Second Round ISCO Injection Work Plan

Former Silver Cleaners Site #828186
Rochester, New York

April 9, 2026

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Acronyms and Abbreviations

Arcadis	Arcadis of New York, Inc.
CAMP	Community Air Monitoring Plan
CEPP	Community and Environmental Protection Plan
GES	Groundwater and Environmental Services, Inc.
NYSDEC	New York State Department of Environmental Conservation
ppm	parts per million
RD	Remedial Design
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

1 Introduction

This Remedial Construction Work Plan (Work Plan) has been prepared to support the implementation of remedial construction activities for the Former Silver Cleaners site (Site #828186), located at 245 Andrews Street in the City of Rochester, Monroe County, New York.

This Work Plan (WP) presents the description of the work necessary to complete the installation of supplemental OSCO injection wells to support the second round ISCO injection remedial construction being completed under a call-out contract mechanism.

1.1 Site Location and Description

The site is located in downtown Rochester, New York (**Figure 1**) and consists of three contiguous parcels totaling 0.30-acres. The site consists of a one-story vacant commercial building (245 Andrews Street) and an asphalt parking lot which is currently used as a permit only parking lot. The site is bordered to the north by Andrews Street, to the east by North Clinton Avenue and a triangle-shaped parcel owned by the City of Rochester. Bordering to the west of the site, 237-241 Andrews Street consists of a basement with utilities and storage, a first floor with businesses, and second and third floors with residential units. Bordering to the south of the site; 113-117 North Clinton Avenue (also known as 113 North Clinton and Elk Place, which is in the Brownfield Cleanup Program BCP Site #C828195), 107 North Clinton, and a parking lot.

113 North Clinton consists of a basement with a utility room and storage, two businesses on the first floor (barber shop and mini mart), and residential apartment units on the second through fifth floors.

107 North Clinton Avenue is owned by the Rochester City School District (RCSD) (RCSD School No. 90) and consists of a basement (utilities and storage) and two floors of classrooms as well as a parking lot (Figure 2). Site topography is generally flat with approximate elevations of 530 to 526.4 feet above mean sea level (AMSL).

1.2 Previous Investigations

In 2012, Ravi Engineering & Land Surveying, P.C. (RE&LS) completed a Phase I ESA of the site for D4 Discovery and the City of Rochester through Rochester's Brownfield Assistance Program (BAP) (RE&LS 2012). The Phase I ESA identified the following recognized environmental conditions (RECs) related to former operations at the site:

- Two 1,000-gallon gasoline USTs and one (or two) 500-gallon USTs were utilized by several former service stations;
- A potential petroleum release to site soils and/or groundwater;
- The site building was occupied by a dry-cleaning business known to have used PCE; and
- A potential PCE release to site soils and/or groundwater.

In 2012, Leader Professional Services Inc. (Leader) and RE&LS completed a Confirmatory Phase II ESA (Leader 2013) to confirm whether contaminants related to the above RECs had impacted the subsurface. The Phase II ESA included performing a geophysical survey to locate former USTs and advancing soil borings to evaluate whether there were impacts to soil and groundwater. The geophysical survey identified electromagnetic anomalies indicative of buried metal objects. A total of five soil borings were advanced to refusal at depths ranging from 2 to 13.8 feet below ground surface (bgs). Four of the locations were advanced in the building and one was advanced east of the building near assumed locations of former USTs (Leader 2013).

Soil sample analytical results from borings advanced below the building slab (SB-1 at 7 feet bgs and SB-4 at 8 feet bgs) were less than unrestricted use soil cleanup objectives (SCOs). Analytical results from soil boring SB-5 at 8 feet bgs indicated that ethylbenzene (1.3 parts per million [ppm]), o-xylene (2.6 ppm), and m,p-xylene (5.9 ppm), near the former UST area exceeded Part 375 unrestricted use SCOs. Soil samples were not collected from SB-2 or SB-3 for laboratory analysis. Analytical results for PCE concentrations in groundwater samples GW-1, collected from SB-1 at 7.5 feet bgs (7,890 micrograms/L [µg/L]) and GW-2, collected from SB-4 at 13.2 feet bgs (88,500 µg/L), exceeded the New York State Class GA Groundwater Standard (Class GA Standard) of 5 µg/L listed in the New York State Division of Water Technical and Operation Guidance Series (TOGS) version No. 1.1.1. Analytical results from groundwater sample GW-5 at 13.3 feet bgs collected in soil boring SB-5 exceeded the respective Class GA Standards for ethylbenzene (1,040 µg/L), methylcyclohexane (826 µg/L), toluene (309 µg/L), naphthalene (699 µg/L), 1,2,4-trimethylbenzene (1,650 µg/L), 1,3,5-trimethylbenzene (630 µg/L), o-xylene (1,250 µg/L), and m,p-xylene (3,450 µg/L). Based on the concentration of PCE in groundwater noted above, SB-4 is considered a potential PCE source area and further investigations were conducted during the RI (as detailed below) to delineate PCE groundwater concentrations.

A Remedial Investigation (RI) was completed in 2020, a summary of which is provided in the following subsection.

1.3 Remedial Investigation Activities and Conclusions

The scope of work for the RI was designed to further evaluate the nature and extent of PCE and petroleum related compounds in soil and groundwater at the site; and the potential for soil vapor intrusion into adjacent properties as a result of former site operations. The scope of work included the following:

- Preliminary review of historical documents and an initial site walk;
- Asbestos containing material (ACM) survey;
- Geophysical survey;
- Soil boring advancement and soil sampling;
- Test pit excavation;
- Underground storage tank removal;
- Overburden piezometer and monitoring well and bedrock monitoring well installation;
- Well development and hydraulic conductivity testing;
- Groundwater and sump water sampling; and
- Offsite soil vapor sampling.

Through the completion of the above activities, the nature and extent of constituents of potential concern (COPCs) were identified during the RI, with the exception of COPC in the deep overburden and bedrock groundwater downgradient of the site. However, the source and migration of COPCs, and exposure pathways have been identified through the development of a CSM and, given the data gaps mentioned below, the results from the RI investigation provide sufficient data to evaluate potential site (i.e., source area) remedies. Results of the RI conducted at the site are described below.

- The data indicates that there was a historical release of chlorinated solvents (PCE and TCE) into the sand and fill material either beneath the site building slab, near the south edge of the site building, and/or just outside the site building's south wall. Data also indicates a historical release of petroleum related constituents

(BTEX, 1,2,4-trimethlybenzene, and naphthalene) to the shallow overburden in the vicinity of the former service station.

- Concentrations of primary COPCs are greatest near the south side of the site building in the deep and shallow overburden groundwater and are shown to decrease hydraulically downgradient of the PCE source area. PCE and TCE appear to have migrated through the silty sand and dense till and into bedrock.
- Concentrations of BTEX, 1,2,4-trimethlybenzene, and naphthalene are greatest in shallow overburden groundwater beneath and adjacent to the former service station area. Low concentrations of BTEX are present in the deep overburden indicating that the dense till is acting as a semi-confining layer.
- Overburden materials are generally composed of urban fill overlying glacial outwash sediments (sand and silt) (9-16' bgs) which overlies a dense glacial till (densely packed sand, silt, and gravel), followed by a thin layer of silty sand (between 26-34' bgs), and then bedrock (dolomite). The top of bedrock ranges from 27 to 34.3 feet bgs.
- Concentrations of PCE in shallow and deep overburden groundwater indicate that residual separate-phase product is likely present, although it was not observed in groundwater or soil during the RI or previous investigations.
- VOCs in shallow and deep overburden have migrated north following groundwater flow.
- The vertical and horizontal extent of PCE and TCE in the bedrock is not fully delineated as analytical results from groundwater collected in bedrock well (BRW-2) showed PCE concentrations greater than the respective Class GA Standard.
- The extent of dissolved-phase COPCs in the overburden is not fully delineated as groundwater from the farthest sample locations downgradient (north of) and to the west of the site contain chlorinated solvent COPCs at concentrations greater than Class GA Standards. However, PCE was detected at lower concentrations compared to the onsite concentrations. Other sources of VOCs in the groundwater from historical use (historical gas station) and other nearby contaminated sites could also be contributing to these concentrations.
- PCBs and pesticides were not detected and no metals of concern were detected above respective soil and groundwater standards during the RI. Only three soil samples contained SVOCs detected at concentrations greater than applicable SCOs. There were no detections of PFAS greater than the USEPA health-based criteria for drinking water. As such, SVOCs, PCBs, pesticides, PFAS, and metals are not considered COPCs for soil or groundwater.
- VOCs are present in the indoor air and sub-slab vapor at the properties adjacent to the site (237-241 Andrews Street and 113 North Clinton Avenue).

Potential exposure pathways at the site primarily exist for those who could come in contact with groundwater, sump water, and or subsurface soil. Construction and utility workers could be exposed to subsurface soils during excavations via dermal contact, incidental ingestion, and inhalation of vapors and soil particulates. Complete groundwater and sump water exposure pathways for construction and utility workers include dermal contact, incidental ingestion, and inhalation of vapors. There is a complete exposure pathway via soil vapor intrusion and inhalation of indoor air in the adjacent properties in the absence of engineering controls.

1.4 Record of Decision

The NYSDEC issued a Record of Decision (ROD) in June 2020 that presents the remedy for the site. The elements of the selected remedy are as follows:

- Demolition of the on-site building;
- Excavation and off-site disposal of contaminant source areas, with soil concentrations greater than the protection of groundwater soil cleanup objectives (PGWSCOs);
- Implementation of in-situ chemical treatment, whereby a chemical oxidant is injected into the subsurface to destroy site-related contaminant;
- Installation of site cover where the upper two feet of exposed surface soil exceeds the respective PGWSCOs;
- Mitigation of soil vapor intrusion in any future site buildings;
- Imposition of an institutional control in the form of an environmental easement;
- Preparation and implementation of a Site Management Plan.

This Remedy will achieve the remediation goals for the site by excavation of source area soil and the treatment of groundwater and soil below the groundwater table using in-situ chemical treatment.

The building demolition and excavation remedial elements of the ROD were completed in 2023. This Work Plan describes the second round ISCO remedial construction activities.

1.5 Remedial Design

A Basis of Design Report was developed to summarize historical information, collected data, and previously completed work related to residual environmental contamination to develop the proposed remedial design for the Former Silver Cleaners Site.

In addition, the Limited Site Specific Data (LSSD) supported the preparation of the remedial design.

This Work Plan has been prepared to cover the proposed supplemental ISCO injection well installations, groundwater monitoring well installations, and second round of ISCO injection. The specific scope of work is further defined in Section 2 of this Work Plan.

1.6 Project Responsibilities

Responsibilities of the Owner (NYSDEC or Department) and the Contractor (Groundwater and Environmental Services, Inc. [GES] or their subcontractor(s)). The Engineer (Arcadis of New York, Inc. [Arcadis]) is the entity that prepared this Work Plan and Remedial Design. Department's Representative (Arcadis) will act as an agent to the Department. The responsibilities as they relate to the implementation of this Work Plan, are summaries as follows:

- Owner – Primary responsibility is to coordinate with the GES and Department's Representative (as necessary) to implement the required work activities in conformance with this Work Plan. Department is responsible for contracting with the GES.
- Engineer – Primary responsibility is to prepare this work plan and the remedial design. During the remedial design implementation, Arcadis will review all submittals prepared by GES and will oversee the remedial construction for compliance with the remedial design requirements.

- NYSDEC/Department's Representative (or Representative) – Responsibility is to provide staff to observe and monitor implementation of the remedial activities.
- Contractor – Primary responsibility is to complete remedial activities as presented in this Work Plan.

2 Remedial Activities

Previous remedial activities completed to date include:

- Building demolition
- Source area excavation
- Installation of additional groundwater wells and ISCO injection wells
- First Round of ISCO injection

This section presents a summary of the remedial activities that are anticipated to occur under this Work Plan. The work will generally include the installation of three supplemental ISCO injection wells and the second round of ISCO injection that is further described below.

2.1 Scope

The Work includes, but is not limited to, the following:

1. Install temporary fence and privacy screen to the extents necessary to complete the work and as required to support the supplemental ISCO injection well installation and the second round ISCO injection operations.
2. Furnish specified temporary services and controls as required for the completion of work as defined in Division 01.
3. Furnish specified H&S controls as further defined in specification Section 01 35 29, Contractor's Health and Safety Plan.
4. Prepare and Implement the Community Air Monitoring Plan/Community and Environmental Protection Plan (CAMP/CEPP), see **Appendix A**.
5. Furnish decontamination pad and supporting systems prior to intrusive work in accordance with the design drawings and design specifications.
6. Installation of three supplemental ISCO injection wells IW-5, 6 and 7 (the scope of the ISCO injections wells is further described in the RFQ contained in **Appendix B**).
7. Injection Permit- A one-time injection of sodium permanganate solution is planned as part of this task. GES shall contact the Environmental Protection Agency (EPA) Underground Injection Control (UIC) for any necessary approvals/notifications. Future additional injections may be completed under the site OM&M program.
8. Pre-ISCO groundwater sampling and analysis will be performed by Arcadis. A pre – and post-ISCO injection sampling and analysis plan will be developed for this effort.
9. Procuring, coordinating delivery, and receiving the delivery of sodium permanganate, dilution and injection equipment, and managing the storage and security of chemicals.

10. Injection system setup, including tanks, pumps, manifolds, hoses, and spill containment.
11. Injection of diluted sodium permanganate solution into the subsurface. The second round injection will be focused on the injection of 20,000 gallons of 2% sodium permanganate solution at the seven injection wells (IW-1 through IW-7).
12. Injection performance monitoring, including 1) cumulative volumes and flow rates of injection solution, 2) injection pressures at each injection well, 3) dose-response monitoring.
13. Injection system break-down and site cleanup at the completion of injection.
14. Removal of Items 1 to 5.
15. Site restoration.
18. A single-round of post-ISCO groundwater sampling and analysis will be performed by Arcadis. A pre – and post-ISCO injection sampling and analysis plan will be developed for this effort.
19. As-built survey update per the design specifications.

The work shall be conducted in accordance with the remedial design which consists of the design drawings and the design specifications included as **Appendix C and Appendix D**, respectively.

2.2 Site Controls

GES and its subcontractor(s) shall prepare and submit a project Operations Plan which provides a detailed description of the planned means and methods to be implemented to control the site during the work. This Operational Plan shall also include other necessary plans and submissions required and/or specified in the design specifications. Following approval of the Operations Plan, GES shall mobilize to the site and establish all site controls required. These include providing for health and safety and security for the personnel, and protection of completed work, equipment, and materials of the project. Also access controls, storm water controls, community health and safety elements, and any engineering controls necessary shall be implemented. Actions which are intrusive into the ground shall not be initiated until these controls are in place.

2.3 Access Controls

GES shall confine the work to within the Limits of Work as shown on the attached drawings. The site abuts other building structures. GES is required to coordinate with the owners and property tenants during the work.

Access to the site shall be through the existing site curb cuts as shown on the drawings.

2.4 Storm Water Controls

GES shall utilize storm water controls to prevent the release of materials, including contaminated soil and water, to local storm water during the work. At a minimum, GES shall install sediment controls as shown on the drawings at the perimeter of the of excavation areas and around all stockpiles, laydown and work areas. Controls to prevent the discharge of storm water, snow, or melted snow collected during the work in lined storage areas, excavations and decontamination facilities shall be implemented by GES. All such controlled and collected materials shall be contained, characterized and disposed of in accordance with all governing laws and

regulations. Collected waters may be disposed of at an off-site treatment or disposal facility after meeting the discharge requirements of the receiving facility.

In no case shall collected waters be discharged to the ground surface at the Site.

2.5 Air Monitoring

The soil contaminants at the site include Volatile Organic Compounds. During the remedial work, GES shall monitor air quality as part of a CAMP to ensure the safety of personnel and the public. Air monitoring shall be conducted in accordance with the requirements of the Community Air Monitoring Plan/Community and Environmental Protection Plan (CAMP/CEPP) included in **Appendix A** of this Work Plan.

2.6 Health and Safety

Health and safety documents to be kept on site during the work activities and updated as conditions change include a site-specific Health and Safety Plan (HASP) and CAMP/CEPP.

2.6.1 Site Worker HASP

Prior to mobilization to the site, GES shall prepare a site-specific HASP for use during the work to cover Contractor's activities and the activities of their subcontractors and vendors. This HASP shall supplement the existing Health and Safety Plan prepared for the callout Contractor's standby construction contract, and shall address any subcontractors, suppliers and possible vendors associated with the project. The HASP shall address provisions for protecting the health and safety of Contractor's personnel and the public, including on-site personnel not associated with the work, from harm related to the work. The HASP should incorporate the following:

ISCO Hazards:

- Sodium permanganate exposure (wear proper PPE)
- Spills (spill containment, absorbent socks, dilution, neutralization)
- Leaks (do clean water injection test prior to ISCO injection on a daily basis). Any measurable leak shall be corrected prior to reagent injection.
- Fires (store chemicals away from heat, moisture, and combustible materials)
- Trip hazards - within spill containment dosing pump and manifold setup area, near wells/hoses, uneven ground, etc. (keep area clear, watch footing)
- Pinch points and cuts (mark pinch points, tape off sharp edges)
- Back strain (use proper lifting techniques)
- Noise (use air plug)

ISCO PPE:

- Tyvek®/Tychem suit with hood and boots
- Goggles and Full Face Shield
- Inner Nitrile gloves
- Chemically resistant elbow-length gloves
- Steel-toed boots

- Chemical-resistant apron

Spill/Leak Response:

- Eye wash station for personal decontamination
- Absorbent socks
- Neutralization solution
- Use water to dilute concentrated solution spills if needed (dilution not needed for neutralizing 3% sodium permanganate solution spill)

The HASP shall be submitted to the Department in advance of the start of work to allow resourcing and planning for full implementation during the work.

2.6.2 Community Air Monitoring Plan

In conjunction with the HASP, the standby callout Contractor shall implement the Community Air Monitoring Plan/Community and Environmental Protection Plan. The CAMP provides provisions to protect the public in the area of the work from exposure to particulates, dust and contaminants that could be released during remedial construction activities. Air monitoring shall be conducted in accordance with the requirements of the Community Air Monitoring Plan/Community and Environmental Protection Plan included in **Appendix A** of this Work Plan.

2.7 Staging Areas

As shown on the drawings, GES shall utilize the identified open site area to construct a staging, storage, stockpiling and lay down area for equipment and materials. GES shall use only areas within the Limit of Work shown for these activities. The area shall be protected from contamination as shown on drawings.

2.8 Utility Summary

The approximate locations of known underground, surface and overhead utilities have been shown on the drawings. Prior to any intrusive work, GES shall confirm these locations and shall utilize an underground utility search service to mark out all utilities within the Limit of Work. Any modified or newly-identified utilities shall be identified to the Department prior to the initiation of intrusive activities. If required, GES shall coordinate with the individual utility companies and the service users to temporarily relocate, interrupt service from, or modify the utilities.

3 Second Round ISCO

The second round of ISCO injection will be made to the seven ISCO injection wells and the passive injection headers in the source excavation area as summarized in the Second Round Injection Memo contained in **Appendix E**.

3.1 Injection Implementation

The ISCO injection system will consist of a chemical compatible pump (powered by an air compressor) for low pressure sodium permanganate injection and a manifold for injection solution flow and pressure regulating. The 20,000 gallons of 2% sodium permanganate solution will be delivered via tanker/tote, and directly injected through a temporary connection to the injection equipment. Appropriate, spill containment systems consisting of temporary/portable bermed containment system will be used beneath the injection system equipment and beneath the tanker truck connection to prevent potential minor leaks and spills of the injection solution from the tanker and the manifold.

See Section 02 71 02, In-Situ Chemical Oxidation contained in **Appendix D**. The actual injection solution volume may vary based on the formation mobile porosity and the exact volume of injection solution will depend on field observations.

The protocol to be followed during injection start-up includes:

1. Inspect the hose, valves, and fitting for tear and loose connection;
2. Start clean water injection under gravity to check leaks;
3. Fix the leaks if found;
4. Stop clean water injection and connect the hose to the permanganate solution tank or totes;
5. Start injection under gravity making sure to evacuate lines of air prior to starting pump;
6. Start the injection pump with solution recirculation line full open. See specifications for the maximum injection rates, and
7. Monitor the well head pressure and adjust the recirculation flow to maintain a well head pressure below the maximum specified pressures.

3.2 Injection Monitoring

Every hour, during the injection event, well head pressure, injection flow rate, and cumulative injection volume will be recorded for each injection well. Additionally, each batch of injection solution will be analyzed for field parameters using YSI600X or similar device. Field parameters will also be analyzed in groundwater collected from MW-1S, MW-1D, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, MW-4D, MW-5S, MW-5D, MW-6S, MW-6D, MW-7S, MW-7D, PZ-4, PZ-5, OBW-1, OBW-5, OBW-6, OBW-7, OBW-8, OBW-9, BRW-1 two times per day throughout the injection event.

3.3 Chemical Storage

To protect the chemical from tampering and possible disruption, sodium permanganate will be diluted off-site and brought to the site in tanker/totes as needed with the intent that no chemical will be stored on-site overnight since the site is not secure. While on-site, the oxidant will be stored within spill containment whenever possible.

3.4 Spill Management

Any spills of permanganate solutions can be neutralized using sodium thiosulfate or products readily available for purchase locally, such as a solution of white vinegar and hydrogen peroxide. The composition of the solution is 30 parts water, 40 parts white vinegar, and 30 parts 3% hydrogen peroxide. Addition of the neutralization solution in concentrated sodium permanganate creates exothermic reaction; therefore spills should be diluted before applying the neutralizing solution. For dilute (3%) sodium permanganate solution the neutralization solution may be added directly onto the spill.

Injectate that surfaces or enters a basement shall be neutralized, collected, containerized and disposed of. This material shall not be re-injected. In the event surfacing occurs injections shall immediately stop, and the issue addressed prior to continuation of injections.

At the end of day's activity, a partial rinse of the injection pump and manifold will be performed. To perform the partial rinse approximately 10 gallons of fresh water will be pumped through the injection system into the wells.

4 Investigation Derived Waste

During this work, GES shall collect, containerize and characterize drill (soil) cuttings, PPE, decontamination fluid, and well development water/purge water for off-site disposal.

4.1 Waste Sampling and Characterization

Representative samples of investigation derived waste shall be collected and analyzed by GES. Waste characterization samples will be collected in accordance with waste disposal facility requirements for accepting a waste profile for each waste stream. GES will characterize the material for disposal acceptance in accordance with Specification Section 02 51 41, Off-Site Transportation and Disposal, and the requirements of the off-site disposal facility or facilities receiving the contaminated soil. Specification Section 02 51 41, Off-Site Transportation and Disposal is included in **Appendix D**.

All analytical results shall be submitted to the Department promptly upon receipt by GES. GES shall be solely responsible for coordinating drilling and IDW disposal activities.

4.2 Drilling and Decontamination Fluids

GES shall provide on-site water collection, containerization, characterization, and disposal as required to manage drilling and decontamination fluids in accordance with the requirements of the remedial design.

4.3 Drill Cuttings

All drill cuttings shall be assumed to be contaminated and shall be handled and managed as such. At a minimum, the drilling spoils shall be drummed. Air and particulate dust discharges from the work area shall be managed by

GES in accordance with the project HASP and Community Air Monitoring Plan/Community and Environmental Protection Plan included in **Appendix B**.

4.4 Well Development/Purge Water

All well development and/or purge water shall be assumed to be contaminated and shall be handled and managed as such. At a minimum, the shall be well development and/or purge water drummed.

4.5 PPE

Any PPE generated during activities that generate IWD shall also be assumed to be contaminated and managed as such.

4.6 Loading and Hauling

During all drilling activities, drill cuttings shall be separated and stored in a segregated manner based upon disposal requirements. All material shall be transported off-site in accordance with Specification Section 02 51 41, Off-Site Transportation and Disposal, and all New York State Laws and Regulations. Hauling vehicles shall be appropriately licensed to carry the materials of the type and nature to be encountered, and also approved to transport and dispose of materials at the facilities selected by GES to receive the wastes. All drilling fluid, decontamination fluid, and well development water will be shipped off site as an F-listed hazardous waste. Soil IDW will also be shipped off site as an F-listed hazardous waste unless GES prepares a contained-in approval letter that has been received from NYSDEC prior to finalization of the waste profile. Bills of lading or manifests for the materials to be transported shall be prepared by GES, and copies of these documents, along with weight receipts from the disposal facilities shall be submitted to the Department.

4.7 Off-Site Disposal

GES shall remove from the site all IDW resulting from remedial operations. The location(s) for disposal shall be based upon data received from sampling and characterization of the materials to be conducted by GES and approval of the disposal facility. All material shall be disposed of off-site by GES in accordance with Specification Section 02 51 41, all New York State Laws and Regulations, and the specific disposal requirements of the receiving facilities.

5 Restoration

Upon completion of the excavation and removal of remedial work, disturbed areas of the site shall be restored in accordance with the design drawings and design specifications. Contractor shall restore any damaged pavement or other features in-kind.

6 Reporting

At the conclusion of the work, GES shall participate in a substantial completion inspection of the work with the representatives of the Department. The Department will prepare a punch list of items requiring completion based upon this inspection. GES shall subsequently complete the items on the punch list. GES shall then notify Arcadis

that the work is complete and shall participate in a final inspection of the project. Residual work to be completed, if any, shall subsequently be finished by GES within one week of the final inspection.

GES will provide the following documentation on a daily basis during the execution of the scope of work:

- GES daily Report
- CAMP Daily Report
- Progress photos
- Labor, materials and equipment logs
- Injection monitoring data as previously defined in Section 3.2

Following final completion, GES will prepare and submit to the Department a summary report documenting the remedial activities. Appended to the report will be compiled field data, including information collected by GES and provided to the Department. Prior to final completion, GES shall submit to Arcadis the following for use in preparation of the report:

- Daily reports with CAMP data included for all work days indicating the work accomplished and the labor, equipment, materials and other resources utilized;
- Progress photos depicting the work on a daily basis;
- Records of contacts, decisions, conversations and discussions conducted with the Site owners or tenants, representatives of the businesses on the adjacent properties, utility representatives, regulatory staff and personnel from municipal and special districts having jurisdiction at the Site;
- Laboratory analytical data for all samples;
- Bills of lading, manifests and disposal documentation for all hazardous and non-hazardous materials;
- Weight slips from disposal of all materials;
- As-Built site survey update showing new ISCO and monitoring well locations and measuring point elevations.
- Annotated Work Plan figures and specifications, with any necessary supplementary supporting sketches, details or descriptions, indicating changes or modifications made to the work during the project; and
- Documentation of any pre- and post-project measurements, photos and other information obtained by GES.

Arcadis will utilize these documents in the preparation of a Final Engineering Report (FER) to document the Remedial Construction Activities.

Tables

DELETE

Figures

Appendix A

CAMP/CEPP

Appendix B

Injection Well RFQ

Appendix C

Design Drawings

Appendix D

Design Specifications

Appendix E

Second Round ISCO Injection Memo

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Figures

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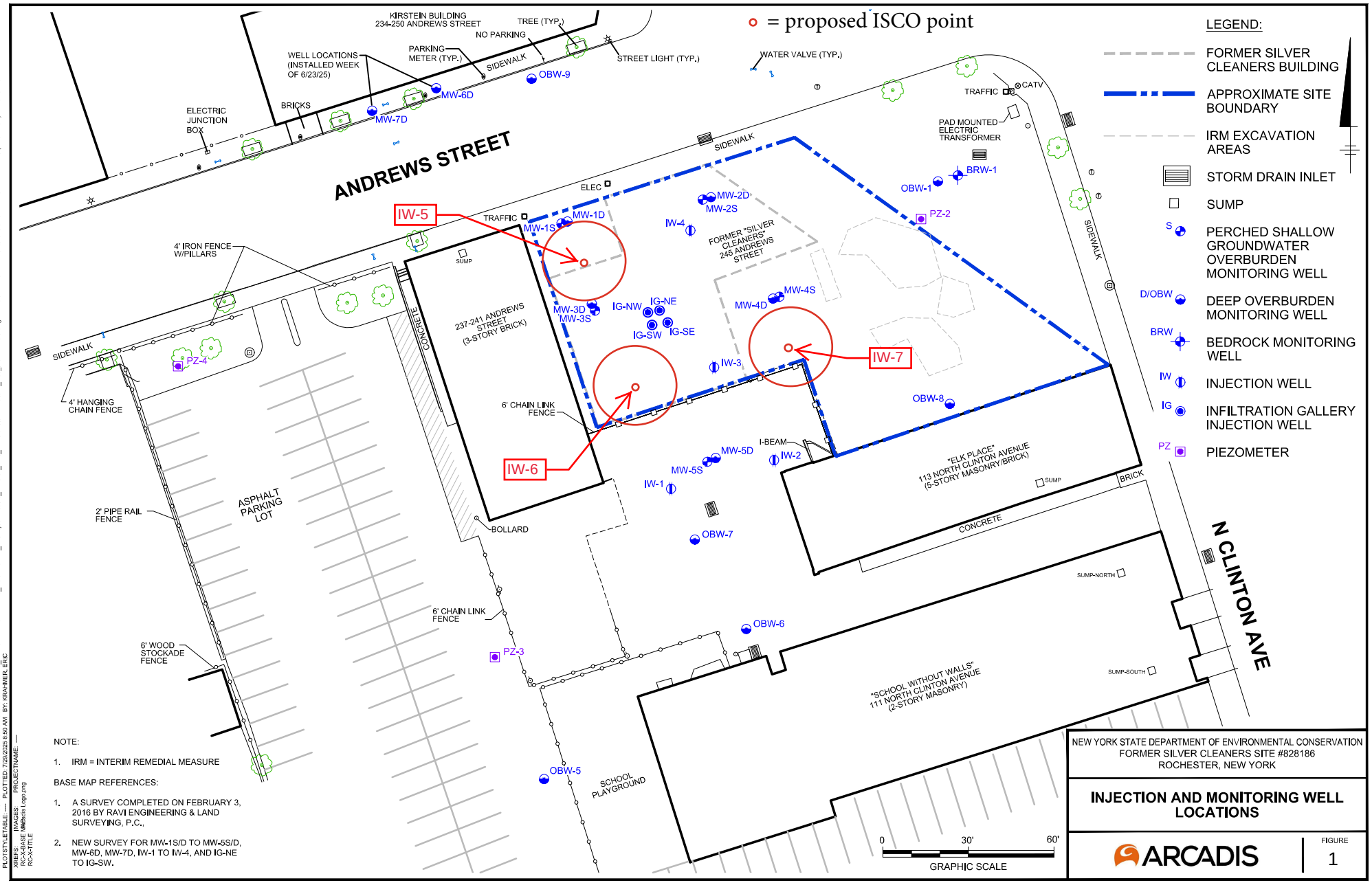

NOTE:

1. IRM = INTERIM REMEDIAL MEASURE

BASE MAP REFERENCES:

1. A SURVEY COMPLETED ON FEBRUARY 3, 2016 BY RAVI ENGINEERING & LAND SURVEYING, P.C.,
2. NEW SURVEY FOR MW-1S/D TO MW-5S/D, MW-6D, MW-7D, IW-1 TO IW-4, AND IG-NE TO IG-SW.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER SILVER CLEANERS SITE #828186
ROCHESTER, NEW YORK

INJECTION AND MONITORING WELL LOCATIONS

ARCADIS

FIGURE 1

Appendix A

CAMP/CEPP

Community Air Monitoring Plan/Community and Environmental Protection Plan

Former Silver Cleaners Site #828186
Rochester, New York
Work Assignment # D009804-22

December 22, 2022

Community Air Monitoring Plan/Community and Environmental Protection Plan

Former Silver Cleaners Site #828186
Rochester, New York
Work Assignment # D009804-22

December 22, 2022

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Attachments

Acronyms and Abbreviations

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ACM	Asbestos Containing Materials
CAMP	Community Air Monitoring Plan
CEPP	Community and Environmental Protection Plan
cf	cubic feet
COC	Constituent of Concern
GES	Groundwater & Environmental Services
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OU	Operable Unit
ppm	parts per million
RD	Remedial Design
ROW	Right of Way
TSDF	Treatment, Storage, and Disposal Facility
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
$\mu g/m^3$	micrograms per cubic meter

1 Introduction

This Community Air Monitoring Plan/Community and Environmental Protection Plan (CAMP/CEPP) has been prepared to support the implementation of remedial activities for the Former Silver Cleaners site (Site #828186), located at 245 Andrews Street in the City of Rochester, Monroe County, New York. Details related to the remedial activities are presented in the Remedial Design Report (RD Report).

The purpose of this CAMP/CEPP is to describe the monitoring activities that will be conducted to monitor for potential airborne releases of constituents of concern (COCs) during the implementation of remedial activities. This CAMP/CEPP specifies the air emission action levels, air monitoring procedures, monitoring schedule and data collection and reporting to be performed during remedial construction. This plan is to be implemented during the building demolition, remedial construction, and any future intrusive work that may occur as part of site remedial activities.

This CAMP/CEPP has been prepared in accordance with 2010 New York State Department of Environmental Conservation (NYSDEC) DER-10: Technical Guidance for Site Investigation and Remediation. The purpose of this CAMP/CEPP is to present a summary of the site monitoring and work practices that will be completed to address potential short-term impacts to the surrounding community and/or environmental resources. Additional details regarding site monitoring and work practices referenced in this CAMP/CEPP are presented in the Remedial Design Work Plan.

Section 2 of this CAMP/CEPP summarizes the monitoring to be conducted during remedial construction activities, and Section 3 describes site management and controls.

1.1 Project Responsibilities

Responsibilities of the NYSDEC (Owner or Client), Arcadis or their subcontractor (Engineer), and Groundwater and Environmental Services, Inc. [GES] or their subcontractor (Contractor), as they relate to the implementation of this CAMP/CEEP, are as follows:

- NYSDEC (Owner or Client) – Primary responsibility is to coordinate with Arcadis and GES (as necessary) to implement the required work activities in conformance with the Remedial Design. NYSDEC is responsible for administration of the work required and specified within the Contract Documents as well as contracting with Arcadis and GES.
- Arcadis (Engineer) – Responsibility is to provide staff to observe, monitor, and direct implementation of the remedial activities. Arcadis will coordinate with GES to implement the required work activities in conformance with the Remedial Design. Arcadis is responsible for verifying that community air monitoring is implemented prior to conducting intrusive site activities. Arcadis will also subcontract with a firm to complete a pre-construction structural evaluation of buildings immediately adjacent to the site and a different firm to act as a third party asbestos monitor during building demolition activities.
- GES (Contractor) – Primary responsibility is to complete remedial activities as presented in the Remedial Design. GES is responsible for performing community air monitoring in accordance with this CAMP/CEPP and implementing controls to address community air monitoring exceedances or odors, if necessary. GES or their subcontractor will conduct vibration monitoring during the demolition and excavation activities. GES is also responsible for conducting and implementing the general site management practices and controls described in Section 3.

Specifically, Arcadis will be responsible for the following:

- Conducting a pre-construction assessment of buildings immediately adjacent to the site before start of any building demolition and/or remedial construction activities.
- Asbestos containing material (ACM) third-party air monitoring during the building demolition activities.

Specifically, GES will be responsible for the following:

- Providing all labor, materials, and equipment necessary to implement the community air monitoring program specified herein.
- Confirming that all corrective measures associated with the community air monitoring program (including the control of dust, vapors and odors) are performed in accordance with this CAMP/CEPP.
- GES' subcontractor will conduct vibration and static survey monitoring during the remedial construction activities.

1.2 Site Location and Description

The site is located in downtown Rochester, New York (Figure 1) and consists of three contiguous parcels totaling 0.30-acres. The site consists of a one-story vacant commercial building and an asphalt parking lot which is currently used as a permit only parking lot. The site is bordered to the north by Andrews Street, to the east by North Clinton Avenue and a triangle-shaped parcel owned by the City of Rochester. Bordering to the west of the site, 237-241 Andrews Street consists of a basement with utilities and storage, a first floor with businesses, and second and third floors with residential units. Bordering to the south of the site; 113 North Clinton Avenue (also known as Elk Place), 107 North Clinton Avenue and a parking lot. 113 North Clinton Avenue consists of a basement with a utility room and storage, and residential apartment units on the first through fifth floors. 107 North Clinton Avenue is owned by the Rochester City School District (RCSD) (RCSD School No. 90) and consists of a basement (utilities and storage) and two floors of classrooms as well as a parking lot (Figure 2). Site topography is generally flat with approximate elevations of 530 to 526.4 feet above mean sea level (AMSL).

1.3 Previous Investigations

In 2012, Ravi Engineering & Land Surveying, P.C. (RE&LS) completed a Phase I ESA of the site for D4 Discovery and the City of Rochester through Rochester's Brownfield Assistance Program (BAP) (RE&LS 2012). The Phase I ESA identified the following recognized environmental conditions (RECs) related to former operations at the site:

- Two 1,000-gallon gasoline USTs and one (or two) 500-gallon USTs were utilized by several former service stations;
- A potential petroleum release to site soils and/or groundwater;
- The site building was occupied by a dry-cleaning business known to have used PCE; and
- A potential PCE release to site soils and/or groundwater.

In 2012, Leader Professional Services Inc. (Leader) and RE&LS completed a Confirmatory Phase II ESA (Leader 2013) to confirm whether contaminants related to the above RECs had impacted the subsurface. The Phase II ESA included performing a geophysical survey to locate former USTs and advancing soil borings to evaluate whether there were impacts to soil and groundwater. The geophysical survey identified electromagnetic anomalies indicative of buried metal objects. A total of five soil borings were advanced to refusal at depths

ranging from 2 to 13.8 feet below ground surface (bgs). Four of the locations were advanced in the building and one was advanced east of the building near assumed locations of former USTs (Leader 2013).

Soil sample analytical results from borings advanced below the building slab (SB-1 at 7 feet bgs and SB-4 at 8 feet bgs) were less than unrestricted use soil cleanup objectives (SCOs). Analytical results from soil boring SB-5 at 8 feet bgs indicated that ethylbenzene (1.3 parts per million [ppm]), o-xylene (2.6 ppm), and m,p-xylene (5.9 ppm), near the former UST area exceeded Part 375 unrestricted use SCOs. Soil samples were not collected from SB-2 or SB-3 for laboratory analysis. Analytical results for PCE concentrations in groundwater samples GW-1, collected from SB-1 at 7.5 feet bgs (7,890 micrograms/L [µg/L]) and GW-2, collected from SB-4 at 13.2 feet bgs (88,500 µg/L), exceeded the New York State Class GA Groundwater Standard (Class GA Standard) of 5 µg/L listed in the New York State Division of Water Technical and Operation Guidance Series (TOGS) version No. 1.1.1. Analytical results from groundwater sample GW-5 at 13.3 feet bgs collected in soil boring SB-5 exceeded the respective Class GA Standards for ethylbenzene (1,040 µg/L), methylcyclohexane (826 µg/L), toluene (309 µg/L), naphthalene (699 µg/L), 1,2,4-trimethylbenzene (1,650 µg/L), 1,3,5-trimethylbenzene (630 µg/L), o-xylene (1,250 µg/L), and m,p-xylene (3,450 µg/L). Based on the concentration of PCE in groundwater noted above, SB-4 is considered a potential PCE source area and further investigations were conducted during the RI (as detailed below) to delineate PCE groundwater concentrations.

A Remedial Investigation (RI) was completed in 2020, a summary of which is provided in the following subsection.

1.4 Remedial Investigation Activities and Conclusions

The scope of work for the RI was designed to further evaluate the nature and extent of PCE and petroleum related compounds in soil and groundwater at the site; and the potential for soil vapor intrusion into adjacent properties as a result of former site operations. The scope of work included the following:

- Preliminary review of historical documents and an initial site walk;
- Asbestos containing material (ACM) survey;
- Geophysical survey;
- Soil boring advancement and soil sampling;
- Test pit excavation;
- Underground storage tank removal;
- Overburden piezometer and monitoring well and bedrock monitoring well installation;
- Well development and hydraulic conductivity testing;
- Groundwater and sump water sampling; and
- Offsite soil vapor sampling.

Through the completion of the above activities, the nature and extent of constituents of potential concern (COPCs) were identified during the RI, with the exception of COPC in the deep overburden and bedrock groundwater downgradient of the site. However, the source and migration of COPCs, and exposure pathways have been identified through the development of a CSM and, given the data gaps mentioned below, the results from the RI investigation provide sufficient data to evaluate potential site (i.e., source area) remedies. Results of the RI conducted at the site are described below.

- The data indicates that there was a historical release of chlorinated solvents (PCE and TCE) into the sand and fill material either beneath the site building slab, near the south edge of the site building, and/or just

outside the site building's south wall. Data also indicates a historical release of petroleum related constituents (BTEX, 1,2,4-trimethlybenzene, and naphthalene) to the shallow overburden in the vicinity of the former service station.

- Concentrations of primary COPCs are greatest near the south side of the site building in the deep and shallow overburden groundwater and are shown to decrease hydraulically downgradient of the PCE source area. PCE and TCE appear to have migrated through the silty sand and dense till and into bedrock.
- Concentrations of BTEX, 1,2,4-trimethlybenzene, and naphthalene are greatest in shallow overburden groundwater beneath and adjacent to the former service station area. Low concentrations of BTEX are present in the deep overburden indicating that the dense till is acting as a semi-confining layer.
- Overburden materials are generally composed of urban fill overlying glacial outwash sediments (sand and silt) (9-16' bgs) which overlies a dense glacial till (densely packed sand, silt, and gravel), followed by a thin layer of silty sand (between 26-34' bgs), and then bedrock (dolomite). The top of bedrock ranges from 27 to 34.3 feet bgs.
- Concentrations of PCE in shallow and deep overburden groundwater indicate that residual separate-phase product is likely present, although it was not observed in groundwater or soil during the RI or previous investigations.
- VOCs in shallow and deep overburden have migrated north following groundwater flow.
- The vertical and horizontal extent of PCE and TCE in the bedrock is not fully delineated as analytical results from groundwater collected in bedrock well (BRW-2) showed PCE concentrations greater than the respective Class GA Standard.
- The extent of dissolved-phase COPCs in the overburden is not fully delineated as groundwater from the farthest sample locations downgradient (north of) and to the west of the site contain chlorinated solvent COPCs at concentrations greater than Class GA Standards. However, PCE was detected at lower concentrations compared to the onsite concentrations. Other sources of VOCs in the groundwater from historical use (historical gas station) and other nearby contaminated sites could also be contributing to these concentrations.
- PCBs and pesticides were not detected and no metals of concern were detected above respective soil and groundwater standards during the RI. Only three soil samples contained SVOCs detected at concentrations greater than applicable SCOs. There were no detections of PFAS greater than the USEPA health-based criteria for drinking water. As such, SVOCs, PCBs, pesticides, PFAS, and metals are not considered COPCs for soil or groundwater.
- VOCs are present in the indoor air and sub-slab vapor at the properties adjacent to the site (237-241 Andrews Street and 113 North Clinton Avenue).

Potential exposure pathways at the site primarily exist for those who could come in contact with groundwater, sump water, and or subsurface soil. Construction and utility workers could be exposed to subsurface soils during excavations via dermal contact, incidental ingestion, and inhalation of vapors and soil particulates. Complete groundwater and sump water exposure pathways for construction and utility workers include dermal contact, incidental ingestion, and inhalation of vapors. There is a complete exposure pathway via soil vapor intrusion and inhalation of indoor air in the adjacent properties in the absence of engineering controls.

1.5 Record of Decision

The NYSDEC issued a Record of Decision (ROD) in June 2020 that presents the remedy for the site. The elements of the selected remedy are as follows:

- Demolition of the on-site building;
- Excavation and off-site disposal of contaminant source areas, with soil concentrations greater than the protection of groundwater soil cleanup objectives (PGWSCOs);
- Implementation of in-situ chemical treatment, whereby a chemical oxidant is injected into the subsurface to destroy site-related contaminant;
- Installation of site cover where the upper two feet of exposed surface soil exceeds the respective PGWSCOs;
- Mitigation of soil vapor intrusion in any future site buildings;
- Imposition of an institutional control in the form of an environmental easement; and
- Preparation and implementation of a Site Management Plan.

This Remedy will achieve the remediation goals for the site by excavation of source area soil and the treatment of groundwater and soil below the groundwater table using in-situ chemical treatment.

1.6 Potential Air Emissions Related to Remedial Activities

As defined in the New York State Department of Health (NYSDOH) Generic CAMP (included as Attachment 1), intrusive remedial activities to be performed at the site have the potential to generate localized impacts to air quality. Remedial components that have the potential to generate air emissions include, but may not be limited to, the following:

- Building demolition;
- Excavation of source area soil;
- Backfilling;
- Material handling (e.g., separation of listed hazardous waste from non-hazardous waste, stockpiling waste materials, loading waste materials for transport to the off-site treatment/disposal facility); and
- Other ancillary intrusive activities.

1.7 Air/Odor Emission Control Measures

Emission control measures to be utilized by GES during material excavation/removal and handling activities are described in the following subsections.

Air emissions control and fugitive dust suppression measures will be implemented by GES concurrently with the activities identified above (as needed) to limit the potential for organic vapor and dust emissions from the site. Air emissions associated with excavation/removal, backfilling, material handling and stockpiling, other intrusive activities, and certain non-intrusive activities, such as mobilization, transportation and restoration activities, will be controlled as described below. The following vapor and dust control measures may be used during these activities, depending upon specific circumstances, visual observations, and air monitoring results:

- Water/BioSolve® spray;

- Polyethylene sheeting (e.g., for covering excavation faces, material stockpiles);
- Minimizing excavation surface area to be exposed at any given time;
- Vapor suppression / Rusmar® foam; and
- Piian Odor Neutralizing Mist System.

GES is required to mobilize BioSolve® (or approved equivalent) and Rusmar® (or approved equivalent) vapor-suppressant foam (including application equipment) to the remediation work area prior to initiating intrusive activities. GES must maintain an adequate supply of such materials for the duration of intrusive activities. GES shall apply the BioSolve® solution using a pressure washer. If required, a dedicated Contractor worker shall be available for application of BioSolve® solution. Additionally, GES shall install an odor Neutralizing Mist System (by Piian or similar) and supply all odor neutralizing agents. Alternate odor suppressant methods (e.g., sprays, odor suppressant foams) that are capable of suppressing site related odors may be proposed by GES for review and approval by NYSDEC and Arcadis.

2 Site Monitoring

This section presents a summary of the monitoring to be conducted during implementation of the remedial activities to evaluate potential short-term impacts to the surrounding community.

2.1 Community Air Monitoring Procedures

The community air monitoring program is intended to be a discrete program that will be operated in conjunction with the Exclusion Zone (i.e., work zone) air monitoring program. GES will conduct real-time community air monitoring throughout the remedial construction. Monitoring will be conducted at representative locations at the perimeter of the exclusion zone for volatile organic compounds (VOCs) and total suspended particulates (particulates). However, particulate monitoring will not be performed during precipitation events. Additional information regarding the monitoring locations, equipment, and action levels is presented below.

Community air monitoring will be conducted by the GES during intrusive and/or potential dust-generating activities (e.g., soil excavation, backfilling, material handling, drilling, and building demolition activities). Detailed requirements for air monitoring procedures are presented herein and Specification Section 01 76 50, Nuisance Controls, Management and Corrective Measures. Air monitoring procedures will be completed in accordance with the May 2010 New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan and generally consist of monitoring for volatile organic compounds (VOCs) and particulates (PM10) at multiple locations to establish site background conditions and to evaluate air quality at the perimeter of the active work areas.

Exceedances of VOC and/or particulate action levels will require emission controls and/or dust-suppression measures. Control measures to be implemented by the GES are presented in Specification Section 01 51 05, Temporary Controls. Additionally, the CAMP/CEPP includes community notification procedures to be conducted if air monitoring action levels continue to be exceeded after implementation of emission controls.

2.1.1 Monitoring Location Selection and Deployment

VOCs and particulate monitoring station locations will be determined daily based on data from the on-site meteorological monitoring station and the nature of the anticipated remediation activities. An upwind location for both VOCs and particulate monitoring will be selected at the start of each workday. Three downwind (based on predominant wind direction) locations for both VOCs and particulate monitoring will also be selected. The VOCs and particulate monitoring stations will be deployed each day before the start of work activities. If wind direction shifts radically during the workday and for an extended period of time, such that the upwind location and downwind locations no longer fall within acceptable guidelines (+/- 60° compass change from the original wind direction), the monitoring stations will be relocated so that the upwind and downwind locations are maintained. Air monitoring location changes will be documented in a field logbook.

2.1.2 Volatile Organic Compounds Monitoring

Real-time monitoring for VOCs will be conducted during remedial activities. As required by the NYSDOH Generic CAMP, VOCs will be monitored continuously during all intrusive and/or potential dust-generating activities (e.g., installation of erosion and sediment control measures, building demolition, excavation/removal, backfilling, soil mixing/stabilization, material handling activities) using instrumentation equipped with electronic data-logging capabilities. A real-time VOC monitor (RAE MiniRAE 3000 or equivalent), equipped with a photoionization

detector and calibrated to 100 parts per million (ppm) isobutylene, will be used to monitor for VOCs. All average concentrations (calculated for continuous 15-minute increments [e.g., 08:00 to 08:15, 08:15 to 08:30]) and any instantaneous readings taken to facilitate activity decisions will be recorded using an electronic data logger and/or in the field logbook.

2.1.3 Total Suspended Particulate (Particulate) Monitoring

Real-time monitoring for particulates will be conducted during remedial activities at the former VOC site. As required by the NYSDOH Generic CAMP, real-time airborne particulate monitoring will be conducted continuously during all intrusive and/or potential dust generating activities (e.g., installation of erosion and sediment control measures, building demolition, excavation/removal, backfilling, and material handling activities) using instrumentation equipped with electronic data-logging capabilities. A real-time particulate monitor (TSI 8530 DustTrak II or equivalent) will be used for particulate monitoring. All average concentrations (calculated for continuous 15-minute increments [e.g., 08:00 to 08:15, 08:15 to 08:30]) and any instantaneous readings taken to assess appropriate course of action will be recorded using an electronic data logger and/or in the field logbook.

Fugitive dust migration will be visually assessed during all work activities, and reasonable dust suppression techniques will be used during any site activities that may generate fugitive dust (Section 1.6).

Particulate concentrations will be monitored continuously at the perimeter of the work area during all demolition activities in accordance with the New York State Department of Conservation, Technical Guidance for Site Investigation and Remediation (DER-10) Appendix B1. Real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) will be used for the particulate monitoring. The equipment will be equipped with an audible alarm to indicate exceedance of the action levels summarized below.

2.1.4 Action Levels

The action levels provided below are to be used to initiate corrective actions, if necessary, based on real-time monitoring. Each piece of monitoring equipment will have alarm capabilities (audible and/or visual) to indicate exceedances of the action levels specified below.

2.1.4.1 Special Requirements for Work within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Depending upon the nature of contamination, chemical-specific colorimetric tubes of sufficient sensitivity may be necessary for comparing the exposure point concentrations with appropriate pre-determined response levels (response

actions should also be predetermined). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m3 or less at the monitoring point.
- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

2.1.4.2 Volatile Organic Compound Action Levels

As outlined in the NYSDOH Generic CAMP, if the ambient air concentration for total VOCs exceeds 5 ppm above background (i.e., upwind location) for the 15-minute average, work activities will be temporarily halted while monitoring continues. If the total VOCs concentrations readily decrease (through observation of instantaneous readings) below 5 ppm above background, then work activities can resume with continuous monitoring.

If the ambient air concentrations for total VOCs persist at levels in excess of 5 ppm above background but less than 25 ppm above background, work activities will be halted, the source of the elevated VOCs concentrations identified, corrective actions undertaken to reduce or abate the emissions, and air monitoring will be continued. Once these actions have been implemented, work activities can resume provided the following two conditions are met:

- The 15-minute average VOCs concentrations remain below 5 ppm above background.
- The VOCs level 200 feet downwind of the monitoring location or half the distance to the nearest potential receptor or residential/commercial structure (whichever is less but in no case less than 20 feet) is below 5 ppm over background for the 15-minute average.

If the ambient air concentrations for total VOCs exceed 25 ppm above background, the work activities must cease, and emissions control measures must be implemented.

All 15-minute average readings will be recorded and be available for review by the New York State Department of Environmental Conservation (NYSDEC) or the NYS Department of Health (DOH). Instantaneous readings, if any, used for decision purposes will also be recorded.

2.1.4.3 Particulate Action Levels

As required by NYSDOH Generic CAMP, if the average ambient air particulate concentration (calculated for continuous 15-minute increments as specified above) at any one (or more) of the downwind perimeter locations exceeds 100 micrograms per cubic meter (µg/m^3) above the average background concentration (calculated for continuous 15-minute increments as specified above), or if airborne dust is visually observed leaving the work area, then dust suppression measures will be implemented, and air monitoring will continue. Work activities may continue following the implementation of dust suppression measures provided that the average ambient air particulate concentration does not exceed 150 µg/m^3 above the average background concentration and no visible dust is migrating from the work area.

If, after implementation of dust suppression measures, the downwind average ambient air particulate concentration is greater than 150 µg/m^3 above the average background concentration, work activities must be stopped and re-evaluated. Work activities may resume only if dust suppression measures and other corrective

actions are successful in reducing the downwind average ambient air particulate concentration to less than 150 µg/m^3 above the average background concentration and if no visible dust is observed leaving the site. The particulate concentrations will be recorded in accordance with Section 2.1.3 above.

All particulate monitoring measurements readings will be recorded and made available for NYSDEC and NYSDOH review.

2.1.5 Meteorological Monitoring

Meteorological monitoring will be conducted continuously at the sites using a portable meteorological monitoring system. The meteorological monitoring system will be deployed at a location in accordance with siting criteria established by the United States Environmental Protection Agency (USEPA) and the New York State Department of Environmental Conservation (NYSDEC) for meteorological monitoring systems (*Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV – Meteorological Measurements*, as revised August 1989; and New York State Air Guide-19 – "Oversight of Private Air Monitoring Networks," dated June 1989). Use of these guidelines enables the meteorological monitoring system to provide representative observations of the local meteorological conditions. A digital meteorological monitoring system (Wireless Vantage Pro2 by Davis Instruments or equivalent) will be used to collect the meteorological data. At a minimum, the meteorological monitoring system will monitor wind speed, wind direction, relative humidity and ambient temperature. The meteorological monitoring system will be equipped with electronic data-logging capabilities.

Calibration of the VOCs, particulate, and meteorological monitoring instrumentation will be conducted in accordance with each of the equipment manufacturer's calibration and quality assurance requirements. The VOC and particulate monitors will be calibrated daily (at a minimum), and calibrations will be recorded in the field logbook.

2.1.6 Reporting

GES shall prepare a weekly (or more frequent If requested by NYSDEC and/or NYSDOH) summary of the 15-minute average community air monitoring results (for VOCs and particulates). The summary shall also include, but not be limited to, a description of community air monitoring exceedances (if any), work activities associated with the exceedances, and corrective actions implemented to address the exceedance. The weekly summary will be submitted in an electronic format to the following:

Table 1 – CAMP/CEPP Contact List

Name	Affiliation	Contact Information
James Kruegler	NYSDEC	T: 518.402.8068 James.kruegler@dec.ny.gov
Angela Martin	NYSDOH	T: 518.402.7860 beei@health.ny.gov
Mark Flusche	Arcadis	T: 518-205-7322 mark.flusche@arcadis.com

2.2 Odor Monitoring

During working hours, GES shall perform periodic walks around the perimeter of the work area to monitor for VOC-related odors in accordance with the CAMP/CEPP. The perimeter checks will be performed more frequently, as necessary, depending on the work being performed. If VOC-related odors are noticed along the perimeter of the work area, work will continue, and odor, vapor, and dust suppression techniques employed to abate emissions, in accordance with Specification Section 01 51 05, Temporary Utilities and Controls and Section 01 76 50, Nuisance Controls, Management and Corrective Measures. Additionally, construction techniques will be evaluated and modified, if necessary and appropriate, and more frequent checks of the work area perimeter for VOC-related odors will be performed. If VOC-related odors continue to be noticed at the perimeter of the work area, work will be stopped while activities are re-evaluated and the NYSDEC and NYSDOH will be notified. The source or cause of the VOC-related odors will be identified and additional modifications of construction techniques or additional methods to abate emissions will be implemented. Work will resume provided the measures are successful at abating the odors noticed along the work area perimeter.

Detailed requirements of odor monitoring are presented in this CAMP/CEPP.

2.3 Structural and Geotechnical Monitoring

During intrusive work (i.e., building demolition, shoring system installation, excavation, backfill and shoring system removal), GES or their subcontractor will conduct structural monitoring of the buildings on the properties listed below:

- 237-241 Andrews Street;
- 113 North Clinton Avenue (also known as Elk Place); and
- 107 North Clinton Avenue (City of Rochester School District Early Childhood Development).

Structural monitoring will consist of vibration and optical survey monitoring of structures immediately adjacent to the site and remedial areas. Details for geotechnical instrumentation, installation, and monitoring (including notification and action levels) are presented in Specification Section 31 09 13, Geotechnical Instrumentation and Monitoring.

GES shall contract with a subcontractor to conduct pre- and post-construction structural surveys as well as vibration monitoring during intrusive work at the locations listed above.

Arcadis, or their subcontractor, will conduct a pre-construction assessment of these structures prior to any demolition and remedial construction activities. The pre-construction assessment survey will include, but not be limited to, visual inspection and photographic documentation of the existing conditions of the listed structures. The DEC will obtain access to the structures for completion of this pre-construction assessment survey.

3 Site Management and Controls

This section presents a summary of site management practices and controls that will be implemented to minimize potential short-term impacts to the surrounding community during remedial activities.

3.1 Site Security

Public access to the Site and work areas will be restricted during the remedial activities, to the extent practicable. Details regarding site security and project signage are presented on the Design Drawings and in Specification Sections 01 57 33, Security.

3.2 Erosion, Sediment, and Turbidity Controls

Erosion control measures (e.g., silt fence and straw bales) will be provided, installed, and maintained by the GES to prevent off-site migration of turbid stormwater runoff and the silting and muddying of existing stormwater drainage systems. Details regarding locations and types of controls are presented on the Design Drawings and in Specification Sections 01 41 26, Storm Water Pollution Prevention Plan and Permit and Section 01 51 05, Temporary Utilities and Controls.

Erosion control measures will be installed and maintained in accordance with the latest edition of the NYSDEC New York State Standards and Specifications for Erosion and Sediment Control. At a minimum, GES will inspect erosion control measures daily and after storm events. Inspection results will be summarized in weekly inspection reports. Report requirements are provided in Specification Section 01 41 26, Storm Water Pollution Prevention Plan and Permit.

In general, GES will take all precautions to prevent, or reduce to a minimum, any damage to surface water or stormwater drainage systems from pollution by debris, sediment, or other material, or from the manipulation of equipment and/or materials within or adjacent to existing and new drainage systems. GES and its subcontractors are prohibited from the following:

- Dumping spoil material into any drainage way, storm sewer, or unspecified locations;
- Pumping silt-laden water from within the excavation area into any drainage way, storm sewer, or unspecified locations;
- Damaging vegetation beyond the extent necessary for remedial construction; and
- Disposing of trees, brush, and other debris in any drainage way, or unspecified locations.

Following completion of the remedial activities, GES will restore disturbed surfaces as indicated in the Remedial Design, or as approved by NYSDEC and Arcadis.

3.3 Waste Management

In general, waste materials generated during implementation of the remedial activities will be managed based on the results of the waste characterization sampling or listed waste determination. GES will be responsible for the following activities, in accordance with the Remedial Design:

- Contracting with a waste disposal vendor;
- Acting as the “Generator” for material resulting from the remediation activities for off-site treatment and/or disposal of the waste;
- Coordinating with potential disposal facilities to verify waste characterization analytical requirements prior to the collection of waste characterization samples;
- Collecting waste characterization samples, coordinating lab analysis, and preparing waste profiles for off-site treatment/disposal of solid and liquid wastes to be generated as part of the remediation activities;
- Obtaining a permit to discharge treated groundwater to the City sewer system;
- Reviewing and signing waste manifests/bills of lading for shipments of waste materials generated by the remediation activities;
- Maintaining an on-site project log containing waste manifests/bill of lading for wastes generated by the remediation activities;
- Subcontracting and coordinating with waste haulers and waste disposal vendors for treatment/disposal of non-hazardous solid and liquid wastes to be generated as part of the remediation activities; and
- Coordinating with waste haulers and waste disposal vendors to facilitate off-site transport of conditionally exempt material waste streams.

3.3.1 Solid Waste

A portion of waste will be transported to a NYS-approved and permitted Treatment, Storage, and Disposal Facility (TSDF) facility for treatment and disposal in accordance with the Remedial Design. Excavated soil and solid waste not requiring TSDF treatment will be transported off-site to a NYS-approved non-hazardous or hazardous waste (for listed hazardous wastes) solid waste disposal facility.

3.3.2 Liquid Waste

All construction-related waters generated during remedial activities (i.e., decontamination water, water from excavation dewatering, and water removed from material staging areas) will be collected and discharged to the City of Rochester sewer system following receipt of a permit from the City. Details for water treatment and discharge are presented in Specification Section 44 00 05, Water Treatment.

3.3.3 Non-Aqueous Phase Liquid

Free-phase non-aqueous phase liquid (NAPL) encountered during excavation/material dewatering activities will be collected (if in sufficient quantities to be recovered), placed in appropriate containers (e.g., 55-gallon drums), and staged on-site for characterization by the GES prior to off-site disposal at an NYS-approved (or selected) facility. Following characterization, the GES will coordinate with the off-site disposal facility for the transportation and disposal of the containerized NAPL.

3.4 Transportation Controls

This section presents minimum transporter requirements to be followed during loading and transportation of solid and liquid non-hazardous and hazardous wastes generated by the remedial activities at the Site. The term

"transporter" means the transporter of any waste materials and GES if/when the transporter is subcontracted to GES.

The transporter will provide all necessary supervision, labor, training, permits, hazardous waste manifests (when required), PPE, tools, equipment, materials, and all items incidental and necessary to transport solid waste between individual work areas on-site (i.e., removal area and/or temporary support areas) and from the Site to the permitted disposal facilities.

The transporter shall comply with the following minimum requirements:

- Any truck found to be unacceptable by Arcadis will be rejected, and the cost for any rejected truck shall be incurred by the transporter. If NYSDEC on-site personnel find any trucks to be unacceptable, NYSDEC should notify GES, which, in turn, shall notify the truck driver.
- The transporter shall adhere to the following rules while at the Site (including transportation between the removal area and/or temporary support areas), in transit from the Site to the waste disposal facility, and at the waste disposal facility:
  - Prior to entry to the Site, truck drivers shall stage trucks only in areas designated by GES. While staged, truck engines shall be shut off. Trucks shall not idle for more than 5 minutes.
  - Truck drivers shall announce their arrival at the Site to GES.
  - Truck drivers are generally restricted to their trucks and designated waiting areas. Drivers are not permitted to access the Site without permission from GES, or Arcadis.
  - Transporters must supply and wear hard hats, safety glasses, safety shoes, long pants (jogging pants or warm-up pants are not permitted), and gloves, at a minimum, at all times when outside the truck cab for personal protection. Transporters are responsible for supplying any other protective equipment necessary for completing their tasks in a safe manner.
  - Transporters shall line the entire waste transport container (dump truck box, dump trailer, roll-off waste container, etc.) that will be used to haul hazardous solid waste, conditionally exempt VOC site remediation waste, or non-hazardous waste (e.g., 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 as indicated above. All waste transport containers shall have a watertight tailgate with a gasket between the box and tailgate, and tailgates shall be secured with locking turnbuckles. If free liquids are observed to be leaking from the container of the truck once loaded, the truck cannot leave the loading area.
  - All trucks are subject to inspection by Arcadis upon arrival at the Site. If trucks are not clean (as determined by Arcadis), they will be rejected. Cleaning of trucks is not permitted at the Site.
  - All trucks shall be equipped with working audible and visual backup signals.
  - When waste transport containers are being loaded, and when directed by the GES, the engine shall be shut off. The 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 (by the GES' site workers) to remove any residual waste.
  - GES' site workers shall reposition the cover bars over the waste material. Drivers shall not walk over waste material.

- Before leaving the loading area, drivers shall cover truck loads 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 restrictions.
- Drivers and operators shall obey rules posted on the Site and contained in any of the site-specific Health and Safety Plans used at the Site by GES.
- Drivers and operators shall report any accidents to GES 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 active work area(s) or loading area(s).
- Truck driver's operators shall slow down and use extra caution during inclement weather (i.e., rain, fog, snow).
- Truck driver's operators shall use extra caution around blind corners (watch for pedestrians and construction equipment).
- Smoking, eating, and/or drinking is not permitted within the active work area(s) or loading area(s), but may be permitted in designated areas of the Support Zone.

After disposal of waste, the transporter is responsible for properly decontaminating the waste hauling portion of the vehicle.

A transportation work plan shall be prepared in accordance with Section 02 51 41, Off-Site Transportation and Disposal.

Final trucking routes will be approved by NYSDEC and/or Arcadis prior to use.

3.5 Decontamination

GES will decontaminate (as necessary) all personnel and equipment that comes into contact with excavated or impacted materials prior to leaving the work areas to prevent the tracking of soil off-site (including vehicles transporting clean fill to the Site), in accordance with Specification Section 02 51 40, Excavation, Removal and Handling of Contaminated Material. Decontamination will occur within the constructed decontamination area(s) as appropriate based on the work being performed. At a minimum, GES will perform decontamination activities until no visible soil, sediment, debris, or stains are present on the equipment surfaces (to the satisfaction of Arcadis, and/or NYSDEC).

Project equipment (including, but not limited to, removal equipment, trucks, pumps, and hand tools) that comes in contact with excavated or impacted materials will be decontaminated prior to using the equipment to handle clean material and/or equipment being removed from the Site. Any visible soils, sediments, or other debris will be promptly removed and disposed of in a manner consistent with the materials excavated.

4 Exclusion Zone Vapor Emission Response Plan

The Vapor Emission Response Plan, to be prepared by GES, will be implemented for contractor worker safety following an exceedance of the 15-minute average VOCs concentration of 5.0 ppm (above background) within the Exclusion Zone. GES will initiate engineering controls for employee safety.

If an exceedance of the 15-minute average VOCs concentration of 5.0 ppm (above background) is measured at the perimeter of the Exclusion Zone, all excavation activities will be stopped, and the following action will be taken:

- Continue total VOCs monitoring within the Exclusion Zone and at the perimeter of the Exclusion Zone. If the total VOCs level drops below 5.0 ppm (above background) then excavation activities can resume with the addition of engineering controls or modifications to the excavation process to minimize VOCs emissions. However if the VOCs level persists above 5.0 ppm within the Exclusion Zone, based on continual observance of the total volatile organic analyzer, then GES will immediately implement engineering controls such as misting the area with a vapor suppression solution of BioSolve®, covering the excavation, and backfilling, as needed, to reduce emissions and at the same time should notify Arcadis.
- If after the implementation of additional engineering controls, the total VOCs levels drop below 5.0 ppm (above background) within the Exclusion Zone and at the perimeter of the Exclusion Zone, then the excavation activity can resume provided process and work activities were adjusted to reduce emission levels.
- If the total VOCs levels continue to be greater than 5.0 ppm (above background) at the perimeter of the Exclusion Zone, then all site activities must be discontinued. When the work is shut down NYSDEC and NYSDOH shall be notified and the downwind community air monitoring (conducted by GES in consultation with the NYSDEC representative) will continue to be conducted to ensure that the emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission response Plan (Section 4.0).

Primary engineering controls that may be implemented to reduce emission levels include:

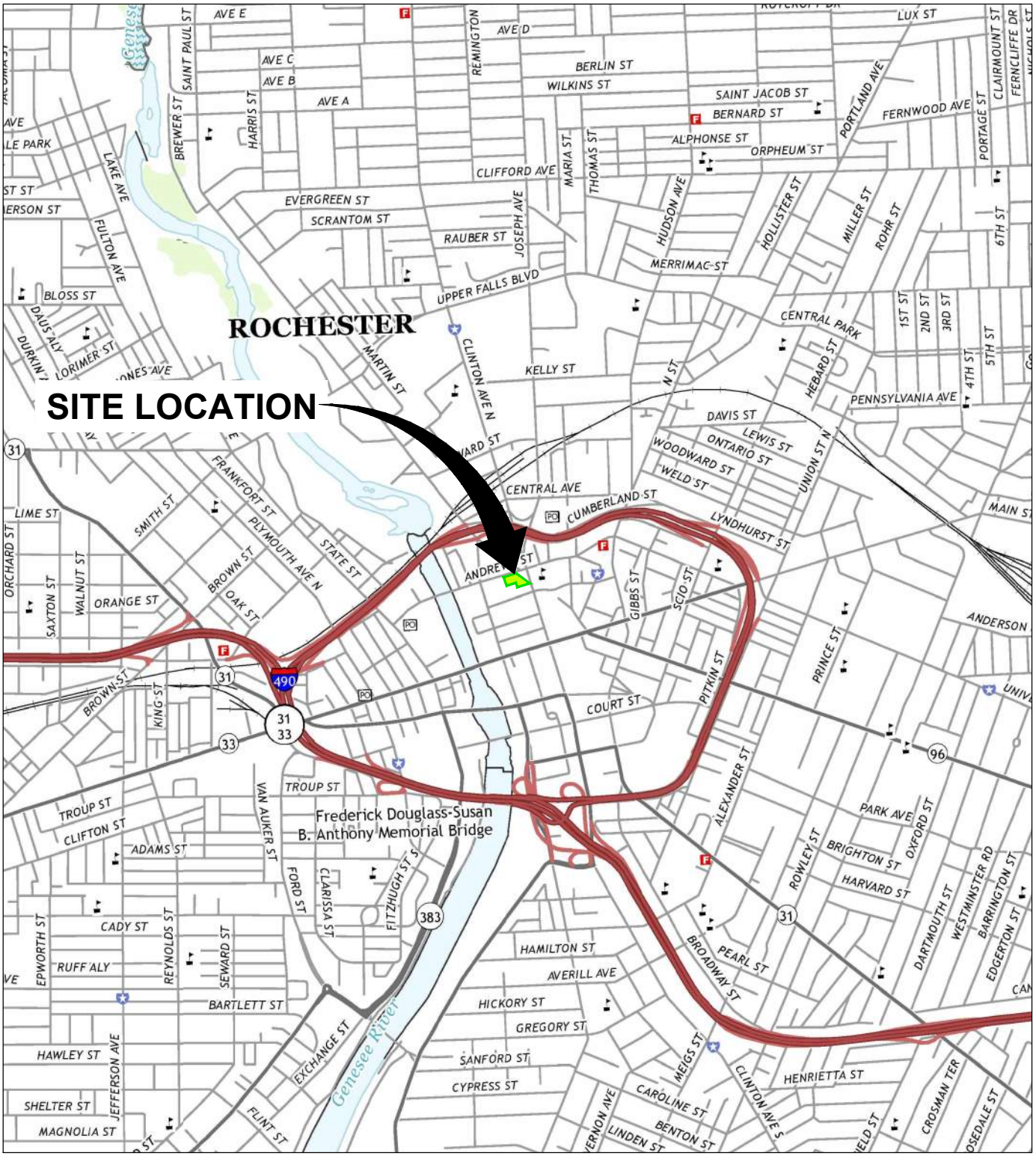
- Due to the proximity of receptors and levels of contamination that will be exposed, suppression chemicals, water, and other techniques to control dust and VOCs should be implemented proactively.
- Adding a vapor suppression solution of BioSolve® to impacted media (application in excavated areas will be a light mist as to avoid increasing solubility of wastes leading to increased groundwater contamination).
- Limiting excavation size and the surface area of exposed soil.
- Utilize tarping, covers or other enclosure systems to limit emissions. Systems may also employ a negative pressure/filtration system as necessary to reduce the emissions.

5 Major Vapor Emission Response Plan

If after the cessation of the work activities and implementation of engineering controls, total VOCs levels exceed 5.0 ppm (above background) at the perimeter of the Exclusion Zone, then the following action will be immediately taken:

- Cover the excavation with polyethylene sheeting or clean soil.
- Notify individuals on the CAMP/CEPP contact list provide in Table 1 and City of Rochester Police Department at 911.
- Continue real-time VOCs monitoring at the upwind, downwind and nearest receptor until VOCs level drop below 5.0 ppm.
- If total VOCs levels persist above the 5.0 ppm (above background), Arcadis and NYSDEC will consult with each other and the emergency response agencies to determine the appropriate actions to be implemented. NYSDEC, in consultation with NYSDOH, has ultimate authority during major vapor emission emergencies. The NYSDEC must approve any action to continue work following such an event.

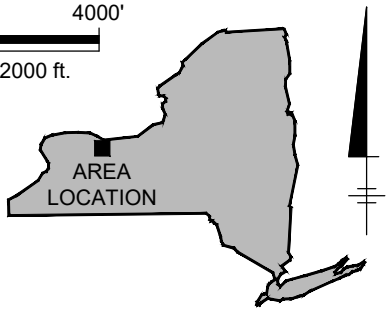
Figures



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., ROCHESTER EAST & WEST, NEW YORK, 2016.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.



NEW YORK

NEW YORK STATE DEPT. OF ENVIRONMENTAL CONSERVATION
FORMER SILVER CLEANERS SITE #828186
ROCHESTER, NEW YORK

SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER PIC: PM: TM: TR: R. CLARE LYR:(Opt)ON=*;OFF=*REF*
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PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 8/26/2019 11:04 AM BY: KRAHMER, ERIC
XREFS: IMAGES: PROJECTNAME: ---
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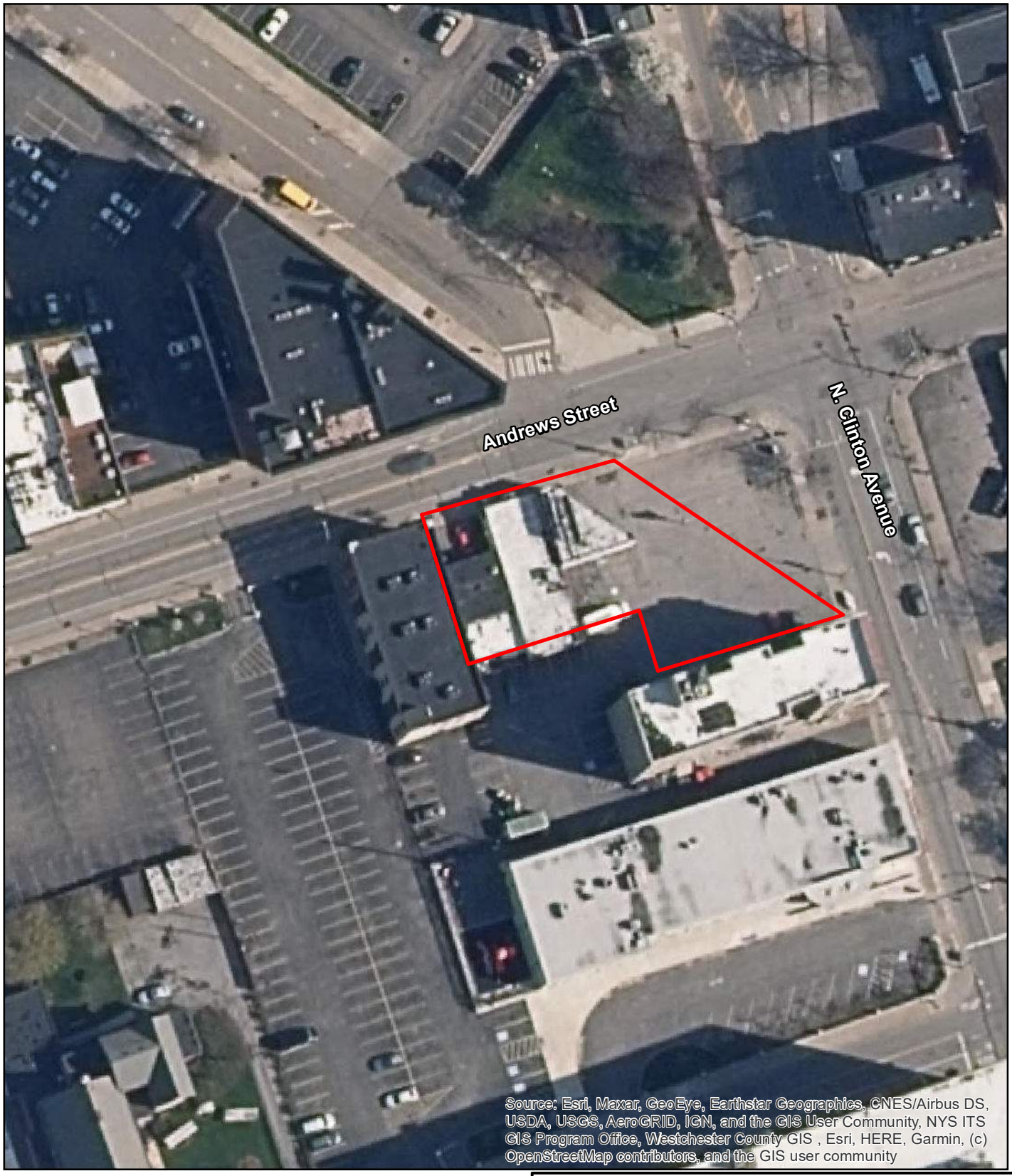

0 20 40 80 120 160 Feet

N

Legend

Approximate Site Boundary

New York State Department of Environmental Conservation
Former Silver Cleaners Site # 828186
Rochester, New York

SITE MAP

ARCADIS

FIGURE
2

Path: T:_ENV\NYSDEC\Silver Cleaners\Site Map.mxd Date Saved: 1/4/2022 11:17:29 AM

Attachment 1

NYSDOH Generic CAMP

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (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.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed 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 should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. 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.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

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Appendix B

Injection Well RFQ

Groundwater & Environmental Services, Inc.

6780 Northern Boulevard, Suite 100
East Syracuse, NY 13057

T. 800.360.9405

Request for Quote (RFQ)
Drilling & Well Installation

PROJECT

Former Silver Cleaners
Site No. 828186
245 Andrews Street, Rochester, New York

QUOTE DUE DATE

- Friday, March 20, 2026 (5:00 pm)

Questions or requests for deviations related to this RFQ should be directed in writing to Jessica Paterson and Scott McDonald. Subsequent clarifications shall become part of the work scope. All questions received will be summarized, answered by GES, and then distributed to all Contractors.

Completed quote forms shall be submitted via electronic-mail. Send completed quote forms to:

Attention: Jessica Paterson, Scott McDonald

Email : jpaterson@gesonline.com; smcdonald@gesonline.com

START DATE

Work to begin: April 2026,
Work schedule: Monday through Friday
Work hours: Typical workday hours will be 7:00 am to 3:00 pm.

SCOPE OF WORK

1. Provide portable restrooms for the duration of the field activities.

2. Set-up of a secondary containment pad. Set-up of a decontamination area on-site to decontaminate all equipment prior to leaving the site. Collect decontamination rinse water and store in 55-gallon drums.

- Assume decontamination rinse water is hazardous and must be staged in 55-gallon drums on secondary containment on-site.

3. Requirements for the decontamination area are illustrated on C-02 Details I in the Equipment Decontamination Area Detail. Although the C-02 Details I shows a stone berm, a

temporary berm that does not require excavation and matches the dimensions shown on C-02 Details I is preferred.

4. Drill three (3) borings to an approximate depth of 30 feet below grade (fbg) for injection wells. Total depth of each boring is detailed below:

Proposed Well	Screen Interval (fbg)	Boring Depth (fbg)
IW-5	25-30	~30
IW-6	25-30	~30
IW-7	25-30	~30

- A Sonic Rig is required to complete drilling activities due to the lithology.
- Soft dig methods (air knife and vacuum) will be required at one of the proposed well locations – IW-7:
    - Soft dig methods required from grade to 5 fbg.
    - Borings for proposed injection wells IW-5 and IW-6 will not require soft dig methods due to their location within a prior excavation area.
- Tools such as shovels, digging bars, and post-hole diggers are permitted; however, not for advancement purposes. These tools are permitted to be used with approval by GES personnel on-site to remove loose cobbles, gravel, or other debris from the borehole.

5. Install three (3) injection wells (IW-5 through IW-7).

- Contractor will be responsible for all riser, screen, and well materials.
- Injection well specifications are detailed on C-02 Details I and included below:
    - Injection wells will be constructed of 2-inch, grade 304 stainless steel.
    - Screen material shall be 304 stainless steel wire wrapped well screen. A 2-inch 0.010” slot size screen is required.
        - 5 foot long screen lengths for each injection well.
        - Bottom of screen/well shall be capped with a flush-threaded cap.
    - A sand filter pack utilizing #00 sand shall extend a minimum of 1 foot above the screen to 2 inches below the screen.
    - A bentonite seal, utilizing commercial grade high yield sodium bentonite pellets, shall be approximately 3 feet in length and be installed directly above the sand filter pack.
    - Neat cement grout shall extend a minimum of 4 feet above the screen to 0.5 feet below grade.

- The top of the injection well riser to be finished with a 1-inch ball valve and 1-inch cam-lock fitting for installation of hose during injection activities. Additionally, a 2-inch stainless steel cap shall be affixed to the top of the well for access.
- Injection wells to be finished at surface with a flush mount protective cover/vault (heavy duty traffic rating – H20) set in 3 by 3 foot by 6 inch thick cement pad.
  - Diameter of flush mount protective cover should be of sufficient size to work within protective cover/vault to make connections to injection well.
  - GES recommends 24-inch hinged, locking vault similar to the following: https://ectmfg.com/product/vault-24-x-24-x-24-hinged-locking-water-resistant

6. Transfer all soil generated by drilling activities to 55-gallon drums.
   - Assume soil generated by drilling activities is hazardous and must be staged in 55-gallon drums on secondary containment on-site.
7. Complete well development activities at each well.
8. Submit Shop Drawings to GES two (2) weeks prior to mobilization.
9. Submit a Daily Drillers Report to GES.

SPECIFICATIONS

General project information is summarized in this RFQ, and specifications of the project are detailed in the following attachments:

- Figures
  - G-00 Cover Sheet
  - G-01 Abbreviations and Symbols
  - C-01 Proposed ISCO Injection Wells
  - C-02 Details I
  - C-02 Details II
- Supplementary Specifications
  - Section 01 41 24 Permit Requirements
  - Section 01 55 26 Maintenance and Protection of Traffic
  - Section 01 71 33 Protection of the Work and Property
  - Section 02 51 40 Excavation, Removal, and Handling or Contaminated Material
  - Section 33 24 05 Injection Wells

PERMITS

The Contractor shall be responsible for determining if any permits are required to complete this scope of work and shall detail the required permits on the Quote Form. The Contractor is responsible for obtaining and appropriately closing-out all permits. Permits may include but are not limited to:

- Hydrant use permit.

EQUIPMENT REQUIREMENTS

- All equipment shall be in good working condition. Use of leaking equipment will not be permitted on site.
- Equipment shall be inspected daily prior to use.

SUBSURFACE FEATURES

- Depth to water: The depth to water across the site ranges due to a semi-confining layer. There appears to be a shallow water bearing zone, on top of dense till, ranging from 9 to 16 fbg. There is a deep overburden water zone, below the dense till, ranging from 26 to 34 fbg.
- Lithology: Overburden soils beneath the Site are generally comprised of sand and/or silty sand. Below the sand and/or silty sand layer (at approximately 10 to 15 fbg) there is a layer of dense glacial till (ranging in thickness from 10 to 15 feet) followed by a thin layer of silty sand, and then bedrock. Top of bedrock ranges from 25 to 34.3 fbg.
- Historic drilling activities: Hollow stem auger drill rigs and direct push drill rigs have been used at the site in the past to install soil borings and/or piezometers. There were instances of refusal when drilling through the dense glacial till.

GES expects the Contractor to bring the appropriate equipment to the site to meet the well install requirements with minimal refusal. GES recommends at least one (1) sonic drill rig, if available, to drill the injection wells.

RESURFACING REQUIREMENTS

The Contractor is responsible for restoring the site to match or exceed pre-existing Site conditions, including equipment and materials staging areas. The Contractor is responsible for repair or replacement of any material or property damaged during construction activities at no additional cost.

1. Each proposed well pad is to be neatly laid out (i.e. spray painted).

2. Areas of pavement removal shall be wet saw cut in neat, straight lines. The Contractor shall assume that a water source is not available at the site.

3. Saw cutting shall extend to the depth of the pavement.

4. Removed concrete/asphalt will be segregated and staged in 55-gallon drums.

5. 3 by 3 foot by 6-inch thick cement pads shall be installed around each flush mount protective cover.

- The flush mount protective cover must be centered in the cement pads.
- The newly installed monitoring well and injection point must be in the center of the flush mount protective cover.
- There must be a minimum of 10-inches of concrete on either side of the flush mount protective cover.

6. Maintain appropriate traffic control for proper cure of concrete surfaces. Resultant damage due to inadequate traffic control will be repaired at the expense of the Contractor.

WELL DEVELOPMENT

Development at the site shall include the removal of a minimum of four (4) well volumes of water or until discharge water measures less than 5 NTU (turbidity) or until Arcadis (Engineering consultant) determines additional development is not required. Contractors shall provide quotes based on the assumption that removal of four (4) well volumes of water will be sufficient for each well. GES will be responsible for measuring turbidity in discharge water utilizing standard YSI equipment.

The development water shall be contained in 55-gallon drums.

WASTE

The Contractor shall be responsible for certain aspects of soil/liquid handing. GES will be responsible for the sampling and disposing of all waste generated during drilling activities.

- Assume all waste generated is classified as hazardous.
- The Contractor is responsible for providing all waste storage materials including 55-gallon drums, secondary containment, and drum labels.
- 55-gallon drums shall be used for drill cutting, mud water, development water, asphalt/concrete, and decontamination water generated during drilling and well install activities.
    - A drum dolly is required for the safe moving of these to the appropriate on-site location.
    - The Contractor will be required to transfer waste to 55-gallon drums. Drums shall not be filled more than 2/3 capacity.
- Waste classified as hazardous must be properly labeled as such and stored on secondary containment.

SUBMITTALS

Per Section 33 24 05 Injection Wells, Shop Drawings and a Daily Driller's Report are required submittals for the drilling and installation of injection wells at the site.

The following Shop Drawings shall be submitted to GES two (2) weeks prior to mobilization:

- Drilling method
- Well casing
- Well screen
- Filter pack material samples, including sieve analysis specifications
- Bentonite mix design
- Surface seal grout mix design
- Method of material and grout placement
- Well log and well construction details
- Cuttings, drill fluids, and water containment

A Daily Driller's Report containing the following information shall be submitted to GES daily (photo of handwritten log acceptable).

- Number of crew on the site and name of superintendent for each shift
- Description of all formations encountered
- Number of feet drilled
- Number of hours on the job
- Number of hours of drilling operations
- Number of hours of shutdown
- Drilling fluid viscosity (every four hours of drilling operations)
- Rate and Volume of make-up water used for each formation
- Water level at beginning and end of each shift
- Water level at each change or formation, if readily measurable
- Emergency phone number of personnel involved in the well construction.

The GES site supervisor will oversee and require that the log is completed on a daily basis.

GENERAL NOTES

- The site is currently vacant and an asphalt covered lot. Previously, GES completed building demolition, excavation activities, and installation of monitoring and injection wells at the site.
- Contaminant of concern at the site is chlorinated volatile organic compounds (VOCs), specifically, tetrachloroethene (PCE).
- Assume there will be no access to power or water at the site.
- Precautions and care must be taken to ensure that existing facilities, features, and adjacent properties are protected.
- Contractor will be responsible for contacting UDig NY at least 2 to10 days in advance of field activities. Copies of responses from each utility company shall be provided to GES prior to mobilization.
- There will be no sales tax on this work. GES will supply ST 120.1 Tax Exempt Form to the Contractor.
- Due to NYSDEC procurement department requirements, change orders will not be given at any time during the project unless the NYSDEC requests additional work be added to the scope. At that time, the Contractor will be required to provide a written change order responding to the requested additional scope, which must be approved by the NYSDEC and GES via execution of an additional GES purchase order before work proceeds.
- Each on-site worker must wear Level D personal protective equipment (PPE), which includes hard hats, steel-toed boots, Class 2 or 3 traffic vests, work gloves (specific to the task), and safety glasses with side shields for all site activities.
- A designated GES supervisor will be at the site for the project duration. Project related work may not begin until the GES supervisor is present to oversee work activities.

QUOTE FORM (1/3)
DRILLING & WELL INSTALLATION

Former Silver Cleaners
245 Andrews Street, Rochester, New York

Provide Lump Sum pricing which shall include all labor, equipment, materials, taxes and all other expenses not necessarily called out in this document, as required to complete the above scope of work. Lump Sum pricing shall be broken down into project tasks and listed on the quote form appearing below: Additionally, unit cost pricing shall be included for tasks in which assumptions cannot be made at the time of the bidding process.

TASK	Notes/Units	Estimated Quantity	Rate	Cost
1. Mobilization/Demobilization (multiple may be necessary to complete work scope)	**Lump Sum**	**1**	**-**	
2. Portable restrooms	**Lump Sum**	**1**		
3A. Soft-Dig Clearing (includes all equipment/material and labor associated with soft dig clearing and soil staging – not including drums) - Assume all soft-dig clearing work will be completed at the start of the field activities.	**Per Crew Per Day**			
3B. Drilling and Well Installation with Sonic Rig (includes all equipment/materials and labor associated with drilling, well install, and soil staging – not including drums)	**Per Crew Per Day**			
4. Well Development (material and labor, not including drums)	**Per Well**	**3**		
5. Decontamination (decontamination station set-up, materials, and labor – not including drums)	**Lump Sum**	**1**		
6. Drums (including secondary containment for drums and labels)	**Each**			
7. Deliverables (Shop Drawings, Daily email of Driller's Report)	**Lump Sum**	**1**		

QUOTE FORM (2/3)
DRILLING & WELL INSTALLATION

Former Silver Cleaners
245 Andrews Street, Rochester, New York

Additional Items/Tasks not called out in the Quote Form or Shop Drawings:

Over Time Rate (assumes 8 hours on-Site): _____ per hour.

Upgrade to Level C PPE: _____ per day

Number of crews on-site per day: _____

Number of people in each crew: _____

Proposed Sonic Drill Rig model(s): _____

Proposed flush mount protect cover/vault model(s): _____

Please list any subcontractors that will be utilized and what task they will be completing below:

_____

_____

_____

_____

QUOTE FORM (3/3)
DRILLING & WELL INSTALLATION

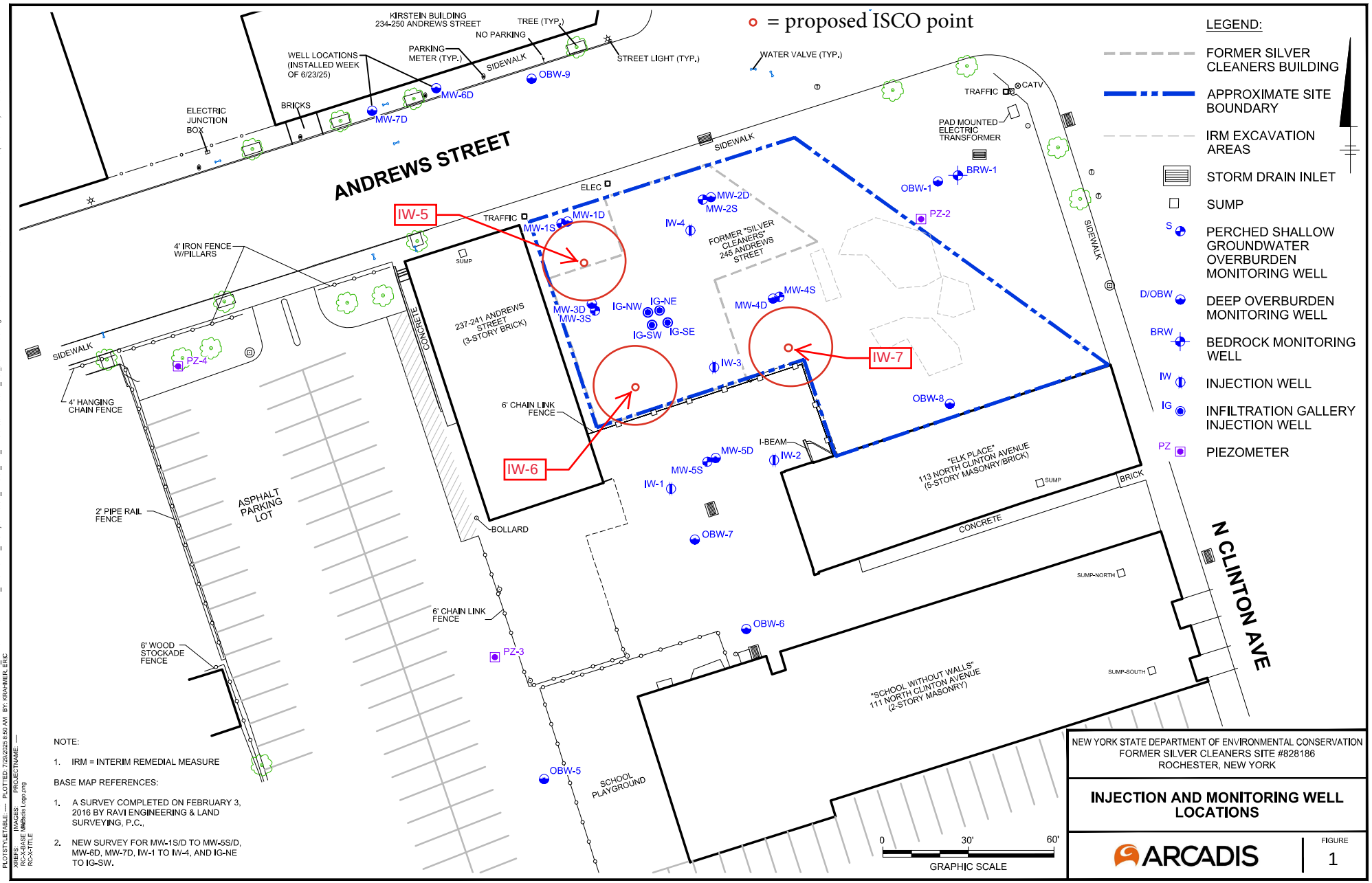
Former Silver Cleaners
245 Andrews Street, Rochester, New York

If you feel that an activity that you will be performing is not captured in one of the above rates, please list that activity and associated notes and rate.

TASK	Notes/Units	Estimated Quantity	Rate	Cost

Please list below any assumptions not included in the RFQ.

= 15ft ROI



NOTE:

1. IRM = INTERIM REMEDIAL MEASURE

BASE MAP REFERENCES:

1. A SURVEY COMPLETED ON FEBRUARY 3, 2016 BY RAVI ENGINEERING & LAND SURVEYING, P.C.,
2. NEW SURVEY FOR MW-1S/D TO MW-5S/D, MW-6D, MW-7D, IW-1 TO IW-4, AND IG-NE TO IG-SW.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER SILVER CLEANERS SITE #828186
ROCHESTER, NEW YORK

INJECTION AND MONITORING WELL LOCATIONS

ARCADIS

FIGURE 1

TABLE OF CONTENTS
SECTION XI – SUPPLEMENTARY SPECIFICATIONS

VOLUME 1 OF 1

+ + END OF TABLE OF CONTENTS + +

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SECTION 01 14 19

USE OF SITE

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for use of the Site during the Project, and includes requirements for use of existing facilities, as applicable.
   2. CONTRACTOR shall provide all labor, materials, equipment, tools, and incidentals shown, specified, and required to comply with restrictions on CONTRACTOR's use of the Site and other areas.

1.2 USE OF PREMISES

A. Limit use of premises at the Site to work areas shown or indicated on the Drawings. Do not disturb portions of the Site beyond areas of the Work.
   1. Access to Site, Access Roads, and Parking Areas: Refer to Section 01 55 13, Access Roads and Parking Areas.

B. Use of Existing Buildings and Structures: Obtain DEPARTMENT's written permission for each proposed use of existing buildings and structures.

C. Promptly repair damage to premises caused by construction operations. Upon completion of the Work, restore premises to specified condition; if condition is not specified, restore to pre-construction condition.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

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SECTION 01 31 13

PROJECT COORDINATION

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall coordinate the Work, including testing agencies whether hired by CONTRACTOR, DEPARTMENT, or others; Subcontractors, Suppliers, and others with whom coordination is necessary, in accordance with this Section, to perform the Work within the Contract Times and in accordance with the Contract Documents.

B. Coordination:
   1. CONTRACTOR shall cooperate with and coordinate the Work with other contractors, utility owners, utility service companies, DEPARTMENT's and facility manager's employees working at the Site, and other entities working at the Site, in accordance with Section 01 11 13, Summary of Work.
   2. CONTRACTOR will not be responsible or liable for damage unless damage is through negligence of CONTRACTOR, or Subcontractors, Supplier, or other entity employed by CONTRACTOR.
   3. Attend and participate in all project coordination and progress meetings, and report on the progress of the Work and compliance with the Progress Schedule.
   4. CONTRACTOR should anticipate coordinating any shoulder and/or lane closure of Andrews Street and adjacent property owner and businesses.5.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

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SECTION 01 35 44

SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section pertains to spill prevention control and countermeasures applicable to the Project under the provisions of 40 CFR 112 and other Laws and Regulations.
   2. CONTRACTOR shall provide all labor, materials, equipment, tools, professional services (when required), and incidentals as shown, specified, and required to comply with Laws and Regulations regarding spill prevention control and countermeasures (SPCC) planning and compliance, including 40 CFR 112.
   3. Single Prime Contract: CONTRACTOR shall determine whether a SPCC Plan is required. If SPCC Plan is required, CONTRACTOR shall prepare, implement, and maintain SPCC Plan as required by Laws and Regulations.

1.2 DETERMINATION OF NEED FOR SPCC PLAN FOR PROJECT

A. Determination of Need for SPCC Plan:
   1. CONTRACTOR shall determine need for SPCC Plan for the Project.
   2. CONTRACTOR's Professional Engineer:
      a. If the Site will include storage of more than 10,000 gallons of oil in above-ground storage, or if the Site does not comply with oil discharge history criteria specified in 40 CFR 112, CONTRACTOR shall retain a qualified professional engineer to determine need for SPCC Plan for the Project and, if SPCC Plan is required, professional engineer shall prepare or supervise preparation of SPCC Plan for the Project.
      b. If a professional engineer is not required to prepare the full SPCC Plan for the Project, but the SPCC Plan includes environmentally equivalent SPCC measures, or impracticality determinations, CONTRACTOR shall retain a qualified professional engineer to prepare and certify those portions of the SPCC Plan dealing with environmentally equivalent measures and impracticality determinations; the balance of the SPCC Plan may be prepared by and be self-certified by CONTRACTOR.
   3. Submit to ENGINEER letter presenting results of evaluation of whether a SPCC Plan is required for the Project in accordance with Laws and Regulations.

B. SPCC Plan is required when the Project activities at the Site meet the following criteria:

1. The Site and activities thereon are not exempt from Laws and Regulations relative to SPCC planning and implementation.
2. Oil is stored, used, transferred, or otherwise handled at the Site, unless otherwise exempted by Laws and Regulations.
3. Maximum oil storage capacity at the Site equals or exceeds either of the following thresholds: 42,000 gallons of completely buried capacity, or 1,320 of above-ground capacity. Capacity includes total storage tank volume and operational storage volume at the Site for contractors and Subcontractors, including bulk storage tanks, containers with 55-gallon storage capacity and larger, mobile tanks located at the Site, and other containers covered by Laws and Regulations. Exempt are motive storage containers, such as those on construction equipment and vehicles. Oil includes petroleum products, fuel oil, hydraulic fluid, oil sludge, oil refuse, oil mixed with wastes other than dredged material, synthetic oil, vegetable oil, animal fats and oils, and other oils defined in Laws and Regulations.
4. There is reasonable expectation, based on location of the Site, that oil spill would reach navigable waters of the United States or adjoining shorelines.

C. When SPCC Plan is not required, CONTRACTOR shall ensure that conditions that preclude the need for SPCC Plan for the Project, including the activities of all contractors and Subcontractors working on the Project at the Site, are maintained throughout duration of the Project. Should changes that affect the storage, use, or handling of oil at the Site occur, reassess the need for SPCC Plan for the Project at no additional cost to DEPARTMENT and submit to ENGINEER evaluation letter regarding need for SPCC Plan.

1.3 SPCC PLAN AND IMPLEMENTATION

A. When SPCC Plan is required, develop SPCC Plan and submit for acceptance by DEPARTMENT, with copy to ENGINEER. SPCC Plan shall be specific to the Site and the Project and shall include the following:
1. Seal or stamp, original signature, and license number of CONTRACTOR'S professional engineer, when self-certification by CONTRACTOR is not allowed by Laws and Regulations.
2. Site plan identifying the name (or tag number) and location of each tank and container that will contain a substance regulated in 40 CFR 112 and other Laws and Regulations, including above-ground and buried tanks. Site plan shall indicate general directions of storm water runoff, including storm sewers and drainage inlets (including arrows indicating directions of flow), and storm sewer outfall locations shown and labeled.
3. For each tank and container shown or indicated on the Site plan, include a table that lists the tank or container's name and tag number, type of oil stored therein, and maximum storage capacity. List total storage capacity of all regulated tanks and containers at the Site covered by SPCC Laws and Regulations.
4. Predictions of direction, rate of flow, and total quantity of oil that could be discharged from the Site as result of storage tank or container failure.

5. Operating procedures that prevent oil spills, including procedures for oil handling, details of secondary containment structures at fuel and oil transfer areas, and details and descriptions of equipment to be used for oil handling, including piping.
6. Control Structures and Secondary Containment:
    a. Furnish details of and descriptions of control measures installed at the Site by CONTRACTOR to prevent spill from reaching navigable waters of the United States and associated shorelines, including secondary containment and diversionary structures.
    b. For on-shore Sites, one of the following must be used, at minimum: dikes, berms, or retaining walls; curbing; culverts, gutters, or other drainage systems; weirs, booms, or other barriers; spill diversion ponds; retention ponds; or sorbent materials.
    c. Where appropriate, the SPCC Plan shall clearly demonstrate that containment or diversionary structures or equipment are not practical.
    d. Include brittle fracture evaluation, where required, for field-constructed above-ground storage containers undergoing repair, alteration, construction, or change in service.
7. Plans for countermeasures to contain, clean up, and mitigate effects of oil spill that reaches navigable waters of the United States or their shorelines, including written commitment of manpower, equipment, and materials to quickly control and remove spilled oil. Include estimation of time required to contain spill after spill occurs.
8. Contact list and telephone numbers for facility response coordinator, National Response Center, cleanup contractors, and all appropriate federal, state, and local authorities having jurisdiction to be contacted in event of spill or discharge.
9. Program for monthly inspections of the Site by CONTRACTOR for SPCC Plan compliance. Advise DEPARTMENT in writing of each inspection not less than 72 hours in advance.
10. Measures for Site security relative to oil storage.
11. Procedures for safely handling mobile containers such as totes, drums, and fueling vehicles and construction equipment that remain at the Site.
12 Procedures and schedules for periodic testing of integrity of tanks and containers, and associated piping and valves.
13. Plans for bulk storage container compliance.
14. Plans for personnel training and oil spill prevention briefings.
15. For SPCC Plans that do not follow the format listed in Laws and Regulations, provide cross-reference to requirements of Laws and Regulations, including 40 CFR 112.7.

B. Obtain acceptance of SPCC Plan by DEPARTMENT, for coordination with DEPARTMENT's Site-specific SPCC Plan, if any.

C. SPCC Plan shall be reviewed by CONTRACTOR's professional engineer (when professional engineer is required) and DEPARTMENT every five years, as applicable. CONTRACTOR shall perform updates and revisions of the Project's

SPCC Plan as necessary and submit same in accordance with the provisions of this Section for submittal and acceptance of initial SPCC Plan.

D. Post a copy of accepted, certified SPCC Plan in conspicuous location at the Site and furnish copies to DEPARTMENT, other contractors, and Subcontractors as appropriate. All contractors shall comply with SPCC Plan.

E. In event of violation of SPCC Plan or release of oils attributable to construction operations, CONTRACTOR shall:
   1. Immediately issue notifications in accordance with Laws and Regulations, including 40 CFR 110 and 40 CFR 112. When required by Laws and Regulations, report to National Response Center, US Environmental Protection Agency, and other authorities having jurisdiction, if any.
   2. Have spill clean-up performed in accordance with Laws and Regulations, the SPCC Plan, and requirements of authorities having jurisdiction.
   3. Pay fines and civil penalties (or responsible portion thereof) imposed on DEPARTMENT by authorities having jurisdiction, and pay costs associated with clean-up of spills.
   4. Should cleanup of spills attributable to CONTRACTOR be necessary, no resulting change in the Contract Price or Contract Times will be allowed. Should CONTRACTOR share responsibility for spill and cleanup with another entity, changes in Contract Price and Contract Times, if any, will be proportionate.

1.4 QUALITY ASSURANCE

A. Qualifications:
   1. CONTRACTOR's Professional Engineer:
      a. When required by Laws and Regulations, engage a licensed, registered professional engineer legally qualified to practice in the jurisdiction where the Site is located and experienced in performing engineering services of the type required.
      b. Submit qualifications data.
      c. Responsibilities include but are not necessarily limited to:
         1) Carefully reviewing Laws and Regulations relative to SPCC.
         2) Preparing written requests for clarifications or interpretations of criteria specified in the Contract Documents for submittal to DEPARTMENT by CONTRACTOR and obtaining from authorities having jurisdiction clarifications regarding Laws and Regulations as required.
         3) Preparing or supervising the preparation of letter-report evaluation of need for SPCC Plan in accordance with the Contract Documents. Evaluation shall include professional engineer's seal or stamp, registration number, and original signature.
         4) When SPCC Plan is required, preparing, supervising the preparation of, or reviewing the SPCC Plan (or designated portions thereof when oil storage at the Site will be 10,000 gallons or less) in

accordance with the Contract Documents. SPCC Plan (or designated portions thereof) shall include professional engineer's seal or stamp, registration number, and original signature.

5) Periodically re-evaluating the need for SPCC Plan and issuing findings as letter-reports with seal or stamp, license number, and signature. When SPCC Plan is required, periodically evaluating the SPCC Plan and providing recommendations for compliance with Laws and Regulations, in accordance with the Contract Documents.
6) Certifying that:
   a) it is familiar with the Laws and Regulations, including 40 CFR 112, and
   b) it has visited, examined, and is familiar with the Site, planned modifications to the Site under the Project as such modifications pertain to SPCC Laws and Regulations, and
   c) it has performed the evaluations and prepared SPCC Plan in accordance with the Contract Documents, and
   d) procedures for required testing and inspections have been established, and
   e) the said evaluations and SPCC Plan are adequate for the Project, and
   f) the said evaluations and SPECC Plan complies with Laws and Regulations, applicable industry standards, and to prevailing standards of practice.

1.5 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Certifications: With each evaluation letter and SPCC Plan submittal, include certification signed by preparer of submittal that the submittal complies with the Contract Documents and Laws and Regulations. Signature on all certifications shall be original.
   2. Evaluations:
      a. Submit letter presenting results of evaluation of whether a SPCC Plan is required for the Project. Submit evaluation not later than fourteen days after the Contract Times commence running, unless longer time is allowed by DEPARTMENT.
      b. Submit updated evaluations as required when conditions at the Site change. Submit updated evaluation not later than seven days after the conditions at the Site change, or within seven days of DEPARTMENT's request, unless longer time is allowed by DEPARTMENT.
   3. SPCC Plan: When SPCC Plan is required:
      a. Submit to DEPARTMENT within 14 days of receipt of DEPARTMENT's acceptance of evaluation submittal.
      b. Update and resubmit the SPCC Plan, or acceptable SPCC Plan amendments, as required when conditions at the Site change. Submit updated SPCC Plan or amendments not later than seven days after the

change in conditions at the Site change giving rise to the SPCC Plan change or amendment, or within seven days of DEPARTMENT's request, unless longer time is allowed by DEPARTMENT.

4. SPPC Plan Distribution: When SPCC Plan is required, submit copies of letters transmitting SPCC Plan and amendments (if any) to contractors and Subcontractors working at the Site.
5. Qualifications Statements: CONTRACTOR's professional engineer, when requested by DEPARTMENT.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 41 24

PERMIT REQUIREMENTS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes general requirements relative to permitting requirements of which DEPARTMENT are aware that apply to the Project.
   2. CONTRACTOR shall provide labor, materials, equipment, tools, and incidentals shown, specified, and required to obtain required permits and comply with required permits and licenses.
   3. Obtain, pay for, and comply with required permits, permit fees and licenses whether or not indicated in this Section or elsewhere in the Contract Documents.

B. Coordination:
   1. Contractor shall obtain local permits where applicable. Permits may include, but are not limited to: demolition permit, row work permit, traffic control permit, and hydrant connection permit.
   2. Coordinate compliance with permit and license requirements with Work under other Sections and with other contractors, if any, working at the Site.
   3. Coordinate with the Progress Schedule the time required to apply for and obtain required permits and licenses. Changes in Contract Times or Contract Price will not be authorized because of timing and costs associated with obtaining permits and licenses required for the Work.

C. Related Sections: In addition to permits and licenses required under this Section, obtain and comply with permits required under the following Sections:
   1. Section 01 35 43.13, Environmental Procedures for Hazardous Materials.
   2. Section 01 41 26, Storm Water Pollution Prevention Plan.
   3. Section 02 41 00, Demolition.

1.2 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Copy of each of the following permits as applicable to the Contract.
      a. Demolition permit from the City of Rochester, Building Department.
      b. City of Rochester right-of-way work permit.
      c. Traffic control permit (if required).
      d. Hydrant connection permit.
      e. Utility abandonment permit and fees as applicable.
      f. Sanitary Sewer Discharge Permit and discharge fees as applicable.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 41 26

STORM WATER POLLUTION PREVENTION PLAN

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for compliance with storm water pollution prevention plans (SWPPP) and permit(s) applicable to the Project.
   2. CONTRACTOR shall meet substantive requirements of the NYS State Pollutant Discharge Elimination System (SPDES) Program and shall be responsible for providing, inspecting, and maintaining necessary materials to minimum discharge of pollutants in storm water runoff from the site. These substantive requirements are defined in the following sections.
   3. Controls – General:
      a. 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.
      b. Prevent trash and demolition and construction debris from leaving the Site via storm water runoff.
      c. Provide berms, dikes, and other acceptable methods of directing storm water around work areas to drainage routes.
      d. Prior to starting the Work associated with such discharge, construction-related discharges to publicly owned conveyance or treatment systems shall be approved by owner of system to which the discharge will be directed.
   4. Water Quality:
      a. Do not cause or contribute to a violation of water quality standards, Laws, or Regulations.
      b. Notify DEPARTMENT of revisions to the SWPPP necessary to protect receiving water quality and comply with applicable permits. Provide and implement measures to control pollutants in storm water runoff from the Site to prevent:
         1) Turbidity increases that will cause a substantial visible contrast to natural conditions.
         2) Increase in suspended, colloidal, and settleable 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.
   5. CONTRACTOR shall pay civil penalties and other costs incurred by DEPARTMENT, including additional engineering and inspection services, associated with non-compliance with applicable permits related to storm water discharges associated with construction activity and sediment and erosion

controls associated with the Work. DEPARTMENT may deduct as set-offs such amounts from payments due CONTRACTOR.

6. Contract Price includes all material, labor, and other permits and incidental costs related to:
    a. Prepare and maintain drawing of SWPPP controls along with the inspection log and inspection reports from SWPPP inspections.
    b. Installing and maintaining structural and non-structural items used in complying with the SWPPP and its revisions.
    c. Clean-up, disposal, and repairs following wet weather events or spills caused by CONTRACTOR.
    d. Implementing and maintaining "best management practices", as defined in applicable permits and Laws or Regulations, to comply with requirements that govern storm water discharges at the Site.
7. Inspections of storm water, sediment, and erosion controls as specified.

B. Documents: The following are part of the Work included under this Section:
1. Storm Water Pollution Prevention Plan (SWPPP):
    a. Prepared by CONTRACTOR, submitted to the DEPARTMENT for review and comment, and filed with authorities having jurisdiction over storm water discharges during construction.
2. Sediment and Erosion Control Permit:
    a. Prepared by CONTRACTOR, submitted to the DEPARTMENT for review and comment, and filed with the authority having jurisdiction over sediment and erosion control during construction.
3. Storm Water Certification Statement:
    a. To be prepared by CONTRACTOR and submitted to DEPARTMENT on the form included with this Section, or on a form provided by authority having jurisdiction.
    b. Do not perform Work at the Site until the Storm Water Certification has been submitted to and accepted by DEPARTMENT.
4. Notice of Intent (NOI):
    a. Prepared by CONTRACTOR and submitted to authorities having jurisdiction following DEPARTMENT's receipt and acceptance of CONTRACTOR's SWPPP and preliminary Progress Schedule.
    b. NOI will be filed with authorities having jurisdiction by CONTRACTOR within ten days of DEPARTMENT's acceptance of CONTRACTOR's SWPPP and preliminary Progress Schedule.
    c. Do not perform Work at Site until NOI is submitted to and acknowledged by authorities having jurisdiction.
5. Co-permittee Agreement:
    a. Prepared by CONTRACTOR using forms included with the SWPPP and submitted to DEPARTMENT within five days of the date the Contract Times commence running, for signature by DEPARTMENT.
    b. CONTRACTOR will file co-permittee agreement with authorities having jurisdiction.
    c. Do not perform Work at the Site until co-permittee agreement is submitted to authorities having jurisdiction.

6. Storm Water Inspection Report:
    a. Prepared by DEPARTMENT using the form included with this Section, or a form provided by authority having jurisdiction.
    b. Storm water inspection reports will be filed in a log book kept at the Site by DEPARTMENT. Copy of each report will be furnished to CONTRACTOR upon request.
    c. Storm water inspection report will be completed for each of the following:
        1) Pre-construction: After placement of storm water management measures, including sediment and erosion controls, and temporary field offices and other temporary facilities, prior to starting other Work at the Site.
        2) During the Work: Every seven days until Notice of Termination is completed. When the Site is stabilized relative to storm water, erosion, and discharge of sediment, inspection frequency during temporary shutdowns and seasonal shutdowns is once per month until Notice of Termination is completed.
        3) Final: Final inspection report will be prepared prior to completion of Notice of Termination.
7. Notice of Termination (NOT):
    a. Prepared by CONTRACTOR on the form included with storm water permit and submitted to DEPARTMENT for review and signature by DEPARTMENT.
    b. CONTRACTOR will submit the NOT to authority having jurisdiction.
    c. CONTRACTOR shall submit the NOT following completion of all Work that may result in pollution in storm water discharges, including landscaping Work.
    d. Final Payment will not be made until the NOT is filed with authority having jurisdiction.

D. Coordination:
1. Coordinate requirements of this Section with requirements for earthwork, erosion control, and landscaping in the Contract Documents, applicable permit requirements, and Laws and Regulations.
2. Implement SWPPP controls and practices prior to starting other Work at the Site. Each prime contractor and Subcontractor identified in the SWPPP and SWPPP Revisions shall sign a copy of the storm water certification statement.

1.2 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with Laws and Regulations relative to environmental protection and restoration, including:
1. Storm water permit applicable to the Work and Site.
2. State and local erosion and sediment control guidelines and requirements,
3. State and local storm water regulations and guidance.

1.3 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Submit the following, in accordance with Paragraph 1.1.C and Article 1.4 of this Section. When the Project involves Work at multiple sites, submit each of the following for each Site, as applicable:
      a. SWPPP Revisions.
      b. Co-permittee Agreement.
      c. Storm Water Certification Statement.
      d. Notice of Termination
   2. Approval to Discharge to Publicly-owned Treatment Works:
      a. For storm water discharges associated with construction activity that are discharged to a publicly owned conveyance or treatment system, prior to commencing discharges, submit system owner's written approval for such discharges.
   3. Storm Water Site Plan Updates:
      a. Within three days after each storm water inspection, submit updated storm water site plan.

1.4 SWPPP REVISIONS

A. CONTRACTOR shall prepare a SWPPP Revision in accordance with the Project's storm water permit when:
   1. There is a significant change in design, construction, operation, or maintenance of the Project that significantly affects the potential of discharging pollutants to Waters of the United States and has not otherwise been addressed in the SWPPP.
   2. SWPPP proves to be ineffective relative to:
      a. eliminating or significantly minimizing pollutants from sources identified in the SWPPP required by the Project's storm water permit, or
      b. achieving general objectives of controlling pollutants in storm water discharges from permitted construction activity.
   3. Prepare and submit SWPPP Revision identifying prime contractors and Subcontractor responsible for implementing part of the SWPPP.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 INSPECTIONS AND REPAIRS

A. Perform Site inspections and assessments as required in applicable storm water permit and this Section. Inspections and assessments shall be done by CONTRACTOR's site superintendent or project manager, together with DEPARTMENT.

B. Inspections:
   1. During the Work, relative to the storm water permit, inspections of the Site shall be performed:
      a. Pre-Construction: After SWPPP controls are provided and prior to starting other Work at the Site.
      b. During the Work: Every seven days until Notice of Termination is completed and submitted to authority having jurisdiction. When the Site is stabilized relative to storm water, erosion, and discharge of sediment, inspection required frequency during temporary shutdowns and seasonal shutdowns is not less than once per month until Notice of Termination is completed.
      c. Prior to CONTRACTOR submitting the Notice of Termination.
   2. During each inspection, verify sediment control practices and record the approximate degree of sediment accumulation as percentage of acceptable sediment storage volume; inspect erosion and sediment control practices and record maintenance performed; observe and record deficiencies relative to implementation of the SWPPP. DEPARTMENT will complete Storm Water Inspection Reports and CONTRACTOR shall record and submit the following.

      a. Storm Water Site Plan: On a copy of the Site plan included in the Contract Documents or other map of the Site acceptable to DEPARTMENT, indicate extent of all disturbed areas and drainage pathways. Indicate areas expected to undergo initial disturbance or significant site work within the next fourteen days.
      b. Indicate on storm water site plan areas of Site that have undergone temporary or permanent stabilization.
      c. Indicate on storm water site plan all disturbed areas that have not undergone active site Work during the previous 14 days.

C. Maintain at the Site a copy of storm water site plans from each storm water inspection and submit each storm water site plan to DEPARTMENT. DEPARTMENT will maintain at the Site a log book with a copy of each Storm Water Inspection Report.

D. Cooperate with representatives of authorities having jurisdiction during their periodic visits to the Site, and promptly furnish information requested by authorities having jurisdiction.

E. Perform repairs to SWPPP controls, in accordance with applicable requirements and to satisfaction of DEPARTMENT, within two days of each inspection.

3.2 ATTACHMENTS

A. The documents listed below, following this Section's "End of Section" designation, are part of this Specifications Section. Notice of Intent (NOI) form, Co-permittee

Agreement form, and Notice of Termination (NOT) form are included with storm water permit.

1. Storm Water Inspection Report form (two pages).
2. Storm Water Permit Certification form (one page).
3. SWPPP Revision Form (one page).

+ + END OF SECTION + +

STORM WATER INSPECTION REPORT

Owner:
Site:
Project:
Contractor:

Date of Inspection:_____
Day of Week:

S	M	T	W	T	F	S

Sheet No. _____ of _____ Sheets

If pertinent to the Operation	
Weather	
Temperature	

This inspection and maintenance form is to be used when the Work is subject to a Storm Water General Permit for Construction Activity. Inspections shall be performed not less than once every seven calendar days; for sites that are stabilized and temporarily shut down inspections may be reduced to once per month. Each erosion and sediment control measure installed on the Site is to be inspected and the Contractor must complete all required maintenance within two calendar days from the date of inspection.

Reason for this inspection:
- ☐ Pre-construction Site assessment
- ☐ Seven calendar day inspection
- ☐ Monthly inspection (when Site is stabilized and shut down)
- ☐ Post-construction inspection prior to Notice of Termination

Key for erosion and sediment control measures to be inspected: [Use the following designations in the table below] (1) mulch, (2) seed and mulch, (3) check dams, (4) hay bale/straw bales, (5) silt fence, (6) sediment trap, (7) turbidity curtains, (8) pipe slope drains, (9) drainage structure inlet protection, (10) rolled erosion control products, (11) soil stabilizers, (12) construction entrances, (13) pipe inlet/outlet protection, (14) water diversion structures, (15) sedimentation basins, (16) cofferdams, (17) Other _____.

ID	Location	Disturbance		Measure		Remarks (Evaluate integrity of measure, describe evidence of erosion)	Approximate Sediment Accumulation (% of Depth)	Maintenance Required? (Y or N) (If Yes, Describe Below)
		Existing? (Y or N)	Next 14 Days? (Y or N)	Code #	Temp or Perm? (T, P or NA)			
1								
2								
3								
4								
5								
6								
7								
8								

ID	Location	Disturbance		Measure		Remarks (Evaluate integrity of measure, describe evidence of erosion	Approximate Sediment Accumulation (% of Depth)	Maintenance Required? (Y or N) (If Yes, Describe Below)
		Existing? (Y or N)	**Next 14 Days?** (Y or N)	**Code #**	**Temp/Perm or N/A?** (T, P or NA)			
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

DESCRIPTION OF REQUIRED MAINTENANCE AND ANY EXISTING DEFICIENCIES IN THE SWPPP: Specify for each location using row ID number.

I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system to ensure that qualified personnel property gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein may be punishable by Law.

Signature: _____ Prepared: _____ Copy to Contractor: _____
Resident Project Representative (Date) (Date)

Qualified Professional Name _____
(w/Firm Name, if Consultant)

STORM WATER PERMIT CERTIFICATION

Contract Number:_____ Project:_____

Owner:_____

Each Contractor and Subcontractor identified in the Storm Water Pollution Prevention Plan (SWPPP) must certify that they understand the permit conditions and their responsibilities. Every Contractor and Subcontractor performing an activity that involves soil disturbance shall sign this certification and submit it to the DEPARTMENT prior to performing the Work. This certification shall be signed by an owner, principal, president, secretary, or treasurer of the firm.

> I certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP for the construction Site identified in such SWPPP as a condition of authorization to discharge storm water. I also understand that my firm and its employees and Subcontractors shall comply with the terms and conditions of Owner's general permit for storm water discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards, Laws, or Regulations.

Firm: _____

Address: _____

City:_____ State_____ Zip_____

_____ _____ _____

Name (Print) Signature Date

_____

Title

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REVISION

Date of Inspection: _____

Sheet No. _____ of _____ Sheets

Owner:
Site:
Project:
Contractor:

This form shall be used when revisions to the current Storm Water Pollution Prevention Plan (SWPPP) are required by the Storm Water General Permit for Construction Activity or the Contract Documents.

Reason for the Revision(s): Revisions were requested by State: ☐ Yes ☐ No

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Describe the Revision(s) to the SWPPP: _____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein may be punishable by Law.

Signature: _____ Prepared: _____ (Date) Submitted: _____ (Date)

Copy to: ☐ Department ☐ Contractor _____

SECTION 01 41 27

EARTHMOVING PERMIT AND DUST CONTROL

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for controlling fugitive dust emissions resulting from construction activities, including earthmoving.
   2. CONTRACTOR shall obtain, pay for, and comply with permits required for earthmoving and dust control required because of dust-generating operations related to the Work, and shall develop and comply with provisions of dust control plan.
   3. Provide necessary labor, materials, equipment, tools, services, and incidentals to: apply sufficient dust suppressants; properly clean all track-out areas to driveways, roadways, and highways; and provide adequate physical stabilizations of soils to comply with earthmoving permits and accepted dust control plan.
   4. Control fugitive dust generation from CONTRACTOR's operations including the following:
      a. Construction areas.
      b. Vehicle and equipment parking areas.
      c. Material and equipment storage areas.
      d. Field office area(s) and staging areas.
      e. Haul and access roadways.
      f. Track-out areas.
      g. Other areas where CONTRACTOR will work, store materials or equipment, or park vehicles and equipment.
   5. Do not cause or allow dust-generating operations, earthmoving operations, use of property, or other operations that result in fugitive dust emissions that exceed limits prescribed by authorities having jurisdiction.
   6. Pay fines and civil penalties incurred by DEPARTMENT because of CONTRACTOR's actions or violations of earthmoving permits and dust control plan. DEPARTMENT may deduct as set-offs such amounts from payments due CONTRACTOR.

1.2 SUBMITTALS

A. Informational Submittals: Submit the following:
   1 Dust Control Plan:
      a. Prepare and submit to DEPARTMENT in accordance with Article 1.4 of this Section. Submit within the earlier of 30 days after the Contract Times commence running or prior to commencing earth-disturbing operations at the Site.

2. Earthmoving Permit:
    a. Submit copy of permits obtained from authorities having jurisdiction, within seven days of CONTRACTOR's receipt of such permits. Do not commence earthmoving operations at the Site until required permits are obtained and submitted to DEPARTMENT.
3. Daily Logs and Reasonably-Available Control Measures (RACM) Records:
    a. Submit upon request of DEPARTMENT.
4. Field Quality Control Submittals:
    a. When opacity monitoring is required, submit results not later than two days following completion of observations.

1.3 POSTING AND RECORDKEEPING

A. Post copy of earthmoving permit and accepted dust control plan at conspicuous location at the Site.

B. Recordkeeping:
1. Maintain daily written log to record the actual application or implementation of reasonably-available control measures (RACM) described in the accepted dust control plan.
2. Maintain the written log and supporting documentation at the Site and submit copies to DEPARTMENT upon request.
3. Retain copies of dust control plan, RACM implementation records, and supporting documentations for not less than three years after Substantial Completion of the entire Project.

1.4 DUST CONTROL PLAN

A. Prepare and submit to DEPARTMENT a dust control plan that includes the following:
1. Names, address, office and cellular telephone numbers, and e-mail address of person(s) responsible for preparing and overseeing implementation of dust control plan. Designate one person responsible for overseeing implementation of dust control plan for the Project.
2. Name(s), address(es), office and cellular telephone numbers, and e-mail addresses of person(s) responsible for dust generating operations.
3. Site plan delineating total area of land surface to be disturbed. Delineate each area of phased disturbances, when applicable.
4. Total disturbed area in acres; earthmoving and dust-generating operations and activities to be performed at the Site; actual and potential sources of fugitive dust emissions; and delivery, transportation, and storage areas for the Site, including types of materials stored and appropriate size of material stockpiles.
5. Description of reasonably-available control measures (RACM) to be implemented during dust-generating operations at actual and potential sources of fugitive dust.

6. Description of dust suppressants to be used including product data and safety data sheets (SDS); method, frequency, and intensity of application; type, number, and capacity of application equipment; and certifications related to the suppressant's appropriate and safe use. Calcium chloride is not allowed.
7. Description of specific surface treatment(s) or RACM proposed for controlling material deposition along paved surfaces (e.g., "track-out" areas) where unpaved Site surfaces or Site access points meet paved surfaces.
8. As contingency measure, designate and include description of not less than one alternative RACM for each actual and potential fugitive dust source.
9. Dust control plan shall also comply with the criteria outline in DER-10.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FIELD QUALITY CONTROL

A. Testing and Monitoring.
   1. Upon direction of DEPARTMENT, obtain opacity observations for visible emissions of fugitive dust.
   2. Opacity Monitoring Method:
      a. USEPA Method 9, Visual Determination of Opacity of Emissions from Stationary Sources (Emission Measurement Technical Information Center Test Method 009).
   3. Location and Frequency of Opacity Observations:
      a. Obtain opacity observations from not less than six locations at downwind perimeter of the Site during construction operations.
      b. Perform opacity monitoring at frequency required by applicable earthmoving/dust control permit, unless more-frequent monitoring is required by DEPARTMENT.
   4. Qualifications: Opacity monitoring observations shall be by person trained and experienced with the opacity monitoring method specified.
   5. Prepare and submit to DEPARTMENT written report of results of opacity monitoring and observations.
   6. No additional compensation or addition to the Contract Times will be authorized for opacity observations.

+ + END OF SECTION + +

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SECTION 01 45 29.23

TESTING LABORATORY SERVICES FURNISHED BY OWNER

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. DEPARTMENT will employ and pay for an independent testing laboratory to perform specified services. Testing laboratory selected will be subject to DEPARTMENT's acceptance.
   2. CONTRACTOR shall pay for:
      a. Tests not specifically indicated in the Contract Documents as being DEPARTMENT's responsibility.
      b. Tests made for CONTRACTOR's convenience.
      c. Repeat tests required because of CONTRACTOR's negligence or defective Work
      d. Tests required after failure of two or more of the same test for the same item to comply with the Contract Documents, for tests initially paid for by DEPARTMENT.
   3. Testing laboratory is not authorized to approve or accept any portion of the Work or defective Work; rescind, alter, or augment requirements of Contract Documents; and perform duties of CONTRACTOR.

1.2 REFERENCES

A. Standards referenced in this Section are:
   1. ASTM E329, Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
   2. ISO/IEC 17025, General Requirements for the Competence of Testing and Calibration Laboratories.
   3. NIST SRM, Standard Reference Materials.

1.3 QUALITY ASSURANCE

A. Qualifications:
   1. Testing Laboratory:
      a. Testing laboratory will comply with applicable requirements of ASTM E329.
      b. Testing laboratory will be authorized to operate in the same jurisdiction as the Site. Where applicable, laboratory will be certified by the authority having jurisdiction for the types of testing required.
      c. Testing equipment used by laboratory will be calibrated at intervals of not more than twelve months by devices of accuracy traceable to one of the following: NIST SRM, ISO/IEC 17025, certified by state or local

bureau of weights and measures, or values of natural physical constants generally accepted in the engineering and scientific community.

1.4 SUBMITTALS

A. Informational Submittals: Testing laboratory will submit the following:
   1. Quality Control Submittals and Test Reports: Promptly submit to DEPARTMENT and CONTRACTOR results of testing and inspections, in accordance with Section 01 33 00, Submittal Procedures, including:
      a. Date issued.
      b. Project title, number, and name of the Site.
      c. Testing laboratory name and address.
      d. Name and signature of inspector or person obtaining samples.
      e. Date of inspection or sampling.
      f. Record of temperature and weather.
      g. Date of test.
      h. Identification of material or item tested, and associated Specifications Section.
      i. Location in the Project.
      j. Type of inspection or test.
      k. Results of tests and observations regarding compliance with the Contract Documents.
   2. Qualifications Statements: Upon CONTRACTOR's request, testing laboratory will submit the following:
      a. Testing Laboratory:
         1) Qualifications statement indicating experience and facilities for tests required under the Contract Documents.
         2) Copy of report of inspection of facilities during most recent NIST inspection tour. Include memorandum of remedies of deficiencies reported during inspection.
         3) Copy of certificate of calibration for each instrument or measuring device proposed for use, by accredited calibration agency.

1.5 TESTING LABORATORY DUTIES

A. DEPARTMENT-hired testing laboratory will:
   1. Cooperate with CONTRACTOR and DEPARTMENT and provide qualified personnel promptly when notified.
   2. Perform required inspections, sampling, and testing of materials and methods of construction; comply with applicable reference standards and the Contract Documents; and ascertain compliance with requirements of the Contract Documents.
   3. Promptly advise DEPARTMENT and CONTRACTOR in writing of irregularities and deficiencies in the Work observed during performance of services.
   4. Submit to DEPARTMENT and CONTRACTOR written reports of inspections and tests required by the Contract Documents.

5. Perform additional tests and services as required by DEPARTMENT or DEPARTMENT to verify compliance with the Contract Documents.

1.6 CONTRACTOR'S COORDINATION WITH TESTING LABORATORY

A. CONTRACTOR shall perform and provide the following relative to DEPARTMENT-hired testing laboratory:
   1. Provide to testing laboratory representative samples of materials to be tested, in required quantities.
   2. Provide labor and facilities:
      a. For access to the Work to be tested, and where required, to Suppliers' operations.
      b. For obtaining and handling samples at the Site.
      c. For facilitating inspections and tests.
      d. For laboratory's exclusive use for storing and curing of test samples.
      e. Forms for preparing concrete test beams and cylinders.
   3. Notify testing laboratory and DEPARTMENT sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.
   4. Arrange with testing laboratory and pay for additional services, sampling, and testing required for CONTRACTOR's convenience.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

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SECTION 01 55 26

MAINTENANCE AND PROTECTION OF TRAFFIC

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall keep all roads, streets, and traffic ways open for passage of traffic and pedestrians during the Work, unless otherwise approved by owner of the street, traffic way, or right-of-way, as applicable.
   2. Construction traffic shall access the Site only via entrance(s) indicated on the drawings.
   3. Unless otherwise shown or indicated, maintenance and protection of traffic shall be in accordance New York State Department of Transportation specifications.
   4. In the event a permanent lane closure (lane closure lasting more than the duration of the site operational hours) is required at Lee Road to complete the work a temporary traffic light system will be required to operate during and after normal site operational hours to provide continuous traffic controls. Required traffic controls will be installed and maintained in accordance with the requirements of the City of Rochester.
   5. Unless lane closures are only temporary during the normal site working hours, temporary traffic controls and flaggers will not be acceptable.

B. Coordination:
   1. Coordinate with owner of the highway or street right-of-way, as applicable, for maintenance and protection of traffic requirements.
   2. Give required advance notice to fire departments, police departments, and other emergency services as applicable of proposed construction operations.
   3. Give reasonable notice to owners or tenants of private property who may be affected by construction operations. Give such notice not less than five days prior to when such property will or may be affected by construction operations.
   4. Coordinate with requirements of the following:
      a. Section 01 55 13, Access Roads and Parking Areas.
      b. Section 01 71 33, Protection of the Work and Property, regarding temporary barriers.
      c. Section 31 23 05, Excavation and Fill, for temporary barriers at excavations.

1.2 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Procedure Submittals: Detailed plan, procedures, and sequencing for maintaining and protecting traffic in accordance with the Contract Documents

and requirements of authorities having jurisdiction. Include in the submittal the following:

a. Traffic staging plan, and construction sequencing as applicable to maintain and protect traffic.
b. Product data, including manufacturer's catalog information and specifications, for temporary signage, temporary signals, temporary illumination devices, and other products to be utilized in maintaining and protecting traffic.
c. Indication of number and types of personnel dedicated to maintaining and protecting traffic during construction.
d. Indication of plan acceptance from authorities having jurisdiction.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 GENERAL PROVISIONS

A. When required to cross, obstruct, or temporarily close a street or traffic way, provide and maintain suitable bridges, detours, or other acceptable temporary expedient for the accommodation of traffic. Closings shall be for shortest duration practical, and passage shall be restored immediately after completion of filling and temporary paving or bridging.

B. Temporary Control Devices:
   1. Provide temporary signs, signals, barricades, flares, lights and other equipment, services, and personnel required to regulate and protect traffic and warn of hazards.
   2. Such Work shall comply with requirements of DEPARTMENT and authorities having jurisdiction at the Site.
   3. Remove temporary equipment and facilities when no longer required and restore grounds to condition indicated in the Contract Documents; if not indicated, resort to pre-construction conditions.

C. Keep accessible for use permanent facilities such as hydrants, valves, fire alarm boxes, postal boxes, delivery service boxes, and other facilities that may require access during construction.

3.2 TRAFFIC SIGNALS AND SIGNS

A. Provide and operate temporary traffic controls and directional signals required to direct and maintain an orderly flow of traffic in areas under CONTRACTOR's control, and areas affected by construction operations.

B. Provide temporary traffic controls and directional signs, mounted on temporary barriers or standard posts, at the following locations:
   1. Each change of direction of a roadway and at each crossroad.
   2. Detours and areas of hazard.
   3. Parking areas.
   4. Traffic entrance to and exit from each construction area.

3.3 TRAFFIC CONTROL PERSONNEL

A. General:
   1. When construction operations encroach on traffic lanes, furnish qualified and suitably equipped traffic control personnel as required for regulating traffic and in accordance with requirements of authorities having jurisdiction.
   2. Traffic control personnel shall use appropriate flags or mobile signs.
   3. Equip traffic control personnel with appropriate personal protection equipment and suitable attire.
   4. Attire and conduct of traffic control personnel shall be appropriate and shall not create nuisances or distractions for traffic.

3.4 FLARES AND LIGHTS

A. During periods of low visibility provide temporary flares and lights for the following:
   1. To clearly delineate traffic lanes, to guide traffic, and to warn of hazardous areas.
   2. For use by traffic control personnel directing traffic.

B. Provide adequate illumination of critical traffic and parking areas.

3.5 PARKING CONTROL

A. Control CONTRACTOR-related vehicular parking at the Site to preclude interfering with: traffic and parking, access by emergency vehicles, DEPARTMENT's and facility manager's operations, and construction operations. Provide temporary parking facilities for the public, as required because of construction operations.

B. Control parking of construction and private vehicles at the Site as follows:
   1. Maintain free vehicular access to and through parking areas.
   2. Prohibit parking on or adjacent to access roads, and in non-designated areas.
   3. Construction vehicles shall possess current vehicle registration.
   4. Private vehicles shall park only in designated areas.

3.6 HAUL ROUTES

A. Submit proposed haul routes to DEPARTMENT and obtain approval of authorities having jurisdiction.

B. Confine construction traffic to designated haul routes.

C. Provide temporary traffic controls at critical areas of haul routes to expedite traffic flow, and to minimize interference with normal traffic.

3.7 REMOVAL

A. Maintain and protect traffic until Substantial Completion and at all times thereafter when CONTRACTOR is working at the Site. Provide maintenance and protection of traffic measures at the Site until no longer required due to the progress of the Work. When no longer required, completely remove maintenance and protection of traffic measures and restore the Site to condition required by the Contract Documents or, when not indicated in the Contract Documents, to pre-construction conditions.

+ + END OF SECTION + +

SECTION 01 71 33

PROTECTION OF THE WORK AND PROPERTY

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes general requirements for safety and protection. This Section also includes requirements for barricades and warning signals, and protection of trees and plants, existing structures, floors, roofs, installed items, and landscaping.
   2. CONTRACTOR shall be responsible for taking all precautions, providing all programs, and taking all actions necessary to protect personnel health and safety, and to protect the Work and all public and private property and facilities from damage.
   3. To prevent damage, injury, or loss, CONTRACTOR's actions shall include the following:
      a. Provide measures for safety of personnel at the Site, including workers engaged in the Work, delivery personnel, testing and inspection personnel, personnel of authorities having jurisdiction, other visitors to the Site, the public, DEPARTMENT's personnel, facility manager's personnel (if different from DEPARTMENT), and Resident Project Representative (if any).
      b. Storing apparatus, materials, supplies, and equipment in an orderly, safe manner that does not unduly interfere with progress of the Work or work of other contractors, utility owners, and owners of transportation rights-of-way.
      c. Providing suitable storage facilities for materials and equipment subject to damage or degradation by exposure to climate, temperature, theft, breakage, or other cause.
      d. Placing upon the Work or any part thereof only loads consistent with the safety and integrity of that portion of the Work and existing construction.
      e. Frequently removing and disposing of refuse, rubbish, scrap materials, and debris caused by CONTRACTOR's operations so that, at all times, the Site is safe, orderly, and workmanlike in appearance.
      f. Providing temporary barricades, fencing, and guard rails around the following: openings, scaffolding, temporary stairs and ramps, around excavations, for elevated walkways, and other areas that may present a fall-hazard or hazard to vehicles.
   4. Do not, except after written consent from proper parties, enter or occupy privately-owned property or premises with personnel, tools, materials or equipment, except on lands and easements provided by DEPARTMENT.
   5. CONTRACTOR has full responsibility for preserving public and private property and facilities on and adjacent to the Site. Direct or indirect damage

done by, or on account of, any act, omission, neglect, or misconduct by CONTRACTOR in executing the Work, shall be remedied by CONTRACTOR, at his expense, to condition equal to that existing before damage was done.

6. DEPARTMENT May Remedy:
    a. Should CONTRACTOR fail to protect and safeguard property and the Work after requests from DEPARTMENT, DEPARTMENT may implement measures to protect property and the Work.
    b. Cost of such DEPARTMENT-implemented measures shall be paid by CONTRACTOR. DEPARTMENT may deduct from payments due CONTRACTOR such amounts as set-offs in accordance with the Contract Documents.
    c. Such right, however, shall not result in any obligation by DEPARTMENT to continuously monitor or have responsibility for protection of property and the Work, which responsibility is exclusively CONTRACTOR's.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 BARRICADES AND WARNING SIGNALS

A. Barricades and Warning Signals – General:
    1. Where the Work is performed on or adjacent to roadway, access road or driveway, right-of-way, or public place:
        a. Provide temporary barricades, fences, lights, warning signs, danger signals, watchmen, and take other precautionary measures for protecting persons, property, and the Work.
        b. Use appropriately colored and reflective barricades, or paint barricades accordingly, to be visible at night.
        c. From sunset to sunrise, provide and maintain not less than one temporary light at each barricade.
        d. Erect sufficient barricades to keep vehicles from being driven on or into Work under construction.
        e. Furnish watchmen in sufficient numbers to protect the Work.
    2. Provide temporary barricades to protect personnel and property for Work not in or adjacent to transportation routes and vehicular travel areas, including indoor work, in accordance with Laws and Regulations.
    3. CONTRACTOR's responsibility for maintaining temporary barricades, signs, lights, and for providing watchmen shall continue until the Work is substantially complete in accordance with the Contract Documents, unless other provision for security and protection is agreed to by the parties. After Substantial Completion, protect Work and property during periods when final Work or corrective Work is underway.

B. Temporary Fencing: Refer to Section 01 57 33, Security.

3.2 TREE AND PLANT PROTECTION

A. Tree and Plant Protection – General:
   1. Protect existing trees, shrubs, and plants on or adjacent to the Site, shown or designated to remain in place, against unnecessary cutting, breaking, damage, or skinning of trunk, branches, bark, and roots.
   2. Do not store materials or equipment or park construction equipment and vehicles within foliage drip lines.
   3. In areas subject to traffic, provide temporary fencing or temporary barricades to protect trees and plants.
   4. Open fires are not allowed onsite.
   5. Within the limits of the Work, water trees and plants that are to remain to maintain their health during construction operations.
   6. Cover exposed roots with burlap and keep such burlap continuously wet. Cover exposed roots with earth as soon as possible. Protect root systems from mechanical damage and damage by erosion, flooding, runoff, and noxious materials in solution.
   7. If branches or trunks are damaged, prune branches immediately and protect cut or damaged areas with emulsified asphalt compounded specifically for horticultural use, in manner acceptable to DEPARTMENT.
   8. When directed by DEPARTMENT, remove and dispose of at location away from the Site damaged trees and plants that die or suffer permanent injury, and replace each damaged tree or plant with specimen of equal or better species and quality.
   9. Coordinate Work in this Article with the following Specifications:
      a. Section 31 11 00, Clearing and Grubbing.

3.3 PROTECTION OF EXISTING STRUCTURES

A. Underground Facilities:
   1. Underground Facilities known to DEPARTMENT, except water, gas, sewer, electric, and communications services to individual buildings and properties, are shown. Information shown for Underground Facilities is the best available to DEPARTMENT, but is not guaranteed to be correct or complete.
   2. CONTRACTOR shall explore ahead of trenching and excavating Work and shall sufficiently uncover Underground Facilities that will or may interfere with the Work to determine their location, to prevent damage to Underground Facilities, and to prevent service interruption to structures and properties served by Underground Facilities. If CONTRACTOR damages an Underground Facility, CONTRACTOR shall restore it to its pre-construction condition, in accordance with requirements of the owner of the damaged facility and the Contract Documents.

3. Necessary changes in the location of the Work may be directed by DEPARTMENT to avoid Underground Facilities not shown or indicated on the Contract Documents.
4. If permanent relocation of an existing Underground Facilities is required and is not otherwise shown or indicated in the Contract Documents, CONTRACTOR may be directed in writing to perform the required work. When such relocation Work results in a change in the Contract Price, Contract Times, the associated Contract modification procedures and payment for such Work shall be in accordance with the Contract Documents.

B. Surface Structures:
1. Surface structures are existing buildings, structures, and other facilities at or above ground surface, including their foundations and any extension below ground surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage routes, exposed piping and utilities, poles, exposed wires, posts, signs, markers, curbs, walks, fencing, and other facilities visible at or above ground surface.
2. Existing surface facilities, including but not limited to guard rails, posts, guard cables, signs, poles, markers, curbs, and fencing, that are temporarily removed to facilitate the Work shall be replaced and restored to their pre-construction condition at CONTRACTOR's expense.

C. Protection of Underground Facilities and Surface Structures:
1. CONTRACTOR shall sustain in their places and protect from direct or indirect injury all Underground Facilities and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such structure or facility.
2. Before proceeding with the Work of sustaining and supporting such structure or facility, CONTRACTOR shall satisfy DEPARTMENT that methods and procedures to be used have been approved by party owning same.
3. CONTRACTOR shall bear all risks attending the presence or proximity of all Underground Facilities and surface structures within or adjacent to limits of the Work, in accordance with the Contract Documents.
4. CONTRACTOR shall be responsible for damage and expense for direct or indirect injury, caused by CONTRACTOR's activities, to structures and facilities. CONTRACTOR shall promptly repair damage caused by CONTRACTOR's activities, to the satisfaction of owner of damaged structure or facility.
5. Protection of Underground Facilities Under Roads and Parking Areas: Provide temporary, heavy-duty steel roadway plates to protect existing manholes, handholes, valve boxes, vaults, and other Underground Facilities near to or visible at the ground surface.

3.4 PROTECTION OF FLOORS AND ROOFS

A. Protection of Floors and Roofs – General:

1. Use proper protective covering when moving equipment, handling materials or other loads, when painting, handling mortar or grout, and when cleaning walls, ceilings, or structure contents.
2. Use metal pans to collect oil and cuttings from piping, conduits, and rod threading machines, and under metal cutting machines.
3. Do not load concrete floors less than 28 days old without written permission of DEPARTMENT. Do not load floors, roofs, or slabs in excess of design loading.
4. Do not load roofs without written permission of DEPARTMENT.
5. Restrict access to roofs, and keep CONTRACTOR personnel off existing roofs, except as required for the Work.
6. If access to roofs is required, roofing, parapets, openings, and all other construction on or adjacent to roof shall be protected with suitable plywood or other acceptable means.

3.5 PROTECTION OF INSTALLED MATERIALS, EQUIPMENT, AND LANDSCAPING

A. Protect installed Work to prevent damage from subsequent operations. Remove protective items when no longer needed, prior to Substantial Completion of the Work.

B. Control traffic to prevent damage to equipment, materials, and surfaces.

C. Coverings:
   1. Provide temporary coverings to protect materials and equipment from damage.
   2. Cover projections, wall corners and jambs, sills, and soffits of openings, in areas used for traffic and for passage of materials and equipment in subsequent work.

+ + END OF SECTION + +

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SECTION 02 51 40

EXCAVATION, REMOVAL AND HANDLING OF CONTAMINATED MATERIAL

PART 1 –GENERAL

1.1 SCOPE OF WORK

A. The contaminants of concern in soil and groundwater are semi volatile and volatile organic compounds in soils. The presence of former underground storage tanks and past site activities could also result in the presence of petroleum and petroleum byproducts.

B. CONTRACTOR shall excavate, handle and dispose of contaminated building foundation debris and soil as shown, specified and required to complete the work. The work shall consist of disposal of building foundation demolition debris and contaminated soil.

C. Excavation limits are depicted on the Drawings.

D. Related Work Specified Elsewhere:
   1. Division 01 – General Requirements.
   2. Division 31 – Earthworks.

E. All sheeting and shoring, and other work necessary to complete the required excavation work shall be conducted by the CONTRACTOR in accordance with these Specifications.

F. Work shall follow the sequence of construction presented in the CONTRACTOR‘S approved Work Plan.

1.2 SUBMITTALS

A. Submit the following in accordance with Section 01 71 23, Field Engineering:
   1. Initial Site Survey
   2. Intermediate Site Survey
   3. Record Drawings

B. Shop Drawings:
   1. Submit plans of open cut excavations showing side slopes and limits of the excavation at grade, as applicable, where not shown on the Drawings.

1.3 QUALITY ASSURANCE

A. Permits and Regulations: CONTRACTOR shall perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

B. Design Criteria:
   1. Temporary sheeting and shoring systems provided by the CONTRACTOR shall be certified by a NYS Professional Engineer and submitted to the DEPARTMENT for review prior to use.
   2. CONTRACTOR shall be wholly responsible for installing and operating the sheeting and shoring system in accordance with the certified design.

C. Regulatory Compliance:
   1. Source Area Excavation soil are assumed to be F-002 listed hazardous waste for 50% of the volume.
   2. A contained-in determination is being prepared and is assumed will allow 50% of the volume to be handled as non-hazardous.
   3. Soil management need to comply with applicable State and Federal regulations related to the handling, stockpiling, manifesting, etc. of the soils.

1.4 JOB CONDITIONS

A. Existing Structures:
   1. Shown on the Drawings are certain utilities and surface and underground structures located on or adjacent to the Work. This information has been obtained from existing records. It is not guaranteed to be correct or complete and is shown for the convenience of the CONTRACTOR. CONTRACTOR shall explore ahead of the required excavation to determine the exact location of all structures and utilities. They shall be supported and protected from injury by the CONTRACTOR. If they are broken or injured, they shall be restored immediately by the CONTRACTOR at no additional cost to the DEPARTMENT.
   2. Prior to execution of the Work, the CONTRACTOR shall check and verify governing dimensions and elevations. The CONTRACTOR and DEPARTMENT shall jointly inspect the condition of adjoining structures. Photographs and records shall be made of any prior settlement or cracking of structures, pavements, and the like, that may become the subject of possible damage claims.

B. Existing Utilities:
   1. The CONTRACTOR's attention is directed to the existing utilities running throughout the work. The CONTRACTOR is required to take any and all precautions necessary to locate, support and protect these utilities during construction. All costs associated with protecting, supporting, locating,

digging test pits, etc., of all utilities or process pipelines shall be included in the prices bid for all work.

2. The locations of all utilities shown on the contract drawings are based on available information in the vicinity of the proposed work areas and are not guaranteed to be complete or accurate. The CONTRACTOR shall obtain utility markouts on all public and private properties in accordance with all local and state requirements where work under this contract is to be performed. Prior to any excavation or construction, the CONTRACTOR shall notify the DEPARTMENT, all utility companies and applicable agencies and request a markout of their lines and properties in the field in the area of the proposed work. In addition, on the project site (outside of public right-of-way), the CONTRACTOR shall provide the services of an independent utility markout service subcontractor qualified to locate and mark out all utilities in the vicinity of the work using the appropriate equipment and methods available prior to construction. The subcontractor shall survey (location/elevation) and prepare a utilities location as-built drawing for use by the CONTRACTOR in performance of the work under this contract.
3. Prior to any demolition and/or excavation, in addition to utility location and markouts performed by the CONTRACTOR, local and state required services and the independent markout service subcontractor, the CONTRACTOR shall accurately locate existing utilities by probing test holes and excavating test pits where existing underground utilities are known to exist in the vicinity of the new work and at maximum intervals of 25 feet along the route or within the area of the proposed work. The CONTRACTOR shall survey (location/elevation) and prepare an as-built drawing of all underground utilities encountered while constructing test pits and/or test hole probes for use in performance of the work under this contract. The CONTRACTOR shall backfill/restore the holes and pits and mark out the existing utilities and take extreme caution against damaging the utilities during excavation or sheeting installation.
4. Work shall include, in addition to constructing test probes/pits, excavating and backfill, temporary sheeting, compacting and site restoration.
5. Schedules for maintenance of utility markouts on public and private property shall be consistent with New York State law throughout the duration of the Contract.
6. During demolition/excavation, the CONTRACTOR shall locate each utility by hand digging methods prior to the use of mechanical excavation equipment. During demolition/excavation, if the CONTRACTOR encounters evidence of suspected unmarked utilities, such as magnetic tape or other underground markers, the CONTRACTOR shall promptly determine the location of the suspected utility, if any, before proceeding with the work. The CONTRACTOR shall cooperate with the DEPARTMENT and the utility companies involved to avoid delay or interference of service normally performed by their lines and properties.

7. The CONTRACTOR shall take extreme caution against damaging utilities during demolition, excavation, sheeting and backfilling, during construction of test probes and test pits and while performing the work required under this Contract.
8. The CONTRACTOR shall be responsible for all costs associated with pre-project construction utility survey(s)/markout(s), the construction of the test holes and test pit work, and utility as builts for this project, as well as protection and hand digging operations to verify location of all utilities during construction.
9. Should uncharted or incorrectly charted piping or utilities be encountered during excavation, consult the DEPARTMENT in keeping respective services and facilities in operation. Repair damaged utilities to the satisfaction of the DEPARTMENT.
10. Do not interrupt existing utilities, except when permitted in writing by DEPARTMENT.

C. Protection of Persons and Property:
1. Barricade open excavations greater than 2 feet in depth occurring as part of this Work and post with warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
2. Protect structures, utilities, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by CONTRACTOR'S operations.
3. Consult DEPARTMENT and obtain his/her approval before removing or disturbing pipes, structures, or other facilities that are encountered on the line of the excavation.
4. Structures, utilities, sidewalks, pavements and other facilities removed or disturbed shall be replaced to their original condition, unless otherwise shown, specified or directed.

D. Dust Control: CONTRACTOR shall conduct all of his/her operations and maintain the area of his/her activities, including sweeping and sprinkling of roadways, so as to minimize creation and dispersion of dust. In addition, CONTRACTOR shall be responsible for controlling dust caused by his/her operation of vehicles and equipment, clearing or for any reason whatever.

E. Odor Control: As an odor abatement measure, cover, at the end of each work day all areas of organic or odorous material which were exposed during excavation with a minimum 6-in and a maximum 24-inch deep layer of clean fill. Excavated organic or odorous material shall be immediately removed off-site and shall not be stockpiled on-site. Such material shall be properly characterized and disposed of off-site in accordance with all applicable federal, state and local regulations.

F. Roadways and Walks: Unless otherwise approved by the DEPARTMENT, excavated material and materials of construction shall be so deposited, and the Work shall be so conducted, as to leave open and free for vehicular traffic a

roadway not less than 10 feet in width. All hydrants, valves, and other facilities which may require access during construction shall be kept accessible for use. During the progress of the Work, CONTRACTOR shall maintain such roadways in satisfactory condition and the Work shall at all times be so conducted as to cause a minimum of inconvenience to the occupants of the facility and pedestrians.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 INSPECTION

A. CONTRACTOR shall provide DEPARTMENT with sufficient time and means to examine the areas and conditions under which excavating, filling and grading are to be performed. Work shall not proceed until all unsatisfactory conditions have been corrected in a manner acceptable to the DEPARTMENT.

3.2 DEMOLITION AND EXCAVATION

A. General:
   1. CONTRACTOR shall perform all demolition and excavation required to complete the Work as shown and specified. It shall include all materials such as building debris, earth, sand, clay, gravel, hardpan, boulders, organic materials, rock, rubbish and all other materials within the excavation limits.
   2. Excavations shall be open type, shored and braced where necessary to prevent injury to workmen and to new and existing structures or pipelines.
   3. All excavations shall be made in the dry.
   4. Temporary barricades shall be installed for all excavations greater than 2 feet in depth.
   5. All equipment shall be decontaminated and free from debris, caked soil, contamination, and any other foreign materials prior to mobilization to the site. Equipment utilized during the remediation shall be decontaminated in accordance with the CONTRACTOR'S Health and Safety Plan.

B. Contaminated Materials:
   1. Demolition/excavation shall be made to the grades and extents shown on the Drawings. Demolition/excavation shall be performed in a manner that will limit spills and the potential for contaminated material to be mixed with uncontaminated material. A log describing visible signs of contamination encountered shall be maintained for each area of demolition and/or excavation.
   2. Excavation logs shall be prepared in accordance with ASTM D5434.

3. Excavation shall be accomplished by methods which preserve the undisturbed state of subgrade soils.
4. Equipment shall be satisfactory for carrying out the work in accordance with the Specifications. Earth shall not be plowed, scraped, or dug with machines so near to the finished subgrade as to result in excavation of, or disturbance of material below grade.
5. When excavation has reached final depths, the DEPARTMENT shall be notified and will inspect conditions. If materials and conditions are not satisfactory to the DEPARTMENT, the DEPARTMENT will issue instructions as to the procedures for correction of the unsatisfactory condition.
6. Documentation sampling shall be required as outlined the Section 01 45 29.13, Testing Laboratory Services Furnished by Contractor. Backfill and compaction shall not be conducted in any excavation until the limits of the excavation and the locations of the documentation samples are surveyed and are approved by the DEPARTMENT.
7. Groundwater or standing water in excavations or open basement areas must be removed, treated and properly disposed prior to the collection of documentation samples. Standing water from precipitation events in the excavation must be removed and disposed of appropriately at the CONTRACTOR'S own expense.
8. During final excavation to subgrade level, take precautions required to prevent disturbance of material.

C. Unsuitable Excavation:
1. If any over excavation occurs through error of the CONTRACTOR or for the CONTRACTOR 'S convenience, the over-excavated material shall be disposed of off-site, in accordance with all applicable federal, state and local laws and regulations, as well as the requirements of these Contract Documents. The over-excavation shall be refilled at the CONTRACTOR'S expense with concrete, select fill or other material satisfactory to the DEPARTMENT.
2. If CONTRACTOR fails to properly dewater the excavation or trench or disturbs the subgrade or otherwise fails or neglects to conduct the excavation work in a manner that provides surface of subgrade in proper condition for construction, the CONTRACTOR shall remove all disturbed material and replace it with concrete, select fill, or other approved material at his own expense. The condition of the subgrade shall meet with the approval of the DEPARTMENT before any work is placed thereon.

3.3 SHEETING, SHORING AND BRACING

A. Refer to Section 31 23 05, Excavation and Fill.

3.4 CONTAMINATED MATERIALS STORAGE

A. Demolition debris and excavated material shall be placed in temporary storage or taken off-site for disposal immediately after excavation. Temporary storage areas shall be located within the property line of the Site and shall be delineated by the CONTRACTOR in the approved Work Plan. Storage units shall be in good condition and constructed of materials that are compatible with the material or liquid to be stored. Each storage unit shall be clearly labeled with an identification number and a written log shall be kept to track the source of contaminated material in each unit.

B Storage of material outside the designated soil staging areas is prohibited without prior written approval by the DEPARTMENT.

C. The following methods of storage are acceptable:

1. Stockpiles
    a. Demolition debris and/or excavated materials shall be stockpiled in the areas noted in the CONTRACTOR'S Work Plan. Stockpiles shall be located 10 feet or greater from property lines.
    b. Stockpiles shall be constructed to isolate stored contaminated material from the environment. The maximum stockpile height shall be 10 feet. Each stockpile shall be labeled with an identification number identifying the material stored within the stockpile.
    c. Diversion measures shall be employed, as depicted on the Drawings, to prevent storm water run-on and run-off.
    d. An LLDPE geomembrane liner and cover shall be used to prevent cross-contamination of existing ground surface, precipitation from entering the stockpile and emissions and dust from escaping. The minimum thickness of the LLDPE geomembrane liner shall be 20 mils. Control measures such as wetting the stockpile surfaces shall be employed to suppress dust. Only potable water shall be used for this purpose.
2. Roll-off Units
    a. Roll-off units used to store contaminated material shall be watertight. A cover shall be placed over the units to prevent precipitation from contacting the stored material. Liquid which collects inside the units shall be removed and disposed of in accordance with all applicable federal, state and local laws and regulations.

D. Storage and handling of hazardous waste contaminated soil must comply with all applicable NYSDEC hazardous waste regulations (6 NYCRR Part 371-376).

E. Spillage shall be minimized and contained for later disposal in accordance with all federal, state and local regulations.

+ + END OF SECTION + +

SECTION 02 51 41

OFF-SITE TRANSPORTATION AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes procedures to transport and dispose all items specified for off-site disposal.

B. CONTRACTOR generated hazardous and non-hazardous waste shall be confined to contamination reduction or exclusion zones until transported off-site for proper disposal.

C. Remedial work which generates hazardous waste from inactive hazardous waste disposal sites (defined at 27-1301 of the Environmental Conservation Law) are not subject to the special assessment "tax" because of the exemption found at 27-0923 (3) (c) of the Environmental Conservation Law. The CONTRACTOR remains responsible for paying any local and county taxes which might be applicable to the disposal of wastes from the remedial work.

1.2 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only:
   1. Code of Federal Regulations (CFR).
      a. 40 CFR 262 Standards Applicable to Generators of Hazardous Waste
      b. 49 CFR 172 Tables, Hazardous Material Communication Requirements, and Emergency Response Information Requirements.
   2. Codes, Rules, and Regulations of the State of New York (NYCRR):
      a. 6 NYCRR Part 364 Waste Transportation Permits.
      b. 6 NYCRR Part 372 Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities.

1.3 SUBMITTALS

A. Transportation Plan:
   1. Submit six copies of a detailed Transportation Plan as part of the Remedial Action Work Plan in accordance with Section 01 33 00, Submittal Procedures.
   2. The Transportation Plan must be approved before materials are transported off site.

B. Records:
   1. Written acceptance of waste profile from TSDF.
   2. Hazardous Waste Manifests.

3. Decontamination Certificates.
4. Submit written confirmation from TSDF of acceptance of waste.
5. Profile sampling results.
6. Manifests after permanent disposal.
7. Certificates of disposal for non-hazardous waste.
8. Signed bills of lading for salvaged or recycled materials.
9. An updated waste tracking summary shall be provided on a monthly basis with the CONTRACTOR's application of payment.

1.4 PERMITS AND REGULATIONS

A. Comply with all municipal, county, state, and federal regulations regarding transportation of hazardous and non-hazardous materials. These include:
   1. Trucks used for transportation of material for disposal off site shall be permitted pursuant to 6 NYCRR Part 364**.**
   2. Vehicle operator possession of a commercial driver's license with hazardous materials endorsement (if applicable).
   3. Registration of vehicle as a hazardous waste carrier (if applicable).
   4. Utilization of shipping papers or hazardous waste manifest (40 CFR 262 and 6 NYCRR Part 372).
   5. Proper marking and placarding of vehicles in accordance with 49 CFR.
   6. Placement of emergency response procedures and emergency telephone numbers in vehicle, and operator familiarity with emergency response procedures.
   7. Compliance with load, height, and weight regulations.

1.5 DISPOSAL FACILITIES

A. Facilities must have valid Federal/State permits appropriate for each type of waste and/or waste disposal facility. Permits shall remain valid during the entire project period.

B. Facilities must be in good legal standing with no significant violations, corrective actions, or other environmental conditions that could affect satisfactory operation.

C. The disposal facility must comply with policies adopted by the DEPARTMENT with respect to off-site disposal of waste.

D. Prior to shipment of hazardous wastes off the site, the CONTRACTOR shall confirm by written communication from the designated TSDF that it is authorized, has the capacity, and will provide or assure that the ultimate disposal method is followed for the particular hazardous waste on the manifest.

E. RCRA Wastes:
   1. The facility must have an RCRA Permit or RCRA Interim Status for RCRA wastes. The EPA ID number for the site is: NYD013599261.
   2. The facility must not have any significant RCRA violations or other environmental conditions that could affect its satisfactory operation:

a. Significant violations include Class 1 RCRA violations as defined in EPA"s RCRA Enforcement Response Policy dated December 1984, including but not limited to groundwater, closure, post closure, and financial violations.
b. Other environmental conditions include those conditions affecting the satisfactory operation of the facility and violations of state and/or federal laws other than RCRA.
c. Under limited circumstances, EPA Administrator may allow disposal of hazardous substances at a RCRA facility having significant RCRA violations or other environmental conditions affecting satisfactory operation, providing that the facility owner or operator has entered into a consent order or decree to correct the problems, and disposal only occurs within the facility at a new or existing unit that is in compliance with RCRA requirements.

3. Landfill disposal must be in a unit meeting applicable RCRA minimum technical requirements:
   a. Current RCRA minimum technical requirements for land disposal include the use of a double liner system.
   b. Under limited circumstances (low waste toxicity, mobility, and persistence), EPA may approve the use of a single-lined land disposal unit for RCRA wastes where use of such a unit adequately protects public health and the environment.

F. TSCA Wastes:
   1. The facility must have a current TSCA permit.
   2. The facility must not have any significant violations, corrective actions, or other environmental conditions that could affect its satisfactory operation.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Equipment supplied shall be in good repair and good working condition.

B. Haul trucks that have visible oil or hydraulic fluid leaks will not be allowed on site.

C. Clean up oil or hydraulic fluid spills.

2.2 TRANSPORTATION

A. Submit a Transportation Plan as part of the Remedial Action Work Plan which includes:
   1. Type, condition, and average daily number of vehicles to be used.
   2. Travel routes and time restrictions.
   3. Decontamination methods for vehicles, equipment, and containers.
   4. Emergency response plan.
   5. A list of all shippers and their federal and state transporter ID numbers.

6. A list of proposed disposal facilities including name, address, telephone number, contact name, and Federal/state permit numbers.

PART 3 - EXECUTION

3.1 VEHICLE LOADING AND DECONTAMINATION

A. General:
   1. The CONTRACTOR shall provide all equipment, personnel, and facilities necessary to load waste materials in accordance with the regulatory requirements listed herein, and in accordance with the regulations of those states through which the CONTRACTOR plans to transport materials.
   2. Vehicle operators shall be trained in conformance with federal and state regulations for waste haulers (hazardous, special, and non-hazardous).
   3. All vehicles hauling waste materials from the exclusion zone shall be decontaminated in the contamination reduction zone prior to leaving the site.
   4. A written decontamination certification shall be provided to the DEPARTMENT for each shipment stating that:
      a. No soil from the exclusion zone or the contamination reduction zone adheres to the vehicle (including tires and undercarriage).
      b. The vehicles are not leaking materials or dripping liquids in any amount.
      c. Any waste materials, debris, and contaminated materials are covered with a tarpaulin, or are otherwise completely enclosed so as not to cause or permit discharge from the vehicle during transport.

3.2 MEASUREMENT

A. Upon entering and leaving the site, the transport vehicle shall be weighed on a certified scale under the DEPARTMENT'S supervision to determine the amount of material being removed from the site.

B. A printed ticket with the time, date, and net weight of material being transported for disposal shall be obtained. A copy of this ticket shall be given directly to the DEPARTMENT as it is produced.

C. Measured gross weight of the vehicle or calculated net weight of material outside the certified capacity of the scale will not be accepted by the DEPARTMENT and the CONTRACTOR shall not be reimbursed for the associated costs of material disposal above the certified capacity of scale.

D. The CONTRACTOR shall off-load materials above the certified capacity of scale on site at no additional cost to the DEPARTMENT.

3.3 MANIFESTING

A. Complete all required manifest forms and bill of lading forms for the DEPARTMENT for proper transportation and disposal of all materials. The

EPA ID number for the site is: NYD013599261.

B. Comply with 40 CFR 262 in completion and submittal of the Hazardous Waste Manifests. The Hazardous Waste Manifests for the transportation and disposal of waste removed from the site shall include all information in accordance with 49 CFR 172.101.

C. Notify the DEPARTMENT in writing a minimum of two weeks prior to the date(s) the manifests are ready to be signed.

D. The DEPARTMENT will sign the special waste or hazardous waste manifest.

E. Place on the manifest all information and data required by both the waste generator and transporter. The CONTRACTOR'S hazardous waste specialist shall accompany each prepared manifest with written certification that the manifest has been filled out in compliance with accordance with all EPA, DOT, and state regulations.

F. Provide the DEPARTMENT with two fully executed copies of each shipment manifested prior to shipping wastes off site.

G. The CONTRACTOR is responsible for proper distribution of manifests and bills of lading.

3.4 TRANSPORTATION

A. Prior to shipment of hazardous wastes off the project area, the CONTRACTOR shall confirm by written communication from the designated transporter(s) that they are authorized to deliver the manifested waste to the designated TSDF or SWMF.

B. The CONTRACTOR shall be responsible for obtaining permits and authorizations necessary to use the selected shipping routes. Comply with restrictions imposed by local governmental agencies regarding use of the routes.

C. Materials shall be transported only at the times and by the routes indicated in the approved Transportation Plan, unless written permission is received from the DEPARTMENT to do otherwise.

3.5 SAMPLING

A. Perform all sampling and analyses required by the disposal facility at no additional cost to the DEPARTMENT.

B. Provide copies of the results to the DEPARTMENT.

3.6 REPORTING

A. Manifests:

1. After the waste has been permanently disposed of, the Hazardous Waste Manifests shall be completed in accordance with 6 NYCRR Part 372 and submitted by the CONTRACTOR to the DEPARTMENT with a copy to be forwarded to the DEPARTMENT.
2. In accordance with 40 CFR 262.42, generator shall contact the transporter and TSD facility to determine the status of the HTW if the manifest is not returned to the generator within 35 days of the date waste was accepted by the initial transporter.
3. The generator shall file an exception report with EPA and NYSDEC if he has not received a completed copy of the manifest from the designated TSD facility with 45 days of the date the waste was accepted by the original transporter.
4. The CONTRACTOR shall be responsible for providing the generator with the information needed to complete the exception report.

B. Certificates of Disposal:
   1. Provide Certificates of Disposal for all wastes shipped off site.
   2. The Certificates of Disposal shall be submitted to the DEPARTMENT within 180 days of the shipment of wastes off site.

C. Bill of Lading:
   1. Items and materials that have been recycled or salvaged shall only require a signed bill of lading or receipt of materials and quantity received.

+ + END OF SECTION + +

SECTION 02 71 02

IN-SITU CHEMICAL OXIDATION

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide all labor, materials, equipment, and incidentals as shown, specified and required for procurement, storage, placement, and monitor the effects of chemical oxidation on the contaminated groundwater as required by the Contract Documents.
   2. The Work under this section includes, but is not necessarily limited to:
      a. Construction of a sodium permanganate dilution assembly process.
      b. Operation of the process to produce dilute sodium permanganate solution.
      c. Transfer of the dilute sodium permanganate solution to the header or injection well.
      d. Placement of the dilute sodium permanganate solution into the header or injection well.
      e. Quality Control and Reporting.
      f. Coordination with monitoring efforts to evaluate the oxidant's impact on groundwater.
      g. Demolition of the dilution assembly process.
   3. The Contractor shall restore all pavements, curbs, landscaping, masonry, fencing, and all other areas disturbed during the Work in accordance with the Contract Documents.
   4. Spill prevention, control, and containment are considered critically important, will be given intense scrutiny, and shall be strictly observed and enforced during the performance of the Work.

B. Coordination:
   1. Review procedures under this and other Sections and coordinate the work that will be performed with or before groundwater treatment.

C. Related Sections:
   1. Section 02 51 41, Off-site Transportation and Disposal.

1.2 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Code of Federal Regulations (CFR), Title 29, Part 1910, Occupational Safety and Health Standards.
   2. Code of Federal Regulations (CFR), Title 42, Part 6901, Resource Conservation and Recovery Act.
   3. US Federal Department of Transportation Regulations

4. NYS Department of Environmental Conservation, Chemical Bulk Storage Regulations
5. NYS Department of Environmental Conservation, Hazardous Materials Regulations.
6. NYS Department of Transportation Regulations
7. National Fire Protection Association.
8. Hazardous Materials Transportation Board.
9. Interstate Commerce Commission.
10. Comply with requirements of authorities having jurisdiction.

B. Product Data: Reagent composition, certificate of analysis, trace metals analysis, Material Safety Data documentation, and other relevant product literature.

1.3 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Shop Drawings:
      a. Submit a schematic layout of the dilution setup. Include flowrates, pipe sizes, motor sizes, controls, valve locations, flow meter locations, tank sizes, etc.
      b. Submit details of stationary containment material and edge construction.
      c. Submit details of truck mounted containment system and portable containment system for wellhead.
      d. Submit details of pipe and electrical conduit support inside containment area.
      e. Submit manufacturer's cutsheets on all pipe, pumps, tankage, flow meters, valves, controls, etc.

B. Informational Submittals: Submit the following:
   1. Submit verification of tankage registration with NYS Department of Environmental Conservation, Chemical Bulk Storage Program.

C. Submit a Spill Prevention, Control and Containment (SPCC) Plan:
   1. Prepare an SPCC Plan that addresses the provisions for handling the chemical oxidant; including, but not limited to, receiving, storing, mixing, placement, and disposal.
   2. Submit plan for review and comment prior to the receipt of any chemical oxidants.

D. Contractor's Experience:
   1. Information to demonstrate that the chemical oxidation Contractor meets the qualification requirements.
   2. Provide resume of key individuals.

E. Chemical Oxidation Work Plan: Work Plan shall be approved prior to construction, shall address the requirements of this Section, and shall include, but not be limited to, the following:

1. Equipment: Specifications for the proposed equipment to be used for batching, mixing, placement and process control.
2. Procedure and Methods: Description of procedures and methods for chemical storage and handling, chemical mixing, leak-free chemical placement, and chemical metering. Include description of procedures and methods for temporary secondary containment (including storage, mixing, transfer, and manifold/placement locations). Include method to completely drain lines of permanganate without leaks or spills.
3. Provide description of method to pressure test the permanganate delivery systems to verify that there are no leaks prior to use with chemical oxidant.
4. Drawings: Provide scaled drawings showing the dimension and layout for storage, staging, and operations area. Include typical wellhead connection detail.
5. Quality Control: Provide description of plan for controlling oxidant solution component proportions and placement quantities.
6. Product Data: Provide reagent composition, certificate of analysis, trace metal analysis, and oxidant Safety Data Sheet (SDS) documentation.
7. Restoration: Provide details of any areas or facilities that shall be restored following the installation, placement and completion of the chemical oxidation work.
8. Spill Response Plan: Description of materials, equipment and personnel necessary to address spills during storage, handling, mixing, and placement of oxidant. Include information on neutralization materials, spill materials, MSDSs, and storage and availability of spill response materials for deployment.

F. Chemical Oxidation Quality Control (QC) Report: Submit report including the following:
   1. Provide report for each day that chemical placement occurs.
   2. Submit by noon the next business day following the placement event via e-mail to the DEPARTMENT and ENGINEER.
   3. Report shall be in Microsoft Excel or Microsoft Word format.
   4. Report shall include, at minimum, the following data for each individual header or well:
      a. List of Personnel conducting the placement at each individual header or injection well.
      b. Rate of Injection (gpm) at each individual header or injection well.
      c. Beginning and ending time and water levels for placement at each individual header or injection well.
      d. Concentration of oxidant injected at each individual header or well.
      e. Total volume (gallons) of oxidant solution injected at each individual header or injection well.
      f. Any issues associated with the placement activities – such as surfacing or loss of reagent, location of loss or surfacing, flow rate and pressure at the time of loss or surfacing.

G. Field Data Report: Submit report including the following:
   1. Submit by noon the next business day following the placement event via e-mail to the DEPARTMENT and ENGINEER.
   2. Report shall be in Microsoft Excel or Microsoft Word format.
   3. Report shall include:
      a. Date of field sampling.
      b. List of personnel.
      c. For each well
         i. Color of groundwater purged from the well and permanganate concentration (concentration measured by DR-890 colorimeter or equivalent).
         ii. pH, conductivity, temperature, DO, and ORP of purged groundwater collected from downgradient monitoring well locations.

Monitoring Well Locations	MW-1S, MW-1D, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, MW-4D, MW-5S, and MW-5D

H. Certificate of Analysis documenting the product meets the product requirements specified herein.

1.4 QUALIFICATIONS

A. Contractor's Experience: The contractor shall have a minimum of three (3) prior chemical oxidation projects of comparable size and scope using permanganate or a similar chemical oxidant/placement system acceptable to the DEPARTMENT within the last 2 years.

B. Key Personnel: Key personnel shall have experience in chemical oxidation projects of similar size and scope using permanganate or a similar chemical oxidant. Personnel experience shall be current and demonstrate knowledge and hands-on expertise in current technologies and applicable regulations.

PART 2 – PRODUCTS

2.1 System Performance

A. System Description:
   1. The system will dilute the sodium permanganate to a 4 percent sodium permanganate solution for subsequent placement into the header or wells.
   2. Provide one placement of a minimum 24,000 pounds of 40% sodium permanganate to the injection header within the source area excavation footprint. And 5,000 pounds of 40% sodium permanganate to each individual injection well (4 wells for a total of 20,000 pounds). This will require a total of 44,000 pounds of 40% sodium permanganate to be delivered during the injection event to the placement header and wells.

3. Provide sealed secondary containment under the entire area of the dilution process system.
4. Provide sealed secondary containment on the delivery tanker truck and portable secondary containment around the header or well.
5. Provide all necessary piping, wiring and controls to produce an operable system.
6. All materials (tanks, containment, piping, valves, fittings, etc.) exposed to solutions shall be compatible to the materials used.
7. The system shall be designed so that a full batch of dilute solution can be produced while header or well placements are ongoing.

B. Reagent Quality:
1. The manufacture's requirements for storage and allowable shelf life of the product shall be strictly observed.
2. The CONTRACTOR shall provide 40% RemOx L sodium permanganate, as manufactured by Carus Corporation or approved equal.
3. The sodium permanganate shall meet the following requirements:

Parameter	Specification
Assay, % NaMnO4	39.5-41.5
pH	5.0-8.0
Specific Gravity g/ml	1.365-1.385
Appearance	Dark Purple Solution

4. Each lot of the sodium permanganate utilized shall not contain metals at concentrations greater than the following concentrations on a dry permanganate basis:

Metal	Maximum Concentration(mg/kg)
Ag	0.15
Al	2.00
As	4.00
Ba	15.0
Be	0.50
Cd	0.10
Cr	5.00
Cu	0.10
Fe	2.00
Hg	0.03
Ni	0.1
Pb	0.70
Sb	0.70
Se	0.50
Tl	3.50
Zn	0.40

C. The CONTRACTOR shall supply a groundwater level meter specifically designed for such a purpose. The meter shall be Solinst Model 110 as manufactured by Solinst Canada Ltd. or approved equal.

PART 3 – EXECUTION

3.1 PREPARATION

A. CONTRACTOR is wholly responsible for the design, construction, operation and demolition of the dilution and placement system. The schematic provided on the Contract Drawings provides an initial layout of the system. CONTRACTOR may propose alternates which will be reviewed by the ENGINEER and DEPARTMENT for conformance with the objectives of this project.

B. Groundwater Sampling prior to in-situ Chemical Oxidation (to be completed by ENGINEER):
   1. Prior to the completion of the in-situ chemical oxidation activities, the CONTRACTOR shall allow sufficient time for ENGINEER to sample, analyze and report on groundwater quality at existing and newly installed groundwater wells.
   2. The wells shall be sampled in compliance with USEPA 2017 low flow guidance document (USEPA, 2017).
   3. Sample and collection of groundwater at 24 wells (see table) The samples shall be analyzed for VOC (SW-846 8260), Metals – Total Na, Total and Dissolved Fe, Mn (Method 6010), and PFAS (Method 8327 and NYSDEC April 2023 Guidance). Quality Assurance/Quality Control samples (duplicate, matrix spike, and matrix spike duplicate) will be collected and analyzed for VOCs, at a frequency of 1 per 20 samples. ENGINEER and CONTRACTOR shall coordinate necessary turnaround time for the planned progression of work and schedule to allow data completion and review by DEPARTMENT and ENGINEER prior start of chemical injection activities.

Downgradient Well Locations	MW-1S, MW-1D, MW-2S, and MW-2D
Upgradient/Cross-gradient Well Locations	MW-3S, MW-3D, MW-4S, MW-4D, MW-5S, and MW-5D

C. Groundwater Sampling will also be after the in-situ Chemical Oxidation by ENGINEER in accordance with 3.1.B.

3.2 SYSTEM CONSTRUCTION

A. System shall be constructed with piping and valving oriented in a neat and orderly fashion. The piping shall run parallel and perpendicular to each other and be organized in groups where possible.

B. Provide designated paths for walkways through the process area. Provide protection pads for the containment liner in areas of high traffic.

C. Clearly designate exclusion zone around mixing operations and as required elsewhere.

3.3 SYSTEM OPERATION

A. System shall be initially functionally tested with water by CONTRACTOR to verify the system and tankage has no leaks prior to utilizing chemical oxidant.

B. Any leak found in the system shall be immediately repaired. Measures to slow the rate of leak or that prove to be an inadequate repair shall be removed, the leaking section cut out, and a new splice put back in.

3.4 OXIDANT PLACEMENT

A. After successful pressure testing of the system, sodium permanganate shall be placed at the headers and wells as shown or specified.

B. Sodium permanganate shall be placed at 4% solution (diluted from 40% prior to placement) in the following quantities and locations:
   1. At the source excavation area, utilizing the installed header system, CONTRACTOR shall provide a total of 5,000 pounds of 40% sodium permanganate.
   2. At the twelve injection wells CONTRACTOR shall provide a total of 5,800 pounds of 40% sodium permanganate distributed equally to all twelve wells.

C. Care shall be taken to deliver the oxidant in a manner that does not create breakouts or surfacing of the oxidant. Initial water levels at wells will be documented prior to Past pilot activities have demonstrated that injection pressures should not exceed 2 psig, however lower pressures may be required to avoid breakout under continued placement.

D. Monitoring of field parameters and permanganate concentration (using colorimeter) at downgradient monitoring well locations will be completed at least once daily to satisfy the reporting requirements identified in Section 1.3.G of this specification.

E. Spill prevention, control, and containment shall be strictly observed during the performance of the work.

F. The CONTRACTOR shall maintain a solution of approximately 1 part water, 1 part white vinegar and 1 part 3% hydrogen peroxide in a portable sprayer for use to neutralize *de minimus* spills of sodium permanganate solution.

G. In the event of a spill, the CONTRACTOR shall immediately notify all applicable federal, state and local agencies having jurisdiction.

H. When a spill occurs, the CONTRACTOR shall submit a written report to the ENGINEER within 48 hours of the incident. The report, at minimum, shall include the following:
   1. The date and type of incident;
   2. A map delineating the area impacted by the incident;
   3. Details of the cause of the release and resolution of the incident;
   4. Identification of all outside agencies contacted and involved in the spill control;
   5. Descriptions of corrective actions;
   6. Impact on human health and the environment; and
   7. Potential claims by third parties.

3.5 STORAGE AND HANDLING

A. Sodium Permanganate shall be stored and handled in accordance with NFPA Code 430, the NYSDEC hazardous substance regulations (Chapter V, Subpart D and related sections) and the U.S. Department of Homeland Security Chemical Facility Anti-Terrorism Standards (CFATs). After each placement event, all storage tanks and piping shall be thoroughly drained, cleaned and neutralized.

B. Secondary containment or other storage and handling procedures shall comply with NYSDEC hazardous substance regulations.

C. All spilled material shall be contained and, if possible, reused. Spilled material shall be handled and treated in accordance with the manufacturer's recommendations. Provide necessary spill materials and neutralizing agents in accordance with the SPCC Plan.

D. Oxidant materials shall be stored and handled such that contact with combustible materials is prevented.

E. Prior to disposal or removal from the project site, all equipment storage containers shall be thoroughly and completely cleaned and neutralized.

3.6 SYSTEM REMOVAL

A. System shall be deconstructed upon completion of the work. All materials, equipment and services brought in by CONTRACTOR shall be removed.

B. All equipment shall be decontaminated prior to leaving the site.

C. Decontamination rinse water shall be disposed of properly by CONTRACTOR according to all Federal, State and local laws and regulations.

+ + END OF SECTION + +

SECTION 33 24 00

MONITORING WELL INSTALLATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. CONTRACTOR shall provide all labor, materials, equipment, and services required to furnish and install the wells as shown and as specified herein. This shall include the recovery well, injection wells, and monitoring wells.

B. Locations of all wells are shown. CONTRACTOR shall install the wells to the depth shown.

C. Permits:
   1. CONTRACTOR shall obtain well drilling permits from the NYSDEC prior to commencement of the Work.
   2. ENGINEER will complete and submit Notice of Intent to Drill (NOI) permit application forms to NYSDEC.

D. CONTRACTOR shall be responsible for mobilization/demobilization of all equipment.

1.2 REFERENCES

A. Standards referenced in this Section are listed below:
   1. American Society for Testing and Materials, (ASTM).
      a. ASTM D 422, Test Method for Particle-Size Analysis of Soils.
   2. Occupational Safety and Health Administration, (OSHA).
      a. OSHA 1910, Occupational Safety and Health Standards.
      b. OSHA 1912.120, Hazardous Waste Operations and Emergency Response.

1.3 QUALITY ASSURANCE

A. Testing:
   1. The services of a qualified testing laboratory shall be engaged by CONTRACTOR to make tests and determine acceptability of the materials as listed below. The laboratory shall be acceptable to the ENGINEER.
   2. CONTRACTOR shall perform the following materials testing: Crushed Rock or Gravel - ASTM D 422 Gradation.

B. Well driller shall be a licensed well driller in the State of New York.

C. The Work shall comply with the Rules and Regulations as defined under New York State Department of Environmental Conservation (NYSDEC).

1.4 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Shop Drawings:
      a. Drilling method.
      b. Well casing.
      c. Well screen.
      d. Filter pack material samples, including sieve analysis specifications.
      e. Bentonite mix design.
      f. Surface seal grout mix design.
      g. Method of material and grout placement.
      h. Well log and well construction details.
      i. Cuttings, drill fluids and water containment or water disposal.

B. Informational Submittals: Submit the following:
   1. CONTRACTOR shall be requested to perform or have performed all or some of the following geophysical logs if certain subsurface conditions exist or specific targets need to be located:
      a. Spontaneous Potential and Resistivity Log (Electric log).
      b. Acoustic Log (3-D Velocity-2 Spacings).
      c. Gamma-Neutron Log.
      d. Caliper Survey.
      e. Temperature Log.
      f. The interval to be logged shall be the total depth of the pilot hole, subject to satisfactory pilot hole conditions, the limitations of the logging technique and/or other directives from the ENGINEER. CONTRACTOR shall cooperate with the company or companies running such surveys and shall have at least two employees available to help in rigging the survey equipment.
   2. A Daily Driller's Report shall be kept available at the Site for review by the ENGINEER and at the conclusion of monitoring well drilling for the well, two neat, legible copies of this report shall be submitted to the ENGINEER. This log shall contain, but not be limited to, the following information for each day's activity:
      a. Number of crew on the Site and name of superintendent for each shift.
      b. Description of all formations encountered.
      c. Number of feet drilled.
      d. Number of hours on the job.
      e. Number of hours of drilling operations.
      f. Number of hours of shutdown.
      g. Drilling fluid viscosity (every four hours of drilling operations).
      h. Rate and volume of make-up water used for each formation.
      i. Water level at beginning and end of each shift.
      j. Water level at each change or formation, if readily measurable.
      k. Emergency phone numbers of personnel involved in the well construction.

1.5 HEALTH AND SAFETY

A. CONTRACTOR shall be responsible for all health and safety activities relative to drilling and constructing the monitoring wells.
   1. Health and Safety shall comply with the requirements of OSHA 1912.120 if the Work is conducted on a hazardous waste site.

PART 2 - PRODUCTS

2.1 DESCRIPTION

A. Casing; Casing materials used for the monitoring wells shall consist Schedule 40 PVC of the size shown.

B. Screen: Well screen shall consist of Sch. 40 PVC pipe, nominal diameter as shown, 0.010-inch slotted casing to match material above. Screen length will be of length as shown on the Contract Drawings.

C. Bottom Cap: The bottoms of the wells are to be capped with a flush-threaded or welded cap.

D. Filter Pack: Filter pack shall consist of #00 Sand, or equivalent.

E. Bentonite Seal:
   1. Bentonite shall consist of commercial grade high yield sodium bentonite pellets and shall be supplied with a maximum diameter of 1/2-inch.
   2. Bentonite pellets shall be hydrated for a minimum of 30 minutes after placement. Water used for hydration shall be clean, fresh and free from oil, acid, alkali, organic matter or other deleterious substances. CONTRACTOR shall be responsible for obtaining the water required for the Work.
   3. Resulting bentonite seal shall have a maximum permeability of 1×10^{-7} cm/sec.

F. Surface Seal:
   1. Cement/Bentonite Slurries: A mixture with the ratio of three to five pounds of high yield bentonite powder for each 94 pound sack of Portland Cement, Type 1 or Type 2, and 6.5 gallons of water from a known, safe and uncontaminated source. Accelerator shall be limited to one to two percent by weight, if used.

2.2 ACCESSORIES

A. Well Head:
   1. The wellhead shall be comprised of sanitary seal, fittings, and accessories as shown.

PART 3 - EXECUTION

3.1 LOCATE WELL SITES

A. CONTRACTOR shall be responsible for locating the monitoring wells as shown prior to initiation of drilling.

B. In the case of wells located within the City of Glen Cove Right-of-Way, the final well location shall be coordinated with City of Glen Cove and the ENGINEER. A ROW access permit shall also be obtained and the CONTRACTOR shall be responsible for any fees associated with this access permit. The wells that fall within the area of the former Li Tungsten site shall also comply with the Site Management Plan contained within the Limited Site Specific Data Package.

3.2 PROVIDE ACCESS

A. CONTRACTOR shall be responsible for any additional measures necessary to gain access and transport all required equipment and materials to the monitoring well sites.

3.3 MOBILIZATION/DEMOBILIZATION

A. CONTRACTOR shall furnish all vehicles, equipment, supplies, labor, and incidentals to move equipment and materials to and from the Site. Upon demobilization, CONTRACTOR shall restore all areas to original grades.

3.4 WORKMANSHIP

A. Monitoring wells shall be clear of all waste or other deleterious materials prior to placement of filter pack.

B. Filter pack shall be continuous with no voids.

C. Bentonite seals shall be properly installed and hydrated prior to continuation of backfill.

D. Surface seal shall prevent leakage down the borehole from surface.

E. CONTRACTOR shall be responsible for proper transport and disposal of cuttings in accordance with Section 31 23 05, Excavation and Fill.

3.5 INSTALLATION

A. General:
   1. Install casing as shown, specified and as recommended by the manufacturer.
   2. Casing that is cracked, damaged crushed, gouged or in poor condition will be rejected.
   3. CONTRACTOR shall be responsible for physically siting the exact locations of all monitoring wells by employing a licensed surveyor to determine

location relative to physical features. CONTRACTOR shall also determine the top of well elevation for each monitoring well after the monitoring wells have been completed.

4. Drillers shall be advised that drilling operations for wells will be conducted through imported fill and natural geologic material, including rock.

B. Monitoring Wells:
   1. CONTRACTOR shall furnish, drill, and install the 2-inch diameter, Schedule 40 PVC pipe as shown. Solvent welded joints and solvent cements shall not be used in the construction of the well.
   2. All slotting operations are to be performed prior to delivery of pipe to the Site.
   3. Drilling methodology shall be the responsibility of CONTRACTOR, but drilling methodology shall not employ water or mud. The depth of the finished monitoring well shall be field verified. All excavated material shall be cleared from the location and moved to an on-site location designated by the ENGINEER and approved by the OWNER. Waste material shall be transported off-site by CONTRACTOR.
   4. CONTRACTOR shall drill and install monitoring wells at the locations and depths shown. If a conflict exists, obtain clarification from the ENGINEER before proceeding.
   5. CONTRACTOR shall flush the pipe to remove any debris that may have collected inside the pipe prior to installation.
   6. The 0.010-inch slotted stainless steel or PVC well screen as shown is to be installed by centering it within the hole.
   7. The filter pack shall be installed around the well screen. Take care to avoid bridging and overfilling or damage to the pipe.
   8. No natural material (e.g. drill cuttings, garbage, solid waste, etc.) shall be allowed to fill the space next to the slotted pipe or riser. In the event the borehole wall collapses during installation of the monitoring well, CONTRACTOR shall correct this situation, at no additional cost to the OWNER. All procedures shall be completed to the satisfaction of the ENGINEER.

C. Well Log:
   1. An accurate written log shall be maintained at all times, by CONTRACTOR. CONTRACTOR shall record the type, character, and depth of materials encountered, thickness of strata, water table depth and any additional information that may be helpful in interpreting the drilling log. In addition CONTRACTOR shall maintain a Drilling Penetration Rate Log at all times during drilling operations. The Drilling Penetration Rate Log shall include depth of penetration per time interval using a geolograph, or equal instrumentation, and shall also include documentation of periods of inactivity, fluid circulation, and other pertinent details as determined by the ENGINEER. All measurements for depths shall be referenced to existing ground surface at the monitoring well site. On completion of the borehole, four copies of the driller's formation log and the Drilling Penetration Rate Log shall be furnished to the ENGINEER.

D. Geophysical Logging:
   1. After reaching total depth of the pilot hole, CONTRACTOR shall continue circulation for sufficient time to remove the cuttings from the hole. If the geophysical logging tools cannot be lowered to the bottom of the pilot hole, CONTRACTOR shall run the drilling tools to the bottom one additional time and circulate the hole clean at his own expense.
   2. Geophysical logging will be conducted at the expense of CONTRACTOR. Geophysical logs shall be made available to the ENGINEER.
   3. The following geophysical logs shall be obtained:
      a. Spontaneous Potential and Resistivity Log (Electric log).
      b. Acoustic Log (3-D Velocity-two spacings).
      c. Gamma-Neutron Log.
      d. Temperature Log.
      e. Caliper Survey.
   4. Upon completion of the geophysical logging, CONTRACTOR shall begin the water quality-testing program within the pilot hole.
   5. A caliper survey log shall be run after reaming of the pilot hole.

E. Development by Swabbing, Bailing and Pumping:
   1. The first stage of development shall occur after the placement of the filter pack to a level selected by the ENGINEER. Development shall be by swabbing. CONTRACTOR will submit details on how he intends to perform this operation including equipment specification. The development will begin at the bottom of the well and proceed upward. CONTRACTOR shall add sodium acid pyrophosphate or ENGINEER approved equivalent material to aid in dispersion of the drilling fluid. The dispersing agent shall be added to the well as directed by the ENGINEER.
   2. CONTRACTOR shall employ a suitable device to measure the level of the filter pack in the annulus during development. Upon completion of swabbing all sand, silt, and other foreign material shall be removed from the interior of the well by bailing.
   3. A careful record shall be kept of the amount of material added during placement and consolidation. Additional filter pack material may need to be added if significant settling occurs during development.
   4. Final stage of development will be pumping at approximately 50 gpm until discharge water measures less than 5 NTU (turbidity) or until ENGINEER determines additional pumping is not required.

F. Plumbness and Alignment:
   1. CONTRACTOR shall perform a test for plumbness and alignment of the well casing prior to acceptance of the monitoring well by the ENGINEER. The test shall be performed by lowering a plummet or cage from the surface to the depth at which the cone reducer is installed and measuring deviations from the vertical axis at ten-foot depth intervals. The plummet or cage shall be at least one foot long and have a minimum outside diameter 1/2-inch smaller than the inside diameter of the casing. The test may be performed by CONTRACTOR at any time after the monitoring well casing is permanently

set. The results of the test shall be analyzed by CONTRACTOR, and a plot of deviations versus depth in east-west and north-south orientations prepared and presented to the ENGINEER to document compliance with these requirements. In order to meet the requirement for plumbness and alignment, it is expected that CONTRACTOR shall exert careful control on drilling rates and bit weights and shall perform alignment tests at his own expense during the construction operations. Should the monitoring well fail to meet the requirements for plumbness and alignment, it shall be corrected by CONTRACTOR, or a new acceptable well drilled, at no additional cost to the OWNER.

2. To meet the test for alignment, the axis of the monitoring well casing shall not deviate from the vertical in excess of two-thirds the inside diameter of the casing per 100-feet of depth and the deviation shall be reasonably consistent regarding direction.

+ + END OF SECTION + +

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SECTION 33 24 05

INJECTION WELLS

PART 1 - GENERAL

1.1 DESCRIPTION

A. CONTRACTOR shall provide all labor, materials, equipment, and services required to furnish and install the injection wells as shown and as specified herein.

B. Locations of all wells are shown. CONTRACTOR shall install the injection wells to the depth shown.

C. Permits:
   1. CONTRACTOR shall obtain all necessary permits for injection well installation prior to commencement of the Work.

D. CONTRACTOR shall be responsible for mobilization/demobilization of all equipment.

1.2 REFERENCES

A. Standards referenced in this Section are listed below:
   1. American Society for Testing and Materials, (ASTM).
      a. ASTM D 422, Test Method for Particle-Size Analysis of Soils.
   2. Occupational Safety and Health Administration, (OSHA).
      a. OSHA 1910, Occupational Safety and Health Standards.
      b. OSHA 1912.120, Hazardous Waste Operations and Emergency Response.

1.3 QUALITY ASSURANCE

A. Testing:
   1. The services of a qualified testing laboratory shall be engaged by CONTRACTOR to make tests and determine acceptability of the materials as listed below. The laboratory shall be acceptable to the ENGINEER.

B. Well driller shall be a licensed well driller in the State of New York.

C. The Work shall comply with the Rules and Regulations as defined under the applicable requirements of governing authorities having jurisdiction, including but not limited to, the New York State Department of Environmental Conservation.

1.4 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Shop Drawings:
      a. Drilling method.
      b. Well casing.
      c. Well screen.
      d. Filter pack material samples, including sieve analysis specifications.
      e. Bentonite mix design.
      f. Surface seal grout mix design.
      g. Method of material and grout placement.
      h. Well log and well construction details.
      i. Cuttings, drill fluids and water containment or water disposal.

B. Informational Submittals: Submit the following:
   1. A Daily Driller's Report shall be kept available at the Site for review by the ENGINEER and at the conclusion of injection well drilling for the well, two neat, legible copies of this report shall be submitted to the ENGINEER. This log shall contain, but not be limited to, the following information for each day's activity:
      a. Number of crew on the Site and name of superintendent for each shift.
      b. Description of all formations encountered.
      c. Number of feet drilled.
      d. Number of hours on the job.
      e. Number of hours of drilling operations.
      f. Number of hours of shutdown.
      g. Drilling fluid viscosity (every four hours of drilling operations).
      h. Rate and volume of make-up water used for each formation.
      i. Water level at beginning and end of each shift.
      j. Water level at each change or formation, if readily measurable.
      k. Emergency phone numbers of personnel involved in the well construction.

1.5 HEALTH AND SAFETY

A. CONTRACTOR shall be responsible for all health and safety activities relative to drilling and constructing the injection wells.
   1. Health and Safety shall comply with the requirements of OSHA 1912.120.

PART 2 - PRODUCTS

2.1 DESCRIPTION

A. Casing; Casing materials used for the injection wells shall consist of 2-inch nominal diameter, flush threaded, Schedule 40 PVC.

B. Screen: Well screen shall consist of 2-inch nominal diameter, 0.010-inch machine slotted Sch. 40 PVC. Screen length will be 10 feet at each injection well.

C. Bottom Cap: The bottoms of the wells are to be capped with a flush-threaded cap.

D. Filter Pack: Filter pack shall consist of Morie #00 Sand, or equivalent.

E. Bentonite Seal:
   1. Bentonite shall consist of commercial grade high yield sodium bentonite pellets and shall be supplied with a maximum diameter of 1/2-inch.
   2. Bentonite Seal is also acceptable if conditions dictate.
   3. Bentonite pellets shall be hydrated for a minimum of 30 minutes after placement if placed above the water table. Water used for hydration shall be potable and free from oil, acid, alkali, organic matter or other deleterious substances.
   4. CONTRACTOR shall be responsible for obtaining the water required for the Work.
   5. Resulting bentonite seal shall have a maximum permeability of 1×10^{-7} cm/sec.

F. Surface Seal:
   1. Cement/Bentonite Slurries: A mixture with the ratio of three to five pounds of high yield bentonite powder for each 94 pound sack of Portland Cement, Type 1 or Type 2, and 6.5 gallons of water from a known, safe and uncontaminated source. Accelerator shall be limited to one to two percent by weight, if used.

2.2 ACCESSORIES

A. Well Head:
   1. The wellhead shall be comprised of seal, fittings, and accessories as shown.

PART 3 - EXECUTION

3.1 LOCATE WELL SITES

A. CONTRACTOR shall be responsible for locating the injection wells as shown prior to initiation of drilling.

3.2 PROVIDE ACCESS

A. CONTRACTOR shall be responsible for all measures necessary to gain access and transport all required equipment and materials to the injection well sites.

3.3 MOBILIZATION/DEMOBILIZATION

A. CONTRACTOR shall furnish all vehicles, equipment, supplies, labor, and incidentals to move equipment and materials to and from the Site. Upon demobilization, CONTRACTOR shall restore all areas to original grades and conditions.

3.4 WORKMANSHIP

A. Injection wells shall be clear of all waste or other deleterious materials prior to placement of filter pack.

B. Filter pack shall be continuous with no voids.

C. Bentonite seals shall be properly installed and hydrated prior to continuation of backfill.

D. Surface seal shall prevent leakage down the borehole from surface.

E. CONTRACTOR shall be responsible for proper containment, transport, and disposal of cuttings.

3.5 INSTALLATION

A. General:
   1. Install casing as shown, specified and as recommended by the manufacturer.
   2. Casing that is cracked, damaged crushed, gouged or in poor condition will be rejected.
   3. CONTRACTOR shall be responsible for physically siting the exact locations of all injection wells by employing a licensed surveyor to determine location relative to physical features. CONTRACTOR shall also determine the top of well elevation for each injection well after the injection wells have been completed.
   4. Drillers shall be advised that drilling operations for wells may be conducted through imported fill and natural geologic material.

B. Injection Wells:
   1. CONTRACTOR shall furnish, drill, and install the 2-inch diameter, PVC pipe as shown.
   2. Drilling methodology shall be the responsibility of CONTRACTOR. The depth of the finished injection well shall be field verified. All excavated material shall be contained, cleared from the location, and moved to an on-site location designated by the ENGINEER and approved by the DEPARTMENT. Waste material shall be transported off-site by CONTRACTOR.
   3. CONTRACTOR shall drill and install injection wells at the locations and depths shown. If a conflict exists, obtain clarification from the ENGINEER before proceeding.

4. CONTRACTOR shall flush the pipe to remove any debris that may have collected inside the pipe prior to installation.
5. The 2-inch, PVC pipe is to be installed by centering it within the hole.
6. The filter pack shall be installed around the slotted pipe. Take care to avoid bridging and overfilling or damage to the pipe.
7. No natural material (e.g. drill cuttings, garbage, solid waste, etc.) shall be allowed to fill the space next to the slotted pipe or riser. In the event the borehole wall collapses during installation of the injection well, CONTRACTOR shall correct this situation, at no additional cost to the DEPARTMENT. All procedures shall be completed to the satisfaction of the ENGINEER.

C. Well Log:
1. An accurate written log shall be maintained at all times, by CONTRACTOR. CONTRACTOR shall record the type, character, and depth of materials encountered, thickness of strata, water table depth and any additional information that may be helpful in interpreting the drilling log. In addition CONTRACTOR shall maintain a Drilling Penetration Rate Log at all times during drilling operations. The Drilling Penetration Rate Log shall include depth of penetration per time interval using a geolograph, or equal instrumentation, and shall also include documentation of periods of inactivity, fluid circulation, and other pertinent details as determined by the ENGINEER. All measurements for depths shall be referenced to existing ground surface at the injection well site. On completion of the borehole, four copies of the driller's formation log and the Drilling Penetration Rate Log shall be furnished to the ENGINEER.

D. Development by Surging, Bailing and Pumping:
1. The first stage of development shall occur after the placement of the filter pack to a level selected by the ENGINEER. Development shall be by swabbing. CONTRACTOR will submit details on how he intends to perform this operation including equipment specification. The development will begin at the bottom of the well and proceed upward. CONTRACTOR shall add sodium acid pyrophosphate or ENGINEER approved equivalent material to aid in dispersion of the drilling fluid. The dispersing agent shall be added to the well as directed by the ENGINEER.
2. CONTRACTOR shall employ a suitable device to measure the level of the filter pack in the annulus during development. Upon completion of swabbing all sand, silt, and other foreign material shall be removed from the interior of the well by bailing.
3. A careful record shall be kept of the amount of material added during placement and consolidation. Additional filter pack material may need to be added if significant settling occurs during development.
4. Final stage of development will be removal of a minimum of 4 well volumes of water until discharge water measures less than 5 NTU (turbidity) or until ENGINEER determines additional development is not required. Contain, transport and dispose of all development water.

E. Plumbness and Alignment:

1. CONTRACTOR shall perform a test for plumbness and alignment of the well casing prior to acceptance of the injection well by the ENGINEER. The test shall be performed by lowering a plummet or cage from the surface to the depth at which the cone reducer is installed and measuring deviations from the vertical axis at ten-foot depth intervals. The plummet or cage shall be at least one foot long and have a minimum outside diameter 1/2-inch smaller than the inside diameter of the casing. The test may be performed by CONTRACTOR at any time after the injection well casing is permanently set. The results of the test shall be analyzed by CONTRACTOR, and a plot of deviations versus depth in east-west and north-south orientations prepared and presented to the ENGINEER to document compliance with these requirements. In order to meet the requirement for plumbness and alignment, it is expected that CONTRACTOR shall exert careful control on drilling rates and bit weights and shall perform alignment tests at his own expense during the construction operations. Should the injection well fail to meet the requirements for plumbness and alignment, it shall be corrected by CONTRACTOR, or a new acceptable well drilled, at no additional cost to the DEPARTMENT.
2. To meet the test for alignment, the axis of the injection well casing shall not deviate from the vertical in excess of two-thirds the inside diameter of the casing per 100-feet of depth and the deviation shall be reasonably consistent regarding direction.

+ + END OF SECTION + +

Appendix C

Design Drawings

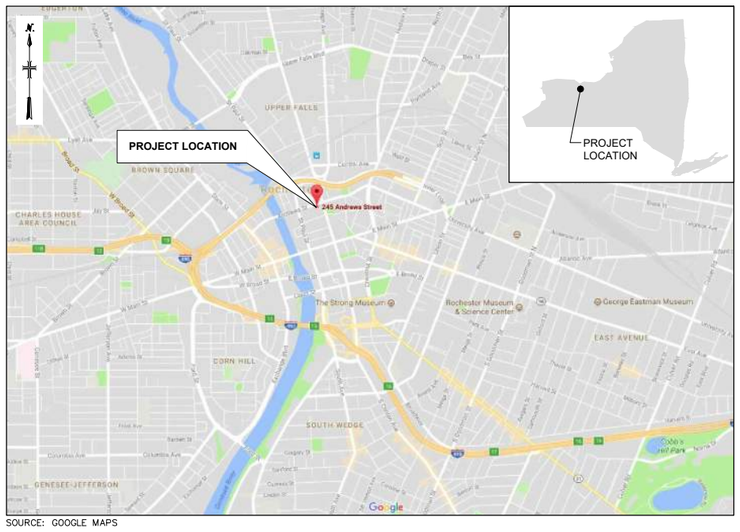
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION

FORMER SILVER CLEANERS, SITE NO. 828186

245 ANDREWS STREET, CITY OF ROCHESTER, MONROE COUNTY, NEW YORK

FORMER SILVER CLEANERS REMEDIAL CONSTRUCTION PROJECT- ISCO PHASE

FEBRUARY 2024



SOURCE: GOOGLE MAPS

SITE LOCATION MAP

0 1000' 2000'
APPROX. SCALE

INDEX TO DRAWINGS	
GENERAL	
SHEET NO.	**TITLE**
G-00	COVER SHEET
G-01	ABBREVIATIONS AND SYMBOLS
CIVIL	
SHEET NO.	**TITLE**
C-01	PROPOSED ISCO INJECTION WELLS AND GROUNDWATER WELLS
C-02	DETAILS I
C-03	DETAILS II

REMEDIAL DESIGN FOR CALL OUT IMPLEMENTATION

APPROVED FOR
ARCADIS OF NEW YORK, INC. _____

LEGAL ENTITY: ARCADIS OF NEW YORK, INC.

ARCADIS

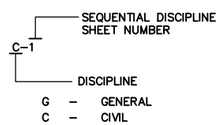
NOTE:
SCALES SHOWN HEREIN ARE FOR FULL SIZE 22"x34" PLOTS. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR CONVERTING SCALES ON REDUCED OR ENLARGED PLOTS.

USER: AAMAYA FILENAME: C:\USERS\AAMAYA\ARCADIS\PF-B1697616 - MARKTS NYSDEC PROJECTS - SILVER CLEANERS\REMEDIAL DESIGN\100% DESIGN\100% DRAWINGS(1)\CADD\ISCO PHASE\VRM-DESIGN-DR-G00.DWG SAVE DATE: 2/1/2024 1:05 PM PLOT DATE: 2/1/2024 1:14 PM

GENERAL NOTES

1. THE "DEPARTMENT" OR "NYSDEC" SHALL BE DEFINED AS THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION.
2. THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, MATERIALS, SUPPLIES, FACILITIES, POWER AND INCIDENTALS NECESSARY TO FULLY COMPLETE THE WORK AS SHOWN, AS SPECIFIED AND AS DIRECTED BY ARCADIS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING ALL WORK DESCRIBED IN THE CONTRACT DOCUMENTS, INCLUDING ITEMS NOT SPECIFICALLY IDENTIFIED, AS REQUIRED TO COMPLETE THE WORK.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS, AND THE CONTRACTOR'S APPROVED SUBMITTALS. IF ANY LAW, REGULATION AND/OR CONTRACT DOCUMENTS HAVE CONTRADICTING REQUIREMENTS, THEN THE MOST STRINGENT REQUIREMENT SHALL APPLY. LOCAL LAWS SHALL INCLUDE ANY TOWN, VILLAGE, CITY OR OTHER LOCAL REGULATORY AUTHORITY HAVING JURISDICTION.
4. THE CONTRACTOR IS RESTRICTED FROM PERFORMING ANY OPERATIONS OUTSIDE THE DEFINED CONTRACT LIMITS UNLESS OTHERWISE APPROVED BY ARCADIS. ADDITIONALLY, ALL WORK COMPLETED ON TEMPORARY EASEMENTS SHALL CONFORM WITH APPLICABLE ACCESS AGREEMENTS, INCLUDING TEMPORARY AND PERMANENT EASEMENTS OBTAINED FOR THE PROJECT.
5. THE CONTRACTOR SHALL IDENTIFY, APPLY FOR AND OBTAIN, PAY ALL FEES FOR, AND COMPLY WITH ALL REQUIREMENTS OF ALL ISSUED LICENSES, PERMITS, APPROVALS AND INSURANCE REQUIRED FROM FEDERAL, STATE AND LOCAL GOVERNMENT AND PUBLIC AGENCIES AND AUTHORITIES NECESSARY TO PERFORM THE WORK. THE CONTRACTOR SHALL PROVIDE INDEMNIFICATIONS TO PUBLIC AND PRIVATE AGENCIES AND AUTHORITIES AS NECESSARY TO PERFORM THE WORK.
6. PLANS DO NOT SHOW ALL UTILITIES. THE EXISTENCE AND LOCATION OF ANY UTILITIES INDICATED ON THE PLANS ARE NOT GUARANTEED AND SHALL BE INVESTIGATED AND VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING WORK. PUBLIC AND PRIVATE UTILITIES SHALL BE LOCATED BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE DEPARTMENT, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY COMPANY NO LATER THAN 48 HOURS PRIOR TO ANY EXCAVATION THAT MAY AFFECT THAT UTILITY. EXCAVATION IN THE VICINITY OF UNDERGROUND UTILITIES SHALL BE DUG BY HAND. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES.
7. CONTRACTOR SHALL NOT TURN OFF UTILITIES SERVICING PROPERTIES ADJACENT TO THE SITE WITHOUT PRIOR WRITTEN APPROVAL FROM ARCADIS. WORK SHALL BE SEQUENCED AS NEEDED TO MINIMIZE DURATION OF UTILITY SHUTOFFS.
8. THE CONTRACTOR SHALL NOTIFY ARCADIS A MINIMUM OF FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION. IN ADDITION, IF WORK SHOULD BE STOPPED AND RESTARTED FOR ANY REASON, THE CONTRACTOR SHALL GIVE THE DEPARTMENT A MINIMUM FIVE (5) DAYS NOTICE.
9. THE CONTRACTOR SHALL PERFORM DAILY CLEANUP OPERATIONS WHICH INCLUDE SWEEPING OF THE ROADWAYS, REMOVAL OF DEBRIS (TRASH, DEBRIS, ETC.), REMOVAL OF EXCESS CONSTRUCTION MATERIALS, ALL TO THE SATISFACTION OF THE DEPARTMENT THROUGHOUT THE CONTRACT DURATION.
10. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN TRAFFIC ON ALL ROADWAYS IMPACTED BY THE WORK. ALL ROADWAYS SHALL REMAIN OPEN AND ACCESSIBLE TO ALL, EXCEPT AS OTHERWISE SPECIFIED OR APPROVED. NO ROAD CLOSURES SHALL BE ALLOWED AS PART OF THE CONTRACT.
11. ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL STATUTES AND U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS (OSHA). CONTRACTOR ALONE WILL BE RESPONSIBLE FOR THE EXECUTION OF THE WORK IN ACCORDANCE WITH ALL APPLICABLE HEALTH AND SAFETY REQUIREMENTS. THE DEPARTMENT SHALL INSPECT THE WORK OR THE METHODS OF CONSTRUCTION FOR COMPLIANCE WITH THESE REQUIREMENTS.
12. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND CONDITIONS BEFORE COMMENCING WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REPORT ANY DISCREPANCIES TO THE DEPARTMENT IN A TIMELY MANNER. FAILURE TO PROSPECT IN ADVANCE OF WORK OR VERIFY DIMENSIONS SHALL NOT BE CAUSE FOR ADDITIONAL COSTS OR TIME TO THE DEPARTMENT.
13. SCALES SHOWN HEREIN ARE FOR FULL SIZE PLOTS ON 22" X 34" SHEETS. THE CONTRACTOR IS RESPONSIBLE FOR CONVERTING SCALES ON REDUCED OR ENLARGED PLOTS.
14. CONTRACTOR SHALL RESTORE SITE TO A CONDITION AT LEAST AS GOOD AS EXISTED PRIOR TO DISTURBANCE (IN KIND) UNLESS OTHERWISE SPECIFICALLY DIRECTED IN THE CONTRACT DOCUMENTS. DAMAGED ITEMS SHALL BE REPLACED AT THE CONTRACTOR EXPENSE.
15. BASE MAP SUPPLIED BY RAVI ENGINEERING AND LAND SURVEYING, P.C., AUTOCAD FILE: ACAD_2010_20-16-025_MAP_SUR_2DH.DWG, DATED FEBRUARY 3, 2016. HORIZONTAL COORDINATE SYSTEM: CITY OF ROCHESTER DATUM (NAD83). VERTICAL COORDINATE SYSTEM: CITY OF ROCHESTER DATUM.

DRAWING IDENTIFICATION SYSTEM



ABBREVIATIONS

AC	ACRE
A/C	AIR CONDITIONING
ADD'L	ADDITIONAL
AMSL	ABOVE MEAN SEA LEVEL
APPROX.	APPROXIMATE
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS
@	AT
&	AND
BC	BOTTOM OF CURB
BE	BOTTOM ELEVATION
BFF	BELOW FINISHED FLOOR
BIT.	BITUMINOUS
BL	BASELINE
BLS	BELOW LAND SURFACE
CB	CATCH BASIN
℄	CENTERLINE
C.O.	CLEAN OUT
CL	CHAIN LINK
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CONT	CONTINUE,CONTINUOUS
DEPT	DEPARTMENT
DET	DETAIL
DIA./ø	DIAMETER
DIM	DIMENSION
DWG(S)	DRAWING(S)
EA	EACH
EL,ELEV	ELEVATION
ELEC	ELECTRIC
ENT	ENTRANCE
EQ	EQUAL
EQUIP	EQUIPMENT
ETC	ET CETERA
EXIST	EXISTING
FF	FINISHED FLOOR
FT	FEET
GAL	GALLON
GC	GENERAL CONTRACTOR
HDPE	HIGH DENSITY POLYETHYLENE
ID	INSIDE DIAMETER
IW	INJECTION WELL
±	PLUS OR MINUS
LBS, #	POUNDS
LF	LINEAR FEET
MAX	MAXIMUM
MFTR/MFG	MANUFACTURER
MIN	MINIMUM
MUTCO	MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
MW	MONITORING WELL
N	NORTH
NAD	NORTH AMERICAN DATUM
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NO/#	NUMBER
NTS	NOT TO SCALE
NYSDOT	NEW YORK STATE DEPARTMENT OF TRANSPORTATION
OBW	OBSERVATION WELL
O.C.	ON CENTER
PCE	TETRACHLOROETHYLENE
ℙ	PLATE/PROPERTY LINE
PSI	POUND PER SQUARE INCH
PT OR PNT	POINT
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PZ	PIEZOMETER
REQ'D	REQUIRED
SB	SOIL BORING
SCH	SCHEDULE
SPECS	SPECIFICATIONS
SQ.	SQUARE
SQ. FT.	SQUARE FEET
SQ. IN.	SQUARE INCH
STD	STANDARD
TC	TOP OF CURB
TEMP.	TEMPORARY
TRAF	TRAFFIC
TYP	TYPICAL
UST	UNDERGROUND STORAGE TANK
W/	WITH
W/O	WITHOUT
WWF	WELDED WIRE FABRIC

SITE BOUNDARY LINE/LIMITS OF WORK
APPROXIMATE PROPERTY LINE
FENCE LINE
DRAINAGE CATCH BASIN
WATER VALVE
SIGN POST
LIGHT POLE
TRAFFIC LIGHT POLE
SOIL BORING
GEOTECHNICAL BORING
PIEZOMETER
OBSERVATION WELL
TELEPHONE LINE
COMMUNICATIONS LINE
UNDERGROUND ELECTRIC LINE
UNDERGROUND GAS LINE
EXTERIOR BUILDING WALL
UTILITY VAULT
CONTOUR LINE (PRE-CONSTRUCTION)
+529.56 SPOT ELEVATION (FT. AMSL)
GAS LINE STUB-UP
ELECTRIC LINE STUB-UP
PROPOSED MONITORING WELL
PROPOSED INJECTION WELL
EXISTING PASSIVE ISCO INJECTION RISERS

GENERAL SEQUENCE/SCOPE OF WORK

1. INSTALL TEMPORARY FENCE AND PRIVACY SCREEN.
2. INSTALL EROSION AND SEDIMENTS CONTROLS PRIOR TO ANY INTRUSIVE WORK.
3. FURNISH SPECIFIED TEMPORARY SERVICES AND CONTROLS.
4. FURNISH SPECIFIED H&S CONTROLS.
5. PREPARE AND IMPLEMENT THE COMMUNITY AIR MONITORING PLAN (CAMP).
6. PREPARE AND IMPLEMENT THE GEOTECHNICAL MONITORING PLAN PRIOR TO ANY INTRUSIVE WORK.
7. FURNISH DECONTAMINATION PAD AND SUPPORTING SYSTEMS PRIOR TO ANY INTRUSIVE WORK.
8. FURNISH WATER TREATMENT SYSTEM PRIOR TO INTRUSIVE WORK.
9. FURNISH STOCKPILE PAD(S) AS REQUIRED FOR STAGING OF CONTAMINATED SOILS IF NOT BEING DIRECT LOADED.
10. PRE EXCAVATION SURVEY.
11. ABANDON WELLS AND PIEZOMETERS THAT FALL WITHIN THE SOURCE EXCAVATION AREA.
12. DEMO BUILDING FOUNDATION AND ASPHALT AS REQUIRED FOR SOURCE EXCAVATION.
13. INSTALL EXCAVATION SUPPORT SYSTEM.
14. COMPLETE SOURCE EXCAVATION, CHARACTERIZATION, TRANSPORT, AND DISPOSAL OF CONTAMINATED SOILS.
15. POST EXCAVATION SURVEY.
16. INSTALL PASSIVE ISCO INJECTION HEADER SYSTEM.
17. INSTALL SOURCE EXCAVATION BACKFILL.
18. REMOVE EXCAVATION SUPPORT SYSTEM.
19. INSTALL DRAINAGE IMPROVEMENTS.
20. INSTALL ASPHALT AT DISTURBED AREAS.
21. REMOVE DECONTAMINATED PAD, STOCKPILE PAD(S), AND WATER TREATMENT SYSTEM.
22. REMOVE ITEM 1 TO 6.
23. AS-BUILT SURVEY.

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LEGAL ENTITY:
ARCADIS OF NEW YORK, INC.

CONSULTANTS

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SEALS

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation
Division of Environmental Remediation

FORMER SILVER CLEANERS REMEDIAL CONSTRUCTION PROJECT - ISCO PHASE

FORMER SILVER CLENAERS
SITE NO. 828186
CONTRACT NO. D009804-22
245 ANDREWS STREET
CITY OF ROCHESTER
MONROE COUNTY
NEW YORK

NO.	DATE	ISSUED FOR	BY

DATE: FEBRUARY 2024
PROJECT NO.: 30085744
FILE NAME: IRM-DESIGN-DR-G01
DESIGNED BY: T. MINEHARDT
DRAWN BY: A. AMAYA
CHECKED BY: D. LOEWENSTEIN

SHEET TITLE

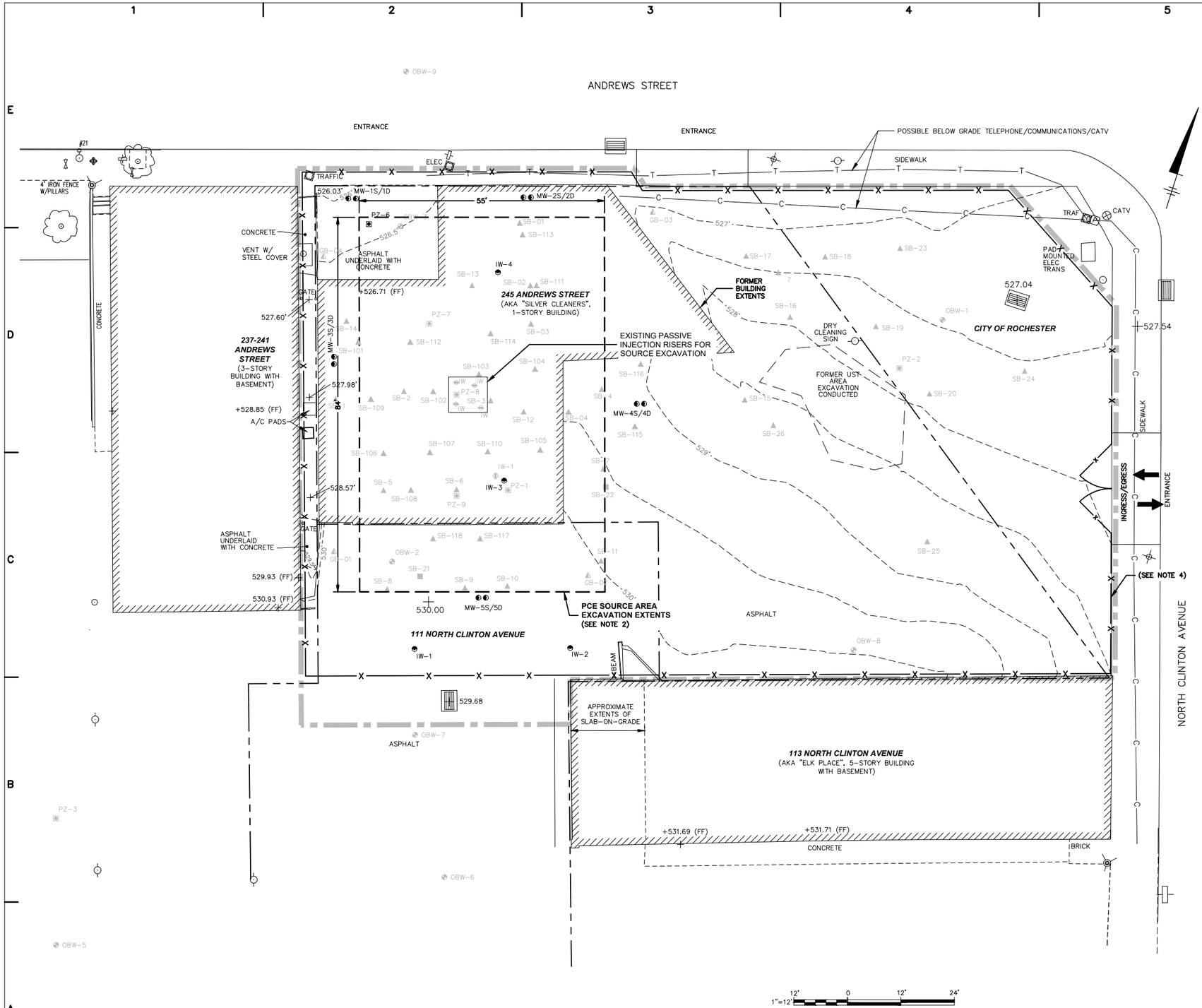
GENERAL

ABBREVIATIONS AND SYMBOLS

SCALE: NOT TO SCALE

G-01

SHEET 1 OF 3



LEGEND

- PCE SOURCE AREA EXCAVATION LIMITS
- CHEMICAL CONVEYANCE PIPING
- CHEMICAL INJECTION PIPING
- SITE BOUNDARY LINE/LIMITS OF WORK
- APPROXIMATE PROPERTY LINE
- TEMPORARY CHAIN LINK FENCING WITH PRIVACY SCREEN
- FENCE LINE
- PIEZOMETER (ABANDONED)
- OBSERVATION WELL
- OBSERVATION WELL (ABANDONED)
- SOIL BORING
- GEOTECHNICAL BORING
- 527' CONTOUR LINE
- PROPOSED MONITORING WELL
- PROPOSED INJECTION WELL
- SOIL BORING
- GEOTECHNICAL BORING
- EXISTING PASSIVE ISCO INJECTION RISERS

NOTE:

1. **INSTALL PROPOSED NEW MONITORING WELLS.**
2. **INSTALL PROPOSED ISCO INJECTION WELLS.**
3. **REPAIR ASPHALT DAMAGED DURING THE MONITORING AND/OR INJECTION WELL INSTALLATION IN KIND.**
4. **TEMPORARY FENCE MAY BE INSTALLED AT REDUCED LIMITS AT THE DISCRETION OF THE CONTRACTOR. FENCE AS REQUIRED TO SECURE SITE AND TO SUPPORT NECESSARY CONSTRUCTION AND SUPPORT ACTIVITIES WITH THE FENCED AREA.**

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ARCADIS OF NEW YORK, INC.

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CHECKED BY:	D. LOEWENSTEIN

SHEET TITLE

CIVIL

PROPOSED ISCO INJECTION WELLS AND GROUNDWATER WELLS

SCALE: AS SHOWN

C-01

SHEET 2 OF 4

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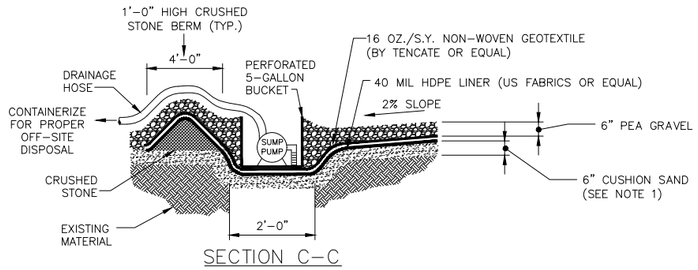
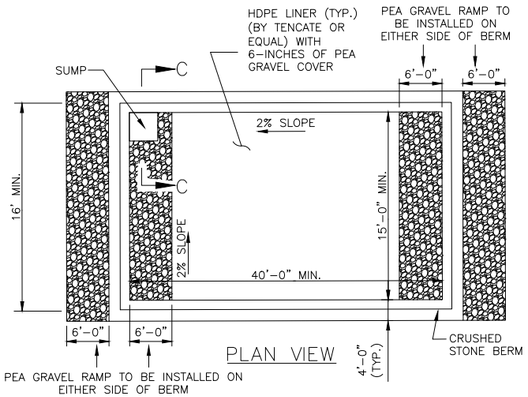


SECTION C–C



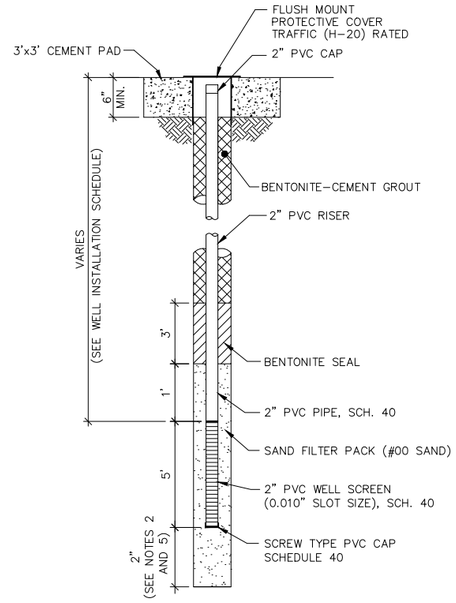
PLAN VIEW

NOTES:

1. CUSHION SAND SHALL CONSIST OF CONCRETE SAND CONFORMING TO THE REQUIREMENTS OF SECTION 703–07 OF THE NYSDOT STANDARD SPECIFICATIONS.
2. TO AVOID IMPACTING EXISTING PAVEMENT, CONTRACTOR SHALL BERM UP DECONTAMINATION AREA AS NEEDED TO INSTALL EQUIPMENT DECONTAMINATION AREA AT LOCATION AS SELECTED BY SUBCONTRACTOR AND ACCEPTABLE BY ARCADIS.
3. UPON COMPLETION OF CONSTRUCTION ACTIVITIES, THE MATERIALS USED FOR THE EQUIPMENT DECONTAMINATION AREA SHALL BE REMOVED, TRANSPORTED AND DISPOSED OF OFF–SITE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES.
4. UPON COMPLETION OF CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL RESTORE AREA IN–KIND TO THE LINES, GRADES AND DIMENSIONS OF THE EXISTING CONDITIONS (AS THEY EXISTED PRIOR TO INSTALLATION OF THE EQUIPMENT DECONTAMINATION AREA).

1 EQUIPMENT DECONTAMINATION AREA DETAIL

NOT TO SCALE



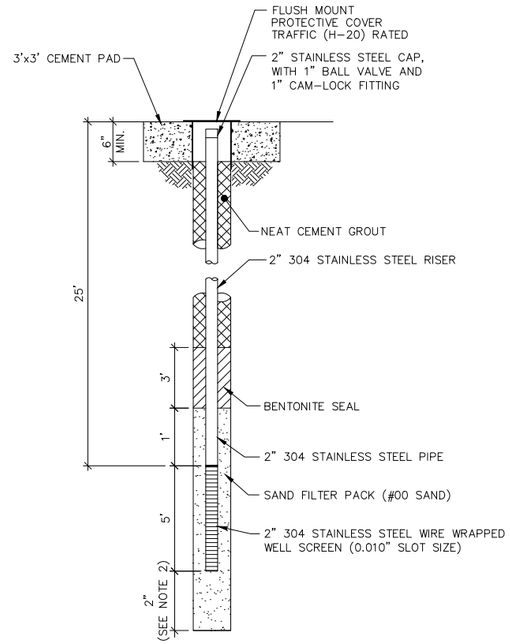
MONITORING WELL SCHEDULE		
WELL I.D.	PROPOSED GROUND SURFACE ELEV.	APPROXIMATE SCREEN INTERVAL (FT. B.G.S.) (SEE NOTES 2 – 4)
MW–1S	526.0	10–15
MW–1D	526.0	28–33
MW–2S	526.7	10–15
MW–2D	526.7	28–33
MW–3S	527.8	11–16
MW–3D	527.8	26–31
MW–4S	529.2	11–16
MW–4D	529.2	25–30
MW–5S	530.0	10–15
MW–5D	530.0	22.5–27.5

NOTES:

1. SCREEN INTERVALS ARE APPROXIMATE AND ACTUAL DEPTHS WILL BE BASED ON FIELD CONDITIONS/LITHOGRAPHY.
2. FOR SHALLOW WELLS SCREEN 1 FOOT INTO DENSE TILL TO 4 FEET ABOVE TOP OF DENSE TILL. BORING WILL BE ADVANCED 2 FEET INTO DENSE TILL WITH SAND 1 FOOT BELOW SCREEN.
3. FOR DEEP WELLS SCREEN FROM TOP OF COMPETENT ROCK TO 5 FEET ABOVE THE COMPETENT ROCK.
4. ASSUME DEEP WELLS SCREEN FROM TOP OF COMPETENT ROCK TO FEET ABOVE THE COMPETENT ROCK.
5. FOR DEEP WELLS, SAND AT BOTTOM OF SCREEN WILL EXTEND FROM BOTTOM OF BORING TO TOP OF ROCK. BORING WILL BE ADVANCED TO COMPETENT ROCK.

2 MONITORING WELL DETAIL

NOT TO SCALE



NOTES:

1. TYPICAL FOR ALL 4 INJECTION WELLS.
2. SAND AT BOTTOM OF SCREEN WILL EXTEND FROM BOTTOM OF BORING TO TOP OF ROCK. BORING WILL BE ADVANCED TO COMPETENT ROCK.

3 INJECTION WELL DETAIL

NOT TO SCALE

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LEGAL ENTITY:
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CONSULTANTS

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SEALS

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

Division of Environmental Remediation

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CITY OF ROCHESTER
MONROE COUNTY
NEW YORK

NO.	DATE	ISSUED FOR	BY

DATE: FEBRUARY 2024
PROJECT NO.: 30085744
FILE NAME: IRM–DESIGN–DR–C02
DESIGNED BY: T. MINEHARDT
DRAWN BY: A. AMAYA
CHECKED BY: D. LOEWENSTEIN

SHEET TITLE

CIVIL

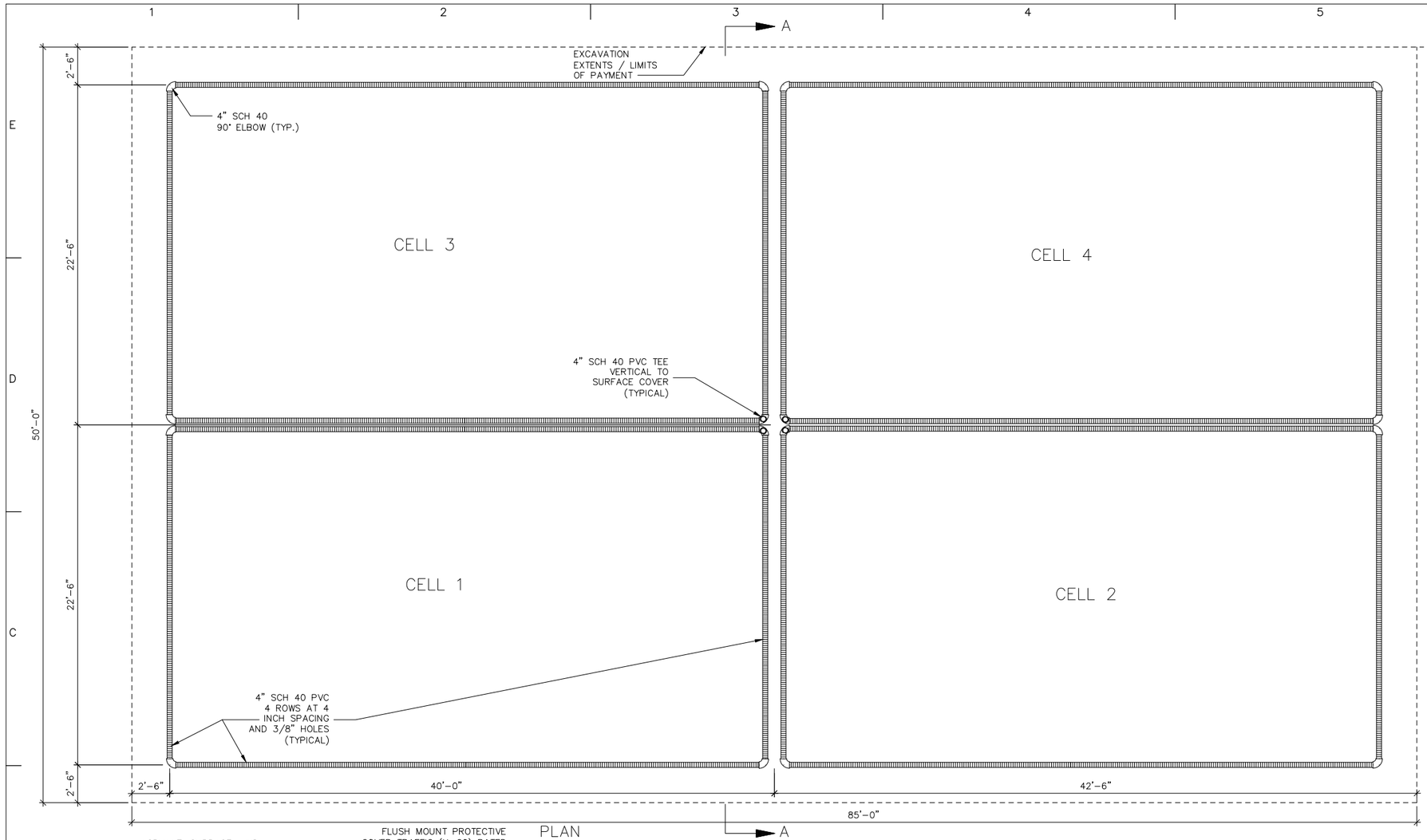
DETAILS I

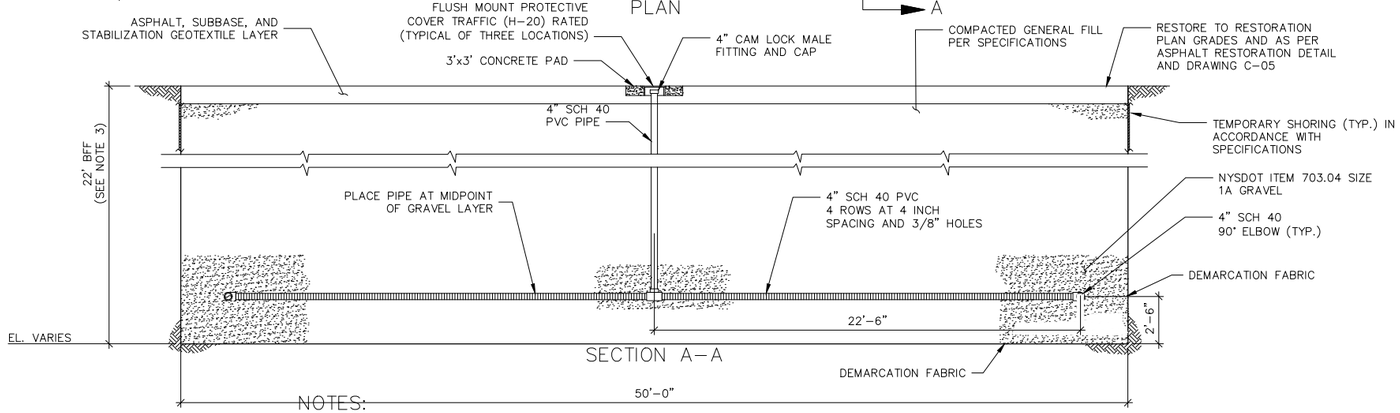
SCALE: AS SHOWN

C–02

SHEET 3 OF 3

User:AMAYA Spec:AUS–NCSMOD File:C:\USERS\AMAYA\ARCADIS\PF–81697616 – MARK'S NYSDEC PROJECTS – SILVER CLEANERS\REMEDIAL DESIGN\100% DESIGN\100% DRAWINGS(1)\CADD\ISCO PHASE\IRM–DESIGN–DR–C02.DWG Scale:1:1 SavedDate:2/14/2024 Time:16:23 Plot Date: Amaya, Andrew; 2/15/2024; 09:53 ; Layout:C–02



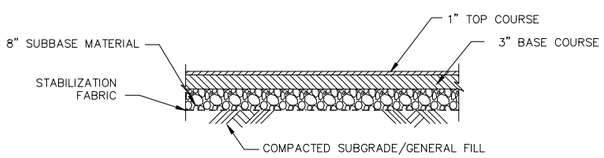


NOTES:

1. REFER TO SECTION 31 23 05 – EXCAVATION AND FILL, FOR BACKFILL MATERIAL REQUIREMENTS.
2. REFER TO SECTION 31 05 19 – GEOSYNTHETICS FOR EARTHWORK, FOR REQUIREMENTS FOR DEMARCATION AND SEPARATION FABRICS.
3. MAXIMUM DEPTH OF EXCAVATION WILL BE 22 FEET. MINIMUM DEPTH IS ASSUMED 20 FEET. EXCAVATION WILL BE A MINIMUM OF 1 FEET AND A MAXIMUM OF 2 FEET INTO DENSE GLACIAL TILL. REFER TO EXCAVATION CELL AS-BUILT.

1 PCE SOURCE AREA CHEMICAL INJECTION SYSTEM

NOT TO SCALE



NOTES:

1. REFER TO SECTION 31 04 19 – GEOSYNTHETICS FOR EARTHWORK, FOR STABILIZATION FABRIC REQUIREMENTS.
2. REFER TO SECTION 32 12 00 – FLEXIBLE PAVEMENT, FOR PAVEMENT REQUIREMENTS.
3. THIS DETAIL IS TYPICAL FOR ALL SURFACE RESTORATION.
4. CONTRACTOR SHALL SAWCUT EXISTING PAVEMENT TO CREATE A CLEAN AND UNIFORM TIE-IN AT EXISTING PAVEMENT.

2 ASPHALT PAVEMENT DETAIL

NOT TO SCALE

ARCADIS

LEGAL ENTITY:
ARCADIS OF NEW YORK, INC.

CONSULTANTS

REVIEW PACKAGE NOT FOR CONSTRUCTION

SEALS

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

Division of Environmental Remediation

FORMER SILVER CLEANERS REMEDIAL CONSTRUCTION PROJECT - ISCO PHASE

FORMER SILVER CLEANERS
SITE NO. 828186
CONTRACT NO. D009804-22
245 ANDREWS STREET
CITY OF ROCHESTER
MONROE COUNTY
NEW YORK

NO.	DATE	ISSUED FOR	BY

DATE:	FEBRUARY 2024
PROJECT NO.:	30085744
FILE NAME:	IRM-DESIGN-DR-C03
DESIGNED BY:	T. MINEHARDT
DRAWN BY:	A. AMAYA
CHECKED BY:	D. LOEWENSTEIN

SHEET TITLE

CIVIL

DETAILS II

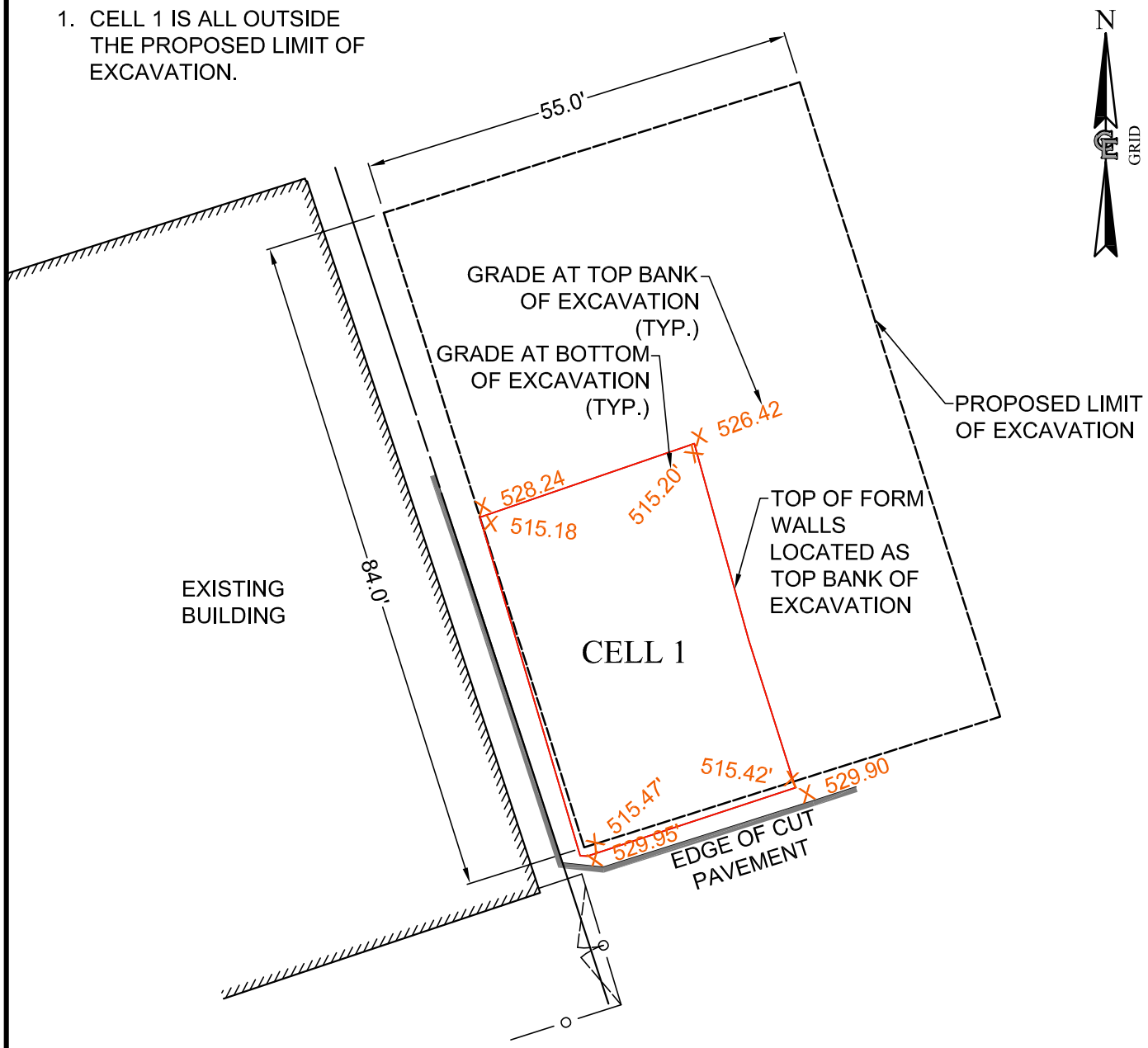
SCALE: AS SHOWN

C-03

SHEET 4 OF 4

SURVEY NOTES

1. CELL 1 IS ALL OUTSIDE THE PROPOSED LIMIT OF EXCAVATION.



LINE LEGEND

SECTION/PARCEL BOUNDARY

EXIST. EDGE OF PAVEMENT

BARBED WIRE,STOCKADE,CHAIN LINKED FENCE

x 420.4

EXISTING SPOT ELEVATION @ X

GRAPHIC SCALE

0 10 20

(IN FEET)

1 inch = 20 ft.

PROJECT MANAGER	S.C.K.
DRAWN BY	T.F.R.
BOUNDARY	---
TOPO/BASE	---
DATE	08/17/23
SCALE	1"=20'

COSTICH ENGINEERING

- CIVIL ENGINEERING
- LAND SURVEYING
- LANDSCAPE ARCHITECTURE

217 LAKE AVENUE
ROCHESTER, NY 14608
(585) 458-3020

TITLE OF PROJECT
FORMER SILVER CLEANERS
245 ANDREWS STREET

TITLE OF DRAWING
MAP OF EXCAVATION - CELL 1

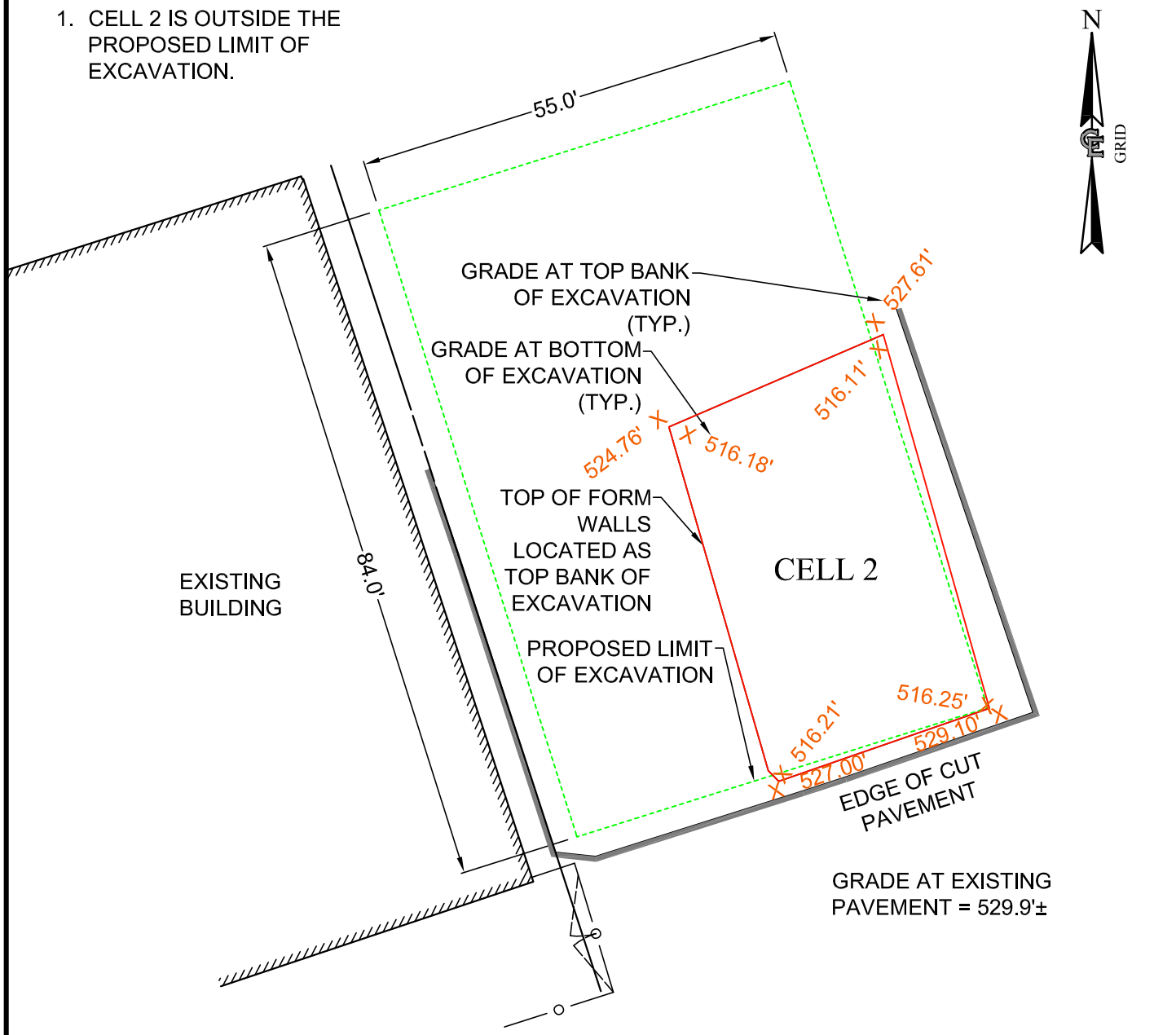
LOCATION OF PROJECT
T.A. # 106.79-01-33
CITY OF ROCHESTER,
COUNTY OF MONROE, STATE OF NEW YORK

CLIENT
SESSLER ENVIRONMENTAL SERVICES LLC
1330 RESEARCH FOREST
MACEDON, NEW YORK 14502

DWG. # 9139
VI100
SHEET 1 OF 1

SURVEY NOTES

1. CELL 2 IS OUTSIDE THE PROPOSED LIMIT OF EXCAVATION.



LINE LEGEND

SECTION/PARCEL BOUNDARY

EXIST. EDGE OF PAVEMENT

BARBED WIRE,STOCKADE,CHAIN LINKED FENCE

X 420.4 EXISTING SPOT ELEVATION @ X

GRAPHIC SCALE

0 10 20

(IN FEET)

1 inch = 20 ft.

PROJECT MANAGER	S.C.K.
DRAWN BY	T.F.R.
BOUNDARY	---
TOPO/BASE	---
DATE	08/25/23
SCALE	1"=20'

COSTICH ENGINEERING

- CIVIL ENGINEERING
- LAND SURVEYING
- LANDSCAPE ARCHITECTURE

217 LAKE AVENUE
ROCHESTER, NY 14608
(585) 458-3020

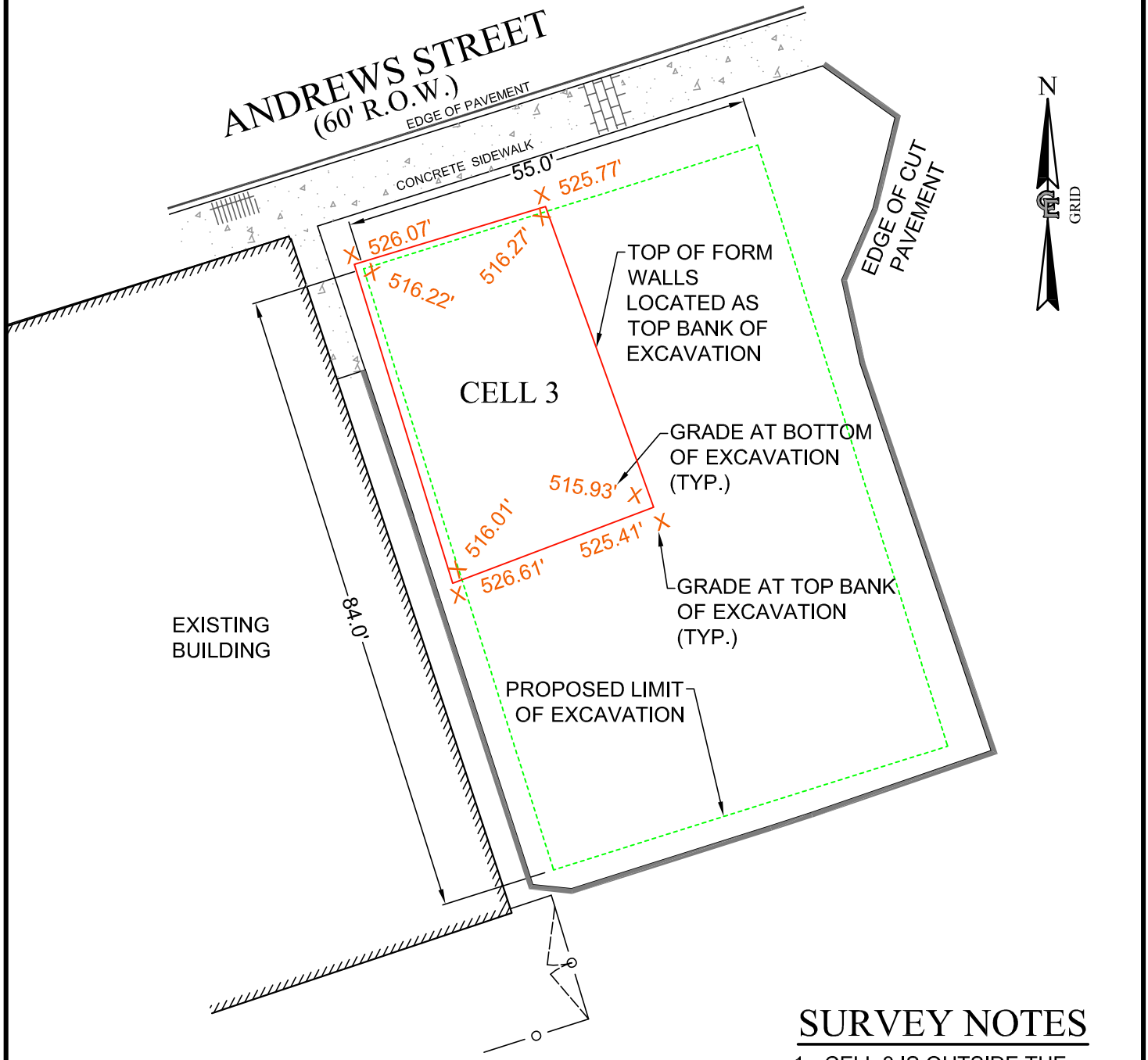
TITLE OF PROJECT
FORMER SILVER CLEANERS
245 ANDREWS STREET

TITLE OF DRAWING
MAP OF EXCAVATION - CELL 2

LOCATION OF PROJECT
T.A. # 106.79-01-33
CITY OF ROCHESTER,
COUNTY OF MONROE, STATE OF NEW YORK

CLIENT
SESSLER ENVIRONMENTAL SERVICES LLC
1330 RESEARCH FOREST
MACEDON, NEW YORK 14502

DWG. # 9139
VI100
SHEET 1 OF 1



SURVEY NOTES

1. CELL 3 IS OUTSIDE THE PROPOSED LIMIT OF EXCAVATION.

LINE LEGEND

SECTION/PARCEL BOUNDARY

EXIST. EDGE OF PAVEMENT

BARBED WIRE,STOCKADE,CHAIN LINKED FENCE

X 420.4 EXISTING SPOT ELEVATION @ X

GRAPHIC SCALE

0 10 20

(IN FEET)

1 inch = 20 ft.

PROJECT MANAGER	S.C.K.
DRAWN BY	T.F.R.
BOUNDARY	---
TOPO/BASE	---
DATE	09/06/23
SCALE	1"=20'

COSTICH ENGINEERING

- CIVIL ENGINEERING
- LAND SURVEYING
- LANDSCAPE ARCHITECTURE

217 LAKE AVENUE
ROCHESTER, NY 14608
(585) 458-3020

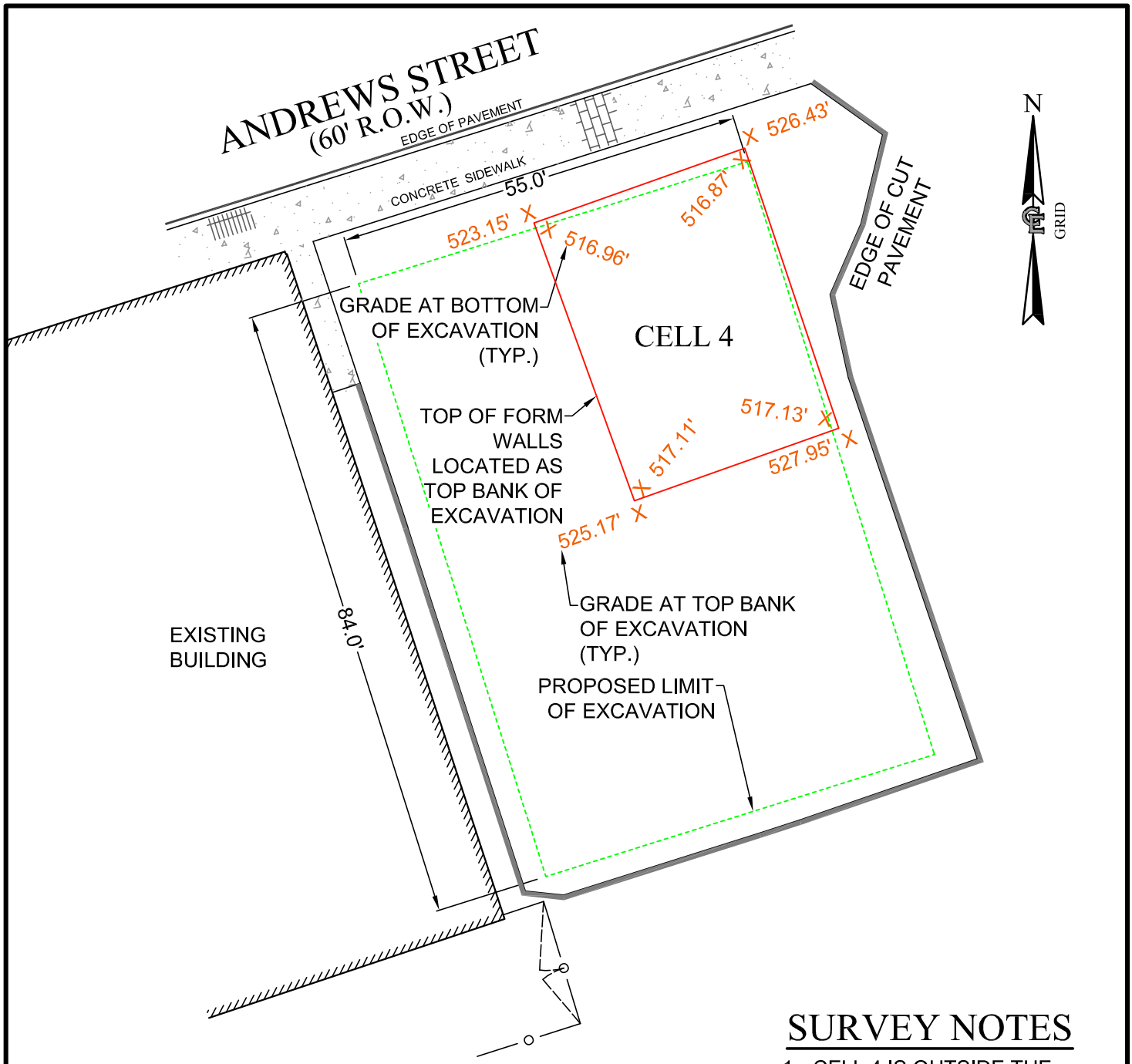
TITLE OF PROJECT
FORMER SILVER CLEANERS
245 ANDREWS STREET

TITLE OF DRAWING
MAP OF EXCAVATION - CELL 3

LOCATION OF PROJECT
T.A. # 106.79-01-33
CITY OF ROCHESTER,
COUNTY OF MONROE, STATE OF NEW YORK

CLIENT
SESSLER ENVIRONMENTAL SERVICES LLC
1330 RESEARCH FOREST
MACEDON, NEW YORK 14502

DWG. # 9139
VI100
SHEET 1 OF 1



SURVEY NOTES

1. CELL 4 IS OUTSIDE THE PROPOSED LIMIT OF EXCAVATION.

LINE LEGEND

SECTION/PARCEL BOUNDARY

EXIST. EDGE OF PAVEMENT

BARBED WIRE,STOCKADE,CHAIN LINKED FENCE

X 420.4 EXISTING SPOT ELEVATION @ X

GRAPHIC SCALE

0 10 20

(IN FEET)

1 inch = 20 ft.

PROJECT MANAGER	S.C.K.
DRAWN BY	T.F.R.
BOUNDARY	---
TOPO/BASE	---
DATE	09/08/23
SCALE	1"=20'

COSTICH ENGINEERING

- CIVIL ENGINEERING
- LAND SURVEYING
- LANDSCAPE ARCHITECTURE

217 LAKE AVENUE
ROCHESTER, NY 14608
(585) 458-3020

TITLE OF PROJECT
FORMER SILVER CLEANERS
245 ANDREWS STREET

TITLE OF DRAWING
MAP OF EXCAVATION - CELL 4

LOCATION OF PROJECT
T.A. # 106.79-01-33
CITY OF ROCHESTER,
COUNTY OF MONROE, STATE OF NEW YORK

CLIENT
SESSLER ENVIRONMENTAL SERVICES LLC
1330 RESEARCH FOREST
MACEDON, NEW YORK 14502

DWG. # 9139
VI100
SHEET 1 OF 1

Appendix D

Design Specifications

TABLE OF CONTENTS
SECTION XI – SUPPLEMENTARY SPECIFICATIONS

VOLUME 1 OF 1

+ + END OF TABLE OF CONTENTS + +

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SECTION 01 14 19

USE OF SITE

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for use of the Site during the Project, and includes requirements for use of existing facilities, as applicable.
   2. CONTRACTOR shall provide all labor, materials, equipment, tools, and incidentals shown, specified, and required to comply with restrictions on CONTRACTOR's use of the Site and other areas.

1.2 USE OF PREMISES

A. Limit use of premises at the Site to work areas shown or indicated on the Drawings. Do not disturb portions of the Site beyond areas of the Work.
   1. Access to Site, Access Roads, and Parking Areas: Refer to Section 01 55 13, Access Roads and Parking Areas.

B. Use of Existing Buildings and Structures: Obtain DEPARTMENT's written permission for each proposed use of existing buildings and structures.

C. Promptly repair damage to premises caused by construction operations. Upon completion of the Work, restore premises to specified condition; if condition is not specified, restore to pre-construction condition.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

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SECTION 01 31 13

PROJECT COORDINATION

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall coordinate the Work, including testing agencies whether hired by CONTRACTOR, DEPARTMENT, or others; Subcontractors, Suppliers, and others with whom coordination is necessary, in accordance with this Section, to perform the Work within the Contract Times and in accordance with the Contract Documents.

B. Coordination:
   1. CONTRACTOR shall cooperate with and coordinate the Work with other contractors, utility owners, utility service companies, DEPARTMENT's and facility manager's employees working at the Site, and other entities working at the Site, in accordance with Section 01 11 13, Summary of Work.
   2. CONTRACTOR will not be responsible or liable for damage unless damage is through negligence of CONTRACTOR, or Subcontractors, Supplier, or other entity employed by CONTRACTOR.
   3. Attend and participate in all project coordination and progress meetings, and report on the progress of the Work and compliance with the Progress Schedule.
   4. CONTRACTOR should anticipate coordinating any shoulder and/or lane closure of Andrews Street and adjacent property owner and businesses.5.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

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SECTION 01 35 44

SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section pertains to spill prevention control and countermeasures applicable to the Project under the provisions of 40 CFR 112 and other Laws and Regulations.
   2. CONTRACTOR shall provide all labor, materials, equipment, tools, professional services (when required), and incidentals as shown, specified, and required to comply with Laws and Regulations regarding spill prevention control and countermeasures (SPCC) planning and compliance, including 40 CFR 112.
   3. Single Prime Contract: CONTRACTOR shall determine whether a SPCC Plan is required. If SPCC Plan is required, CONTRACTOR shall prepare, implement, and maintain SPCC Plan as required by Laws and Regulations.

1.2 DETERMINATION OF NEED FOR SPCC PLAN FOR PROJECT

A. Determination of Need for SPCC Plan:
   1. CONTRACTOR shall determine need for SPCC Plan for the Project.
   2. CONTRACTOR's Professional Engineer:
      a. If the Site will include storage of more than 10,000 gallons of oil in above-ground storage, or if the Site does not comply with oil discharge history criteria specified in 40 CFR 112, CONTRACTOR shall retain a qualified professional engineer to determine need for SPCC Plan for the Project and, if SPCC Plan is required, professional engineer shall prepare or supervise preparation of SPCC Plan for the Project.
      b. If a professional engineer is not required to prepare the full SPCC Plan for the Project, but the SPCC Plan includes environmentally equivalent SPCC measures, or impracticality determinations, CONTRACTOR shall retain a qualified professional engineer to prepare and certify those portions of the SPCC Plan dealing with environmentally equivalent measures and impracticality determinations; the balance of the SPCC Plan may be prepared by and be self-certified by CONTRACTOR.
   3. Submit to ENGINEER letter presenting results of evaluation of whether a SPCC Plan is required for the Project in accordance with Laws and Regulations.

B. SPCC Plan is required when the Project activities at the Site meet the following criteria:

1. The Site and activities thereon are not exempt from Laws and Regulations relative to SPCC planning and implementation.
2. Oil is stored, used, transferred, or otherwise handled at the Site, unless otherwise exempted by Laws and Regulations.
3. Maximum oil storage capacity at the Site equals or exceeds either of the following thresholds: 42,000 gallons of completely buried capacity, or 1,320 of above-ground capacity. Capacity includes total storage tank volume and operational storage volume at the Site for contractors and Subcontractors, including bulk storage tanks, containers with 55-gallon storage capacity and larger, mobile tanks located at the Site, and other containers covered by Laws and Regulations. Exempt are motive storage containers, such as those on construction equipment and vehicles. Oil includes petroleum products, fuel oil, hydraulic fluid, oil sludge, oil refuse, oil mixed with wastes other than dredged material, synthetic oil, vegetable oil, animal fats and oils, and other oils defined in Laws and Regulations.
4. There is reasonable expectation, based on location of the Site, that oil spill would reach navigable waters of the United States or adjoining shorelines.

C. When SPCC Plan is not required, CONTRACTOR shall ensure that conditions that preclude the need for SPCC Plan for the Project, including the activities of all contractors and Subcontractors working on the Project at the Site, are maintained throughout duration of the Project. Should changes that affect the storage, use, or handling of oil at the Site occur, reassess the need for SPCC Plan for the Project at no additional cost to DEPARTMENT and submit to ENGINEER evaluation letter regarding need for SPCC Plan.

1.3 SPCC PLAN AND IMPLEMENTATION

A. When SPCC Plan is required, develop SPCC Plan and submit for acceptance by DEPARTMENT, with copy to ENGINEER. SPCC Plan shall be specific to the Site and the Project and shall include the following:
1. Seal or stamp, original signature, and license number of CONTRACTOR'S professional engineer, when self-certification by CONTRACTOR is not allowed by Laws and Regulations.
2. Site plan identifying the name (or tag number) and location of each tank and container that will contain a substance regulated in 40 CFR 112 and other Laws and Regulations, including above-ground and buried tanks. Site plan shall indicate general directions of storm water runoff, including storm sewers and drainage inlets (including arrows indicating directions of flow), and storm sewer outfall locations shown and labeled.
3. For each tank and container shown or indicated on the Site plan, include a table that lists the tank or container's name and tag number, type of oil stored therein, and maximum storage capacity. List total storage capacity of all regulated tanks and containers at the Site covered by SPCC Laws and Regulations.
4. Predictions of direction, rate of flow, and total quantity of oil that could be discharged from the Site as result of storage tank or container failure.

5. Operating procedures that prevent oil spills, including procedures for oil handling, details of secondary containment structures at fuel and oil transfer areas, and details and descriptions of equipment to be used for oil handling, including piping.
6. Control Structures and Secondary Containment:
    a. Furnish details of and descriptions of control measures installed at the Site by CONTRACTOR to prevent spill from reaching navigable waters of the United States and associated shorelines, including secondary containment and diversionary structures.
    b. For on-shore Sites, one of the following must be used, at minimum: dikes, berms, or retaining walls; curbing; culverts, gutters, or other drainage systems; weirs, booms, or other barriers; spill diversion ponds; retention ponds; or sorbent materials.
    c. Where appropriate, the SPCC Plan shall clearly demonstrate that containment or diversionary structures or equipment are not practical.
    d. Include brittle fracture evaluation, where required, for field-constructed above-ground storage containers undergoing repair, alteration, construction, or change in service.
7. Plans for countermeasures to contain, clean up, and mitigate effects of oil spill that reaches navigable waters of the United States or their shorelines, including written commitment of manpower, equipment, and materials to quickly control and remove spilled oil. Include estimation of time required to contain spill after spill occurs.
8. Contact list and telephone numbers for facility response coordinator, National Response Center, cleanup contractors, and all appropriate federal, state, and local authorities having jurisdiction to be contacted in event of spill or discharge.
9. Program for monthly inspections of the Site by CONTRACTOR for SPCC Plan compliance. Advise DEPARTMENT in writing of each inspection not less than 72 hours in advance.
10. Measures for Site security relative to oil storage.
11. Procedures for safely handling mobile containers such as totes, drums, and fueling vehicles and construction equipment that remain at the Site.
12 Procedures and schedules for periodic testing of integrity of tanks and containers, and associated piping and valves.
13. Plans for bulk storage container compliance.
14. Plans for personnel training and oil spill prevention briefings.
15. For SPCC Plans that do not follow the format listed in Laws and Regulations, provide cross-reference to requirements of Laws and Regulations, including 40 CFR 112.7.

B. Obtain acceptance of SPCC Plan by DEPARTMENT, for coordination with DEPARTMENT's Site-specific SPCC Plan, if any.

C. SPCC Plan shall be reviewed by CONTRACTOR's professional engineer (when professional engineer is required) and DEPARTMENT every five years, as applicable. CONTRACTOR shall perform updates and revisions of the Project's

SPCC Plan as necessary and submit same in accordance with the provisions of this Section for submittal and acceptance of initial SPCC Plan.

D. Post a copy of accepted, certified SPCC Plan in conspicuous location at the Site and furnish copies to DEPARTMENT, other contractors, and Subcontractors as appropriate. All contractors shall comply with SPCC Plan.

E. In event of violation of SPCC Plan or release of oils attributable to construction operations, CONTRACTOR shall:
   1. Immediately issue notifications in accordance with Laws and Regulations, including 40 CFR 110 and 40 CFR 112. When required by Laws and Regulations, report to National Response Center, US Environmental Protection Agency, and other authorities having jurisdiction, if any.
   2. Have spill clean-up performed in accordance with Laws and Regulations, the SPCC Plan, and requirements of authorities having jurisdiction.
   3. Pay fines and civil penalties (or responsible portion thereof) imposed on DEPARTMENT by authorities having jurisdiction, and pay costs associated with clean-up of spills.
   4. Should cleanup of spills attributable to CONTRACTOR be necessary, no resulting change in the Contract Price or Contract Times will be allowed. Should CONTRACTOR share responsibility for spill and cleanup with another entity, changes in Contract Price and Contract Times, if any, will be proportionate.

1.4 QUALITY ASSURANCE

A. Qualifications:
   1. CONTRACTOR's Professional Engineer:
      a. When required by Laws and Regulations, engage a licensed, registered professional engineer legally qualified to practice in the jurisdiction where the Site is located and experienced in performing engineering services of the type required.
      b. Submit qualifications data.
      c. Responsibilities include but are not necessarily limited to:
         1) Carefully reviewing Laws and Regulations relative to SPCC.
         2) Preparing written requests for clarifications or interpretations of criteria specified in the Contract Documents for submittal to DEPARTMENT by CONTRACTOR and obtaining from authorities having jurisdiction clarifications regarding Laws and Regulations as required.
         3) Preparing or supervising the preparation of letter-report evaluation of need for SPCC Plan in accordance with the Contract Documents. Evaluation shall include professional engineer's seal or stamp, registration number, and original signature.
         4) When SPCC Plan is required, preparing, supervising the preparation of, or reviewing the SPCC Plan (or designated portions thereof when oil storage at the Site will be 10,000 gallons or less) in

accordance with the Contract Documents. SPCC Plan (or designated portions thereof) shall include professional engineer's seal or stamp, registration number, and original signature.

5) Periodically re-evaluating the need for SPCC Plan and issuing findings as letter-reports with seal or stamp, license number, and signature. When SPCC Plan is required, periodically evaluating the SPCC Plan and providing recommendations for compliance with Laws and Regulations, in accordance with the Contract Documents.
6) Certifying that:
   a) it is familiar with the Laws and Regulations, including 40 CFR 112, and
   b) it has visited, examined, and is familiar with the Site, planned modifications to the Site under the Project as such modifications pertain to SPCC Laws and Regulations, and
   c) it has performed the evaluations and prepared SPCC Plan in accordance with the Contract Documents, and
   d) procedures for required testing and inspections have been established, and
   e) the said evaluations and SPCC Plan are adequate for the Project, and
   f) the said evaluations and SPECC Plan complies with Laws and Regulations, applicable industry standards, and to prevailing standards of practice.

1.5 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Certifications: With each evaluation letter and SPCC Plan submittal, include certification signed by preparer of submittal that the submittal complies with the Contract Documents and Laws and Regulations. Signature on all certifications shall be original.
   2. Evaluations:
      a. Submit letter presenting results of evaluation of whether a SPCC Plan is required for the Project. Submit evaluation not later than fourteen days after the Contract Times commence running, unless longer time is allowed by DEPARTMENT.
      b. Submit updated evaluations as required when conditions at the Site change. Submit updated evaluation not later than seven days after the conditions at the Site change, or within seven days of DEPARTMENT's request, unless longer time is allowed by DEPARTMENT.
   3. SPCC Plan: When SPCC Plan is required:
      a. Submit to DEPARTMENT within 14 days of receipt of DEPARTMENT's acceptance of evaluation submittal.
      b. Update and resubmit the SPCC Plan, or acceptable SPCC Plan amendments, as required when conditions at the Site change. Submit updated SPCC Plan or amendments not later than seven days after the

change in conditions at the Site change giving rise to the SPCC Plan change or amendment, or within seven days of DEPARTMENT's request, unless longer time is allowed by DEPARTMENT.

4. SPPC Plan Distribution: When SPCC Plan is required, submit copies of letters transmitting SPCC Plan and amendments (if any) to contractors and Subcontractors working at the Site.
5. Qualifications Statements: CONTRACTOR's professional engineer, when requested by DEPARTMENT.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 41 24

PERMIT REQUIREMENTS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes general requirements relative to permitting requirements of which DEPARTMENT are aware that apply to the Project.
   2. CONTRACTOR shall provide labor, materials, equipment, tools, and incidentals shown, specified, and required to obtain required permits and comply with required permits and licenses.
   3. Obtain, pay for, and comply with required permits, permit fees and licenses whether or not indicated in this Section or elsewhere in the Contract Documents.

B. Coordination:
   1. Contractor shall obtain local permits where applicable. Permits may include, but are not limited to: demolition permit, row work permit, traffic control permit, and hydrant connection permit.
   2. Coordinate compliance with permit and license requirements with Work under other Sections and with other contractors, if any, working at the Site.
   3. Coordinate with the Progress Schedule the time required to apply for and obtain required permits and licenses. Changes in Contract Times or Contract Price will not be authorized because of timing and costs associated with obtaining permits and licenses required for the Work.

C. Related Sections: In addition to permits and licenses required under this Section, obtain and comply with permits required under the following Sections:
   1. Section 01 35 43.13, Environmental Procedures for Hazardous Materials.
   2. Section 01 41 26, Storm Water Pollution Prevention Plan.
   3. Section 02 41 00, Demolition.

1.2 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Copy of each of the following permits as applicable to the Contract.
      a. Demolition permit from the City of Rochester, Building Department.
      b. City of Rochester right-of-way work permit.
      c. Traffic control permit (if required).
      d. Hydrant connection permit.
      e. Utility abandonment permit and fees as applicable.
      f. Sanitary Sewer Discharge Permit and discharge fees as applicable.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 41 26

STORM WATER POLLUTION PREVENTION PLAN

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for compliance with storm water pollution prevention plans (SWPPP) and permit(s) applicable to the Project.
   2. CONTRACTOR shall meet substantive requirements of the NYS State Pollutant Discharge Elimination System (SPDES) Program and shall be responsible for providing, inspecting, and maintaining necessary materials to minimum discharge of pollutants in storm water runoff from the site. These substantive requirements are defined in the following sections.
   3. Controls – General:
      a. 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.
      b. Prevent trash and demolition and construction debris from leaving the Site via storm water runoff.
      c. Provide berms, dikes, and other acceptable methods of directing storm water around work areas to drainage routes.
      d. Prior to starting the Work associated with such discharge, construction-related discharges to publicly owned conveyance or treatment systems shall be approved by owner of system to which the discharge will be directed.
   4. Water Quality:
      a. Do not cause or contribute to a violation of water quality standards, Laws, or Regulations.
      b. Notify DEPARTMENT of revisions to the SWPPP necessary to protect receiving water quality and comply with applicable permits. Provide and implement measures to control pollutants in storm water runoff from the Site to prevent:
         1) Turbidity increases that will cause a substantial visible contrast to natural conditions.
         2) Increase in suspended, colloidal, and settleable 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.
   5. CONTRACTOR shall pay civil penalties and other costs incurred by DEPARTMENT, including additional engineering and inspection services, associated with non-compliance with applicable permits related to storm water discharges associated with construction activity and sediment and erosion

controls associated with the Work. DEPARTMENT may deduct as set-offs such amounts from payments due CONTRACTOR.

6. Contract Price includes all material, labor, and other permits and incidental costs related to:
    a. Prepare and maintain drawing of SWPPP controls along with the inspection log and inspection reports from SWPPP inspections.
    b. Installing and maintaining structural and non-structural items used in complying with the SWPPP and its revisions.
    c. Clean-up, disposal, and repairs following wet weather events or spills caused by CONTRACTOR.
    d. Implementing and maintaining "best management practices", as defined in applicable permits and Laws or Regulations, to comply with requirements that govern storm water discharges at the Site.
7. Inspections of storm water, sediment, and erosion controls as specified.

B. Documents: The following are part of the Work included under this Section:
1. Storm Water Pollution Prevention Plan (SWPPP):
    a. Prepared by CONTRACTOR, submitted to the DEPARTMENT for review and comment, and filed with authorities having jurisdiction over storm water discharges during construction.
2. Sediment and Erosion Control Permit:
    a. Prepared by CONTRACTOR, submitted to the DEPARTMENT for review and comment, and filed with the authority having jurisdiction over sediment and erosion control during construction.
3. Storm Water Certification Statement:
    a. To be prepared by CONTRACTOR and submitted to DEPARTMENT on the form included with this Section, or on a form provided by authority having jurisdiction.
    b. Do not perform Work at the Site until the Storm Water Certification has been submitted to and accepted by DEPARTMENT.
4. Notice of Intent (NOI):
    a. Prepared by CONTRACTOR and submitted to authorities having jurisdiction following DEPARTMENT's receipt and acceptance of CONTRACTOR's SWPPP and preliminary Progress Schedule.
    b. NOI will be filed with authorities having jurisdiction by CONTRACTOR within ten days of DEPARTMENT's acceptance of CONTRACTOR's SWPPP and preliminary Progress Schedule.
    c. Do not perform Work at Site until NOI is submitted to and acknowledged by authorities having jurisdiction.
5. Co-permittee Agreement:
    a. Prepared by CONTRACTOR using forms included with the SWPPP and submitted to DEPARTMENT within five days of the date the Contract Times commence running, for signature by DEPARTMENT.
    b. CONTRACTOR will file co-permittee agreement with authorities having jurisdiction.
    c. Do not perform Work at the Site until co-permittee agreement is submitted to authorities having jurisdiction.

6. Storm Water Inspection Report:
    a. Prepared by DEPARTMENT using the form included with this Section, or a form provided by authority having jurisdiction.
    b. Storm water inspection reports will be filed in a log book kept at the Site by DEPARTMENT. Copy of each report will be furnished to CONTRACTOR upon request.
    c. Storm water inspection report will be completed for each of the following:
        1) Pre-construction: After placement of storm water management measures, including sediment and erosion controls, and temporary field offices and other temporary facilities, prior to starting other Work at the Site.
        2) During the Work: Every seven days until Notice of Termination is completed. When the Site is stabilized relative to storm water, erosion, and discharge of sediment, inspection frequency during temporary shutdowns and seasonal shutdowns is once per month until Notice of Termination is completed.
        3) Final: Final inspection report will be prepared prior to completion of Notice of Termination.
7. Notice of Termination (NOT):
    a. Prepared by CONTRACTOR on the form included with storm water permit and submitted to DEPARTMENT for review and signature by DEPARTMENT.
    b. CONTRACTOR will submit the NOT to authority having jurisdiction.
    c. CONTRACTOR shall submit the NOT following completion of all Work that may result in pollution in storm water discharges, including landscaping Work.
    d. Final Payment will not be made until the NOT is filed with authority having jurisdiction.

D. Coordination:
1. Coordinate requirements of this Section with requirements for earthwork, erosion control, and landscaping in the Contract Documents, applicable permit requirements, and Laws and Regulations.
2. Implement SWPPP controls and practices prior to starting other Work at the Site. Each prime contractor and Subcontractor identified in the SWPPP and SWPPP Revisions shall sign a copy of the storm water certification statement.

1.2 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with Laws and Regulations relative to environmental protection and restoration, including:
1. Storm water permit applicable to the Work and Site.
2. State and local erosion and sediment control guidelines and requirements,
3. State and local storm water regulations and guidance.

1.3 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Submit the following, in accordance with Paragraph 1.1.C and Article 1.4 of this Section. When the Project involves Work at multiple sites, submit each of the following for each Site, as applicable:
      a. SWPPP Revisions.
      b. Co-permittee Agreement.
      c. Storm Water Certification Statement.
      d. Notice of Termination
   2. Approval to Discharge to Publicly-owned Treatment Works:
      a. For storm water discharges associated with construction activity that are discharged to a publicly owned conveyance or treatment system, prior to commencing discharges, submit system owner's written approval for such discharges.
   3. Storm Water Site Plan Updates:
      a. Within three days after each storm water inspection, submit updated storm water site plan.

1.4 SWPPP REVISIONS

A. CONTRACTOR shall prepare a SWPPP Revision in accordance with the Project's storm water permit when:
   1. There is a significant change in design, construction, operation, or maintenance of the Project that significantly affects the potential of discharging pollutants to Waters of the United States and has not otherwise been addressed in the SWPPP.
   2. SWPPP proves to be ineffective relative to:
      a. eliminating or significantly minimizing pollutants from sources identified in the SWPPP required by the Project's storm water permit, or
      b. achieving general objectives of controlling pollutants in storm water discharges from permitted construction activity.
   3. Prepare and submit SWPPP Revision identifying prime contractors and Subcontractor responsible for implementing part of the SWPPP.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 INSPECTIONS AND REPAIRS

A. Perform Site inspections and assessments as required in applicable storm water permit and this Section. Inspections and assessments shall be done by CONTRACTOR's site superintendent or project manager, together with DEPARTMENT.

B. Inspections:
   1. During the Work, relative to the storm water permit, inspections of the Site shall be performed:
      a. Pre-Construction: After SWPPP controls are provided and prior to starting other Work at the Site.
      b. During the Work: Every seven days until Notice of Termination is completed and submitted to authority having jurisdiction. When the Site is stabilized relative to storm water, erosion, and discharge of sediment, inspection required frequency during temporary shutdowns and seasonal shutdowns is not less than once per month until Notice of Termination is completed.
      c. Prior to CONTRACTOR submitting the Notice of Termination.
   2. During each inspection, verify sediment control practices and record the approximate degree of sediment accumulation as percentage of acceptable sediment storage volume; inspect erosion and sediment control practices and record maintenance performed; observe and record deficiencies relative to implementation of the SWPPP. DEPARTMENT will complete Storm Water Inspection Reports and CONTRACTOR shall record and submit the following.

      a. Storm Water Site Plan: On a copy of the Site plan included in the Contract Documents or other map of the Site acceptable to DEPARTMENT, indicate extent of all disturbed areas and drainage pathways. Indicate areas expected to undergo initial disturbance or significant site work within the next fourteen days.
      b. Indicate on storm water site plan areas of Site that have undergone temporary or permanent stabilization.
      c. Indicate on storm water site plan all disturbed areas that have not undergone active site Work during the previous 14 days.

C. Maintain at the Site a copy of storm water site plans from each storm water inspection and submit each storm water site plan to DEPARTMENT. DEPARTMENT will maintain at the Site a log book with a copy of each Storm Water Inspection Report.

D. Cooperate with representatives of authorities having jurisdiction during their periodic visits to the Site, and promptly furnish information requested by authorities having jurisdiction.

E. Perform repairs to SWPPP controls, in accordance with applicable requirements and to satisfaction of DEPARTMENT, within two days of each inspection.

3.2 ATTACHMENTS

A. The documents listed below, following this Section's "End of Section" designation, are part of this Specifications Section. Notice of Intent (NOI) form, Co-permittee

Agreement form, and Notice of Termination (NOT) form are included with storm water permit.

1. Storm Water Inspection Report form (two pages).
2. Storm Water Permit Certification form (one page).
3. SWPPP Revision Form (one page).

+ + END OF SECTION + +

STORM WATER INSPECTION REPORT

Owner:
Site:
Project:
Contractor:

Date of Inspection:_____
Day of Week:

S	M	T	W	T	F	S

Sheet No. _____ of _____ Sheets

If pertinent to the Operation	
Weather	
Temperature	

This inspection and maintenance form is to be used when the Work is subject to a Storm Water General Permit for Construction Activity. Inspections shall be performed not less than once every seven calendar days; for sites that are stabilized and temporarily shut down inspections may be reduced to once per month. Each erosion and sediment control measure installed on the Site is to be inspected and the Contractor must complete all required maintenance within two calendar days from the date of inspection.

Reason for this inspection:
- ☐ Pre-construction Site assessment
- ☐ Seven calendar day inspection
- ☐ Monthly inspection (when Site is stabilized and shut down)
- ☐ Post-construction inspection prior to Notice of Termination

Key for erosion and sediment control measures to be inspected: [Use the following designations in the table below] (1) mulch, (2) seed and mulch, (3) check dams, (4) hay bale/straw bales, (5) silt fence, (6) sediment trap, (7) turbidity curtains, (8) pipe slope drains, (9) drainage structure inlet protection, (10) rolled erosion control products, (11) soil stabilizers, (12) construction entrances, (13) pipe inlet/outlet protection, (14) water diversion structures, (15) sedimentation basins, (16) cofferdams, (17) Other _____.

ID	Location	Disturbance		Measure		Remarks (Evaluate integrity of measure, describe evidence of erosion)	Approximate Sediment Accumulation (% of Depth)	Maintenance Required? (Y or N) (If Yes, Describe Below)
		Existing? (Y or N)	Next 14 Days? (Y or N)	Code #	Temp or Perm? (T, P or NA)			
1								
2								
3								
4								
5								
6								
7								
8								

ID	Location	Disturbance		Measure		Remarks (Evaluate integrity of measure, describe evidence of erosion	Approximate Sediment Accumulation (% of Depth)	Maintenance Required? (Y or N) (If Yes, Describe Below)
		Existing? (Y or N)	**Next 14 Days?** (Y or N)	**Code #**	**Temp/Perm or N/A?** (T, P or NA)			
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

DESCRIPTION OF REQUIRED MAINTENANCE AND ANY EXISTING DEFICIENCIES IN THE SWPPP: Specify for each location using row ID number.

I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system to ensure that qualified personnel property gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein may be punishable by Law.

Signature: _____ Prepared: _____ Copy to Contractor: _____
Resident Project Representative (Date) (Date)

Qualified Professional Name _____
(w/Firm Name, if Consultant)

STORM WATER PERMIT CERTIFICATION

Contract Number:_____ Project:_____

Owner:_____

Each Contractor and Subcontractor identified in the Storm Water Pollution Prevention Plan (SWPPP) must certify that they understand the permit conditions and their responsibilities. Every Contractor and Subcontractor performing an activity that involves soil disturbance shall sign this certification and submit it to the DEPARTMENT prior to performing the Work. This certification shall be signed by an owner, principal, president, secretary, or treasurer of the firm.

> I certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP for the construction Site identified in such SWPPP as a condition of authorization to discharge storm water. I also understand that my firm and its employees and Subcontractors shall comply with the terms and conditions of Owner's general permit for storm water discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards, Laws, or Regulations.

Firm: _____

Address: _____

City:_____ State_____ Zip_____

_____ _____ _____

Name (Print) Signature Date

_____

Title

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REVISION

Date of Inspection: _____

Sheet No. _____ of _____ Sheets

Owner:
Site:
Project:
Contractor:

This form shall be used when revisions to the current Storm Water Pollution Prevention Plan (SWPPP) are required by the Storm Water General Permit for Construction Activity or the Contract Documents.

Reason for the Revision(s): Revisions were requested by State: ☐ Yes ☐ No

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Describe the Revision(s) to the SWPPP: _____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein may be punishable by Law.

Signature: _____ Prepared: _____ (Date) Submitted: _____ (Date)

Copy to: ☐ Department ☐ Contractor _____

SECTION 01 41 27

EARTHMOVING PERMIT AND DUST CONTROL

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for controlling fugitive dust emissions resulting from construction activities, including earthmoving.
   2. CONTRACTOR shall obtain, pay for, and comply with permits required for earthmoving and dust control required because of dust-generating operations related to the Work, and shall develop and comply with provisions of dust control plan.
   3. Provide necessary labor, materials, equipment, tools, services, and incidentals to: apply sufficient dust suppressants; properly clean all track-out areas to driveways, roadways, and highways; and provide adequate physical stabilizations of soils to comply with earthmoving permits and accepted dust control plan.
   4. Control fugitive dust generation from CONTRACTOR's operations including the following:
      a. Construction areas.
      b. Vehicle and equipment parking areas.
      c. Material and equipment storage areas.
      d. Field office area(s) and staging areas.
      e. Haul and access roadways.
      f. Track-out areas.
      g. Other areas where CONTRACTOR will work, store materials or equipment, or park vehicles and equipment.
   5. Do not cause or allow dust-generating operations, earthmoving operations, use of property, or other operations that result in fugitive dust emissions that exceed limits prescribed by authorities having jurisdiction.
   6. Pay fines and civil penalties incurred by DEPARTMENT because of CONTRACTOR's actions or violations of earthmoving permits and dust control plan. DEPARTMENT may deduct as set-offs such amounts from payments due CONTRACTOR.

1.2 SUBMITTALS

A. Informational Submittals: Submit the following:
   1 Dust Control Plan:
      a. Prepare and submit to DEPARTMENT in accordance with Article 1.4 of this Section. Submit within the earlier of 30 days after the Contract Times commence running or prior to commencing earth-disturbing operations at the Site.

2. Earthmoving Permit:
    a. Submit copy of permits obtained from authorities having jurisdiction, within seven days of CONTRACTOR's receipt of such permits. Do not commence earthmoving operations at the Site until required permits are obtained and submitted to DEPARTMENT.
3. Daily Logs and Reasonably-Available Control Measures (RACM) Records:
    a. Submit upon request of DEPARTMENT.
4. Field Quality Control Submittals:
    a. When opacity monitoring is required, submit results not later than two days following completion of observations.

1.3 POSTING AND RECORDKEEPING

A. Post copy of earthmoving permit and accepted dust control plan at conspicuous location at the Site.

B. Recordkeeping:
1. Maintain daily written log to record the actual application or implementation of reasonably-available control measures (RACM) described in the accepted dust control plan.
2. Maintain the written log and supporting documentation at the Site and submit copies to DEPARTMENT upon request.
3. Retain copies of dust control plan, RACM implementation records, and supporting documentations for not less than three years after Substantial Completion of the entire Project.

1.4 DUST CONTROL PLAN

A. Prepare and submit to DEPARTMENT a dust control plan that includes the following:
1. Names, address, office and cellular telephone numbers, and e-mail address of person(s) responsible for preparing and overseeing implementation of dust control plan. Designate one person responsible for overseeing implementation of dust control plan for the Project.
2. Name(s), address(es), office and cellular telephone numbers, and e-mail addresses of person(s) responsible for dust generating operations.
3. Site plan delineating total area of land surface to be disturbed. Delineate each area of phased disturbances, when applicable.
4. Total disturbed area in acres; earthmoving and dust-generating operations and activities to be performed at the Site; actual and potential sources of fugitive dust emissions; and delivery, transportation, and storage areas for the Site, including types of materials stored and appropriate size of material stockpiles.
5. Description of reasonably-available control measures (RACM) to be implemented during dust-generating operations at actual and potential sources of fugitive dust.

6. Description of dust suppressants to be used including product data and safety data sheets (SDS); method, frequency, and intensity of application; type, number, and capacity of application equipment; and certifications related to the suppressant's appropriate and safe use. Calcium chloride is not allowed.
7. Description of specific surface treatment(s) or RACM proposed for controlling material deposition along paved surfaces (e.g., "track-out" areas) where unpaved Site surfaces or Site access points meet paved surfaces.
8. As contingency measure, designate and include description of not less than one alternative RACM for each actual and potential fugitive dust source.
9. Dust control plan shall also comply with the criteria outline in DER-10.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FIELD QUALITY CONTROL

A. Testing and Monitoring.
   1. Upon direction of DEPARTMENT, obtain opacity observations for visible emissions of fugitive dust.
   2. Opacity Monitoring Method:
      a. USEPA Method 9, Visual Determination of Opacity of Emissions from Stationary Sources (Emission Measurement Technical Information Center Test Method 009).
   3. Location and Frequency of Opacity Observations:
      a. Obtain opacity observations from not less than six locations at downwind perimeter of the Site during construction operations.
      b. Perform opacity monitoring at frequency required by applicable earthmoving/dust control permit, unless more-frequent monitoring is required by DEPARTMENT.
   4. Qualifications: Opacity monitoring observations shall be by person trained and experienced with the opacity monitoring method specified.
   5. Prepare and submit to DEPARTMENT written report of results of opacity monitoring and observations.
   6. No additional compensation or addition to the Contract Times will be authorized for opacity observations.

+ + END OF SECTION + +

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SECTION 01 45 29.23

TESTING LABORATORY SERVICES FURNISHED BY OWNER

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. DEPARTMENT will employ and pay for an independent testing laboratory to perform specified services. Testing laboratory selected will be subject to DEPARTMENT's acceptance.
   2. CONTRACTOR shall pay for:
      a. Tests not specifically indicated in the Contract Documents as being DEPARTMENT's responsibility.
      b. Tests made for CONTRACTOR's convenience.
      c. Repeat tests required because of CONTRACTOR's negligence or defective Work
      d. Tests required after failure of two or more of the same test for the same item to comply with the Contract Documents, for tests initially paid for by DEPARTMENT.
   3. Testing laboratory is not authorized to approve or accept any portion of the Work or defective Work; rescind, alter, or augment requirements of Contract Documents; and perform duties of CONTRACTOR.

1.2 REFERENCES

A. Standards referenced in this Section are:
   1. ASTM E329, Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
   2. ISO/IEC 17025, General Requirements for the Competence of Testing and Calibration Laboratories.
   3. NIST SRM, Standard Reference Materials.

1.3 QUALITY ASSURANCE

A. Qualifications:
   1. Testing Laboratory:
      a. Testing laboratory will comply with applicable requirements of ASTM E329.
      b. Testing laboratory will be authorized to operate in the same jurisdiction as the Site. Where applicable, laboratory will be certified by the authority having jurisdiction for the types of testing required.
      c. Testing equipment used by laboratory will be calibrated at intervals of not more than twelve months by devices of accuracy traceable to one of the following: NIST SRM, ISO/IEC 17025, certified by state or local

bureau of weights and measures, or values of natural physical constants generally accepted in the engineering and scientific community.

1.4 SUBMITTALS

A. Informational Submittals: Testing laboratory will submit the following:
   1. Quality Control Submittals and Test Reports: Promptly submit to DEPARTMENT and CONTRACTOR results of testing and inspections, in accordance with Section 01 33 00, Submittal Procedures, including:
      a. Date issued.
      b. Project title, number, and name of the Site.
      c. Testing laboratory name and address.
      d. Name and signature of inspector or person obtaining samples.
      e. Date of inspection or sampling.
      f. Record of temperature and weather.
      g. Date of test.
      h. Identification of material or item tested, and associated Specifications Section.
      i. Location in the Project.
      j. Type of inspection or test.
      k. Results of tests and observations regarding compliance with the Contract Documents.
   2. Qualifications Statements: Upon CONTRACTOR's request, testing laboratory will submit the following:
      a. Testing Laboratory:
         1) Qualifications statement indicating experience and facilities for tests required under the Contract Documents.
         2) Copy of report of inspection of facilities during most recent NIST inspection tour. Include memorandum of remedies of deficiencies reported during inspection.
         3) Copy of certificate of calibration for each instrument or measuring device proposed for use, by accredited calibration agency.

1.5 TESTING LABORATORY DUTIES

A. DEPARTMENT-hired testing laboratory will:
   1. Cooperate with CONTRACTOR and DEPARTMENT and provide qualified personnel promptly when notified.
   2. Perform required inspections, sampling, and testing of materials and methods of construction; comply with applicable reference standards and the Contract Documents; and ascertain compliance with requirements of the Contract Documents.
   3. Promptly advise DEPARTMENT and CONTRACTOR in writing of irregularities and deficiencies in the Work observed during performance of services.
   4. Submit to DEPARTMENT and CONTRACTOR written reports of inspections and tests required by the Contract Documents.

5. Perform additional tests and services as required by DEPARTMENT or DEPARTMENT to verify compliance with the Contract Documents.

1.6 CONTRACTOR'S COORDINATION WITH TESTING LABORATORY

A. CONTRACTOR shall perform and provide the following relative to DEPARTMENT-hired testing laboratory:
   1. Provide to testing laboratory representative samples of materials to be tested, in required quantities.
   2. Provide labor and facilities:
      a. For access to the Work to be tested, and where required, to Suppliers' operations.
      b. For obtaining and handling samples at the Site.
      c. For facilitating inspections and tests.
      d. For laboratory's exclusive use for storing and curing of test samples.
      e. Forms for preparing concrete test beams and cylinders.
   3. Notify testing laboratory and DEPARTMENT sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.
   4. Arrange with testing laboratory and pay for additional services, sampling, and testing required for CONTRACTOR's convenience.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

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SECTION 01 55 26

MAINTENANCE AND PROTECTION OF TRAFFIC

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall keep all roads, streets, and traffic ways open for passage of traffic and pedestrians during the Work, unless otherwise approved by owner of the street, traffic way, or right-of-way, as applicable.
   2. Construction traffic shall access the Site only via entrance(s) indicated on the drawings.
   3. Unless otherwise shown or indicated, maintenance and protection of traffic shall be in accordance New York State Department of Transportation specifications.
   4. In the event a permanent lane closure (lane closure lasting more than the duration of the site operational hours) is required at Lee Road to complete the work a temporary traffic light system will be required to operate during and after normal site operational hours to provide continuous traffic controls. Required traffic controls will be installed and maintained in accordance with the requirements of the City of Rochester.
   5. Unless lane closures are only temporary during the normal site working hours, temporary traffic controls and flaggers will not be acceptable.

B. Coordination:
   1. Coordinate with owner of the highway or street right-of-way, as applicable, for maintenance and protection of traffic requirements.
   2. Give required advance notice to fire departments, police departments, and other emergency services as applicable of proposed construction operations.
   3. Give reasonable notice to owners or tenants of private property who may be affected by construction operations. Give such notice not less than five days prior to when such property will or may be affected by construction operations.
   4. Coordinate with requirements of the following:
      a. Section 01 55 13, Access Roads and Parking Areas.
      b. Section 01 71 33, Protection of the Work and Property, regarding temporary barriers.
      c. Section 31 23 05, Excavation and Fill, for temporary barriers at excavations.

1.2 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Procedure Submittals: Detailed plan, procedures, and sequencing for maintaining and protecting traffic in accordance with the Contract Documents

and requirements of authorities having jurisdiction. Include in the submittal the following:

a. Traffic staging plan, and construction sequencing as applicable to maintain and protect traffic.
b. Product data, including manufacturer's catalog information and specifications, for temporary signage, temporary signals, temporary illumination devices, and other products to be utilized in maintaining and protecting traffic.
c. Indication of number and types of personnel dedicated to maintaining and protecting traffic during construction.
d. Indication of plan acceptance from authorities having jurisdiction.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 GENERAL PROVISIONS

A. When required to cross, obstruct, or temporarily close a street or traffic way, provide and maintain suitable bridges, detours, or other acceptable temporary expedient for the accommodation of traffic. Closings shall be for shortest duration practical, and passage shall be restored immediately after completion of filling and temporary paving or bridging.

B. Temporary Control Devices:
   1. Provide temporary signs, signals, barricades, flares, lights and other equipment, services, and personnel required to regulate and protect traffic and warn of hazards.
   2. Such Work shall comply with requirements of DEPARTMENT and authorities having jurisdiction at the Site.
   3. Remove temporary equipment and facilities when no longer required and restore grounds to condition indicated in the Contract Documents; if not indicated, resort to pre-construction conditions.

C. Keep accessible for use permanent facilities such as hydrants, valves, fire alarm boxes, postal boxes, delivery service boxes, and other facilities that may require access during construction.

3.2 TRAFFIC SIGNALS AND SIGNS

A. Provide and operate temporary traffic controls and directional signals required to direct and maintain an orderly flow of traffic in areas under CONTRACTOR's control, and areas affected by construction operations.

B. Provide temporary traffic controls and directional signs, mounted on temporary barriers or standard posts, at the following locations:
   1. Each change of direction of a roadway and at each crossroad.
   2. Detours and areas of hazard.
   3. Parking areas.
   4. Traffic entrance to and exit from each construction area.

3.3 TRAFFIC CONTROL PERSONNEL

A. General:
   1. When construction operations encroach on traffic lanes, furnish qualified and suitably equipped traffic control personnel as required for regulating traffic and in accordance with requirements of authorities having jurisdiction.
   2. Traffic control personnel shall use appropriate flags or mobile signs.
   3. Equip traffic control personnel with appropriate personal protection equipment and suitable attire.
   4. Attire and conduct of traffic control personnel shall be appropriate and shall not create nuisances or distractions for traffic.

3.4 FLARES AND LIGHTS

A. During periods of low visibility provide temporary flares and lights for the following:
   1. To clearly delineate traffic lanes, to guide traffic, and to warn of hazardous areas.
   2. For use by traffic control personnel directing traffic.

B. Provide adequate illumination of critical traffic and parking areas.

3.5 PARKING CONTROL

A. Control CONTRACTOR-related vehicular parking at the Site to preclude interfering with: traffic and parking, access by emergency vehicles, DEPARTMENT's and facility manager's operations, and construction operations. Provide temporary parking facilities for the public, as required because of construction operations.

B. Control parking of construction and private vehicles at the Site as follows:
   1. Maintain free vehicular access to and through parking areas.
   2. Prohibit parking on or adjacent to access roads, and in non-designated areas.
   3. Construction vehicles shall possess current vehicle registration.
   4. Private vehicles shall park only in designated areas.

3.6 HAUL ROUTES

A. Submit proposed haul routes to DEPARTMENT and obtain approval of authorities having jurisdiction.

B. Confine construction traffic to designated haul routes.

C. Provide temporary traffic controls at critical areas of haul routes to expedite traffic flow, and to minimize interference with normal traffic.

3.7 REMOVAL

A. Maintain and protect traffic until Substantial Completion and at all times thereafter when CONTRACTOR is working at the Site. Provide maintenance and protection of traffic measures at the Site until no longer required due to the progress of the Work. When no longer required, completely remove maintenance and protection of traffic measures and restore the Site to condition required by the Contract Documents or, when not indicated in the Contract Documents, to pre-construction conditions.

+ + END OF SECTION + +

SECTION 01 71 33

PROTECTION OF THE WORK AND PROPERTY

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes general requirements for safety and protection. This Section also includes requirements for barricades and warning signals, and protection of trees and plants, existing structures, floors, roofs, installed items, and landscaping.
   2. CONTRACTOR shall be responsible for taking all precautions, providing all programs, and taking all actions necessary to protect personnel health and safety, and to protect the Work and all public and private property and facilities from damage.
   3. To prevent damage, injury, or loss, CONTRACTOR's actions shall include the following:
      a. Provide measures for safety of personnel at the Site, including workers engaged in the Work, delivery personnel, testing and inspection personnel, personnel of authorities having jurisdiction, other visitors to the Site, the public, DEPARTMENT's personnel, facility manager's personnel (if different from DEPARTMENT), and Resident Project Representative (if any).
      b. Storing apparatus, materials, supplies, and equipment in an orderly, safe manner that does not unduly interfere with progress of the Work or work of other contractors, utility owners, and owners of transportation rights-of-way.
      c. Providing suitable storage facilities for materials and equipment subject to damage or degradation by exposure to climate, temperature, theft, breakage, or other cause.
      d. Placing upon the Work or any part thereof only loads consistent with the safety and integrity of that portion of the Work and existing construction.
      e. Frequently removing and disposing of refuse, rubbish, scrap materials, and debris caused by CONTRACTOR's operations so that, at all times, the Site is safe, orderly, and workmanlike in appearance.
      f. Providing temporary barricades, fencing, and guard rails around the following: openings, scaffolding, temporary stairs and ramps, around excavations, for elevated walkways, and other areas that may present a fall-hazard or hazard to vehicles.
   4. Do not, except after written consent from proper parties, enter or occupy privately-owned property or premises with personnel, tools, materials or equipment, except on lands and easements provided by DEPARTMENT.
   5. CONTRACTOR has full responsibility for preserving public and private property and facilities on and adjacent to the Site. Direct or indirect damage

done by, or on account of, any act, omission, neglect, or misconduct by CONTRACTOR in executing the Work, shall be remedied by CONTRACTOR, at his expense, to condition equal to that existing before damage was done.

6. DEPARTMENT May Remedy:
    a. Should CONTRACTOR fail to protect and safeguard property and the Work after requests from DEPARTMENT, DEPARTMENT may implement measures to protect property and the Work.
    b. Cost of such DEPARTMENT-implemented measures shall be paid by CONTRACTOR. DEPARTMENT may deduct from payments due CONTRACTOR such amounts as set-offs in accordance with the Contract Documents.
    c. Such right, however, shall not result in any obligation by DEPARTMENT to continuously monitor or have responsibility for protection of property and the Work, which responsibility is exclusively CONTRACTOR's.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 BARRICADES AND WARNING SIGNALS

A. Barricades and Warning Signals – General:
    1. Where the Work is performed on or adjacent to roadway, access road or driveway, right-of-way, or public place:
        a. Provide temporary barricades, fences, lights, warning signs, danger signals, watchmen, and take other precautionary measures for protecting persons, property, and the Work.
        b. Use appropriately colored and reflective barricades, or paint barricades accordingly, to be visible at night.
        c. From sunset to sunrise, provide and maintain not less than one temporary light at each barricade.
        d. Erect sufficient barricades to keep vehicles from being driven on or into Work under construction.
        e. Furnish watchmen in sufficient numbers to protect the Work.
    2. Provide temporary barricades to protect personnel and property for Work not in or adjacent to transportation routes and vehicular travel areas, including indoor work, in accordance with Laws and Regulations.
    3. CONTRACTOR's responsibility for maintaining temporary barricades, signs, lights, and for providing watchmen shall continue until the Work is substantially complete in accordance with the Contract Documents, unless other provision for security and protection is agreed to by the parties. After Substantial Completion, protect Work and property during periods when final Work or corrective Work is underway.

B. Temporary Fencing: Refer to Section 01 57 33, Security.

3.2 TREE AND PLANT PROTECTION

A. Tree and Plant Protection – General:
   1. Protect existing trees, shrubs, and plants on or adjacent to the Site, shown or designated to remain in place, against unnecessary cutting, breaking, damage, or skinning of trunk, branches, bark, and roots.
   2. Do not store materials or equipment or park construction equipment and vehicles within foliage drip lines.
   3. In areas subject to traffic, provide temporary fencing or temporary barricades to protect trees and plants.
   4. Open fires are not allowed onsite.
   5. Within the limits of the Work, water trees and plants that are to remain to maintain their health during construction operations.
   6. Cover exposed roots with burlap and keep such burlap continuously wet. Cover exposed roots with earth as soon as possible. Protect root systems from mechanical damage and damage by erosion, flooding, runoff, and noxious materials in solution.
   7. If branches or trunks are damaged, prune branches immediately and protect cut or damaged areas with emulsified asphalt compounded specifically for horticultural use, in manner acceptable to DEPARTMENT.
   8. When directed by DEPARTMENT, remove and dispose of at location away from the Site damaged trees and plants that die or suffer permanent injury, and replace each damaged tree or plant with specimen of equal or better species and quality.
   9. Coordinate Work in this Article with the following Specifications:
      a. Section 31 11 00, Clearing and Grubbing.

3.3 PROTECTION OF EXISTING STRUCTURES

A. Underground Facilities:
   1. Underground Facilities known to DEPARTMENT, except water, gas, sewer, electric, and communications services to individual buildings and properties, are shown. Information shown for Underground Facilities is the best available to DEPARTMENT, but is not guaranteed to be correct or complete.
   2. CONTRACTOR shall explore ahead of trenching and excavating Work and shall sufficiently uncover Underground Facilities that will or may interfere with the Work to determine their location, to prevent damage to Underground Facilities, and to prevent service interruption to structures and properties served by Underground Facilities. If CONTRACTOR damages an Underground Facility, CONTRACTOR shall restore it to its pre-construction condition, in accordance with requirements of the owner of the damaged facility and the Contract Documents.

3. Necessary changes in the location of the Work may be directed by DEPARTMENT to avoid Underground Facilities not shown or indicated on the Contract Documents.
4. If permanent relocation of an existing Underground Facilities is required and is not otherwise shown or indicated in the Contract Documents, CONTRACTOR may be directed in writing to perform the required work. When such relocation Work results in a change in the Contract Price, Contract Times, the associated Contract modification procedures and payment for such Work shall be in accordance with the Contract Documents.

B. Surface Structures:
1. Surface structures are existing buildings, structures, and other facilities at or above ground surface, including their foundations and any extension below ground surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage routes, exposed piping and utilities, poles, exposed wires, posts, signs, markers, curbs, walks, fencing, and other facilities visible at or above ground surface.
2. Existing surface facilities, including but not limited to guard rails, posts, guard cables, signs, poles, markers, curbs, and fencing, that are temporarily removed to facilitate the Work shall be replaced and restored to their pre-construction condition at CONTRACTOR's expense.

C. Protection of Underground Facilities and Surface Structures:
1. CONTRACTOR shall sustain in their places and protect from direct or indirect injury all Underground Facilities and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such structure or facility.
2. Before proceeding with the Work of sustaining and supporting such structure or facility, CONTRACTOR shall satisfy DEPARTMENT that methods and procedures to be used have been approved by party owning same.
3. CONTRACTOR shall bear all risks attending the presence or proximity of all Underground Facilities and surface structures within or adjacent to limits of the Work, in accordance with the Contract Documents.
4. CONTRACTOR shall be responsible for damage and expense for direct or indirect injury, caused by CONTRACTOR's activities, to structures and facilities. CONTRACTOR shall promptly repair damage caused by CONTRACTOR's activities, to the satisfaction of owner of damaged structure or facility.
5. Protection of Underground Facilities Under Roads and Parking Areas: Provide temporary, heavy-duty steel roadway plates to protect existing manholes, handholes, valve boxes, vaults, and other Underground Facilities near to or visible at the ground surface.

3.4 PROTECTION OF FLOORS AND ROOFS

A. Protection of Floors and Roofs – General:

1. Use proper protective covering when moving equipment, handling materials or other loads, when painting, handling mortar or grout, and when cleaning walls, ceilings, or structure contents.
2. Use metal pans to collect oil and cuttings from piping, conduits, and rod threading machines, and under metal cutting machines.
3. Do not load concrete floors less than 28 days old without written permission of DEPARTMENT. Do not load floors, roofs, or slabs in excess of design loading.
4. Do not load roofs without written permission of DEPARTMENT.
5. Restrict access to roofs, and keep CONTRACTOR personnel off existing roofs, except as required for the Work.
6. If access to roofs is required, roofing, parapets, openings, and all other construction on or adjacent to roof shall be protected with suitable plywood or other acceptable means.

3.5 PROTECTION OF INSTALLED MATERIALS, EQUIPMENT, AND LANDSCAPING

A. Protect installed Work to prevent damage from subsequent operations. Remove protective items when no longer needed, prior to Substantial Completion of the Work.

B. Control traffic to prevent damage to equipment, materials, and surfaces.

C. Coverings:
   1. Provide temporary coverings to protect materials and equipment from damage.
   2. Cover projections, wall corners and jambs, sills, and soffits of openings, in areas used for traffic and for passage of materials and equipment in subsequent work.

+ + END OF SECTION + +

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SECTION 02 51 40

EXCAVATION, REMOVAL AND HANDLING OF CONTAMINATED MATERIAL

PART 1 –GENERAL

1.1 SCOPE OF WORK

A. The contaminants of concern in soil and groundwater are semi volatile and volatile organic compounds in soils. The presence of former underground storage tanks and past site activities could also result in the presence of petroleum and petroleum byproducts.

B. CONTRACTOR shall excavate, handle and dispose of contaminated building foundation debris and soil as shown, specified and required to complete the work. The work shall consist of disposal of building foundation demolition debris and contaminated soil.

C. Excavation limits are depicted on the Drawings.

D. Related Work Specified Elsewhere:
   1. Division 01 – General Requirements.
   2. Division 31 – Earthworks.

E. All sheeting and shoring, and other work necessary to complete the required excavation work shall be conducted by the CONTRACTOR in accordance with these Specifications.

F. Work shall follow the sequence of construction presented in the CONTRACTOR‘S approved Work Plan.

1.2 SUBMITTALS

A. Submit the following in accordance with Section 01 71 23, Field Engineering:
   1. Initial Site Survey
   2. Intermediate Site Survey
   3. Record Drawings

B. Shop Drawings:
   1. Submit plans of open cut excavations showing side slopes and limits of the excavation at grade, as applicable, where not shown on the Drawings.

1.3 QUALITY ASSURANCE

A. Permits and Regulations: CONTRACTOR shall perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

B. Design Criteria:
   1. Temporary sheeting and shoring systems provided by the CONTRACTOR shall be certified by a NYS Professional Engineer and submitted to the DEPARTMENT for review prior to use.
   2. CONTRACTOR shall be wholly responsible for installing and operating the sheeting and shoring system in accordance with the certified design.

C. Regulatory Compliance:
   1. Source Area Excavation soil are assumed to be F-002 listed hazardous waste for 50% of the volume.
   2. A contained-in determination is being prepared and is assumed will allow 50% of the volume to be handled as non-hazardous.
   3. Soil management need to comply with applicable State and Federal regulations related to the handling, stockpiling, manifesting, etc. of the soils.

1.4 JOB CONDITIONS

A. Existing Structures:
   1. Shown on the Drawings are certain utilities and surface and underground structures located on or adjacent to the Work. This information has been obtained from existing records. It is not guaranteed to be correct or complete and is shown for the convenience of the CONTRACTOR. CONTRACTOR shall explore ahead of the required excavation to determine the exact location of all structures and utilities. They shall be supported and protected from injury by the CONTRACTOR. If they are broken or injured, they shall be restored immediately by the CONTRACTOR at no additional cost to the DEPARTMENT.
   2. Prior to execution of the Work, the CONTRACTOR shall check and verify governing dimensions and elevations. The CONTRACTOR and DEPARTMENT shall jointly inspect the condition of adjoining structures. Photographs and records shall be made of any prior settlement or cracking of structures, pavements, and the like, that may become the subject of possible damage claims.

B. Existing Utilities:
   1. The CONTRACTOR's attention is directed to the existing utilities running throughout the work. The CONTRACTOR is required to take any and all precautions necessary to locate, support and protect these utilities during construction. All costs associated with protecting, supporting, locating,

digging test pits, etc., of all utilities or process pipelines shall be included in the prices bid for all work.

2. The locations of all utilities shown on the contract drawings are based on available information in the vicinity of the proposed work areas and are not guaranteed to be complete or accurate. The CONTRACTOR shall obtain utility markouts on all public and private properties in accordance with all local and state requirements where work under this contract is to be performed. Prior to any excavation or construction, the CONTRACTOR shall notify the DEPARTMENT, all utility companies and applicable agencies and request a markout of their lines and properties in the field in the area of the proposed work. In addition, on the project site (outside of public right-of-way), the CONTRACTOR shall provide the services of an independent utility markout service subcontractor qualified to locate and mark out all utilities in the vicinity of the work using the appropriate equipment and methods available prior to construction. The subcontractor shall survey (location/elevation) and prepare a utilities location as-built drawing for use by the CONTRACTOR in performance of the work under this contract.
3. Prior to any demolition and/or excavation, in addition to utility location and markouts performed by the CONTRACTOR, local and state required services and the independent markout service subcontractor, the CONTRACTOR shall accurately locate existing utilities by probing test holes and excavating test pits where existing underground utilities are known to exist in the vicinity of the new work and at maximum intervals of 25 feet along the route or within the area of the proposed work. The CONTRACTOR shall survey (location/elevation) and prepare an as-built drawing of all underground utilities encountered while constructing test pits and/or test hole probes for use in performance of the work under this contract. The CONTRACTOR shall backfill/restore the holes and pits and mark out the existing utilities and take extreme caution against damaging the utilities during excavation or sheeting installation.
4. Work shall include, in addition to constructing test probes/pits, excavating and backfill, temporary sheeting, compacting and site restoration.
5. Schedules for maintenance of utility markouts on public and private property shall be consistent with New York State law throughout the duration of the Contract.
6. During demolition/excavation, the CONTRACTOR shall locate each utility by hand digging methods prior to the use of mechanical excavation equipment. During demolition/excavation, if the CONTRACTOR encounters evidence of suspected unmarked utilities, such as magnetic tape or other underground markers, the CONTRACTOR shall promptly determine the location of the suspected utility, if any, before proceeding with the work. The CONTRACTOR shall cooperate with the DEPARTMENT and the utility companies involved to avoid delay or interference of service normally performed by their lines and properties.

7. The CONTRACTOR shall take extreme caution against damaging utilities during demolition, excavation, sheeting and backfilling, during construction of test probes and test pits and while performing the work required under this Contract.
8. The CONTRACTOR shall be responsible for all costs associated with pre-project construction utility survey(s)/markout(s), the construction of the test holes and test pit work, and utility as builts for this project, as well as protection and hand digging operations to verify location of all utilities during construction.
9. Should uncharted or incorrectly charted piping or utilities be encountered during excavation, consult the DEPARTMENT in keeping respective services and facilities in operation. Repair damaged utilities to the satisfaction of the DEPARTMENT.
10. Do not interrupt existing utilities, except when permitted in writing by DEPARTMENT.

C. Protection of Persons and Property:
1. Barricade open excavations greater than 2 feet in depth occurring as part of this Work and post with warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
2. Protect structures, utilities, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by CONTRACTOR'S operations.
3. Consult DEPARTMENT and obtain his/her approval before removing or disturbing pipes, structures, or other facilities that are encountered on the line of the excavation.
4. Structures, utilities, sidewalks, pavements and other facilities removed or disturbed shall be replaced to their original condition, unless otherwise shown, specified or directed.

D. Dust Control: CONTRACTOR shall conduct all of his/her operations and maintain the area of his/her activities, including sweeping and sprinkling of roadways, so as to minimize creation and dispersion of dust. In addition, CONTRACTOR shall be responsible for controlling dust caused by his/her operation of vehicles and equipment, clearing or for any reason whatever.

E. Odor Control: As an odor abatement measure, cover, at the end of each work day all areas of organic or odorous material which were exposed during excavation with a minimum 6-in and a maximum 24-inch deep layer of clean fill. Excavated organic or odorous material shall be immediately removed off-site and shall not be stockpiled on-site. Such material shall be properly characterized and disposed of off-site in accordance with all applicable federal, state and local regulations.

F. Roadways and Walks: Unless otherwise approved by the DEPARTMENT, excavated material and materials of construction shall be so deposited, and the Work shall be so conducted, as to leave open and free for vehicular traffic a

roadway not less than 10 feet in width. All hydrants, valves, and other facilities which may require access during construction shall be kept accessible for use. During the progress of the Work, CONTRACTOR shall maintain such roadways in satisfactory condition and the Work shall at all times be so conducted as to cause a minimum of inconvenience to the occupants of the facility and pedestrians.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 INSPECTION

A. CONTRACTOR shall provide DEPARTMENT with sufficient time and means to examine the areas and conditions under which excavating, filling and grading are to be performed. Work shall not proceed until all unsatisfactory conditions have been corrected in a manner acceptable to the DEPARTMENT.

3.2 DEMOLITION AND EXCAVATION

A. General:
   1. CONTRACTOR shall perform all demolition and excavation required to complete the Work as shown and specified. It shall include all materials such as building debris, earth, sand, clay, gravel, hardpan, boulders, organic materials, rock, rubbish and all other materials within the excavation limits.
   2. Excavations shall be open type, shored and braced where necessary to prevent injury to workmen and to new and existing structures or pipelines.
   3. All excavations shall be made in the dry.
   4. Temporary barricades shall be installed for all excavations greater than 2 feet in depth.
   5. All equipment shall be decontaminated and free from debris, caked soil, contamination, and any other foreign materials prior to mobilization to the site. Equipment utilized during the remediation shall be decontaminated in accordance with the CONTRACTOR'S Health and Safety Plan.

B. Contaminated Materials:
   1. Demolition/excavation shall be made to the grades and extents shown on the Drawings. Demolition/excavation shall be performed in a manner that will limit spills and the potential for contaminated material to be mixed with uncontaminated material. A log describing visible signs of contamination encountered shall be maintained for each area of demolition and/or excavation.
   2. Excavation logs shall be prepared in accordance with ASTM D5434.

3. Excavation shall be accomplished by methods which preserve the undisturbed state of subgrade soils.
4. Equipment shall be satisfactory for carrying out the work in accordance with the Specifications. Earth shall not be plowed, scraped, or dug with machines so near to the finished subgrade as to result in excavation of, or disturbance of material below grade.
5. When excavation has reached final depths, the DEPARTMENT shall be notified and will inspect conditions. If materials and conditions are not satisfactory to the DEPARTMENT, the DEPARTMENT will issue instructions as to the procedures for correction of the unsatisfactory condition.
6. Documentation sampling shall be required as outlined the Section 01 45 29.13, Testing Laboratory Services Furnished by Contractor. Backfill and compaction shall not be conducted in any excavation until the limits of the excavation and the locations of the documentation samples are surveyed and are approved by the DEPARTMENT.
7. Groundwater or standing water in excavations or open basement areas must be removed, treated and properly disposed prior to the collection of documentation samples. Standing water from precipitation events in the excavation must be removed and disposed of appropriately at the CONTRACTOR'S own expense.
8. During final excavation to subgrade level, take precautions required to prevent disturbance of material.

C. Unsuitable Excavation:
1. If any over excavation occurs through error of the CONTRACTOR or for the CONTRACTOR 'S convenience, the over-excavated material shall be disposed of off-site, in accordance with all applicable federal, state and local laws and regulations, as well as the requirements of these Contract Documents. The over-excavation shall be refilled at the CONTRACTOR'S expense with concrete, select fill or other material satisfactory to the DEPARTMENT.
2. If CONTRACTOR fails to properly dewater the excavation or trench or disturbs the subgrade or otherwise fails or neglects to conduct the excavation work in a manner that provides surface of subgrade in proper condition for construction, the CONTRACTOR shall remove all disturbed material and replace it with concrete, select fill, or other approved material at his own expense. The condition of the subgrade shall meet with the approval of the DEPARTMENT before any work is placed thereon.

3.3 SHEETING, SHORING AND BRACING

A. Refer to Section 31 23 05, Excavation and Fill.

3.4 CONTAMINATED MATERIALS STORAGE

A. Demolition debris and excavated material shall be placed in temporary storage or taken off-site for disposal immediately after excavation. Temporary storage areas shall be located within the property line of the Site and shall be delineated by the CONTRACTOR in the approved Work Plan. Storage units shall be in good condition and constructed of materials that are compatible with the material or liquid to be stored. Each storage unit shall be clearly labeled with an identification number and a written log shall be kept to track the source of contaminated material in each unit.

B Storage of material outside the designated soil staging areas is prohibited without prior written approval by the DEPARTMENT.

C. The following methods of storage are acceptable:

1. Stockpiles
    a. Demolition debris and/or excavated materials shall be stockpiled in the areas noted in the CONTRACTOR'S Work Plan. Stockpiles shall be located 10 feet or greater from property lines.
    b. Stockpiles shall be constructed to isolate stored contaminated material from the environment. The maximum stockpile height shall be 10 feet. Each stockpile shall be labeled with an identification number identifying the material stored within the stockpile.
    c. Diversion measures shall be employed, as depicted on the Drawings, to prevent storm water run-on and run-off.
    d. An LLDPE geomembrane liner and cover shall be used to prevent cross-contamination of existing ground surface, precipitation from entering the stockpile and emissions and dust from escaping. The minimum thickness of the LLDPE geomembrane liner shall be 20 mils. Control measures such as wetting the stockpile surfaces shall be employed to suppress dust. Only potable water shall be used for this purpose.
2. Roll-off Units
    a. Roll-off units used to store contaminated material shall be watertight. A cover shall be placed over the units to prevent precipitation from contacting the stored material. Liquid which collects inside the units shall be removed and disposed of in accordance with all applicable federal, state and local laws and regulations.

D. Storage and handling of hazardous waste contaminated soil must comply with all applicable NYSDEC hazardous waste regulations (6 NYCRR Part 371-376).

E. Spillage shall be minimized and contained for later disposal in accordance with all federal, state and local regulations.

+ + END OF SECTION + +

SECTION 02 51 41

OFF-SITE TRANSPORTATION AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes procedures to transport and dispose all items specified for off-site disposal.

B. CONTRACTOR generated hazardous and non-hazardous waste shall be confined to contamination reduction or exclusion zones until transported off-site for proper disposal.

C. Remedial work which generates hazardous waste from inactive hazardous waste disposal sites (defined at 27-1301 of the Environmental Conservation Law) are not subject to the special assessment "tax" because of the exemption found at 27-0923 (3) (c) of the Environmental Conservation Law. The CONTRACTOR remains responsible for paying any local and county taxes which might be applicable to the disposal of wastes from the remedial work.

1.2 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only:
   1. Code of Federal Regulations (CFR).
      a. 40 CFR 262 Standards Applicable to Generators of Hazardous Waste
      b. 49 CFR 172 Tables, Hazardous Material Communication Requirements, and Emergency Response Information Requirements.
   2. Codes, Rules, and Regulations of the State of New York (NYCRR):
      a. 6 NYCRR Part 364 Waste Transportation Permits.
      b. 6 NYCRR Part 372 Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities.

1.3 SUBMITTALS

A. Transportation Plan:
   1. Submit six copies of a detailed Transportation Plan as part of the Remedial Action Work Plan in accordance with Section 01 33 00, Submittal Procedures.
   2. The Transportation Plan must be approved before materials are transported off site.

B. Records:
   1. Written acceptance of waste profile from TSDF.
   2. Hazardous Waste Manifests.

3. Decontamination Certificates.
4. Submit written confirmation from TSDF of acceptance of waste.
5. Profile sampling results.
6. Manifests after permanent disposal.
7. Certificates of disposal for non-hazardous waste.
8. Signed bills of lading for salvaged or recycled materials.
9. An updated waste tracking summary shall be provided on a monthly basis with the CONTRACTOR's application of payment.

1.4 PERMITS AND REGULATIONS

A. Comply with all municipal, county, state, and federal regulations regarding transportation of hazardous and non-hazardous materials. These include:
   1. Trucks used for transportation of material for disposal off site shall be permitted pursuant to 6 NYCRR Part 364**.**
   2. Vehicle operator possession of a commercial driver's license with hazardous materials endorsement (if applicable).
   3. Registration of vehicle as a hazardous waste carrier (if applicable).
   4. Utilization of shipping papers or hazardous waste manifest (40 CFR 262 and 6 NYCRR Part 372).
   5. Proper marking and placarding of vehicles in accordance with 49 CFR.
   6. Placement of emergency response procedures and emergency telephone numbers in vehicle, and operator familiarity with emergency response procedures.
   7. Compliance with load, height, and weight regulations.

1.5 DISPOSAL FACILITIES

A. Facilities must have valid Federal/State permits appropriate for each type of waste and/or waste disposal facility. Permits shall remain valid during the entire project period.

B. Facilities must be in good legal standing with no significant violations, corrective actions, or other environmental conditions that could affect satisfactory operation.

C. The disposal facility must comply with policies adopted by the DEPARTMENT with respect to off-site disposal of waste.

D. Prior to shipment of hazardous wastes off the site, the CONTRACTOR shall confirm by written communication from the designated TSDF that it is authorized, has the capacity, and will provide or assure that the ultimate disposal method is followed for the particular hazardous waste on the manifest.

E. RCRA Wastes:
   1. The facility must have an RCRA Permit or RCRA Interim Status for RCRA wastes. The EPA ID number for the site is: NYD013599261.
   2. The facility must not have any significant RCRA violations or other environmental conditions that could affect its satisfactory operation:

a. Significant violations include Class 1 RCRA violations as defined in EPA"s RCRA Enforcement Response Policy dated December 1984, including but not limited to groundwater, closure, post closure, and financial violations.
b. Other environmental conditions include those conditions affecting the satisfactory operation of the facility and violations of state and/or federal laws other than RCRA.
c. Under limited circumstances, EPA Administrator may allow disposal of hazardous substances at a RCRA facility having significant RCRA violations or other environmental conditions affecting satisfactory operation, providing that the facility owner or operator has entered into a consent order or decree to correct the problems, and disposal only occurs within the facility at a new or existing unit that is in compliance with RCRA requirements.

3. Landfill disposal must be in a unit meeting applicable RCRA minimum technical requirements:
   a. Current RCRA minimum technical requirements for land disposal include the use of a double liner system.
   b. Under limited circumstances (low waste toxicity, mobility, and persistence), EPA may approve the use of a single-lined land disposal unit for RCRA wastes where use of such a unit adequately protects public health and the environment.

F. TSCA Wastes:
   1. The facility must have a current TSCA permit.
   2. The facility must not have any significant violations, corrective actions, or other environmental conditions that could affect its satisfactory operation.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Equipment supplied shall be in good repair and good working condition.

B. Haul trucks that have visible oil or hydraulic fluid leaks will not be allowed on site.

C. Clean up oil or hydraulic fluid spills.

2.2 TRANSPORTATION

A. Submit a Transportation Plan as part of the Remedial Action Work Plan which includes:
   1. Type, condition, and average daily number of vehicles to be used.
   2. Travel routes and time restrictions.
   3. Decontamination methods for vehicles, equipment, and containers.
   4. Emergency response plan.
   5. A list of all shippers and their federal and state transporter ID numbers.

6. A list of proposed disposal facilities including name, address, telephone number, contact name, and Federal/state permit numbers.

PART 3 - EXECUTION

3.1 VEHICLE LOADING AND DECONTAMINATION

A. General:
   1. The CONTRACTOR shall provide all equipment, personnel, and facilities necessary to load waste materials in accordance with the regulatory requirements listed herein, and in accordance with the regulations of those states through which the CONTRACTOR plans to transport materials.
   2. Vehicle operators shall be trained in conformance with federal and state regulations for waste haulers (hazardous, special, and non-hazardous).
   3. All vehicles hauling waste materials from the exclusion zone shall be decontaminated in the contamination reduction zone prior to leaving the site.
   4. A written decontamination certification shall be provided to the DEPARTMENT for each shipment stating that:
      a. No soil from the exclusion zone or the contamination reduction zone adheres to the vehicle (including tires and undercarriage).
      b. The vehicles are not leaking materials or dripping liquids in any amount.
      c. Any waste materials, debris, and contaminated materials are covered with a tarpaulin, or are otherwise completely enclosed so as not to cause or permit discharge from the vehicle during transport.

3.2 MEASUREMENT

A. Upon entering and leaving the site, the transport vehicle shall be weighed on a certified scale under the DEPARTMENT'S supervision to determine the amount of material being removed from the site.

B. A printed ticket with the time, date, and net weight of material being transported for disposal shall be obtained. A copy of this ticket shall be given directly to the DEPARTMENT as it is produced.

C. Measured gross weight of the vehicle or calculated net weight of material outside the certified capacity of the scale will not be accepted by the DEPARTMENT and the CONTRACTOR shall not be reimbursed for the associated costs of material disposal above the certified capacity of scale.

D. The CONTRACTOR shall off-load materials above the certified capacity of scale on site at no additional cost to the DEPARTMENT.

3.3 MANIFESTING

A. Complete all required manifest forms and bill of lading forms for the DEPARTMENT for proper transportation and disposal of all materials. The

EPA ID number for the site is: NYD013599261.

B. Comply with 40 CFR 262 in completion and submittal of the Hazardous Waste Manifests. The Hazardous Waste Manifests for the transportation and disposal of waste removed from the site shall include all information in accordance with 49 CFR 172.101.

C. Notify the DEPARTMENT in writing a minimum of two weeks prior to the date(s) the manifests are ready to be signed.

D. The DEPARTMENT will sign the special waste or hazardous waste manifest.

E. Place on the manifest all information and data required by both the waste generator and transporter. The CONTRACTOR'S hazardous waste specialist shall accompany each prepared manifest with written certification that the manifest has been filled out in compliance with accordance with all EPA, DOT, and state regulations.

F. Provide the DEPARTMENT with two fully executed copies of each shipment manifested prior to shipping wastes off site.

G. The CONTRACTOR is responsible for proper distribution of manifests and bills of lading.

3.4 TRANSPORTATION

A. Prior to shipment of hazardous wastes off the project area, the CONTRACTOR shall confirm by written communication from the designated transporter(s) that they are authorized to deliver the manifested waste to the designated TSDF or SWMF.

B. The CONTRACTOR shall be responsible for obtaining permits and authorizations necessary to use the selected shipping routes. Comply with restrictions imposed by local governmental agencies regarding use of the routes.

C. Materials shall be transported only at the times and by the routes indicated in the approved Transportation Plan, unless written permission is received from the DEPARTMENT to do otherwise.

3.5 SAMPLING

A. Perform all sampling and analyses required by the disposal facility at no additional cost to the DEPARTMENT.

B. Provide copies of the results to the DEPARTMENT.

3.6 REPORTING

A. Manifests:

1. After the waste has been permanently disposed of, the Hazardous Waste Manifests shall be completed in accordance with 6 NYCRR Part 372 and submitted by the CONTRACTOR to the DEPARTMENT with a copy to be forwarded to the DEPARTMENT.
2. In accordance with 40 CFR 262.42, generator shall contact the transporter and TSD facility to determine the status of the HTW if the manifest is not returned to the generator within 35 days of the date waste was accepted by the initial transporter.
3. The generator shall file an exception report with EPA and NYSDEC if he has not received a completed copy of the manifest from the designated TSD facility with 45 days of the date the waste was accepted by the original transporter.
4. The CONTRACTOR shall be responsible for providing the generator with the information needed to complete the exception report.

B. Certificates of Disposal:
   1. Provide Certificates of Disposal for all wastes shipped off site.
   2. The Certificates of Disposal shall be submitted to the DEPARTMENT within 180 days of the shipment of wastes off site.

C. Bill of Lading:
   1. Items and materials that have been recycled or salvaged shall only require a signed bill of lading or receipt of materials and quantity received.

+ + END OF SECTION + +

SECTION 02 71 02

IN-SITU CHEMICAL OXIDATION

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide all labor, materials, equipment, and incidentals as shown, specified and required for procurement, storage, placement, and monitor the effects of chemical oxidation on the contaminated groundwater as required by the Contract Documents.
   2. The Work under this section includes, but is not necessarily limited to:
      a. Construction of a sodium permanganate dilution assembly process.
      b. Operation of the process to produce dilute sodium permanganate solution.
      c. Transfer of the dilute sodium permanganate solution to the header or injection well.
      d. Placement of the dilute sodium permanganate solution into the header or injection well.
      e. Quality Control and Reporting.
      f. Coordination with monitoring efforts to evaluate the oxidant's impact on groundwater.
      g. Demolition of the dilution assembly process.
   3. The Contractor shall restore all pavements, curbs, landscaping, masonry, fencing, and all other areas disturbed during the Work in accordance with the Contract Documents.
   4. Spill prevention, control, and containment are considered critically important, will be given intense scrutiny, and shall be strictly observed and enforced during the performance of the Work.

B. Coordination:
   1. Review procedures under this and other Sections and coordinate the work that will be performed with or before groundwater treatment.

C. Related Sections:
   1. Section 02 51 41, Off-site Transportation and Disposal.

1.2 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Code of Federal Regulations (CFR), Title 29, Part 1910, Occupational Safety and Health Standards.
   2. Code of Federal Regulations (CFR), Title 42, Part 6901, Resource Conservation and Recovery Act.
   3. US Federal Department of Transportation Regulations

4. NYS Department of Environmental Conservation, Chemical Bulk Storage Regulations
5. NYS Department of Environmental Conservation, Hazardous Materials Regulations.
6. NYS Department of Transportation Regulations
7. National Fire Protection Association.
8. Hazardous Materials Transportation Board.
9. Interstate Commerce Commission.
10. Comply with requirements of authorities having jurisdiction.

B. Product Data: Reagent composition, certificate of analysis, trace metals analysis, Material Safety Data documentation, and other relevant product literature.

1.3 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Shop Drawings:
      a. Submit a schematic layout of the dilution setup. Include flowrates, pipe sizes, motor sizes, controls, valve locations, flow meter locations, tank sizes, etc.
      b. Submit details of stationary containment material and edge construction.
      c. Submit details of truck mounted containment system and portable containment system for wellhead.
      d. Submit details of pipe and electrical conduit support inside containment area.
      e. Submit manufacturer's cutsheets on all pipe, pumps, tankage, flow meters, valves, controls, etc.

B. Submit a Spill Prevention, Control and Containment (SPCC) Plan:
   1. Prepare an SPCC Plan that addresses the provisions for handling the chemical oxidant; including, but not limited to, receiving, storing, mixing, placement, and disposal.
   2. Submit plan for review and comment prior to the receipt of any chemical oxidants.

C. Contractor's Experience:
   1. Information to demonstrate that the chemical oxidation Contractor meets the qualification requirements.
   2. Provide resume of key individuals.

D. Chemical Oxidation Work Plan: Work Plan shall be approved prior to construction, shall address the requirements of this Section, and shall include, but not be limited to, the following:
   1. Equipment: Specifications for the proposed equipment to be used for batching, mixing, placement and process control.
   2. Procedure and Methods: Description of procedures and methods for chemical storage and handling, chemical mixing, leak-free chemical placement, and chemical metering. Include description of procedures and methods for

temporary secondary containment (including storage, mixing, transfer, and manifold/placement locations). Include method to completely drain lines of permanganate without leaks or spills.

3. Provide description of method to pressure test the permanganate delivery systems to verify that there are no leaks prior to use with chemical oxidant.
4. Drawings: Provide scaled drawings showing the dimension and layout for storage, staging, and operations area. Include typical wellhead connection detail.
5. Quality Control: Provide description of plan for controlling oxidant solution component proportions and placement quantities.
6. Product Data: Provide reagent composition, certificate of analysis, trace metal analysis, and oxidant Safety Data Sheet (SDS) documentation.
7. Restoration: Provide details of any areas or facilities that shall be restored following the installation, placement and completion of the chemical oxidation work.
8. Spill Response Plan: Description of materials, equipment and personnel necessary to address spills during storage, handling, mixing, and placement of oxidant. Include information on neutralization materials, spill materials, MSDSs, and storage and availability of spill response materials for deployment.

E. Chemical Oxidation Quality Control (QC) Report: Submit report including the following:
   1. Provide report for each day that chemical placement occurs.
   2. Submit by noon the next business day following the placement event via e-mail to the DEPARTMENT and ENGINEER.
   3. Report shall be in Microsoft Excel or Microsoft Word format.
   4. Report shall include, at minimum, the following data for each individual header or well:
      a. List of Personnel conducting the placement at each individual header or injection well.
      b. Rate of Injection (gpm) at each individual header or injection well.
      c. Beginning and ending time and water levels for placement at each individual header or injection well.
      d. Concentration of oxidant injected at each individual header or well.
      e. Total volume (gallons) of oxidant solution injected at each individual header or injection well.
      f. Any issues associated with the placement activities – such as surfacing or loss of reagent, location of loss or surfacing, flow rate and pressure at the time of loss or surfacing.

F. Field Data Report: Submit report including the following:
   1. Submit by noon the next business day following the placement event via e-mail to the DEPARTMENT and ENGINEER.
   2. Report shall be in Microsoft Excel or Microsoft Word format.
   3. Report shall include:
      a. Date of field sampling.
      b. List of personnel.

c. For each well
   i. Color of groundwater purged from the well and permanganate concentration (concentration measured by DR-890 colorimeter or equivalent).
   ii. pH, conductivity, temperature, DO, and ORP of purged groundwater collected from downgradient monitoring well locations.

Monitoring Well Locations	MW-1S, MW-1D, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, MW-4D, MW-5S, and MW-5D

G. Certificate of Analysis documenting the product meets the product requirements specified herein.

1.4 QUALIFICATIONS

A. Contractor's Experience: The contractor shall have a minimum of three (3) prior chemical oxidation projects of comparable size and scope using permanganate or a similar chemical oxidant/placement system acceptable to the DEPARTMENT within the last 2 years.

B. Key Personnel: Key personnel shall have experience in chemical oxidation projects of similar size and scope using permanganate or a similar chemical oxidant. Personnel experience shall be current and demonstrate knowledge and hands-on expertise in current technologies and applicable regulations.

PART 2 – PRODUCTS

2.1 System Performance

A. System Description:
   1. The system will dilute the sodium permanganate to a 2 percent sodium permanganate solution for subsequent placement into the header or wells.
   2. Provide one placement of a minimum 5,000 pounds of 40% sodium permanganate to the injection header system within the source area excavation footprint. And 1,450 pounds of 40% sodium permanganate to each individual injection well (4 wells for a total of 5,800 pounds). This will require a total of 10,800 pounds of 40% sodium permanganate to be delivered during the injection event to the placement header and wells.
   3. Provide sealed secondary containment under the entire area of the dilution process system.
   4. Provide sealed secondary containment on the delivery tanker truck and portable secondary containment around the header or well.
   5. Provide all necessary piping, wiring and controls to produce an operable system.

6. All materials (tanks, containment, piping, valves, fittings, etc.) exposed to solutions shall be compatible to the materials used.
7. The system shall be designed so that a full batch of dilute solution can be produced while header or well placements are ongoing.

B. Reagent Quality:
1. The manufacture's requirements for storage and allowable shelf life of the product shall be strictly observed.
2. The CONTRACTOR shall provide 40% RemOx L sodium permanganate, as manufactured by Carus Corporation or approved equal.
3. The sodium permanganate shall meet the following requirements:

Parameter	Specification
Assay, % NaMnO4	39.5-41.5
pH	5.0-8.0
Specific Gravity g/ml	1.365-1.385
Appearance	Dark Purple Solution

4. Each lot of the sodium permanganate utilized shall not contain metals at concentrations greater than the following concentrations on a dry permanganate basis:

Metal	Maximum Concentration(mg/kg)
Ag	0.15
Al	2.00
As	4.00
Ba	15.0
Be	0.50
Cd	0.10
Cr	5.00
Cu	0.10
Fe	2.00
Hg	0.03
Ni	0.1
Pb	0.70
Sb	0.70
Se	0.50
Tl	3.50
Zn	0.40

C. The CONTRACTOR shall supply a groundwater level meter specifically designed for such a purpose. The meter shall be Solinst Model 110 as manufactured by Solinst Canada Ltd. or approved equal.

PART 3 – EXECUTION

3.1 PREPARATION

A. CONTRACTOR is wholly responsible for the design, construction, operation and demolition of the dilution and placement system. The schematic provided on the Contract Drawings provides an initial layout of the system. CONTRACTOR may propose alternates which will be reviewed by the ENGINEER and DEPARTMENT for conformance with the objectives of this project.

B. Groundwater Sampling prior to in-situ Chemical Oxidation (to be completed by ENGINEER):
   1. Prior to the completion of the in-situ chemical oxidation activities, the CONTRACTOR shall allow sufficient time for ENGINEER to sample, analyze and report on groundwater quality at existing and newly installed groundwater wells.
   2. The wells shall be sampled in compliance with USEPA 2017 low flow guidance document (USEPA, 2017).
   3. Sample and collection of groundwater at 24 wells (see table) The samples shall be analyzed for VOC (SW-846 8260), Metals – Total Na, Total and Dissolved Fe, Mn (Method 6010), and PFAS (Method 8327 and NYSDEC April 2023 Guidance). Quality Assurance/Quality Control samples (duplicate, matrix spike, and matrix spike duplicate) will be collected and analyzed for VOCs, at a frequency of 1 per 20 samples. ENGINEER and CONTRACTOR shall coordinate necessary turnaround time for the planned progression of work and schedule to allow data completion and review by DEPARTMENT and ENGINEER prior start of chemical injection activities.

Downgradient Well Locations	MW-1S, MW-1D, MW-2S, and MW-2D
Upgradient/Cross-gradient Well Locations	MW-3S, MW-3D, MW-4S, MW-4D, MW-5S, and MW-5D

C. Groundwater Sampling will also be after the in-situ Chemical Oxidation by ENGINEER in accordance with 3.1.B.

3.2 SYSTEM CONSTRUCTION

A. System shall be constructed with piping and valving oriented in a neat and orderly fashion. The piping shall run parallel and perpendicular to each other and be organized in groups where possible.

B. Provide designated paths for walkways through the process area. Provide protection pads for the containment liner in areas of high traffic.

C. Clearly designate exclusion zone around mixing operations and as required elsewhere.

3.3 SYSTEM OPERATION

A. System shall be initially functionally tested with water by CONTRACTOR to verify the system and tankage has no leaks prior to utilizing chemical oxidant.

B. Any leak found in the system shall be immediately repaired. Measures to slow the rate of leak or that prove to be an inadequate repair shall be removed, the leaking section cut out, and a new splice put back in.

3.4 OXIDANT PLACEMENT

A. After successful pressure testing of the system, sodium permanganate shall be placed at the headers and wells as shown or specified.

B. CONTRACTOR may, at their option, pre-dilute the sodium permanganate off-site.

C. Sodium permanganate shall be placed at 2% solution (diluted from 40% prior to placement) in the following quantities and locations:
   1. At the source excavation area, utilizing the installed header system, CONTRACTOR shall provide a total of 5,000 pounds of 40% sodium permanganate distributed equally to each riser/header system.
   2. At the four injection wells CONTRACTOR shall provide a total of 5,800 pounds of 40% sodium permanganate distributed equally to all four wells.

D. Care shall be taken to deliver the oxidant in a manner that does not create breakouts or surfacing of the oxidant. Initial water levels at wells will be documented prior to ISCO injection. Injection pressures should not exceed 5 psig at the source area and 10 psig at the ISCO injection wells, however lower pressures may be required to avoid breakout under continued placement.

E. Monitoring of field parameters and permanganate concentration (using colorimeter) at downgradient monitoring well locations will be completed at least once daily to satisfy the reporting requirements identified in this specification.

F. Spill prevention, control, and containment shall be strictly observed during the performance of the work.

G. The CONTRACTOR shall maintain a solution of approximately 1 part water, 1 part white vinegar and 1 part 3% hydrogen peroxide in a portable sprayer for use to neutralize *de minimus* spills of sodium permanganate solution.

H. In the event of a spill, the CONTRACTOR shall immediately notify all applicable federal, state and local agencies having jurisdiction.

I. When a spill occurs, the CONTRACTOR shall submit a written report to the ENGINEER within 48 hours of the incident. The report, at minimum, shall include the following:

1. The date and type of incident;
2. A map delineating the area impacted by the incident;
3. Details of the cause of the release and resolution of the incident;
4. Identification of all outside agencies contacted and involved in the spill control;
5. Descriptions of corrective actions;
6. Impact on human health and the environment; and
7. Potential claims by third parties.

3.5 STORAGE AND HANDLING

A. Sodium Permanganate shall be stored and handled in accordance with NFPA Code 430, the NYSDEC hazardous substance regulations (Chapter V, Subpart D and related sections) and the U.S. Department of Homeland Security Chemical Facility Anti-Terrorism Standards (CFATs). After each placement event, all storage tanks and piping shall be thoroughly drained, cleaned and neutralized.

B. Secondary containment or other storage and handling procedures shall comply with NYSDEC hazardous substance regulations.

C. All spilled material shall be contained and, if possible, reused. Spilled material shall be handled and treated in accordance with the manufacturer's recommendations. Provide necessary spill materials and neutralizing agents in accordance with the SPCC Plan.

D. Oxidant materials shall be stored and handled such that contact with combustible materials is prevented.

E. Prior to disposal or removal from the project site, all equipment storage containers shall be thoroughly and completely cleaned and neutralized.

3.6 SYSTEM REMOVAL

A. System shall be deconstructed upon completion of the work. All materials, equipment and services brought in by CONTRACTOR shall be removed.

B. All equipment shall be decontaminated prior to leaving the site.

C. Decontamination rinse water shall be disposed of properly by CONTRACTOR according to all Federal, State and local laws and regulations.

+ + END OF SECTION + +

SECTION 33 24 00

MONITORING WELL INSTALLATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. CONTRACTOR shall provide all labor, materials, equipment, and services required to furnish and install the monitoring wells as shown and as specified herein.

B. Locations of all wells are shown. CONTRACTOR shall install the wells to the depth shown.

C. Permits:
   1. CONTRACTOR shall obtain any necessary well drilling permits from the NYSDEC prior to commencement of the Work.

D. CONTRACTOR shall be responsible for mobilization/demobilization of all equipment.

1.2 REFERENCES

A. Standards referenced in this Section are listed below:
   1. American Society for Testing and Materials, (ASTM).
      a. ASTM D 422, Test Method for Particle-Size Analysis of Soils.
   2. Occupational Safety and Health Administration, (OSHA).
      a. OSHA 1910, Occupational Safety and Health Standards.
      b. OSHA 1912.120, Hazardous Waste Operations and Emergency Response.

1.3 QUALITY ASSURANCE

A. Testing:
   1. The services of a qualified testing laboratory shall be engaged by CONTRACTOR to make tests and determine acceptability of the materials as listed below. The laboratory shall be acceptable to the ENGINEER.
   2. CONTRACTOR shall perform the following materials testing: Crushed Rock or Gravel - ASTM D 422 Gradation.

B. Well driller shall be a licensed well driller in the State of New York.

C. The Work shall comply with the Rules and Regulations as defined under New York State Department of Environmental Conservation (NYSDEC).

1.4 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Shop Drawings:
      a. Drilling method - Sonic.
      b. Well casing.
      c. Well screen.
      d. Filter pack material samples, including gradation analysis data, filter pack effective size, and uniformity coefficient.
      e. Bentonite seal.
      f. Bentonite-cement mix design.
      g. Method of material and grout placement.
      h. Well log and well construction details.
      i. Cuttings, drill fluids and water containment or water disposal.

B. Informational Submittals: Submit the following:
   1. A Daily Driller's Report shall be kept available at the Site for review by the ENGINEER and at the conclusion of monitoring well drilling for the well, two neat, legible copies of this report shall be submitted to the ENGINEER. This log shall contain, but not be limited to, the following information for each day's activity:
      a. Number of crew on the Site and name of superintendent for each shift.
      b. Description of all formations encountered.
      c. Number of feet drilled.
      d. Number of hours on the job.
      e. Number of hours of drilling operations.
      f. Number of hours of shutdown.
      g. Drilling fluid viscosity (every four hours of drilling operations).
      h. Rate and volume of make-up water used for each formation.
      i. Water level at beginning and end of each shift.
      j. Water level at each change or formation, if readily measurable.
      k. Emergency phone numbers of personnel involved in the well construction.

1.5 HEALTH AND SAFETY

A. CONTRACTOR shall be responsible for all health and safety activities relative to drilling and constructing the monitoring wells.
   1. Health and Safety shall comply with the requirements of OSHA 1912.120 if the Work is conducted on a hazardous waste site.

PART 2 - PRODUCTS

2.1 DESCRIPTION

A. Casing; Casing materials used for the monitoring wells shall consist of Schedule 40 PVC of the size shown.

B. Screen: Well screen shall consist of Sch. 40 PVC pipe, nominal diameter as shown, 0.010-inch slotted casing to match material above. Screen length will be of length as shown on the Contract Drawings.

C. Bottom Cap: The bottoms of the wells are to be capped with a flush-threaded or welded cap.

D. Filter Pack: Filter pack shall consist of U.S. Silica FILPRO #00N filter sand or equivalent gradation (including an effective size of 0.019 inch and uniformity coefficient of 1.32) suitable for use with a 0.010-inch machine-slotted well screen.

E. Bentonite Seal:
   1. Bentonite shall consist of commercial grade high yield sodium bentonite pellets and shall be supplied with a maximum diameter of 1/2-inch.
   2. Bentonite pellets shall be hydrated for a minimum of 30 minutes after placement. Water used for hydration shall be clean, fresh and free from oil, acid, alkali, organic matter or other deleterious substances. CONTRACTOR shall be responsible for obtaining the water required for the Work.
   3. Resulting bentonite seal shall have a maximum permeability of 1×10^{-7} cm/sec.

F. Bentonite-Cement Grout:
   1. Bentonite shall consist of commercial grade high yield sodium bentonite pellets and shall be supplied with a maximum diameter of 1/2-inch.
   2. Bentonite pellets shall be hydrated for a minimum of 30 minutes after placement. Water used for hydration shall be clean, fresh and free from oil, acid, alkali, organic matter or other deleterious substances. CONTRACTOR shall be responsible for obtaining the water required for the Work.
   3. Resulting bentonite seal shall have a maximum permeability of 1×10^{-7} cm/sec.
   4. Cement/Bentonite Slurries: A mixture with the ratio of three to five pounds of high yield bentonite powder for each 94 pound sack of Portland Cement, Type 1 or Type 2, and 6.5 gallons of water from a known, safe and uncontaminated source. Accelerator shall be limited to one to two percent by weight, if used.

2.2 ACCESSORIES

A. Well Head:
   1. The wellhead shall be comprised of sanitary seal, fittings, and accessories as shown.

PART 3 - EXECUTION

3.1 LOCATE WELL SITES

A. CONTRACTOR shall be responsible for locating the monitoring wells as shown prior to initiation of drilling.

3.2 PROVIDE ACCESS

A. CONTRACTOR shall be responsible for any additional measures necessary to gain access and transport all required equipment and materials to the monitoring well sites.

3.3 MOBILIZATION/DEMOBILIZATION

A. CONTRACTOR shall furnish all vehicles, equipment, supplies, labor, and incidentals to move equipment and materials to and from the Site. Upon demobilization, CONTRACTOR shall restore all areas to original grades.

3.4 WORKMANSHIP

A. Monitoring wells shall be clear of all waste or other deleterious materials prior to placement of filter pack.

B. Filter pack shall be continuous with no voids.

C. Bentonite seal shall prevent leakage down the borehole from surface.

D. Bentonite-cement seal shall be properly installed and hydrated prior to continuation of backfill.

E. CONTRACTOR shall be responsible for proper transport and disposal of cuttings.

3.5 INSTALLATION

A. General:
   1. Install casing as shown, specified and as recommended by the manufacturer.
   2. Casing that is cracked, damaged crushed, gouged or in poor condition will be rejected.
   3. CONTRACTOR shall be responsible for physically siting the exact locations of all monitoring wells by employing a licensed surveyor to determine location relative to physical features. CONTRACTOR shall also determine the top of well elevation for each monitoring well after the monitoring wells have been completed.
   4. Drillers shall be advised that drilling operations for wells will be conducted through imported fill and natural geologic material, including rock.

B. Monitoring Wells:

1. CONTRACTOR shall furnish, drill, and install the Schedule 40 PVC pipe as shown. Solvent welded joints and solvent cements shall not be used in the construction of the well.
2. All slotting operations are to be performed prior to delivery of pipe to the Site.
3. Drilling methodology shall be the responsibility of CONTRACTOR, but drilling methodology shall not employ water or mud. The depth of the finished monitoring well shall be field verified. All excavated material shall be cleared from the location and moved to an on-site location designated by the ENGINEER and approved by the OWNER. Waste material shall be transported off-site by CONTRACTOR.
4. CONTRACTOR shall drill and install monitoring wells at the locations and depths shown. If a conflict exists, obtain clarification from the ENGINEER before proceeding.
5. CONTRACTOR shall flush the pipe to remove any debris that may have collected inside the pipe prior to installation.
6. The 0.010-inch slotted stainless steel or PVC well screen as shown is to be installed by centering it within the hole.
7. The filter pack shall be installed around the well screen. Take care to avoid bridging and overfilling or damage to the pipe.
8. No natural material (e.g. drill cuttings, garbage, solid waste, etc.) shall be allowed to fill the space next to the slotted pipe or riser. In the event the borehole wall collapses during installation of the monitoring well, CONTRACTOR shall correct this situation, at no additional cost to the OWNER. All procedures shall be completed to the satisfaction of the ENGINEER.

C. Well Log:
   1. An accurate written log shall be maintained at all times, by CONTRACTOR. CONTRACTOR shall record the type, character, and depth of materials encountered, thickness of strata, water table depth and any additional information that may be helpful in interpreting the drilling log.

D. Development by Surge Block, Bailing and Pumping:
   1. Development shall include surge block to achieve the removal of a minimum of 4 well volumes of the borehole or 10 volumes of the well casing of water or until discharge water measures less than 5 NTU (turbidity) or until ENGINEER determines additional development is not required. Contain, transport and dispose of all development water.

+ + END OF SECTION + +

SECTION 33 24 05

INJECTION WELLS

PART 1 - GENERAL

1.1 DESCRIPTION

A. CONTRACTOR shall provide all labor, materials, equipment, and services required to furnish and install the injection wells as shown and as specified herein.

B. Locations of all wells are shown. CONTRACTOR shall install the injection wells to the depth shown.

C. Permits:
   1. CONTRACTOR shall obtain all necessary permits for injection well installation prior to commencement of the Work.

D. CONTRACTOR shall be responsible for mobilization/demobilization of all equipment.

1.2 REFERENCES

A. Standards referenced in this Section are listed below:
   1. American Society for Testing and Materials, (ASTM).
      a. ASTM D 422, Test Method for Particle-Size Analysis of Soils.
   2. Occupational Safety and Health Administration, (OSHA).
      a. OSHA 1910, Occupational Safety and Health Standards.
      b. OSHA 1912.120, Hazardous Waste Operations and Emergency Response.

1.3 QUALITY ASSURANCE

A. Testing:
   1. The services of a qualified testing laboratory shall be engaged by CONTRACTOR to make tests and determine acceptability of the materials as listed below. The laboratory shall be acceptable to the ENGINEER.

B. Well driller shall be a licensed well driller in the State of New York.

C. The Work shall comply with the Rules and Regulations as defined under the applicable requirements of governing authorities having jurisdiction, including but not limited to, the New York State Department of Environmental Conservation.

1.4 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Shop Drawings:
      a. Drilling method - Sonic.
      b. Well casing.
      c. Well screen.
      d. Filter pack material samples, including gradation analysis results, filter pack effective size, and uniformity coefficient.
      e. Bentonite seal.
      f. Neat cement grout mix design.
      g. Method of material and grout placement.
      h. Well log and well construction details.
      i. Cuttings, drill fluids and water containment or water disposal.

B. Informational Submittals: Submit the following:
   1. A Daily Driller's Report shall be kept available at the Site for review by the ENGINEER and at the conclusion of injection well drilling for the well, two neat, legible copies of this report shall be submitted to the ENGINEER. This log shall contain, but not be limited to, the following information for each day's activity:
      a. Number of crew on the Site and name of superintendent for each shift.
      b. Description of all formations encountered.
      c. Number of feet drilled.
      d. Number of hours on the job.
      e. Number of hours of drilling operations.
      f. Number of hours of shutdown.
      g. Drilling fluid viscosity (every four hours of drilling operations).
      h. Rate and volume of make-up water used for each formation.
      i. Water level at beginning and end of each shift.
      j. Water level at each change or formation, if readily measurable.
      k. Emergency phone numbers of personnel involved in the well construction.

1.5 HEALTH AND SAFETY

A. CONTRACTOR shall be responsible for all health and safety activities relative to drilling and constructing the injection wells.
   1. Health and Safety shall comply with the requirements of OSHA 1912.120.

PART 2 - PRODUCTS

2.1 DESCRIPTION

A. Casing; Casing materials used for the injection wells shall consist of 2-inch nominal diameter, flush threaded, 304 stainless steel.

B. Screen: Well screen shall consist of 2-inch nominal diameter, 0.010-inch machine-slotted 304 stainless steel. Screen length will be 5 feet at each injection well.

C. Bottom Cap: The bottoms of the wells are to be capped with a flush-threaded cap.

D. Filter Pack: Filter pack shall consist of U.S Silica FILPRO #00N filter sand, or equivalent filter sand with equivalent gradation (including an effective size of 0.019 inch, and uniformity coefficient of 1.32), suitable for use with 0.010 machine -slotted well screen.

E. Bentonite Seal:
   1. Bentonite shall consist of commercial grade high yield sodium bentonite pellets and shall be supplied with a maximum diameter of 1/2-inch.
   2. Bentonite pellets shall be hydrated for a minimum of 30 minutes after placement. Water used for hydration shall be clean, fresh and free from oil, acid, alkali, organic matter or other deleterious substances. CONTRACTOR shall be responsible for obtaining the water required for the Work.
   3. Resulting bentonite seal shall have a maximum permeability of 1×10^{-7} cm/sec.

F. Neat Cement Grout:
   1. Neat Cement Grout: As Shown. A low-heat neat cement grout shall be provided. Accelerator shall be limited to one to two percent by weight, if used.

2.2 ACCESSORIES

A. Well Head:
   1. The wellhead shall be comprised of a cap, ball valve and cam-lock fitting as shown.

PART 3 - EXECUTION

3.1 LOCATE WELL SITES

A. CONTRACTOR shall be responsible for locating the injection wells as shown prior to initiation of drilling.

3.2 PROVIDE ACCESS

A. CONTRACTOR shall be responsible for all measures necessary to gain access and transport all required equipment and materials to the injection well sites.

3.3 MOBILIZATION/DEMOBILIZATION

A. CONTRACTOR shall furnish all vehicles, equipment, supplies, labor, and incidentals to move equipment and materials to and from the Site. Upon demobilization, CONTRACTOR shall restore all areas to original grades and conditions.

3.4 WORKMANSHIP

A. Injection wells shall be clear of all waste or other deleterious materials prior to placement of filter pack.

B. Filter pack shall be continuous with no voids.

C. Surface seal shall prevent leakage down the borehole from surface.

D. Neat cement grout shall be properly installed and hydrated prior to continuation of backfill.

E. CONTRACTOR shall be responsible for proper containment, transport, and disposal of cuttings.

3.5 INSTALLATION

A. General:
   1. Install casing as shown, specified and as recommended by the manufacturer.
   2. Casing that is cracked, damaged crushed, gouged or in poor condition will be rejected.
   3. CONTRACTOR shall be responsible for physically siting the exact locations of all injection wells by employing a licensed surveyor to determine location relative to physical features. CONTRACTOR shall also determine the top of well elevation for each injection well after the injection wells have been completed.
   4. Drillers shall be advised that drilling operations for wells may be conducted through imported fill and natural geologic material.

B. Injection Wells:
   1. CONTRACTOR shall furnish, drill, and install the 2-inch diameter, 304 stainless steel pipe as shown.
   2. Drilling methodology shall be the responsibility of CONTRACTOR. The depth of the finished injection well shall be field verified. All excavated material shall be contained, cleared from the location, and moved to an on-site location designated by the ENGINEER and approved by the DEPARTMENT. Waste material shall be transported off-site by CONTRACTOR.
   3. CONTRACTOR shall drill and install injection wells at the locations and depths shown. If a conflict exists, obtain clarification from the ENGINEER before proceeding.

4. CONTRACTOR shall flush the pipe to remove any debris that may have collected inside the pipe prior to installation.
5. The 2-inch, 304 stainless steel pipe is to be installed by centering it within the hole.
6. The filter pack shall be installed around the slotted pipe. Take care to avoid bridging and overfilling or damage to the pipe.
7. No natural material (e.g. drill cuttings, garbage, solid waste, etc.) shall be allowed to fill the space next to the slotted pipe or riser. In the event the borehole wall collapses during installation of the injection well, CONTRACTOR shall correct this situation, at no additional cost to the DEPARTMENT. All procedures shall be completed to the satisfaction of the ENGINEER.

C. Well Log:
1. An accurate written log shall be maintained at all times, by CONTRACTOR. CONTRACTOR shall record the type, character, and depth of materials encountered, thickness of strata, water table depth and any additional information that may be helpful in interpreting the drilling log.

D. Development by Surge Block, Bailing and Pumping:
1. Development shall include surge block to achieve the removal of a minimum of 4 well volumes of the borehole or 10 volumes of the well casing of water or until discharge water measures less than 5 NTU (turbidity) or until ENGINEER determines additional development is not required. Contain, transport and dispose of all development water.

+ + END OF SECTION + +

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Appendix E

Second Round ISCO Injection Memo

Memo

SUBJECT
First Round ISCO Event – September 2025
Former Silver Cleaners Site No. 828186

TO
Jasmine Stefansky (NYSDEC)

DATE
March 4, 2026

PROJECT NUMBER
30085744

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This memo documents the proposed scope for the second in-situ chemical oxidation (ISCO) injection event that is tentatively scheduled for July 2026 at the Former Silver Cleaners Site (NYSDEC Site No. 828186) at 245 Andrews Street, City of Rochester, Monroe County, New York (Site).

Site Description

Arcadis of New York, Inc. (Arcadis), under contract to the New York State Department of Environmental Conservation (NYSDEC), is the engineer of record, documenting the construction of the Site remedy. The Site is in downtown Rochester and is comprised of three contiguous parcels totaling 0.30 acres located at the corner of Andrews Street and North Clinton Avenue. The addresses for the three contiguous parcels are 245 Andrews Street, 151 and 159-169 Pleasant Street. The site is bounded by Andrews Street to the north, North Clinton Avenue to the east and commercial properties to the west and south. Prior to its demolition in the summer of 2023, the main site feature was a one-story vacant on-site building. Currently, the entire Site is covered with a paved parking area. A dry cleaner operated on the 245 Andrews Street parcel from 1949 to 2011. The 151 and 159-169 Pleasant Street parcels were used as a gas station from 1935 to 1955.

First Round of ISCO Injections

The first round of ISCO injections, completed between September 8 and Octovber 3, 2025, targeted the injection of 24,500 gallons of 2% sodium permanganate into source excavation area risers and injection wells at the following volumes:

- 11,300 gallons into the injection wells
- 13,200 gallons into the source excavation area

The actual flow rates into the deep injection wells (screened in the deep overburden, between dense till and bedrock) were lower than expected. Post-ISCO groundwater sampling and monitoring for residual sodium permanganate has also indicated that unreacted sodium permanganate is still present in the source area (shallow injection zone).

Installation of Additional Injection Wells

Because of the lower-than-expected injection flow rates into the deep overburden injection wells, Arcadis has evaluated the cost of installing additional injection wells (to allow for more volume to be injected per day) versus extending the number of days of injections. This analysis was based on the following assumptions:

- The drilling firm's well installation cost (for three injection wells) is estimated at $50,000 to $55,000. This costs is without CAMP and GES/Arcadis oversight.
- The estimated combined GES and Arcadis labor and expenses for daily ISCO injections is estimated to cost approximately $12,000 per day.
- Assuming the daily labor and expenses cost of $12,000 and an assumed 80 gpd/well at the existing 4 wells, we would be able to inject 320 gallons per day, at which rate it would take a total of 62.5 days (round to 63 days) to inject 20,000 gallons.
- With injecting into 7 wells at 80 gallons per day per well, 560 gallons per day could be injected over 35.7 days (round to say 36 days) to inject 20,000 gallons.
- Net difference is 27 days at an assumed $12,000 per day or $324,000.

After reviewing the above assumptions and costs, NYSDEC decided to pursue installing additional injection wells.

Proposed Scope of Work – Second Round of ISCO Injections

During the second round of ISCO injection, the vast majority of the sodium permanganate will be injected into the deep injection wells while the source area riser pipes will only be used as a means to consume the remaining volume of sodium permanganate that was unable to be injected into the deep injection wells each day. Based on this approach, the proposed assumptions and scope of work for the second round of ISCO injections is summarized as follows:

- Install three additional injection wells to increase the injection efficiency and help with faster distribution of reagent into the deep overburden zone (See Attachment 1).
- Assume 80 gallons per day per injection well is the average volume of 2% sodium permanganate able to be injected.
- Inject a total of 20,000 gallons of 2% sodium permanganate into the injection wells.

The additional injection wells more than pay for themselves in this next round of ISCO injections based on the increased volume per day that could be injected.

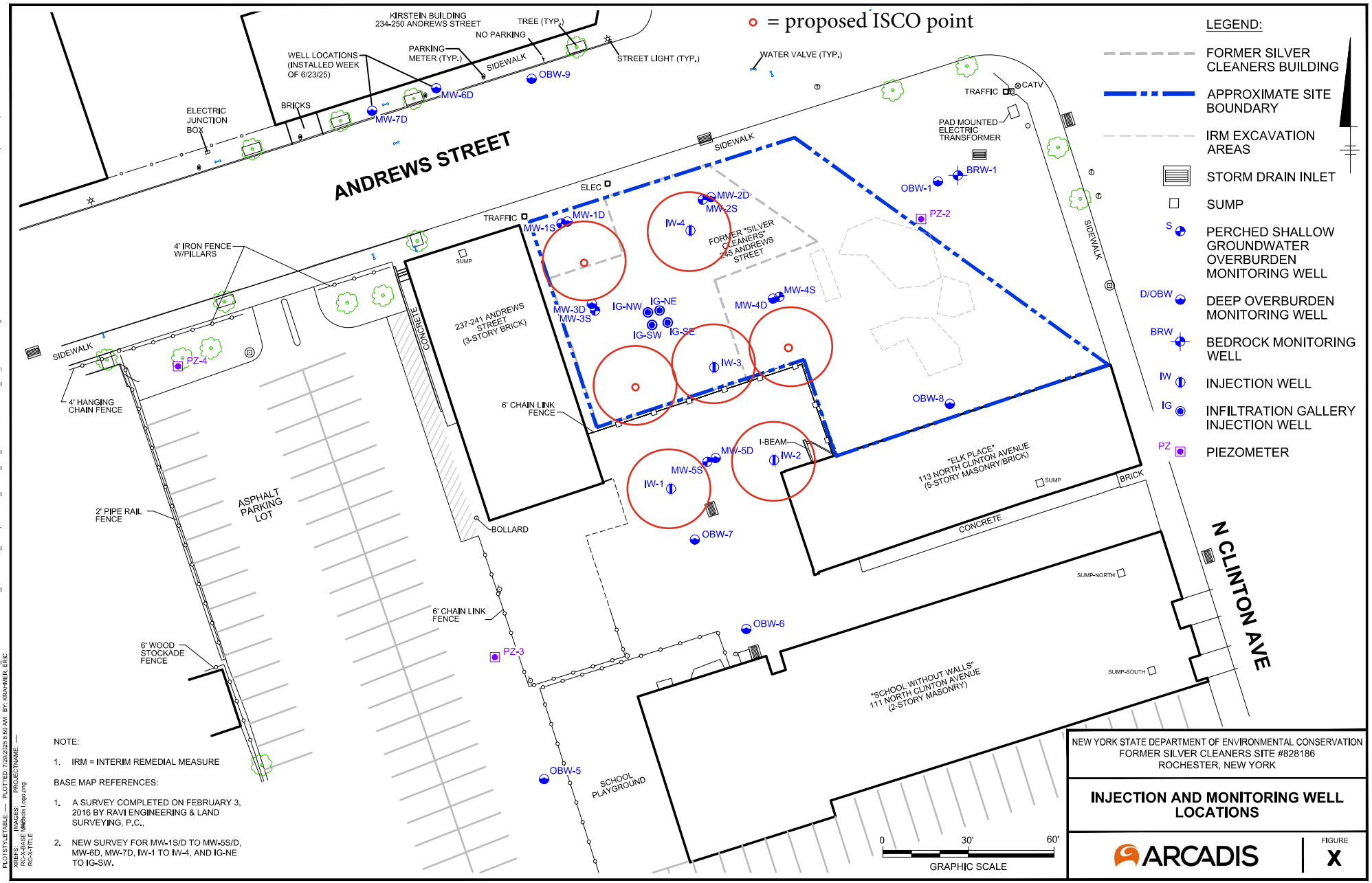
Based on the assumption of installing the three new injection wells, an updated schedule for the second-round injection effort has been included in Attachment 2. This schedule may slip depending on the availability of the selected driller.

Enclosures

Attachment 1 – Proposed Well Locations

Attachment 2 – Proposed Schedule

= 15ft ROI



NOTE:

1. IRM = INTERIM REMEDIAL MEASURE

BASE MAP REFERENCES:

1. A SURVEY COMPLETED ON FEBRUARY 3, 2016 BY RAVI ENGINEERING & LAND SURVEYING, P.C.,
2. NEW SURVEY FOR MW-1S/D TO MW-5S/D, MW-6D, MW-7D, IW-1 TO IW-4, AND IG-NE TO IG-SW.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER SILVER CLEANERS SITE #828186
ROCHESTER, NEW YORK

INJECTION AND MONITORING WELL LOCATIONS

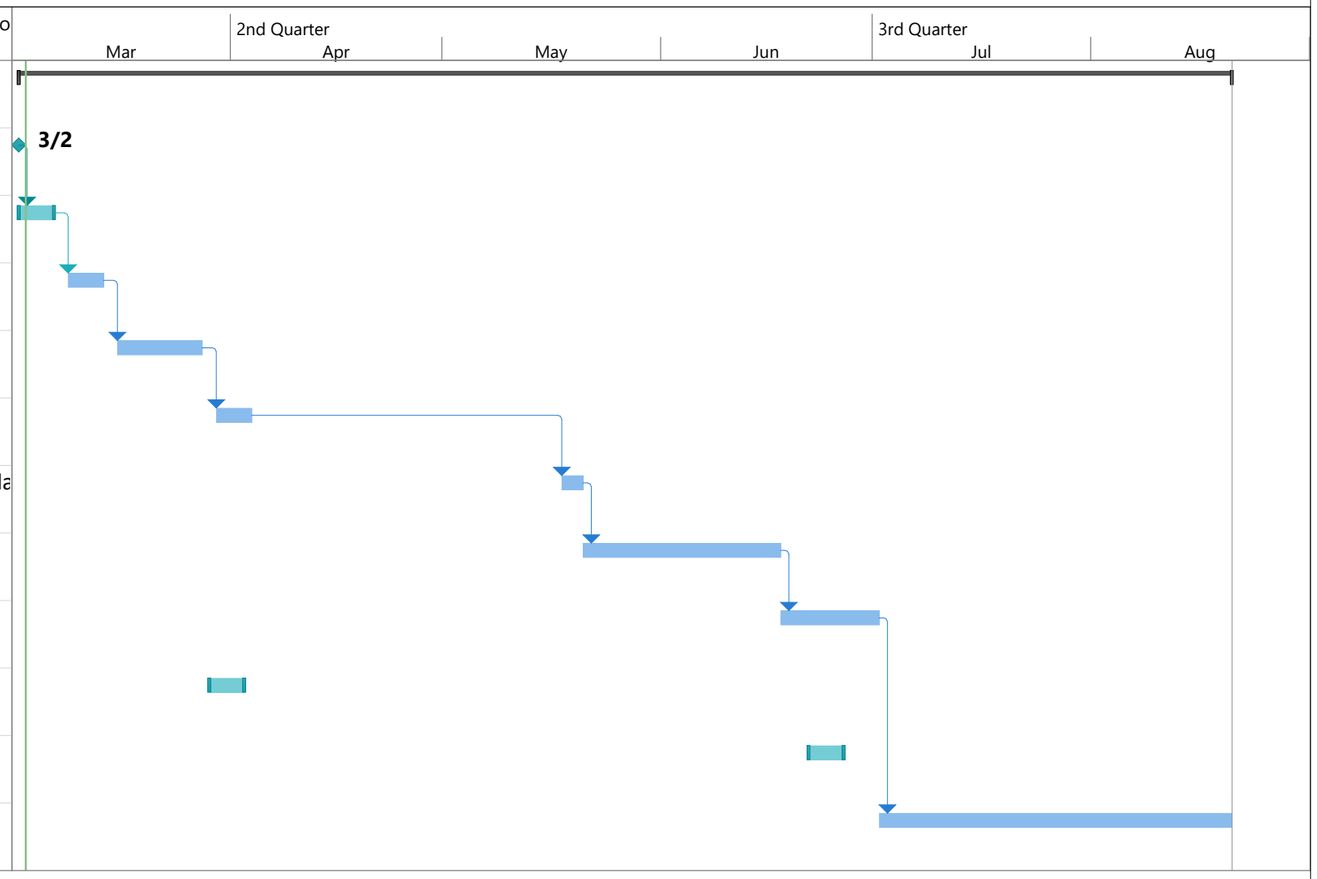
ARCADIS

FIGURE
X

Schedule is shown as Work Days

Former Silver Cleaners Site
Site No. 828186
New Injection Wells & 2nd Round ISCO
REV 11 3.2.2026

ID	Task Name	Duration	Start	Finish	Predecesso
1	**Second Round ISCO**	**124 days**	**Mon 3/2/26**	**Thu 8/20/26**	
2	Additional Injection Well Decision	0 days	Mon 3/2/26	Mon 3/2/26	
3	Well RFQ by GES	5 days	Mon 3/2/26	Fri 3/6/26	2
4	Well Proposal Due to GES	5 days	Mon 3/9/26	Fri 3/13/26	3
5	Well Proposal Review and Recommendaiton To DE	10 days	Mon 3/16/26	Fri 3/27/26	4
6	DEC Authorization and Scheduling	5 days	Mon 3/30/26	Fri 4/3/26	5
7	Well Installation	3 days	Mon 5/18/26	Wed 5/20/26	6FS+30 da
8	Well Seal Cure	20 days	Thu 5/21/26	Wed 6/17/26	7
9	Well Installation Float	10 days	Thu 6/18/26	Wed 7/1/26	8
10	5-6 Month Post Sampling	5 days	Sun 3/29/26	Thu 4/2/26	
11	Pre-ISCO Second Round GW Sampling	5 days	Mon 6/22/26	Fri 6/26/26	
12	Second Round ISCO	36 days	Thu 7/2/26	Thu 8/20/26	9



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