16, 2023.
Description: Looking southwest from the east bank of the Genesee River at the western gorge wall.



Title: Photograph 4.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking southeast at the B&L property and impervious surface areas.

APPENDIX F PHOTOGRAPHIC DOCUMENTATION

EAST STATION FORMER MGP SITE



Title: Photograph 5.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking northwest at the B&L property and impervious surface areas.



Title: Photograph 6.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking southwest at the B&L property impervious surface areas and an unauthorized dump area.



Title: Photograph 7.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking north at old fields dominated by mugwort (*Artemisia vulgaris*).



Title: Photograph 8.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking southeast at the concrete retaining wall at the B&L property along the OHWM of the Genesee River.



Title: Photograph 9.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking east at an unused RG&E structure and parking lot at the end of Suntru Street.



Title: Photograph 10.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking east up Suntru Street, the access route to the Project Area.



Title: Photograph 11.
Location: Rochester, New York.
Date: August 15, 2023.
Description: Looking west at the rock-lined outlet of the drainage swales.



Title: Photograph 12.
Location: Rochester, New York.
Date: August 15, 2023.
Description: Looking southwest at a common reed-dominated area in the drainage swale.



Title: Photograph 13.
Location: Rochester, New York.
Date: August 15, 2023.
Description: Looking west at a stand of common milkweed (*Asclepias syriaca*) in an old field area.



Title: Photograph 14.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking southeast at impervious surface and unused structures on the RG&E property.



Title: Photograph 15.
Location: Rochester, New York.
Date: August 15, 2023.
Description: looking north at the steep slopes of urban forest west of Suntru Street.



Title: Photograph 16.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking south at impervious surface in the RG&E property.



Title: Photograph 17.
Location: Rochester, New York.
Date: August 15, 2023.
Description: Looking southeast up the vegetated drainage swale and at the Bausch Memorial Bridge.



Title: Photograph 18.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Wetland determination plot 4U.



Title: Photograph 19.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking northwest at an unused structure and old field areas in the RG&E property.



Title: Photograph 20.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking northwest at the forested banks of the Genesee River.



Title: Photograph 21.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking northeast at the steep forested banks of the Genesee River in the NYS-owned property.



Title: Photograph 22.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking northwest down the vegetated drainage swale.



Title: Photograph 23.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Looking southeast at the Municipal ROW beneath the Bausch Memorial Bridge.



Title: Photograph 24.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Wetland determination plot 1U.



Title: Photograph 25.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Soil sample taken at wetland determination plot 1U.



Title: Photograph 26.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Wetland determination plot 2U.



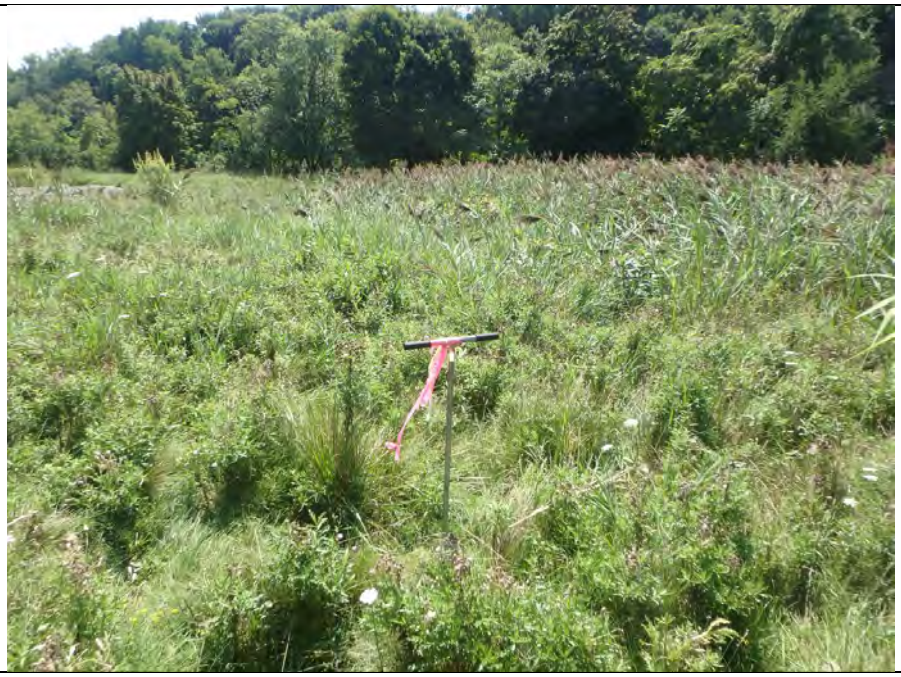
Title: Photograph 27.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Soil sample taken at wetland determination plot 2U.



Title: Photograph 28.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Wetland determination plot 3U.



Title: Photograph 29.
Location: Rochester, New York.
Date: August 14, 2023.
Description: Soil sample taken at wetland determination plot 3U.



Title: Photograph 30.
Location: Rochester, New York.
Date: August 16, 2023.
Description: Wetland determination plot 4U.



Title: Photograph 31.
Location: Rochester, New York.
Date: August 16, 2023.
Description: Soil sample taken at wetland determination plot 4U.



Title: Photograph 32.
Location: Rochester, New York.
Date: August 29, 2024.
Description: The OHWM is shown clearly in the absence of persistent vegetation along the rip rap shoreline.



Title: Photograph 33.
Location: Rochester, New York.
Date: August 29, 2024.
Description: The OHWM is shown in the absence of vegetation, and the scouring removal of soil around tree roots.



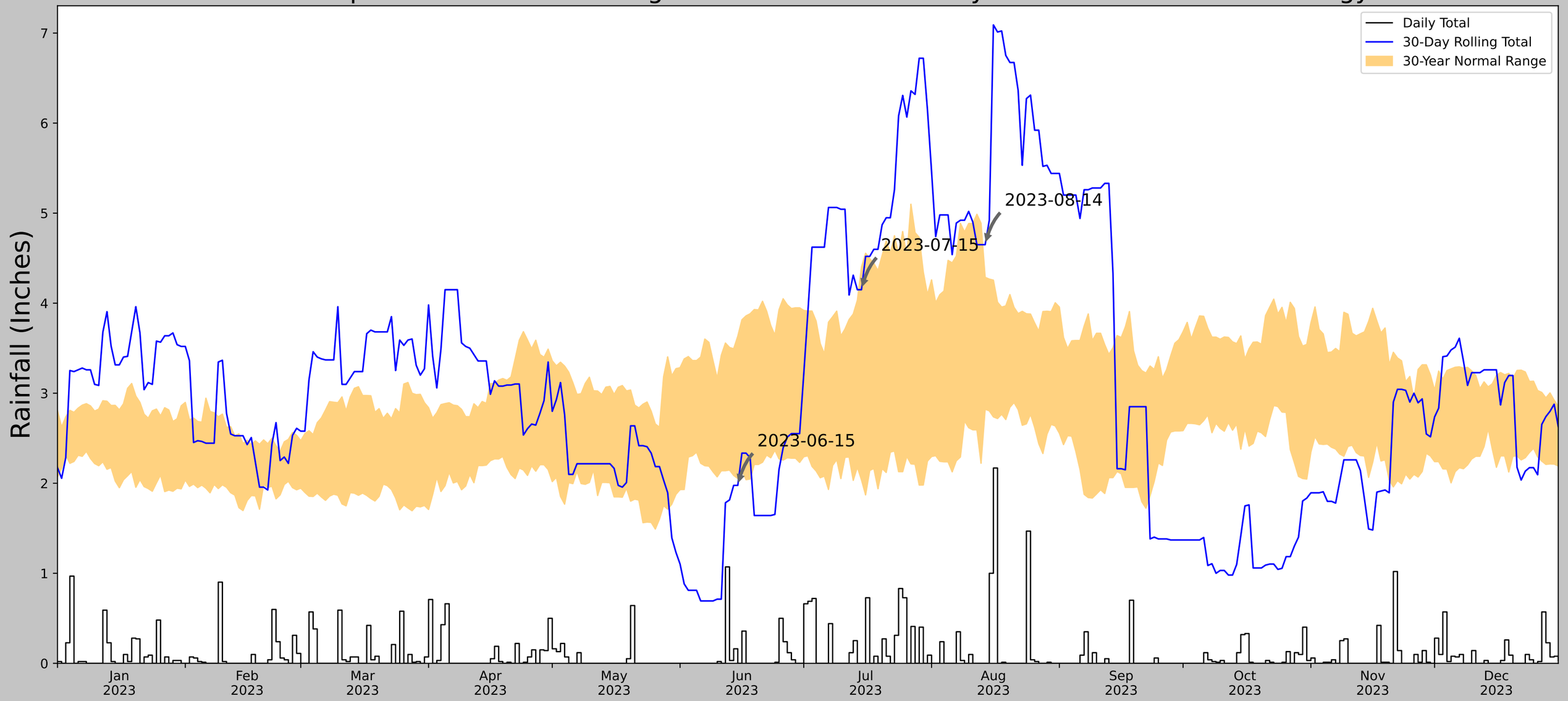
Title: Photograph 34.
Location: Rochester, New York.
Date: August 29, 2024.
Description: The OHWM is shown in the erosion of riprap banks.



Title: Photograph 35.
Location: Rochester, New York.
Date: August 29, 2024.
Description: The OHWM is shown clearly in shelving along scoured edges, sparse vegetation, and exposed roots.

APPENDIX G USACE ANTECEDENT PRECIPITATION TOOL

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	43.168056, -77.620413
Observation Date	2023-08-14
Elevation (ft)	410.144
Drought Index (PDSI)	Moderate wetness
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-08-14	2.822047	4.287008	4.649606	Wet	3	3	9
2023-07-15	2.037008	4.401969	4.149606	Normal	2	2	4
2023-06-15	2.052756	3.633858	1.976378	Dry	1	1	1
Result							Normal Conditions - 14

US Army Corps of Engineers

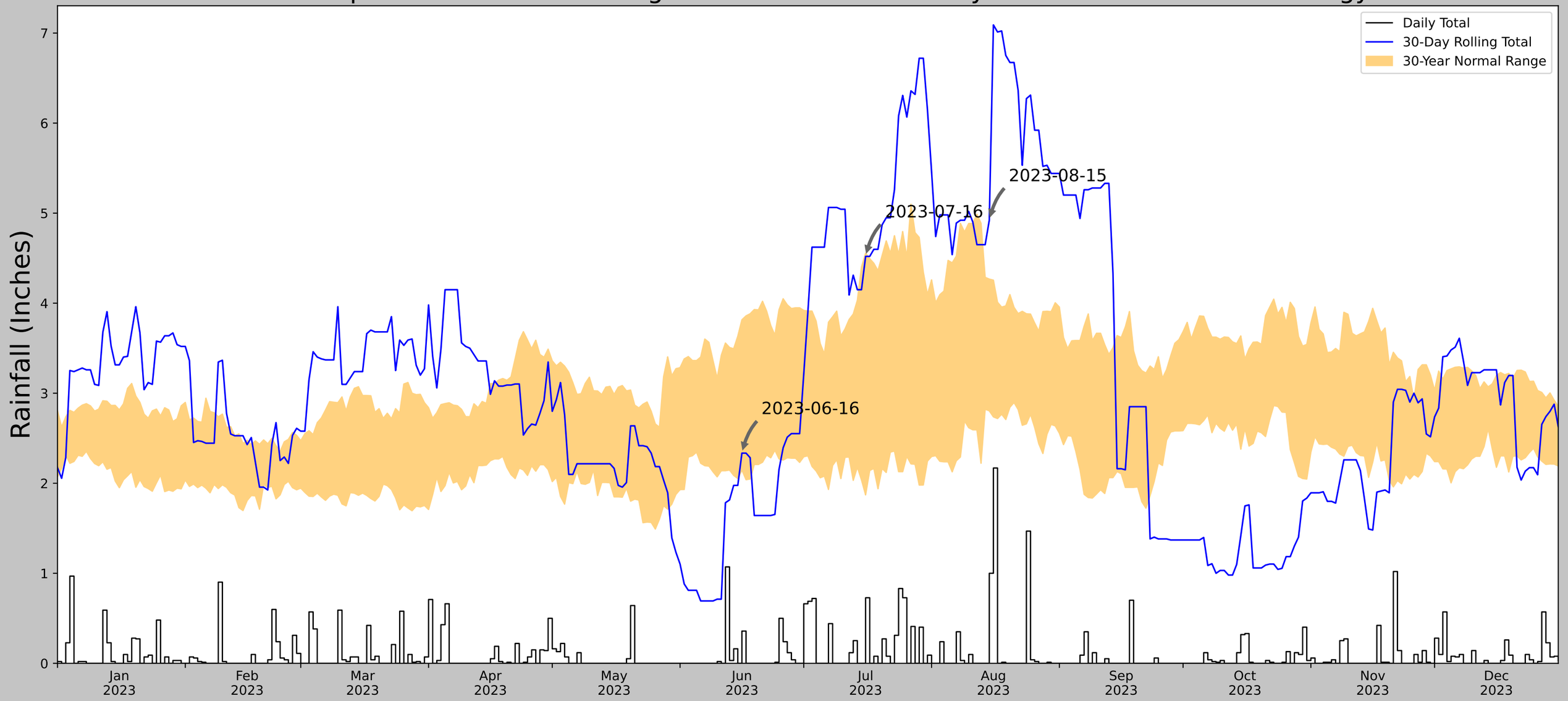
ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ROCHESTER GTR INTL	43.1172, -77.6753	540.026	4.473	129.882	2.594	11353	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	43.168056, -77.620413
Observation Date	2023-08-15
Elevation (ft)	410.144
Drought Index (PDSI)	Moderate wetness
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-08-15	2.804331	4.267717	4.92126	Wet	3	3	9
2023-07-16	1.870079	4.555118	4.519685	Normal	2	2	4
2023-06-16	2.147244	3.815748	2.334646	Normal	2	1	2
Result							Wetter than Normal - 15

US Army Corps of Engineers

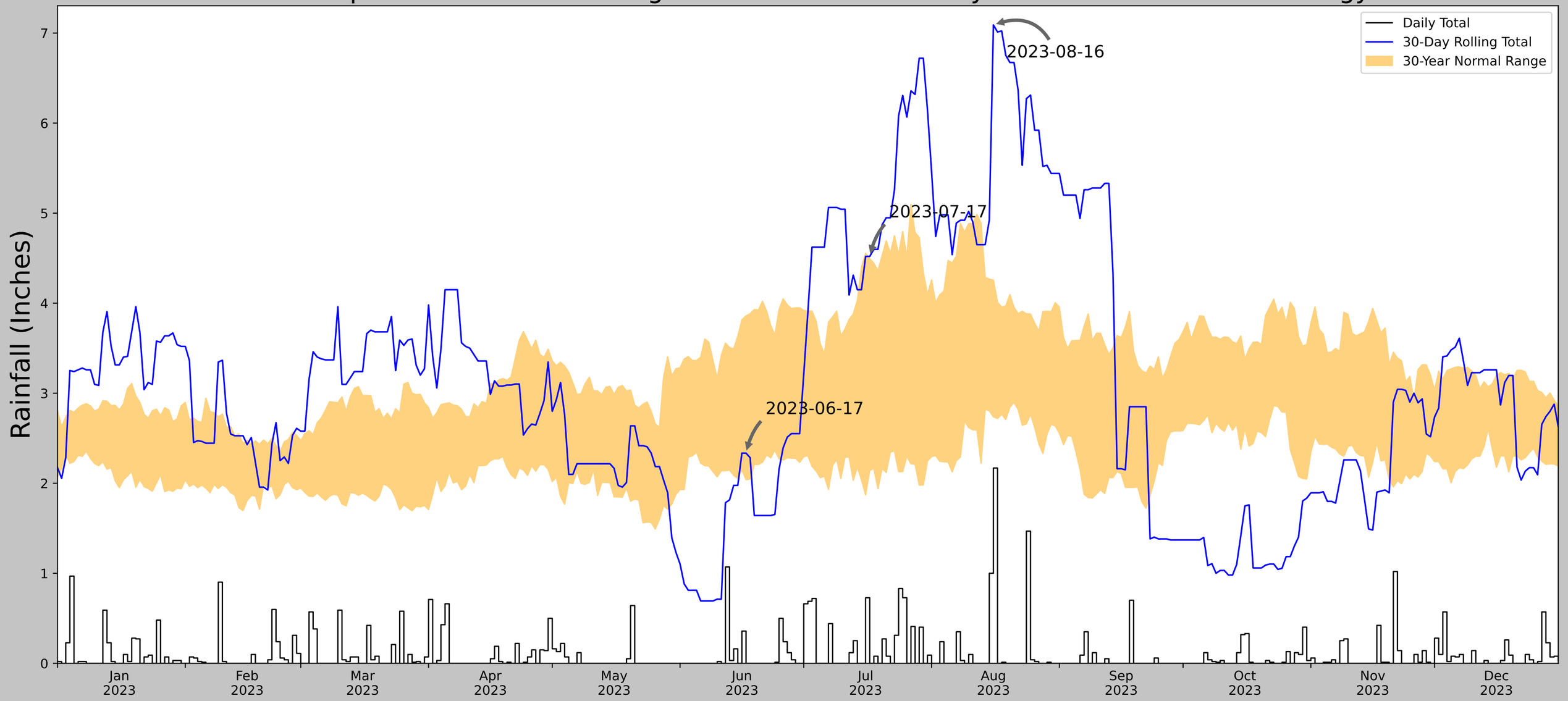
ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ROCHESTER GTR INTL	43.1172, -77.6753	540.026	4.473	129.882	2.594	11353	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	43.168056, -77.620413
Observation Date	2023-08-16
Elevation (ft)	410.144
Drought Index (PDSI)	Moderate wetness
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-08-16	2.737008	4.255906	7.090551	Wet	3	3	9
2023-07-17	2.142126	4.494095	4.519685	Wet	3	2	6
2023-06-17	2.03937	3.859055	2.334646	Normal	2	1	2
Result							Wetter than Normal - 17

US Army Corps of Engineers

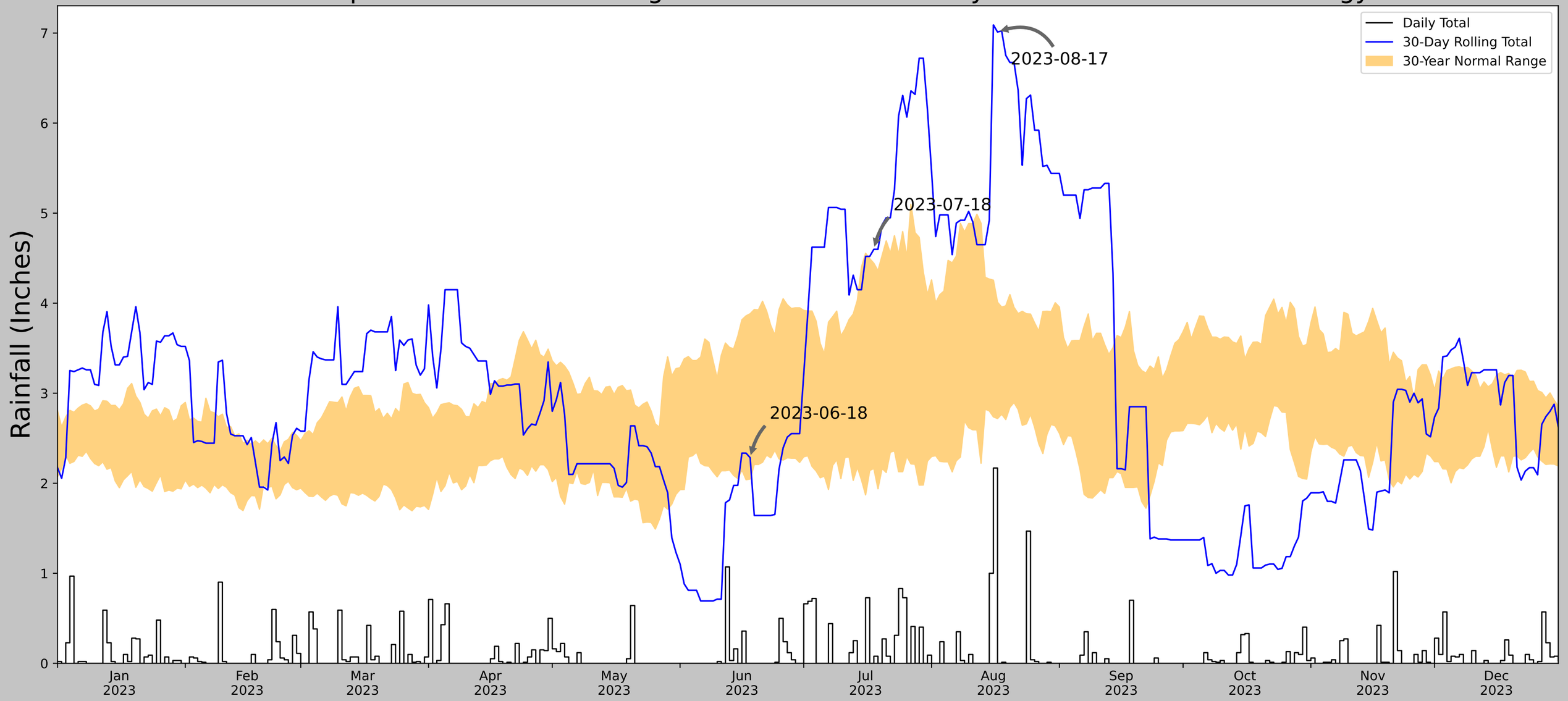
Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

ERDC

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ROCHESTER GTR INTL	43.1172, -77.6753	540.026	4.473	129.882	2.594	11353	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	43.168056, -77.620413
Observation Date	2023-08-17
Elevation (ft)	410.144
Drought Index (PDSI)	Moderate wetness
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-08-17	2.718504	4.01063	7.011811	Wet	3	3	9
2023-07-18	2.164173	4.443307	4.598425	Wet	3	2	6
2023-06-18	2.047244	3.882677	2.283465	Normal	2	1	2
Result							Wetter than Normal - 17

US Army Corps of Engineers

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

ERDC

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ROCHESTER GTR INTL	43.1172, -77.6753	540.026	4.473	129.882	2.594	11353	90

APPENDIX H PLANT OBSERVATION LIST

APPENDIX H
VEGETATION OBSERVATION LIST
EAST STATION FORMER MGP SITE
ROCHESTER, MONROE COUNTY, NEW YORK

Scientific Name[1]	Common Name	State Status	Federal Status	Nativity[1]	State Rarity[2]	Global Rarity[2]
Impervious Surface						
Subdominant Species[3]						
Calystegia sepium	Hedge bindweed	Unlisted	Unlisted	Native	SNR	G5
Cichorium intybus	Chicory	Unlisted	Unlisted	Non-native	SNA	GNR
Juncus tenuis	Path rush	Unlisted	Unlisted	Native	S5	G5
Lotus corniculatus	Common bird's foot trefoil	Unlisted	Unlisted	Non-Native	SNA	GNR
Lysimachia arvensis	Scarlet pimpernel	Unlisted	Unlisted	Non-Native	SNA	GNR
Phytolocca americana	Common pokeweed	Unlisted	Unlisted	Native	S5	G5
Silene latifolia	White campion	Unlisted	Unlisted	Non-native	SNA	GNR
Old Field						
Dominant Species						
Artemisia vulgaris	Mugwort	Unlisted	Unlisted	Non-Native	SNA	GNR
Centaurea nigra	Black knapweed	Unlisted	Unlisted	Non-Native	SNA	GNR
Phleum pratense	Common Timothy	Unlisted	Unlisted	Non-Native	SNA	GNR
Poa sp.	Turf grass	Unlisted	Unlisted	Unknown	Unknown	Unknown
Vicia cracca	Tufted vetch	Unlisted	Unlisted	Non-Native	SNA	SNR
Subdominant Species						
Ailanthus altissima	Tree of heaven	Unlisted	Unlisted	Non-Native	SNA	GNR
Asclepias syriaca	Common milkweed	Unlisted	Unlisted	Native	S5	G5
Cirsium vulgare	Bull thistle	Unlisted	Unlisted	Non-Native	SNA	GNR
Clinopodium vulgare	Wild basil	Unlisted	Unlisted	Unknown	S3	G5
Daucus carota	Queen Anne's lace	Unlisted	Unlisted	Non-Native	SNA	GNR
Dianthus armeria	Deptford pink	Unlisted	Unlisted	Non-Native	SNA	GNR
Dipsacus fullonum	Wild teasel	Unlisted	Unlisted	Non-Native	SNA	GNR
Elymus virginicus	Virginia wild rye	Unlisted	Unlisted	Native	S5	G5
Leucanthemum vulgare	Oxeye daisy	Unlisted	Unlisted	Non-Native	SNA	GNR
Linaria vulgaris	Butter and eggs	Unlisted	Unlisted	Non-Native	SNA	GNR
Lotus corniculatus	Common bird's foot trefoil	Unlisted	Unlisted	Non-Native	SNA	GNR
Medicago lupulina	Black medic	Unlisted	Unlisted	Non-Native	SNA	GNR
Melilotus albus	White sweet clover	Unlisted	Unlisted	Non-Native	SNA	G5
Melilotus officinalis	Yellow sweet clover	Unlisted	Unlisted	Non-Native	SNA	GNR
Nepeta cataria	Common catnip	Unlisted	Unlisted	Non-Native	SNA	GNR
Oxalis stricta	Common yellow wood sorrel	Unlisted	Unlisted	Native	S5	G5
Phytolocca americana	Common pokeweed	Unlisted	Unlisted	Native	S5	G5
Picris hieracioides	Hawkweed oxtongue	Unlisted	Unlisted	Non-Native	SNA	G5
Plantago lanceolata	English plantain	Unlisted	Unlisted	Non-Native	SNA	G5
Plantago major	Common plantain	Unlisted	Unlisted	Non-Native	SNA	G5
Robinia pseudoacacia	Black locust	Unlisted	Unlisted	Non-Native	SNA	G5
Rubus occidentalis	Black raspberry	Unlisted	Unlisted	Native	S5	G5
Securigera varia	Crown vetch	Unlisted	Unlisted	Non-Native	SNA	GNR
Solidago canadensis	Canada goldenrod	Unlisted	Unlisted	Native	S5	G5
Thuja occidentalis	Northern white cedar	Unlisted	Unlisted	Native	S5	G5
Ulmus pumila	Siberian elm	Unlisted	Unlisted	Non-native	SNA	GNR
Verbascum blattaria	Moth mullein	Unlisted	Unlisted	Non-Native	SNA	GNR
Verbascum thapsus	Common mullein	Unlisted	Unlisted	Non-Native	SNA	GNR
Verbena urticifolia	White vervain	Unlisted	Unlisted	Native	S5	G5
Urban Forest						
Dominant Species						
Acer negundo	Boxelder	Unlisted	Unlisted	Native	S5	G5
Ageratina altissima	Common white snakeroot	Unlisted	Unlisted	Native	S5	G5
Ailanthus altissima	Tree of heaven	Unlisted	Unlisted	Non-Native	SNA	GNR
Robinia pseudoacacia	Black locust	Unlisted	Unlisted	Non-Native	SNA	G5
Subdominant Species						
Catalpa speciosa	Northern catalpa	Unlisted	Unlisted	Non-Native	SNA	G4
Acer platanoides	Norway maple	Unlisted	Unlisted	Non-Native	SNA	GNR
Artemisia vulgaris	Mugwort	Unlisted	Unlisted	Non-Native	SNA	GU
Celastrus orbiculatus	Oriental bittersweet	Unlisted	Unlisted	Non-native	SNA	GNR
Celtis occidentalis	Northern hackberry	Unlisted	Unlisted	Native	S5	G5
Crataegus sp.	Hawthorn	Unknown	Unknown	Unknown	Unknown	Unknown
Linaria vulgaris	Butter and eggs	Unlisted	Unlisted	Non-Native	SNA	GNR
Parthenocissus quinquefolia	Virginia creeper	Unlisted	Unlisted	Native	S5	G5
Populus deltoides	Eastern cottonwood	Unlisted	Unlisted	Native	S4	G5
Rhamnus cathartica	European buckthorn	Unlisted	Unlisted	Non-Native	SNA	GNR
Rosa multiflora	Multiflora rose	Unlisted	Unlisted	Non-native	SNA	GNR
Vitis riparia	Riverbank grape	Unlisted	Unlisted	Native	S5	G5

Scientific Name[1]	Common Name	State Status	Federal Status	Nativity[1]	State Rarity[2]	Global Rarity[2]
Drainage Swale						
Dominant Species						
Poa sp.	Turf grass	Unlisted	Unlisted	Unknown	Unknown	Unknown
Cirsium arvense	Canada thistle	Unlisted	Unlisted	Non-Native	SNA	GNR
Daucus carota	Queen Anne's lace	Unlisted	Unlisted	Non-Native	SNA	GNR
Phleum pratense	Common Timothy	Unlisted	Unlisted	Non-Native	SNA	GNR
Phragmites australis	Common reed	Unlisted	Unlisted	Non-Native	SNA	G5
Subdominant Species						
Verbascum thapsus	Common mullein	Unlisted	Unlisted	Non-Native	SNA	GNR
Artemisia vulgaris	Mugwort	Unlisted	Unlisted	Non-Native	SNA	GU
Asclepias incarnata	Swamp milkweed	Unlisted	Unlisted	Native	S5	G5
Asclepias syriaca	Common milkweed	Unlisted	Unlisted	Native	S5	G5
Bidens frondosa	Devil's beggartick	Unlisted	Unlisted	Native	S5	G5
Buddleja sp.	Butterfly bush	Unknown	Unknown	Non-native	Unknown	Unknown
Cirsium vulgare	Bull thistle	Unlisted	Unlisted	Non-Native	SNA	GNR
Cuscuta sp.	Dodder	Unknown	Unknown	Unknown	Unknown	Unknown
Dipsacus fullonum	Wild teasel	Unlisted	Unlisted	Non-Native	SNA	GNR
Lepidium virginicum	Wild pepperweed	Unlisted	Unlisted	Native	S5	G5
Leucanthemum vulgare	Oxeye daisy	Unlisted	Unlisted	Non-Native	SNA	GNR
Linaria vulgaris	Butter and eggs	Unlisted	Unlisted	Non-Native	SNA	GNR
Phalaris arundinacea	Reed canary grass	Unlisted	Unlisted	Native	S4	G5
Phragmites australis	Common reed	Unlisted	Unlisted	Non-Native	SNA	G5
Rubus allegheniensis	Common blackberry	Unlisted	Unlisted	Native	S5	G5
Rumex crispus	Curly dock	Unlisted	Unlisted	Non-Native	SNA	GNR
Solanum carolinense	Carolina horse-nettle	Unlisted	Unlisted	Native	S5	G5
Solanum dulcamara	Bitter-sweet nightshade	Unlisted	Unlisted	Non-Native	SNA	GNR
Solidago canadensis	Canada goldenrod	Unlisted	Unlisted	Native	S5	G5
Tanacetum vulgare	Common tansy	Unlisted	Unlisted	Non-native	SNA	GNR
Tragopogon sp.	Salsify	Unknown	Unknown	Non-native	Unknown	Unknown
Verbascum blattaria	Moth mullein	Unlisted	Unlisted	Non-Native	SNA	GNR
Verbena urticifolia	White vervain	Unlisted	Unlisted	Native	S5	G5
Confined River						
Dominant Species						
Acer negundo	Boxelder	Unlisted	Unlisted	Native	S5	G5
Ailanthus altissima	Tree of heaven	Unlisted	Unlisted	Non-Native	SNA	GNR
Celastrus orbiculatus	Oriental bittersweet	Unlisted	Unlisted	Non-native	SNA	GNR
Phalaris arundinacea	Reed canary grass	Unlisted	Unlisted	Native	S4	G5
Salix x fragilis	Hybrid crack willow	Unlisted	Unlisted	Non-native	SNA	GNR
Toxicodendron radicans	Eastern poison ivy	Unlisted	Unlisted	Native	S5	G5
Subdominant Species						
Alnus glutinosa	European alder	Unlisted	Unlisted	Non-native	SNA	GNR
Berberis thunbergii	Japanese barberry	Unlisted	Unlisted	Non-native	SNA	GNR
Boehmeria cylindrica	False nettle	Unlisted	Unlisted	Native	S5	G5
Leersia oryzoides	Rice cut grass	Unlisted	Unlisted	Native	S5	G5
Lonicera sp.	Honeysuckle	Unknown	Unknown	Non-Native	Unknown	Unknown
Lythrum salicaria	Purple loosestrife	Unlisted	Unlisted	Non-Native	SNA	G5
Persicaria lapathifolia	Dock-leaved smartweed	Unlisted	Unlisted	Native	SNR	G5
Pilea pumila	Green-fruited clearweed	Unlisted	Unlisted	Native	S5	G5
Typha x glauca	Hybrid cattail	Unlisted	Unlisted	Native	SNA	GNA
Urtica dioica	European stinging nettle	Unlisted	Unlisted	Non-native	SNA	G5
Vinca minor	Common periwinkle	Unlisted	Unlisted	Non-native	SNA	GNR
Vincetoxicum nigrum	Black swallowwort	Unlisted	Unlisted	Non-Native	SNA	GNR
Vitis riparia	Riverbank grape	Unlisted	Unlisted	Native	S5	G5
Municipal Right of Way						
Subdominant Species[3]						
Ailanthus altissima	Tree of heaven	Unlisted	Unlisted	Non-Native	SNA	GNR
Artemisia vulgaris	Mugwort	Unlisted	Unlisted	Non-Native	SNA	GNR
Linaria vulgaris	Butter and eggs	Unlisted	Unlisted	Non-Native	SNA	GNR
Lotus corniculatus	Common bird's foot trefoil	Unlisted	Unlisted	Non-Native	SNA	GNR
Medicago lupulina	Black medic	Unlisted	Unlisted	Non-Native	SNA	GNR
Robinia pseudoacacia	Black locust	Unlisted	Unlisted	Non-Native	SNA	G5
Forested Riparian						
Dominant Species						
Acer negundo	Boxelder	Unlisted	Unlisted	Native	S5	G5
Acer platanoides	Norway maple	Unlisted	Unlisted	Non-Native	SNA	GNR
Ailanthus altissima	Tree of heaven	Unlisted	Unlisted	Non-Native	SNA	GNR
Celastrus orbiculatus	Oriental bittersweet	Unlisted	Unlisted	Non-native	SNA	GNR
Toxicodendron radicans	Eastern poison ivy	Unlisted	Unlisted	Native	S5	G5
Vitis riparia	Riverbank grape	Unlisted	Unlisted	Native	S5	G5
Subdominant Species						
Elaeagnus angustifolia	Russian olive	Unlisted	Unlisted	Non-Native	SNA	GNR
Equisetum hyemale	Rough horsetail	Unlisted	Unlisted	Native	SNR	G5

Scientific Name[1]	Common Name	State Status	Federal Status	Nativity[1]	State Rarity[2]	Global Rarity[2]
Erechtites hieraciifolius	Common pilewort	Unlisted	Unlisted	Native	S5	G5
Fraxinus pennsylvanica	Green ash	Unlisted	Unlisted	Native	S5	G5
Fraxinus pennsylvanica	Green ash	Unlisted	Unlisted	Native	S5	G5
Morus alba	White mulberry	Unlisted	Unlisted	Non-Native	SNA	GNR
Platanus occidentalis	Eastern sycamore	Unlisted	Unlisted	Native	S5	G5
Rhus typhina	Staghorn sumac	Unlisted	Unlisted	Native	S5	G5
Rubus laciniatus	Cut-leaved blackberry	Unlisted	Unlisted	Non-native	SNA	GU
Tragopogon sp.	Salsify	Unknown	Unknown	Non-native	Unknown	Unknown
Verbena hastata	Blue vervain	Unlisted	Unlisted	Native	S5	G5
Vincetoxicum nigrum	Black swallowwort	Unlisted	Unlisted	Non-Native	SNA	GNR

[1] Scientific names and nativity follow the USDA Plant Database (USDA 2023b)

[2] State and Global Rarity follow the Natureserve database (Natureserve 2023). See **Table D.2** for a key to state and global rarity status.

[3] The impervious surface areas and municipal right of way do not have a dominant vegetation type and are largely bare. The subdominant species are found growing along edges, through cracks, holes, etc.

APPENDIX I WILDLIFE OBSERVATION LIST

APPENDIX I
WILDLIFE OBSERVATION LIST
EAST STATION FORMER MGP SITE
ROCHESTER, MONROE COUNTY, NEW YORK

Scientific Name	Common Name	Quantity	Observation Type	Ecological Community
Mammals				
Castor canadensis	Beaver	1	Sign	Confined River
Odocoileus virginianus	White-tailed deer	5	Visual	Old Field
Procyon lotor	Raccoon	1	Sign	Old Field
Tamias striatus	Chipmunk	1	Visual	Forested Riparian
Birds				
Branta canadensis	Canada Goose	5	Visual	Confined River
Cardinalis cardinalis	Northern cardinal	1	Auditory	Old Field
Cathartes aura	Turkey Vulture	2	Visual	NA, flying overhead
Colaptes auratus	Northern Flicker	1	Auditory	Old Field
Corvus brachyrhynchos	American crow	2	Auditory	Urban Forest
Dryobates pubescens	Downy Woodpecker	1	Visual	Urban Forest
Dumetella carolinensis	Gray Catbird	2	Auditory	Urban Forest
Icterus galbula	Baltimore Oriole	1	Visual	Urban Forest
Meleagris gallopavo	Wild Turkey	5	VIsual	Old Field
Thryothorus ludovicianus	Carolina Wren	1	Auditory	Old Field
Macroinvertebrates				
Ancyloxypha numitor	Least Skipper	1	Visual	Old Field
Apis sp.	Honey bee	2	Visual	Old Field
Bombus sp.	Bumblebee	2	Visual	Old Field
Cepaea sp.	Garden snail	1	Visual	Old Field
Cicadidae	Cicada	1	Sign	Old Field
Coccinellidae	Ladybug	1	Visual	Old Field
Danaus plexippus	Monarch butterfly	2	Visual	Old Field, Drainage Swale
Grylloidea	Cricket	1	Visual	Old Field
Limenitis archippus	Viceroy	2	Visual	Old Field

APPENDIX J POTENTIAL BAT ROOST SURVEY DATA FORMS

APPENDIX J
TREE SURVEY DATA
EAST STATION FORMER MGP SITE
ROCHESTER, MONROE COUNTY, NEW YORK

Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T1	*Ailanthus altissima*	No	8.9	25	E	
T2	*Acer negundo*	No	5.6	20	E	
T3	*Malus* sp.	No	9.1	20	E	
T4	*Ailanthus altissima*	No	4.3	25	E	A clonal stand of 4 stems, up to 4.3 inches DBH
T5	*Ailanthus altissima*	No	7.8	25	E	
T6	*Ailanthus altissima*	No	5.3	25	E	
T7	*Ailanthus altissima*	No	7.6	20	E	
T8	*Ailanthus altissima*	No	8.8	25	E	
T9	*Ailanthus altissima*	No	5.1	20	E	A clonal stand of 7 stems, up to 5.1 inches DBH
T10	*Ailanthus altissima*	No	5.3	20	G	
T11	*Ailanthus altissima*	No	5.6	15	G	
T12	*Ailanthus altissima*	No	8.1	30	E	A clonal stand of 2 stems, up to 8.1 inches DBH
T13	*Acer platanoides*	No	9.6	30	E	Six trunks
T14	*Acer negundo*	No	11.0	30	E	
T15	*Ailanthus altissima*	No	10.0	30	E	A clonal stand of 4 stems, up to 10 inches DBH
T16	*Ailanthus altissima*	No	8.8	30	E	
T17	*Ailanthus altissima*	No	9.2	30	E	
T18	*Ailanthus altissima*	No	14.8	35	E	
T19	*Ailanthus altissima*	No	7.6	35	E	A clonal stand of 2 stems, up to 7.6 inches DBH
T20	*Ailanthus altissima*	No	5.9	20	E	
T21	*Ailanthus altissima*	No	6.7	25	E	A clonal stand of 3 stems, up to 6.7 inches DBH
T22	*Robinia pseudoacacia*	No	7.5	35	E	
T23	*Robinia pseudoacacia*	No	7.3	30	E	
T24	*Acer negundo*	No	14.6	30	E	
T25	*Robinia pseudoacacia*	No	8.6	40	E	
T26	*Robinia pseudoacacia*	No	9.2	45	E	
T27	*Robinia pseudoacacia*	No	7.2	30	E	

APPENDIX J
TREE SURVEY DATA
EAST STATION FORMER MGP SITE
ROCHESTER, MONROE COUNTY, NEW YORK

Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T28	*Robinia pseudoacacia*	No	9.2	40	E	
T29	*Robinia pseudoacacia*	No	9.1	50	E	Two trunks
T30	*Ailanthus altissima*	No	12.7	50	E	
T31	*Ailanthus altissima*	No	15.0	50	E	
T32	*Robinia pseudoacacia*	No	11.5	40	E	
T33	*Acer negundo*	No	17.2	30	E	
T34	*Ailanthus altissima*	No	12.4	50	E	
T35	*Celtis occidentalis*	No	12.4	45	E	
T36	*Celtis occidentalis*	No	14.6	40	E	
T37	*Celtis occidentalis*	No	15.3	45	E	
T38	*Ailanthus altissima*	No	9.2	35	E	
T39	*Ailanthus altissima*	No	9.5	35	E	
T40	*Robinia pseudoacacia*	No	14.0	60	E	
T41	*Robinia pseudoacacia*	No	8.0	40	E	
T42	*Populus deltoides*	No	9.5	30	E	
T43	*Robinia pseudoacacia*	No	12.7	40	E	
T44	*Populus deltoides*	No	9.9	40	E	
T45	*Populus deltoides*	No	11.1	40	E	
T46	*Populus deltoides*	No	11.1	50	E	
T47	*Populus deltoides*	No	12.4	50	E	
T48	*Robinia pseudoacacia*	No	5.4-9.9	20	E	A clonal stand of 18 trees, 5.4-9.9 inches DBH
T49	*Populus deltoides*	No	5.1-8.9	20	E	A clonal stand of 15-20 trees, 5.1-8.9 inches DBH
T50	*Ailanthus altissima*	No	8.0	20	E	
T51	*Populus deltoides*	No	12.1	25	E	
T52	*Populus deltoides*	No	11.1	25	E	
T53	*Populus deltoides*	No	9.2	25	E	
T54	*Populus deltoides*	No	11.3	25	E	

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TREE SURVEY DATA
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Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T55	*Populus deltoides*	No	12.3	30	E	
T56	*Populus deltoides*	No	3.5-5.5	25	E	A clonal stand of approximately 50 trees, 3.5-5.5 inches DBH
T57	*Populus deltoides*	No	10.2	35	E	
T58	*Populus deltoides*	No	8.9	35	E	
T59	*Robinia pseudoacacia*	No	10.5	30	E	
T60	*Populus deltoides*	No	14.8	35	E	
T61	*Populus deltoides*	No	9.8	25	E	
T62	*Populus deltoides*	No	11.0	30	E	
T63	*Populus deltoides*	No	8.0	30	E	
T64	*Robinia pseudoacacia*	No	6.4	35	E	
T65	*Robinia pseudoacacia*	No	11.8	35	E	
T66	*Ailanthus altissima*	No	5.4-9.4	20	E	A clonal stand of 15 trees, 5.4-9.4 inches DBH
T67	*Populus deltoides*	No	9.2	20	E	
T68	*Populus deltoides*	No	17.8	25	E	
T69	*Populus deltoides*	No	19.4	35	E	
T70	*Ulmus pumila*	No	17.5	50	E	
T71	*Populus deltoides*	No	20.4	45	E	
T72	*Thuja occidentalis*	No	3.5-8.0	20	F	Planted row of 25 small trees, 3.5-8.0 inches DBH
T73	*Tilia cordata*	No	27.2	25	G	
T74	*Acer saccharum*	No	18.1	30	E	
T75	*Acer platanoides*	No	18.8	30	E	
T76	*Tilia cordata*	No	19.6	30	E	
T77	*Ailanthus altissima*	No	13.1	30	E	
T78	*Ulmus pumila*	No	9.1	20	E	
T79	*Elaeagnus angustifolia*	No	4.3	15	E	
T80	*Catalpa speciosa*	No	7.3	20	E	
T81	*Catalpa speciosa*	No	7.0	20	E	

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Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T82	*Elaeagnus angustifolia*	No	8.3	20	E	
T83	*Elaeagnus angustifolia*	No	10.5	20	E	
T84	*Ailanthus altissima*	No	8.0	25	P	Vines
T85	*Ailanthus altissima*	No	5.4	20	P	Vines
T86	*Gleditsia triacanthos*	No	4.8	15	P	Vines
T87	*Gleditsia triacanthos*	No	6.0	20	F	
T88	*Gleditsia triacanthos*	No	13.4	20	E	
T89	*Gleditsia triacanthos*	No	13.1	25	E	
T90	*Acer negundo*	No	19.7	30	F	Vines
T91	*Acer negundo*	No	6.7	15	G	
T92	*Ailanthus altissima*	No	6.7	25	E	
T93	*Acer negundo*	No	5.7	20	E	
T94	*Ailanthus altissima*	No	3.5-7.5	20	E	A clonal stand of 10 stems, 3.5-7.5 inches DBH
T95	*Acer negundo*	No	8.0	20	E	3 trunks
T96	*Ailanthus altissima*	No	10.5	20	G	
T97	*Populus deltoides*	No	16.2	50	E	2 trunks
T98	*Populus deltoides*	No	18.5	50	E	3 trunks
T99	*Populus deltoides*	No	20.7	50	E	
T100	*Populus deltoides*	No	17.5	50	E	4 trunks
T101	*Ailanthus altissima*	No	6.7	40	E	
T102	*Elaeagnus angustifolia*	No	16.9	15	P	Main stem broken
T103	*Ailanthus altissima*	No	10.8	20	E	
T104	*Elaeagnus angustifolia*	No	14.3	35	E	
T105	*Elaeagnus angustifolia*	No	11.5	25	E	
T106	*Morus alba*	No	14.0	30	E	
T107	*Acer negundo*	No	10.2	20	E	Leaning over trash dumping area
T108	*Acer negundo*	No	12.7	15	E	

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Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T109	*Ailanthus altissima*	No	8.3	20	E	
T110	*Acer negundo*	No	25.1	40	E	
T111	*Acer negundo*	No	29.6	50	E	
T112	*Acer negundo*	No	18.8	40	E	
T113	*Acer negundo*	No	18.8	40	E	
T114	*Acer negundo*	No	25.8	50	E	
T115	*Acer negundo*	No	21.2	50	E	
T116	*Acer negundo*	No	26.4	40	E	
T117	*Acer negundo*	No	10.3	15	G	Vines
T118	*Acer negundo*	No	14.3	25	G	Vines
T119	*Acer negundo*	No	26.4	45	G	Vines
T120	*Elaeagnus angustifolia*	No	8.3	30	E	
T121	*Ailanthus altissima*	No	2.9-5.4	25	E	A clonal stand of 6 stems, 2.9-5.4 inches DBH
T122	*Ailanthus altissima*	No	4.5	20	E	
T123	*Elaeagnus angustifolia*	No	8.9	15	G	
T124	*Gleditsia triacanthos*	No	6.7	30	E	A clonal stand of 4 stems, up to 6.7 inches DBH
T125	*Elaeagnus angustifolia*	No	10.5	30	E	
T126	*Rhamnus cathartica*	No	10.7	25	E	
T127	*Catalpa speciosa*	No	8.9	30	E	Growing into fence
T128	*Ailanthus altissima*	No	8.6	25	E	
T129	*Ailanthus altissima*	No	7.5	20	E	Growing into fence
T130	*Ailanthus altissima*	No	13.7	35	E	
T131	*Populus deltoides*	No	22.3	60	E	4 trunks
T132	*Populus deltoides*	No	15.9	50	E	5 trunks
T133	*Populus deltoides*	No	14.6	40	E	3 trunks
T134	*Populus deltoides*	No	13.4	50	E	
T135	*Populus deltoides*	No	6.0	30	E	

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Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T136	*Populus deltoides*	No	12.1	45	E	
T137	*Ailanthus altissima*	No	8.6	25	G	Vines
T138	*Robinia pseudoacacia*	No	22.6	35	E	
T139	*Populus deltoides*	No	15.9	45	E	
T140	*Populus deltoides*	No	6.0-17.5	40	E	A clonal stand of 4 stems, 6.0-17.5 inches DBH
T141	*Populus deltoides*	No	14.0	50	E	A clonal stand of 3 stems, up to 14.0 inches DBH
T142	*Populus deltoides*	No	16.6	45	E	
T143	*Populus deltoides*	No	17.8	45	E	
T144	*Populus deltoides*	No	13.4	50	G	One of two main trunks broken
T145	*Populus deltoides*	No	33.7	60	E	
T146	*Populus deltoides*	No	17.2	40	E	
T147	*Populus deltoides*	No	26.1	45	E	
T148	*Ailanthus altissima*	No	3.5-8.0	20	E	A clonal stand of 20 stems, 3.5-8.0 inches DBH
T149	*Elaeagnus angustifolia*	No	5.4	20	E	
T150	*Populus deltoides*	No	10.8-22.0	50	E	A clonal stand of 3 stems, 10.8-22.0 inches DBH
T151	*Populus deltoides*	No	20.8	40	E	
T152	*Populus deltoides*	No	14.6	40	E	
T153	*Robinia pseudoacacia*	No	16.9	35	E	
T154	*Robinia pseudoacacia*	No	6.0	20	E	A clonal stand of 2 stems, up to 6.0 inches DBH
T155	*Ailanthus altissima*	No	14.0	20	E	Two stems intertwined
T156	*Ailanthus altissima*	No	9.4	25	E	
T157	*Ailanthus altissima*	No	4.1-10.2	25	E	A clonal stand of 5 stems, 4.1-10.2 inches DBH
T158	*Ailanthus altissima*	No	13.4	30	E	
T159	*Populus deltoides*	No	18.0	50	E	
T160	*Ailanthus altissima*	No	6.7	25	E	
T161	*Ailanthus altissima*	No	11.1	20	E	
T162	*Ailanthus altissima*	Yes	5.7	20	F	Loose exfoliating bark

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Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T163	*Ailanthus altissima*	No	12.1	20	F	
T164	*Ailanthus altissima*	No	6.7	20	F	
T165	*Ailanthus altissima*	No	4.6	15	G	A clonal stand of 4 stems, up to 4.6 inches DBH
T166	*Populus deltoides*	No	13.4-19.6	50	E	4 stems close together, 13.4-19.6 inches DBH
T167	*Ailanthus altissima*	No	4.8	25	E	A clonal stand of 4 stems, up to 4.8 inches DBH
T168	*Acer negundo*	No	6.7	25	E	
T169	*Populus deltoides*	No	22.3	60	G	Vines
T170	*Populus deltoides*	No	18.8	55	E	
T171	*Populus deltoides*	No	22.3	60	G	Vines
T172	*Ailanthus altissima*	Yes	8.1	25	P	Holes are present
T173	*Ailanthus altissima*	No	2.9-8.0	25	G	A clonal stand of 20 stems, 2.9-8.0 inches DBH
T174	*Salix fragilis*	No	26.7	50	E	4 trunks
T175	*Acer negundo*	No	8.0	10	P	Main stem broken
T176	*Acer platanoides*	No	15.4	45	E	Growing into fence
T177	*Acer negundo*	No	12.7	25	E	3 trunks
T178	*Acer negundo*	No	14.3	25	P	Vines
T179	*Ailanthus altissima*	No	5.3	15	F	
T180	*Ailanthus altissima*	No	7.5	20	F	
T181	*Acer negundo*	No	12.4	25	G	
T182	*Acer negundo*	No	6.4	20	G	Vines
T183	*Populus deltoides*	No	22.0	50	E	
T184	*Ailanthus altissima*	No	2.2-5.4	15	G	A clonal stand of 4 stems, 2.2-5.4 inches DBH
T185	*Acer negundo*	No	10.3	25	E	
T186	*Acer negundo*	No	19.7	30	E	
T187	*Ailanthus altissima*	No	5.7	25	G	A clonal stand of 2 stems, up to 5.7 inches DBH
T188	*Acer negundo*	No	7.0	25	G	Vines
T189	*Acer negundo*	No	8.3	25	G	Vines

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Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T190	*Acer negundo*	No	6.7	20	E	
T191	*Acer negundo*	No	8.3	15	P	
T192	*Acer negundo*	No	10.8	30	G	
T193	*Acer negundo*	No	5.1	15	G	
T194	*Elaeagnus angustifolia*	No	9.1	30	E	2 trunks
T195	*Ailanthus altissima*	No	10.2	35	G	
T196	*Ailanthus altissima*	No	9.7	35	E	A clonal stand of 5 stems, up to 9.7 inches DBH
T197	*Acer platanoides*	No	17.2	35	E	
T198	*Ailanthus altissima*	No	8.9	30	E	
T199	*Fraxinus sp.*	No	5.7	15	G	
T200	*Robinia pseudoacacia*	No	11.5	45	E	
T201	*Malus* sp.	No	9.1	30	E	Crabapple
T202	*Prunus avium*	No	5.4	30	G	Vines
T203	*Ailanthus altissima*	No	4.8	25	G	
T204	*Fraxinus sp.*	No	4.8	25	D	Covered in vines
T205	*Acer negundo*	No	5.4	20	F	
T206	*Rhamnus cathartica*	No	4.1	15	G	5 trunks
T207	*Ailanthus altissima*	No	6.4	35	E	
T208	*Ailanthus altissima*	No	12.4	35	E	
T209	*Acer negundo*	No	13.8	35	E	
T210	*Ailanthus altissima*	No	6.7	30	E	
T211	*Acer negundo*	No	5.1	20	G	2 trunks
T212	*Acer negundo*	No	5.1-7.6	20	E	3 trees very close, 5.1-7.6 inches DBH
T213	*Acer negundo*	No	4.1-7.0	30	P	2 trees very close, 4.1 and 7.0 inches DBH
T214	*Acer negundo*	No	5.7	20	G	
T215	*Acer negundo*	No	11.3	30	E	
T216	*Acer negundo*	No	5.1	20	E	

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Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T217	*Acer negundo*	No	11.1	40	E	
T218	*Acer negundo*	No	4.8	25	E	
T219	*Acer negundo*	No	5.7	20	E	
T220	*Fraxinus sp.*	No	7.8	25	G	
T221	*Fraxinus sp.*	No	4.6	40	F	
T222	*Acer negundo*	Yes	11.8	15	P	Loose exfoliating bark, holes
T223	*Ailanthus altissima*	No	8.8	45	E	
T224	*Acer negundo*	No	8.9-10.2	30	E	Two trees very close, 8.9 and 10.2 inches DBH
T225	*Ailanthus altissima*	No	5.1	35	E	
T226	*Acer negundo*	No	15.0	35	E	
T227	*Fraxinus sp.*	No	6.8	30	D	2 trunks
T228	*Ailanthus altissima*	No	5.7	30	E	
T229	*Acer negundo*	No	5.4	25	E	
T230	*Acer negundo*	No	5.3	25	E	
T231	*Populus deltoides*	No	15.8	60	E	Growing into fence
T232	*Acer negundo*	No	9.5	25	E	
T233	*Ailanthus altissima*	No	5.7	30	E	
T234	*Populus deltoides*	No	15.3	60	E	
T235	*Populus deltoides*	No	18.0	60	E	
T236	*Ailanthus altissima*	No	8.4	40	E	3 trunks
T237	*Acer negundo*	No	13.7	35	E	
T238	*Catalpa speciosa*	No	5.4	25	G	2 trunks
T239	*Acer negundo*	No	9.7	20	G	3 trunks
T240	*Catalpa speciosa*	No	14.0	60	E	
T241	*Ailanthus altissima*	No	6.7	40	E	3 trunks
T242	*Acer negundo*	No	5.4	15	D	
T243	*Acer negundo*	No	5.1	20	G	

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Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T244	*Ailanthus altissima*	No	4.8	20	E	
T245	*Prunus avium*	No	9.4	40	E	
T246	*Acer negundo*	No	7.5	25	E	
T247	*Prunus avium*	No	9.5	35	E	
T248	*Prunus avium*	No	7.0	20	G	
T249	*Populus deltoides*	No	20.7	60	E	
T250	*Fraxinus sp.*	No	6.8	40	E	
T251	*Malus sp.*	No	13.7	40	E	Crabapple
T252	*Populus deltoides*	No	18.5	40	P	
T253	*Acer negundo*	No	4.5	15	G	
T254	*Acer platanoides*	No	9.7	35	E	
T255	*Acer negundo*	No	7.6	25	E	
T256	*Malus sp.*	No	11.1	30	G	
T257	*Ailanthus altissima*	Yes	16.2	20	D	
T258	*Fraxinus sp.*	No	7.2	35	P	Vines, 2 trunks
T259	*Ailanthus altissima*	No	6.2	30	E	
T260	*Ailanthus altissima*	No	6.2	30	E	
T261	*Prunus sp.*	No	9.5	30	P	Vines
T262	*Ailanthus altissima*	No	3.2	20	E	
T263	*Acer negundo*	No	7.3	25	G	
T264	*Morus alba*	No	8.9	30	E	
T265	*Rhamnus cathartica*	No	7.0	10	E	
T266	*Fraxinus sp.*	No	4.1	15	D	
T267	*Acer saccharinum*	No	5.1	25	E	
T268	*Fraxinus sp.*	No	11.1	40	G	
T269	*Malus sp.*	No	6.4	20	G	
T270	*Acer platanoides*	No	10.2	45	E	

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Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T271	*Ailanthus altissima*	Yes	22.3	50	P	Loose exfoliating bark, holes
T272	*Fraxinus sp.*	No	6.0	35	P	
T273	*Morus alba*	No	6.7	15	G	
T274	*Acer saccharinum*	No	17.3	65	E	
T275	*Ailanthus altissima*	No	3.5	15	E	2 trunks
T276	*Acer platanoides*	No	19.1	50	E	
T277	*Acer platanoides*	No	13.1	45	E	
T278	*Ailanthus altissima*	No	13.5	40	G	
T279	*Ailanthus altissima*	No	1.9-4.1	15	G	A clonal stand of several stems, 1.9-4.1 inches DBH
T280	*Acer platanoides*	No	18.8	50	E	
T281	*Catalpa speciosa*	No	6.7	30	E	
T282	*Ailanthus altissima*	No	13.7	45	E	
T283	*Acer saccharinum*	No	15.6	55	G	
T284	*Fraxinus sp.*	No	10.5	40	P	EAB and beaver damage
T285	*Malus sp.*	No	10.7	25	E	
T286	*Platanus occidentalis*	No	25.5	60	E	
T287	*Ailanthus altissima*	No	10.8	35	E	
T288	*Ailanthus altissima*	No	6.7	35	E	
T289	*Acer platanoides*	No	15.8	40	E	2 trunks
T290	*Acer platanoides*	No	12.7	35	E	
T291	*Acer platanoides*	No	13.5	35	E	
T292	*Acer negundo*	No	7.6	25	E	
T293	*Malus sp.*	No	11.1	15	G	
T294	*Salix fragilis*	No	23.2	40	E	
T295	*Acer platanoides*	No	8.3	35	E	
T296	*Ailanthus altissima*	No	12.1	50	E	
T297	*Acer negundo*	No	4.5	20	E	

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Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T298	*Acer negundo*	No	11.5	25	G	
T299	*Acer negundo*	No	9.2	15	E	
T300	*Acer negundo*	No	21.3	40	E	
T301	*Acer negundo*	No	4.6	20	E	
T302	*Acer negundo*	No	14.2	40	E	
T303	*Acer negundo*	No	10.7	40	E	
T304	*Acer negundo*	No	8.0	25	E	
T305	*Acer negundo*	No	11.8	30	E	3 trunks
T306	*Acer platanoides*	No	17.2	50	E	
T307	*Ailanthus altissima*	No	23.9	50	E	
T308	*Acer negundo*	No	10.2	40	E	
T309	*Prunus avium*	No	9.5	45	E	
T310	*Acer negundo*	No	4.5	15	E	
T311	*Ailanthus altissima*	No	12.9	55	E	
T312	*Acer negundo*	No	6.7	30	E	2 trees very close, up to 6.7 inches DBH
T313	*Salix fragilis*	No	21.6	60	E	
T314	*Rhamnus cathartica*	No	5.7	15	E	
T315	*Salix fragilis*	No	15.9	45	E	
T316	*Acer negundo*	No	13.4	45	E	
T317	*Acer negundo*	No	5.4	20	G	
T318	*Acer negundo*	No	9.2	35	G	
T319	*Acer platanoides*	No	8.6	40	E	
T320	*Salix fragilis*	No	11.5	30	E	
T321	*Acer negundo*	No	6.7	30	E	
T322	*Salix fragilis*	No	27.5	45	E	
T323	*Salix fragilis*	No	29.9	10	D	Fallen over
T324	*Acer negundo*	No	14.6	40	E	

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Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T325	*Acer negundo*	No	29.0	45	E	
T326	*Alnus glutinosa*	No	20.2	40	E	
T327	Unknown	Yes	14.2	30	D	Loose exfoliating bark, holes
T328	*Acer negundo*	No	17.8	35	E	
T329	*Acer negundo*	No	11.8	20	G	
T330	Unknown	Yes	16.6	15	D	Loose exfoliating bark, holes
T331	*Acer negundo*	No	7.6	25	E	
T332	*Catalpa speciosa*	No	18.5	50	E	
T333	*Salix fragilis*	No	31.8	40	P	Broken, cracked, and covered in vines
T334	*Acer saccharinum*	No	23.9	50	P	
T335	*Acer negundo*	No	10.0	35	G	
T336	*Acer negundo*	No	9.9	35	E	
T337	*Alnus glutinosa*	No	19.1	25	E	
T338	*Acer negundo*	No	5.4	20	P	Stems broken
T339	*Acer negundo*	Yes	16.1	20	D	Holes are present
T340	*Acer negundo*	No	8.9	20	G	
T341	*Acer negundo*	Yes	17.8	15	D	Loose exfoliating bark, holes
T342	*Salix fragilis*	No	11.5	30	E	
T343	*Acer negundo*	No	7.6	30	G	3 trees very close, up to 7.6 inches DBH
T344	*Ailanthus altissima*	No	9.5	35	E	
T345	*Acer negundo*	No	8.9	20	G	3 trees very close, up to 8.9 inches DBH
T346	*Ailanthus altissima*	No	8.0	20	G	
T347	*Ailanthus altissima*	No	10.2	35	G	A clonal stand of 4 stems, up to 10.2 inches DBH
T348	*Acer negundo*	No	9.5	25	E	3 trunks
T349	*Acer negundo*	No	10.8	40	G	
T350	*Acer negundo*	No	9.1	40	G	
T351	*Ailanthus altissima*	No	7.0	50	G	Vines

APPENDIX J
TREE SURVEY DATA
EAST STATION FORMER MGP SITE
ROCHESTER, MONROE COUNTY, NEW YORK

Tree ID	Scientific Name	Bat Roost[1]	DBH (inches)[2]	Height (feet)[3]	Condition[4]	Notes
T352	*Ailanthus altissima*	No	5.1	30	E	
T353	*Acer negundo*	No	4.8-8.0	30	G	2 trees very close, 4.8 and 8.0 inches DBH
T354	*Acer negundo*	No	18.8	40	E	4 trunks
T355	*Ailanthus altissima*	No	8.9	35	E	
T356	*Ailanthus altissima*	No	9.5	35	E	
T357	*Gleditsia triacanthos*	No	6.0	25	E	
T358	*Ailanthus altissima*	No	13.1	30	E	

1. Bat roosting characteristics include exfoliating bark, fissures, holes, cracks
2. Diameter at Breast Height (DBH)
3. Tree height is based on a visual estimation in the field
4. Condition: Dead (D), Poor (P), Fair (F), Good (G), Excellent (E)

APPENDIX P
ENVIRONMENTAL FOOTPRINT ANALYSIS (RESERVED)