Environment

Prepared for:
New York State Electric & Gas Corp.
Binghamton, NY 13902

Prepared by:
AECOM USA, Inc.
Buffalo, NY
Project 60652550
April 2025

100% Remedial Design Report

NYSEG - Auburn Green St. MGP Site
Auburn, Cayuga County, New York
NYSDEC Site # 7-06-009

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Engineering Certification

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

Edward M. Murphy

Edward M. Murphy, PE
Registered Professional Engineer
New York License No. 081543

04/30/2025
Date

1.0 Introduction

This document serves as the 100% Remedial Design (RD) for the remediation of impacted soils and groundwater at the New York State Electric and Gas (NYSEG) - Auburn Green St. Manufactured Gas Plant (MGP) Site, New York State Department of Environmental Conservation (NYSDEC) site #7-06-009, located in Auburn, Cayuga County, New York (MGP Site or Site) (**Figure 1-1**). This Remedial Design describes the site preparation, excavation of shallow surface soils, performance of in-situ biosparging to address onsite groundwater impacts, and site restoration for the remedial work that will take place take place at the Site.

This RD provides guidelines to implement the remedy selected by NYSDEC in accordance with the Record of Decision (ROD) (NYSDEC, July 8, 2020) and the Administrative Order on Consent (CO) (Index No. D0-0002-9309) between NYSDEC and NYSEG (NYSDEC, March 30, 1994) and subsequent Amended and Restated Order on Consent (ARMSCO) (NYSDEC, 2016). This work plan has been prepared in accordance with NYSDEC's Technical Guidance for Site Investigation and Remediation (DER-10) (NYSDEC, 2010a).

The remedial action will be performed under the approval and oversight of NYSDEC and New York State Department of Health (NYSDOH).

1.1 Site Location and Description

The Site is located in the City of Auburn, Cayuga County, New York. The location of the Site and the surrounding features are shown on **Figure 1-2**. The Site is surrounded by a mix of commercial and residential properties in the downtown section of Auburn. The Site is bounded by Hulbert Street to the west, Water Street to the north, Green Street to the east, and a parking lot to the south. Farther to the north is NY Route 5 and 20 West, a railroad right-of-way with rail tracks, the Owasco Outlet River, and the Auburn Correctional Facility. East of Green Street is a hotel followed by commercial properties. Commercial properties followed by residential properties are located to the west and south of the Site.

The Site is comprised of two parcels of land. The parcels are summarized as follows:

- Parcel 115.52-1-37 – NYSEG substation - This parcel is owned by NYSEG and is currently used as an active substation for NYSEG. As shown on **Figure 1-2**, the former gas holder was located on this parcel. The parcel is covered with gravel and is surrounded by a chain-link fence with secure access.
- Parcel 115.52-1-38 – Adjacent northeast NYSEG parcel – This parcel is also owned by NYSEG and is located immediately adjacent to and northeast of the NYSEG substation parcel. This parcel is vacant and covered with grass and trees. There is no fence surrounding this parcel.

The ground surface at the Site is relatively flat with an elevation of approximately 667 ft North American Vertical Datum 1988 (NAVD88). The ground surface gently slopes to the north/northeast toward the Owasco Outlet River (approximately 657 ft NAVD88) located approximately 500 ft to the north. Although the overall flow of the Owasco Outlet River is from the south to the north, the river flows east to west north of the Site. Unconfined overburden groundwater occurs generally between 5 and 14 feet (ft) below ground surface (bgs) at the Site and flows generally from southwest to northeast across the Site.

Local geology includes several layers of fill and native soil (the overburden). Overburden thickness averages approximately 20 feet at the Site. Fill materials range in thickness from 5 to 7 ft and consist of brown silt and fine to medium sand, some fine to coarse gravel, and trace wood, coal slag, brick fragments, ash, and/or cinders. Native soil beneath the fill consists of brown sandy silt ranging in thickness from approximately 3 to 8 ft. This unit is underlain by a red-brown silty clay/clayey silt ranging in thickness from 3 to 8 ft. The underlying bedrock is limestone of the Middle Devonian Onondaga Formation.

1.2 Site History

A manufactured gas holder was constructed at the Site in 1890 for gas produced by the nearby McMaster Street MGP and possibly the Clark Street MGP. The gas holder existed until sometime between 1931 and 1941. The gas holder was owned and used by the Auburn Gas Light Company from 1890 to 1911, the Empire Gas and Electric Company from 1911 up to 1936, and potentially NYSEG from 1936 until it was demolished between 1931 and 1941. From 1946 to 1950, a nearby lumber yard expanded into the Site. In 1950, NYSEG constructed the substation currently present at the Site. The locations of the former gas holder and other buildings are shown on **Figure 1-2**.

Historical research for prior site investigations identified various former Site features which could have been potential source areas for MGP residuals and were targeted during site investigations. The key former MGP features are:

- A 100,000-cubic foot capacity gas holder with a brick-and-mortar foundation in the center portion of the Site.
- A gas governor house located on the eastern side of the Site.
- A shed located along the southern side of the Site.

1.3 Previous Investigations and Remedial Actions

The following provides a brief chronology of the previous investigations at the former MGP Site to date:

- In 1981, NYSEG collected one surface soil sample from the area of the former gas holder. The results of this sample are unknown.
- In 1987, the United States Environmental Protection Agency (USEPA) conducted a Potential Hazardous Waste Site Preliminary Assessment. The results of the assessment were presented in the document titled *Potential Hazardous Waste Site Preliminary Assessment, NYSEG Auburn Gas Plant*, dated December 7, 1987 (USEPA, 1987).
- In 1988, NYSEG conducted a Site inspection that revealed the presence of a few clinkers and small quantities of demolition debris.
- In 1991, Atlantic Environmental Services, Inc. (AES) performed an assessment of Site conditions that included historical research, a Site reconnaissance, and surface soil sampling and analysis. The results of the assessment were presented in the document titled *Manufactured Gas Plant Site Screening Report, Green Street Site, Auburn, NY*, dated September 1991 (AES, 1991). The locations of the surface soil samples are shown on **Figure 1-2**.

- In 2013 and 2014, AECOM performed additional assessments of the property during a Site Characterization (SC) and a Supplemental SC, respectively (AECOM, 2016). Surface soil, subsurface soil, and groundwater sample locations are shown on **Figure 1-2**.
- Between fall 2021 and fall 2023, AECOM performed pre-remedial design investigations that included the collection of surface soil sample SS-13 and installation of additional Site monitoring wells, a biosparge pilot study well; performance of a biosparge pilot study; and collection of pre- and post-biosparge pilot study groundwater samples. The additional surface soil and well locations are shown on **Figure 1-2**. The *Pre-Design Investigation Summary Report* (April 2023) is included as Appendix A to this 100% Design Report.
- As a follow-up to the *Pre-Design Investigation Summary Report*, an additional round of groundwater samples was collected in September 2023 to evaluate longer-term post-biosparge pilot study groundwater conditions at the Site. The results of that monitoring are described in more detail in Section 4.5.5.
- As a follow-up to the *50% Remedial Design Report* (March 2024), an additional round of groundwater samples was collected in August 2024 to further evaluate longer-term post-biosparge pilot study groundwater conditions at the Site. The results of that monitoring are described in more detail in Section 4.5.

The associated documents are available for public review at the following document repositories:

New York State Department of Environmental Conservation -

Project documents can be accessed at: https://extapps.dec.ny.gov/data/DecDocs/706009/

Additional site details, including environmental and health assessment summaries, are available on NYSDEC's Environmental Site Remediation Database (by entering the site ID, 706009) at: https://www.dec.ny.gov/cfmx/extapps/derexternal/index.cfm?pageid=3

New York State Department of Environmental Conservation (Region 7 Office)
5786 Widewaters Parkway
Syracuse, New York 13214
(315) 426-7400
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Seymour Library
176 Genesee Street
Auburn, NY 13021
Phone: (315) 252-2571

2.0 Remedial Action Objectives

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

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

3.0 Organizational Structure and Responsibility

NYSEG and New York State regulatory agencies will participate jointly in this remedial action associated with the Site. NYSEG has the ultimate responsibility for implementing the remedial action for the project including the community air-monitoring program during intrusive remedial action activities.

Approval of this Remedial Design Report by NYSDEC and NYSDOH will be secured prior to intrusive activities and excavation. NYSDEC and NYSDOH personnel are anticipated to be on-site periodically for purposes of general program oversight. The remediation contractor will be responsible for all remedial action operations during the project, unless otherwise stated in Section 4.0, including: drilling and excavation safety and protection of adjacent utilities; construction personnel health and safety; implementation of contingency plans for odor control; management of wastewater and waste-handling operations; maintenance of Project Site controls (i.e., run-off, run-on); surface soil excavation and material handling activities associated with the remedial action; implementation of the in-situ biosparging activity; and documentation of the remedial actions completed.

Communication with regulatory agencies and with members of the surrounding community will be managed by NYSEG.

Key personnel and their assigned responsibilities for implementation of the remedial action include:

NYSEG: Mr. John Ruspantini, CHMM, PMP
Senior Project Manager / Environmental Remediation

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4.0 Remedial Design

4.1 Introduction

This Remedial Design includes a chronological description and performance schedule of anticipated project activities for the Site. Documents include Design Drawings and Specifications along with the Pre-Design Investigation Summary Report, Transportation Plan, Quality Assurance Project Plan (QAPP), Community Air Monitoring Plan (CAMP), Construction Quality Assurance Plan (CQAP), and Contingency Plan.

Actual project data (e.g., community air-monitoring, noise, dust control) obtained from NYSEG's previous remediation efforts at other MGP sites have been used as guidance to design the procedures for the NYSEG - Auburn Green St. Former Gas Holder MGP Site remediation project.

Work will be conducted to minimize public impact (e.g., traffic, parking, noise) to the extent practicable. Construction operations will generally not begin prior to 7 A.M. or continue after 5 P.M., Monday through Friday. Work on weekends may be undertaken as necessary to meet the project completion schedule. The following sections describe the procedures to be used for remedial activities.

4.2 Summary of Remedial Activities

The primary activities covered under this remedial design include:

- Mobilization and Project Site preparation;
- Air monitoring to evaluate potential fugitive emissions;
- Shallow surface soil excavations;
- Management and transportation of impacted soils to an off-site permitted facility;
- In-situ groundwater bioremediation (biosparging); and
- Surveying and Project Site restoration.

The remainder of this section describes these activities and provides the information used as the basis for the design. Specific instructions to the Remediation Contractor (Contractor) are provided in the Specifications and Drawings

4.3 Project Site Preparation

The Contractor will prepare the Project Site for the required excavation work. The Project Site preparation activities include:

- Obtaining necessary permits (see Section 6.0);
- Mobilization;

- Installation of erosion and sediment controls;
- Set-up of temporary Project Site facilities;
- Surveying to establish baseline conditions and grades;
- Utility location and protection; and
- Set-up of traffic management at the Project Site.

4.3.1 Mobilization

The Contractor will mobilize to the Project Site the necessary manpower, equipment, and materials to initiate the work. The initial mobilization will include the delivery of the materials and equipment for Project Site preparation. This will be followed by the delivery of equipment and materials needed for excavation work. Erosion and sediment controls, including silt fences as may be needed, will be installed prior to any disruption of site soil. The erosion and sediment controls will be maintained throughout the duration of the work. Erosion and sediment controls are further described in Section 4.3.2.

4.3.2 Erosion and Sediment Controls

Upland remediation activities will not disturb an area greater than one acre in size. Therefore, the project will not need to meet the substantive requirements of SPDES General Construction Stormwater Permit GP-0-25-001for Construction Activity (NYSDEC, January 2025). However, erosion will be prevented, and sediment will be controlled during site earthwork activities in accordance with applicable New York State Division of Water guidance via installation of Best Management Practices (BMPs). Minimum BMPs include but are not limited to the following: silt fence; hay bales, equipment decontamination pad; and geotextile catch basin protection. Storm water run-off will be controlled in a manner to prevent contact with impacted soils. Additional erosion control materials will be kept on site to immediately repair any deficiencies that are discovered during the inspections.

During all portions of the construction, erosion and sediment controls will be maintained in accordance with this section and the Drawings.

4.3.3 Preparation of Excavation Areas and Project Site Facilities

The Contractor will prepare the surface soil excavation areas necessary to support and execute the shallow surface soil excavation work. Prior to excavation work, landscape trees and shrubs within the excavation area will be cut to approximately six inches above grade and removed from the work area. Above-grade landscape debris will be transported to a recycling / mulching facility, if possible. Limits of landscape removal will not extend beyond the limits shown in the Drawings.

Due to the limited nature of work, it is not anticipated that office or support trailers will be needed for the work. However, other temporary Project Site facilities may be required during remedial construction:

- Sanitary facilities;
- Decontamination pad(s);
- Health and safety equipment;
- Material laydown areas;

- Traffic control signage; and
- Parking areas.

Work zones will be established within the construction boundaries in accordance with the Contractor's Site-specific Health and Safety Plan (HASP) and the drawings that define the initial exclusion zones, the decontamination zones, and the support zone. These zones may change as the work progresses in order to maintain safety and allow for practical completion of the work.

4.3.4 Surveying

The Contractor will retain a New York State-licensed surveyor to provide initial benchmarks and stakeout for horizontal and vertical excavation and for the new air injection well installation. This survey shall utilize commonly recognized engineering survey practices appropriate for obtaining the specified information. The Contractor will use this initial survey to confirm and maintain horizontal and vertical limits as the work proceeds. The licensed surveyor will return to the site as needed to document measurements of unit cost bid items, excavation volumes, and to complete a record survey of the finished work, including horizontal and vertical elevation of new air injection well.

4.3.5 Location and Protection of Utilities

The Contractor will provide utility clearance for all work at the Project Site. The Drawings identify known utilities that are active in the work areas that must be protected.

4.3.6 Traffic Management

A transportation route will be submitted by the Contractor that describes the specific off-site transportation routes that will be followed to manage construction traffic during the work and in a manner that minimizes disturbance to the community. The transportation route will be approved by NYSEG prior to mobilization. Temporary lane closures of less than one day duration are anticipated to complete the shallow surface soil excavations.

4.3.7 Site and Work Zone Security During Remedy Construction

The NYSEG Auburn Green Street Substation is a secure facility. In addition to the existing security features of the substation and temporary facilities described in Section 4.3.3, all work areas outside the substation security fence will be secured and barricaded with temporary fencing and caution tape to ensure the safety of the facility workers, visitors, and to prevent vandalism and unauthorized access. The temporary fencing will have professionally made signs stating that access to the Project Site is limited to authorized personnel and work within the Project Site must be done with the appropriate personal protective equipment (PPE).

Work zones will be established within the construction boundaries in accordance with the site-specific Health and Safety Plan (HASP) and the drawings that define the initial exclusion zones, the decontamination zones, and the support zone. These zones will change as the work progresses in order to maintain safety and allow for practical completion of the work.

4.4 Shallow Surface Soil Excavation (Soil Remedy)

As specified in the ROD, all soils in the upper foot which exceed the Commercial Use Soil Cleanup Objectives (SCOs) as defined by 6 NYCRR 357-6.8 will be excavated and transported off-site for disposal. Only arsenic was identified as a contaminant of concern in surface soil. It is estimated that 27 cubic yards (CY) of contaminated soil will be excavated from the area shown on **Figure 4-1**. As the figure shows, soil will be excavated from within the limits of the following: an area bounded on the west and northwest by a concrete sidewalk, at the northeastern limit by a driveway entering a gate into the substation, on the east and southeast by the substation fence, and at the south by an extension of the southern property line of substation Lot 115.52-1.37 west to the concrete sidewalk.

4.4.1 Excavation Objectives

Excavation of shallow surface soil will be conducted within the limits of the shallow surface soil excavation areas as shown on the Drawings. Excavation activities will include:

- Excavation of approximately 27 CY of shallow surface soil (upper foot) to remove soils containing concentrations of arsenic above Commercial Use SCOs (CUSCO) (i.e., 16 parts per million (ppm)); and,
- Off-site transportation and disposal of soil.

4.4.2 Limits of Excavation

Excavation will occur to one foot below existing grade. The horizontal limits of excavation are shown in the Drawings. Approximately 27 CY of soil are anticipated to be excavated from within the limits of excavation.

Excavation will protect both above and below ground utilities, and the presence of nearby features (i.e., NYSEG substation fence and City of Auburn concrete sidewalk). Excavation materials will be pre-characterized in place by the Contractor prior to disposal offsite.

Excavated soils will be loaded directly into trucks and not stockpiled if possible (see Section 4.6.1). Soil used as backfill is required to meet the requirements of DER-10 (see Section 4.7 for additional detail).

A demarcation layer, such as commercially available orange snow fence, orange cargo netting, or other non-biodegradable, visible material that does not impact the percolation of groundwater will be utilized prior to backfilling excavation areas. The demarcation layer will be placed over the full footprint of the excavation and sidewalls.

NYSDEC will be provided the opportunity to inspect the excavation prior to backfilling and oversee collection of post-excavation compliance samples.

4.4.3 Compliance Samples

Confirmation samples will be collected to demonstrate the remedy has removed soils with arsenic exceeding CUSCO from the top 12 inches of the designated excavation area. The perimeter length of the surface soil excavation is calculated at 236 feet and the bottom area is calculated at 804 square feet. As the dimensions are between 20 and 300 feet in perimeter and have a surface area less than 900 square feet, confirmation samples will be collected in accordance with DER-10, Section 5.4(b)5.ii. Therefore, one sample will be collected from the bottom of the excavation and one sample will be collected at the midpoint of each sidewall at approximately 30-foot intervals. If the sidewall adjacent to the sidewalk is comprised of concrete sidewalk face (assumed to be 4" thick) and granular subbase (assumed to be minimum 4" thick), a sidewall sample will be collected from the bottom portion of that sidewall. If subbase gravel extends to 12" total depth below grade, a sidewall sample will not be collected.

Confirmation sample results will be compared to the arsenic CUSCO to confirm that soils with arsenic concentrations exceeding CUSCO have been successfully remediated. Preliminary confirmation sample data will be provided to NYSDEC / NYSDOH prior to backfilling. If a sidewall sample location along the sidewalk fails to meet criteria, the NYSDEC project manager will be contacted to discuss alternatives (e.g., remove one sidewalk flag, excavate underlying soils to one foot total depth below surrounding grade, replace subbase and sidewalk section). If a sidewall sample along the NYSEG substation fence alignment fails to meet criteria, that sample will be considered a documentation sample and no additional excavation will be conducted as the sidewall soil material will be within the alignment of the substation fence and beneath gravel cover within the substation. If the initial bottom sample fails to meet criteria, an additional minimum 0.5-foot depth will be excavated and sampling repeated. If a sample fails to meet criteria after two attempts at any sample location, the NYSDEC project manager will be consulted prior to proceeding with any additional excavations.

The soil confirmation samples will be collected and managed in accordance with the soil sampling procedures outlined in the *Remedial Design Work Plan,* Appendix B (*Pre-Design Investigation Work Plan*) (AECOM, September 2022). The soil samples will be submitted to a NYSDOH ELAP-certified laboratory for analysis of arsenic by EPA SW 846 Method 6010D. A sample list summary including quantities and analytical methods is presented below and in **Appendix C** - QAPP. Analytical specifications, sample bottle, volume, preservation and holding times are presented in **Appendix C** - QAPP.

Quality assurance/quality control (QA/QC) samples consisting of a matrix spike/matrix spike duplicate (MS/MSD), and field duplicate will be collected at a frequency of one per 20 samples. The estimated number of samples is as follows:

Parameters	Method	Samples	MS/MSD	Field Duplicate	Rinse Blank	Trip Blank	Total
Soil Samples							
arsenic	6010C	9	1/1	1	1	0	13

The analytical results will be validated by a qualified chemist following NYSDEC and EPA data validation procedures. The analytical laboratory will supply Category B data deliverables within 15 days of sample receipt. A Data Usability Summary Report (DUSR) will be prepared as detailed in DER-10, Appendix 2B.

4.4.4 Imported Soil and Granular Fill

It is anticipated that materials imported to the Site will be limited to topsoil and granular (crushed stone) backfill. Prior to importing soil and granular fill to the Site, a request to Import/Reuse Fill or Soil will be prepared and submitted to the NYSDEC project manager for review and approval. The request to Import/Reuse Fill or Soil will be accompanied by appropriate documentation detailing the source, sieve analysis, and laboratory results, etc. Laboratory analysis for soil will be completed in accordance with DER-10, Table 5.4(e)10 and include analysis for 1,4-dioxane and poly- and perfluoroalkyl substances (PFAS). Per NYSDEC/NYSDOH comment on the *50% Remedial Design Report*, imported soil fill will meet DER-10, Appendix 5 criteria for Residential Use.

Any coarse grained backfill will meet the requirements of DER-10, Section 5.4(e)(5)(i). If the grain size distribution of the granular backfill is shown to contain less than 10 percent by weight of particles that pass the #80 sieve, no laboratory chemical testing may be required.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

4.4.5 Dewatering / Water Management

Dewatering is not expected to be necessary at the site given the shallow nature of the surface soil excavation and known depths to groundwater (greater than 3 to 5 feet bgs). If dewatering is necessary due to rainwater collection, a sump will be established in the excavation and pumps of proper sizing and capacity will be used to transfer runoff to a holding tank or 55-gallon drums. Collected water would be characterized and transported to an appropriate off-site disposal facility as required.

4.5 In-situ Enhanced Biodegradation - Biosparging (Groundwater Remedy)

As specified in the ROD, in-situ enhanced biodegradation will be employed to treat VOCs in groundwater within and outside of the subsurface former MGP gas holder. As a preliminary element of the selected remedy, an on-site pilot scale study was completed in September/October 2022 to more clearly define design parameters. Details for the on-site biosparging pilot study were outlined in the *Remedial Design Work Plan* (AECOM, July 2022).

As summarized in the *Pre-Design Investigation Summary Report* (AECOM, April 2023) (see **Appendix A**), the intent of the biosparging pilot study was to confirm distribution of contaminants in groundwater, gain better understanding of the redox conditions at the Site, evaluate groundwater flow and velocity to support the Remedial Design, and determine the feasibility of biosparging to meet Site groundwater remediation objectives.

The pre-design investigation biosparge pilot study results showed that biosparging can be feasibly implemented in the groundwater plume near monitoring wells MW-4 and MW-9. In addition, groundwater monitoring results immediately following the biosparge pilot study showed that biosparging significantly decreased the concentrations of contaminants at monitoring wells MW-4 and MW-9, which define the likely plume source.

As recommended in the *Pre-Design Investigation Summary Report* to further inform the *50% Remedial Design*, an additional round of groundwater monitoring was performed in September 2023, approximately 11 months after completion of the pre-design investigation biosparging pilot study in October 2022. The September 2023 results for MW-4 and MW-9 showed a rebound from the immediate post-biosparge sampling conducted in October 2022; however, the September 2023 concentrations remained lower overall than the pre-biosparge pilot study results (see **Figure 4-2**). The September 2023 results for MW-10 and MW-11 remained consistent with the October 2022 post-biosparge sampling, showing benzene at or below criteria, total cyanide below criteria, and all but one semi-volatile organic compound (SVOC) below criteria (naphthalene was detected at 11 parts per billion [ppb] with a criteria of 10 ppb). Thus, as stated in the *50% Remedial Design Report* (AECOM, March 2024), biosparging via air injection at MW-09 (AIW-01) remained the recommended remedial alternative to remove the remaining plume source near monitoring wells MW-4 and MW-9 and achieve groundwater criteria at the Site.

With respect to downgradient wells MW-2, MW-7, and MW-12, SVOC and total cyanide concentrations have been non-detect in each round of sampling completed through September 2023 (see **Figure 4-2**). Benzene has been the only VOC detected in these wells. To further evaluate conditions in the downgradient area of MW-2, MW-7, and MW-12, prior to submitting the *95% Remedial Design Report* (AECOM, February 2025), an additional round of groundwater samples was collected and analyzed for site-specific VOCs in August 2024 (see **Figure 4-2**). The August 2024 results showed benzene concentrations have been non-detect or below criteria in MW-7 for five consecutive sampling rounds. Benzene concentration at pre-design investigation monitoring well MW-12 has decreased with each sampling round, including a result below criteria in the August 2024 sampling event; this behavior is consistent with monitoring wells MW-2 and MW-7 following their initial installations. However, although benzene concentrations had been non-detect or below criteria in monitoring well MW-2 for five consecutive sampling rounds, results from the August 2024 sampling event were above criteria at MW-2 indicating the treatment area targeted by biosparging should be expanded. Thus, a second air injection well (AIW-02) is recommended downgradient of the former gas holder with a radius of influence including MW-2 (see **Figure 4-3**).

Based on the recommended biosparge system design parameters from the pilot study and the target treatment area, the following information was used to prepare the design:

- An air injection rate of at least 6 standard cubic feet per minute (scfm) is expected to have a radius of influence (ROI) of at least 27 feet.
- Based on an ROI of at least 27 feet, the proposed spacing between the two air injection wells [MW-09 (AIW-01) and AIW-02] is approximately 40 feet.
- The air compressor should be able to supply up to 30 pounds per square inch (psi) of pressure at the air injection manifold and at least 20 psi at the AIWs to exceed the estimated air entry pressure.
- AIW-02 should be constructed similar to MW-9 (AIW-01) with the air injection screen set immediately above the bedrock and overburden interface [ranges from 19 to 21 ft bgs at the Site].
- The biosparge system should be able to cycle air injection to maintain aerobic conditions within the treatment area. A cycle time of 4 hours during the pilot study was able to maintain aerobic conditions.

4.5.1 Treatment Area

Based on the concentrations of constituents of concern (COCs) in groundwater at MW-02, MW-04 and MW-09, the groundwater near these wells is the targeted treatment area for the biosparge system. Biodegradation of COCs in the treatment area is expected to achieve cleanup criteria at MW-02, MW-04 and MW-09, and enhance the attenuation of COCs in groundwater downgradient of the treatment area at MW-07 and MW-12.

Limited detections of benzene and naphthalene just above groundwater standards at MW-10 and MW-11 indicates that groundwater within the footprint of the former gas holder is not a source to the groundwater plume. Groundwater monitoring within the former gas holder during biosparge system operation will evaluate the ability of natural attenuation to achieve cleanup criteria. If cleanup criteria are not expected to be achieved at MW-10 and MW-11 before the biosparge system removes the source outside of the former gas holder, groundwater treatment within the former gas holder footprint will be evaluated.

4.5.2 System Design

The primary design elements for the biosparge system are presented in the following sections.

4.5.2.1 Air Injection Wells

Two AIWs are sufficient to create aerobic conditions within the treatment area. MW-09 was designed and installed as the AIW for the pilot study and will be used as AIW-01 in the biosparge system design. AIW-01 is constructed with 2-inch diameter Schedule 40 PVC that is installed to the bedrock interface at approximately 19.6 ft bgs. The AIW includes two feet of Schedule 40 PVC, 0.010-inch screen from 16.6 to 18.6 ft bgs and a one-foot PVC sump below the screen. Specifications for installation and construction of AIW-02 are provided in Section 4.5.6.

4.5.2.2 Air Distribution System

Air will be supplied to the AIWs by a biosparge system contained in a trailer. The system will include an air compressor sized to provide the minimum oil-free, air flow rate and pressure to the AIWs. A rotary vane type air compressor (or similar) with a five-horsepower motor can supply the required air flow rate and pressure. In addition to the air compressor, the biosparge system will have a receiver vessel to store compressed air and separate water that may condense in the compressed air (100% Design Drawings - Sheet 9). A solenoid valve with a timer will be used to remove water from the receiver vessel. The system will be equipped to control and monitor air flow rates and pressure delivered to the AIWs and include the capability to program and cycle air delivery to the AIWs.

The AIWs will be connected to the air supply from the system by 1-inch diameter HDPE pipe and appropriate pressure rated fittings installed approximately 18 inches bgs. At the AIWs, the HDPE pipe will connect to the side of a 2-inch diameter Tee fitting installed below the ground surface. Above the Tee, PVC pipe and a coupling with a threaded plug will be installed to terminate within the well vault and allow access to monitor groundwater in the AIW when air is not being injected.

4.5.2.3 Operational Parameters

The following sections present the primary operational parameters for the biosparge system.

<u>Injection Pressures</u>

To inject air into the saturated zone, the air injection pressure must exceed the sum of the hydrostatic pressure of the overlying groundwater, the air-entry pressure of the filter pack materials, and the air-entry pressure of the formation. The contribution from the hydrostatic pressure is calculated based on the distance from the water table to the top of the injection well screen, where each foot of water is equal to a pressure of approximately 0.43 pounds per square inch (psi). Based on the screen interval for AIW-01 (16.6 to 18.6 ft bgs) and a depth to groundwater of 5 ft bgs, the hydrostatic pressure is estimated to be 5 psi. During Step Test 2 of the pilot study, the air pressure at the system prior to pressure losses in the conveyance line and fittings ranged from 14 to 21 psi for an average air flow rate of 7.5 scfm. Thus, the air injection pressure is expected to be less than 20 psi at the system and the AIWs to achieve the designed air flow rate and ROI.

<u>Flow Rate</u>

Biosparging focuses on promoting aerobic biodegradation of compounds through introduction of oxygen using air flow rates that are typically less than in air sparging systems. An optimal air flow rate and injection cycle time is important to efficiently deliver oxygen to the treatment zone and should exceed the rate at which aerobic microbial consortia utilize oxygen upon delivery. Based on the results from the pilot study, the estimated air flow rate to create aerobic conditions within the treatment area is 6 scfm. During startup and operation of the biosparge system, the air flow rate may be adjusted to achieve the required ROI for the treatment area.

<u>Cycled Air Injection</u>

The advantage of cycled air injection is to minimize formation of preferential air flow paths and optimize transfer of oxygen from injected air to groundwater. Continuous biosparging typically results in the establishment of preferential air flow pathways that can reduce the overall transfer efficiency of oxygen to groundwater. Cycling allows the preferential pathways to collapse, increasing the pathway variability within the ROI. Cycled air injection also improves the efficiency of oxygen transfer to groundwater by causing local groundwater mixing within the ROI.

During the pilot study, the off-cycle timing of four hours was determined based on observed oxygen decay to maintain aerobic conditions in the ROI. Thus, the initial cycle time between air injection at the two AIWs will be set to four hours but may be adjusted to optimize oxygen delivery as the oxygen demand in the treatment area decreases over time.

4.5.3 Biosparge System Operation

Following installation of the biosparge system, startup of the system will consist of monitoring air pressures and flow rates, water levels, oxidation-reduction potential (ORP), and dissolved oxygen (DO) while injecting air into the saturated zone at the AIWs to evaluate and confirm the ROI and operation parameters. Upon startup, the pressure to the AIWs will be gradually increased until air flow is detected. The pressure at which air flow is detected (breakthrough pressure) will be recorded. After air flow is detected, the air flow rate will be set to approximately 6 scfm at each AIW. After startup, air injection pressures and flowrates will be monitored for two days to confirm stability of system operation.

In addition, subsurface influence data at monitoring wells (changes in groundwater elevation, ORP, DO, and observation of bubbling in wells) will also be measured for two days, several times each day to confirm the ROI is sufficient to achieve the targeted treatment area. The initial air injection cycle timing will alternate air injection between the AIWs every four hours based on results from the pilot study. Based on this cycle timing, each AIW will be off for four hours but may be adjusted based on the oxygen decay rate to maintain a minimum of 1 milligram per liter of DO within the ROI.

4.5.4 Performance Monitoring Program

The biosparge system operation and performance will be evaluated based on changes in DO concentrations, ORP, and COC concentrations. The performance monitoring program is presented in the following sections.

4.5.4.1 Dissolved Oxygen/Oxidation-Reduction Potential Monitoring

Prior to startup, baseline DO and ORP readings will be collected from the performance monitoring well network (MW-01, MW-02, MW-04, MW-07, MW-10, and MW-11) to assess initial groundwater conditions. DO and ORP will be collected manually from the wells using a YSI ProDSS (or similar). During startup and subsequent site visits, DO and ORP will be measured at the performance monitoring network. Post-startup site visits will be weekly for the first month and monthly thereafter.

Maximum observed DO concentrations and ORP at the performance monitoring well network will be used to evaluate the ROI during startup and post-startup operation. After air injection cycles off at an AIW, the rate of decrease in DO concentrations may be observed within its ROI and is indicative of DO consumption by biotic and abiotic demand. The observed DO decay rates may be linear (zero order) or exponential (first order) and will be used to support evaluation and confirm air injection cycling.

4.5.4.2 Groundwater COC Monitoring

Groundwater sampling and laboratory analysis will be conducted at MW-01, MW-02, MW-03, MW-04, MW-07, MW-09 (AIW-01), MW-10, MW-11, MW-12, and AIW-02 to evaluate COC trends in response to the biosparge system operation. The groundwater samples will be analyzed for site-specific lists of VOCs (EPA Method 8260D) and SVOCs (EPA Method 8270D), total cyanide (EPA Method 9012A), and sulfate (EPA Method 300.0). The performance monitoring wells will be sampled before startup (baseline) and quarterly for two years after startup. Decreases in COC concentrations would be indicative of increased aerobic biooxidation of the COCs.

In addition, monitoring wells located upgradient of the treatment zone (MW-05, MW-06, and MW-08) will be sampled for the same parameters before startup (baseline) and on an annual basis after startup (i.e., during the fourth and eighth quarterly events) to periodically document groundwater conditions at each location.

4.5.5 Downgradient Groundwater

As required by the ROD, the selected remedy will employ in-situ enhanced biodegradation (i.e., biosparging) to treat VOCs in groundwater within and outside of the subsurface former MGP gas holder. Figure 5 presented in the ROD depicted the use of downgradient in-situ oxygen release compound (ORC) treatment zone in the area of downgradient monitoring wells MW-2 and MW-7. An additional well, MW-12, was installed in the area between monitoring wells MW-2 and MW-7 during the 2022 pre-design investigation. MW-2, MW-7, and MW-12 were sampled for site-specific lists for VOCs and SVOCs, and total cyanide, as part of the Fall 2022 pre-design investigation. The wells were sampled for the same parameters again in September 2023 to provide additional information for the preparation of the *50% Remedial Design Report* (AECOM, March 2024). The wells were most recently sampled for site-specific VOCs in August 2024 to provide additional information for the preparation of the *95% Remedial Design Report* (AECOM, February 2025).

Benzene concentrations have been non-detect or below criteria in monitoring well MW-7 for five consecutive sampling rounds. Benzene concentrations have been non-detect or below criteria in monitoring well MW-2 for five consecutive sampling rounds prior to a result above criteria in the August 2024 sampling event. Benzene concentrations at pre-design investigation monitoring well MW-12 have decreased with each sampling round, including a result below criteria in the August 2024 sampling event; this behavior is consistent with monitoring wells MW-2 and MW-7 following their initial installations. It is expected that further treatment of benzene in the biosparge treatment area near monitoring wells MW-2, MW-4, and MW-9 will further reduce downgradient migration and concentrations of benzene, which would eliminate the need to install a downgradient ORC barrier in the area of these wells. Groundwater monitoring described in Section 4.5.4.2 will provide data in support of this evaluation.

Since biosparging has shown and is expected to effectively treat groundwater at the Site, biosparging is preferred over a downgradient ORC barrier if the treatment area needs to be expanded. Expansion of biosparging will be evaluated based on groundwater monitoring and could be expanded with additional air injection wells in areas where groundwater monitoring data indicates an isolated recent result above criteria. Thus, ORC treatment is not included in the remedial design and biosparging will be expanded to treat groundwater that was to be treated by an ORC barrier if needed.

4.5.6 Air Injection Well (AIW-02) Installation

4.5.6.1 Utility Clearance

Intrusive activities include soil borings and well drilling. Prior to the start of intrusive activities, a call will be placed to New York DIG SAFE CALL CENTER at Dig Safely New York, by dialing 811 or 1-800 272-4480 for utility mark outs to minimize the risk of encountering subsurface utilities. Site personnel will be contacted to determine if detailed utility plans are available for the Site. Soft dig technologies, such as an air knife, may also be used for utility clearance. If the mark outs indicate that utilities are close to a proposed drilling location, the location will be moved to avoid utilities at the discretion of the field personnel and the drilling subcontractor. Locations of underground utilities and other objects (former MGP structures) will be identified prior to drilling and may require use of subsurface geophysical methods, and a third-party utility contractor.

4.5.6.2 Air Injection Well Boring

One new boring will be completed as a new biosparging air injection well (AIW-02). **Figure 4-3** shows the proposed location.

Soil borings will be completed using hollow-stem auger (HSA) drilling methods. Prior to below grade drilling activities, the boring locations will be hand cleared to five ft bgs. Soil samples will be continuously logged from the ground surface to the bottom of the boring using 2-foot long split-spoon samplers. Each location will be completed to refusal or bedrock, whichever is encountered first. Bedrock is anticipated to be encountered at approximately 20 ft bgs in the area of the proposed boring location.

Soil samples will be visually described and recorded by a qualified field inspector including the presence of fill material or subsurface obstructions, the nature of each geologic unit encountered, and observations regarding moisture content. A photoionization detector (PID) with a 10.2 electron volt detector will be used to screen soil samples. In addition, visual and olfactory observations regarding the presence of hydrocarbon-like residuals will be recorded on the boring logs. During soil logging the field inspector will verify the elevation of lithologic units and confirm placement of the well-screen with the Engineer. The descriptions will be in accordance with the Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System), American Society for Testing and Materials (ASTM) D2487-11. Soil samples for analytical laboratory testing are not planned.

Downhole sampling equipment (i.e., split-spoon sampler) will be decontaminated prior to use at the site and between each sample interval using a detergent, rinsing with potable water, and air drying between sample locations. Larger downhole equipment (drill rods and HSAs) will be steam cleaned at a temporary decontamination pad prior to use onsite and upon completion of work.

4.5.6.3 Air Injection Well Installation

The default drilling method for advancing overburden borings for monitoring well installation will use 4¼-inch inside diameter (ID) HSAs. Following completion of the deepest split-spoon sample at each location, observations from the soil borings will be used to determine screen placement at the wells. The expected screen interval for the air injection well AIW-02 is 18 to 20 ft bgs and may be adjusted in the field to install the screen in more permeable, sandy soil if silt and clay are observed immediately above the bedrock.

The air injection well will be constructed with 2-inch ID, schedule 40, flush-threaded, PVC casing and matching factory 10-slot PVC well screen. An additional one (1) foot of casing will be installed below the screen to provide a sump for accumulation of very fine soil that may occur during cycling of air sparge operation. See 100% Design Drawings – Sheet 5 for proposed construction detail.

Upon completion of borehole advancement, the well screen and riser pipe will be inserted into the HSAs and set to the desired depth. A clean sand filter pack consisting of Morie sand (or equivalent), sized to match the screen and formation, will be placed into the annular space around the screen from approximately one foot below the screen to a minimum 2 feet above the top of the screen. A minimum one-foot thick bentonite (pellet or chip) seal will be placed above the filter pack and allowed to hydrate. If the bentonite seal is in a saturated zone, native groundwater will be allowed to hydrate the seal for 30 minutes. If the bentonite seal is in an unsaturated zone, potable water obtained from a certified source will be added slowly to the borehole for 30 minutes to promote hydration. The remaining borehole annulus will be grouted using non-shrink cement-bentonite grout (94 pounds cement, 5 pounds powdered bentonite, 6.5 gallons water; thoroughly mix cement and water prior to adding bentonite). Grout will be tremmied into the annular space extending from the bentonite seal to just below ground surface. Wells are anticipated to be completed in flush-mount well pads.

4.5.6.4 New Air Injection Well Development

The air injection well will be developed to remove fine grained soil introduced during the drilling process and to improve hydraulic connection between the formation and the well screen. A suitable pump will be selected for development at each well (i.e., Watterra pump, peristaltic, or submersible). Pump selection will depend upon well casing diameter, depth to water, anticipated drawdown, volume of water required to be removed, and access well or electric power supply.

During development, the field personnel will record development information in a project notebook and/or on a well development form. Periodic readings (every 0.5 to 1 well volume) will include depth to water, pumping rate, temperature, pH, conductivity, and turbidity. The goal of development will be to remove a minimum of five casing volumes of water and achieve a turbidity reading of 50 nephelometric units (NTU) or less. If these development goals have not been achieved after two hours of development, the field personnel will notify the Engineer for further instructions. Wells will be allowed to sit for a minimum of 72 hours after development prior to sampling.

4.5.6.5 New Air Injection Connection and Surface Completion

The air injection well will be connected to the air conveyance line and the surface will be completed as shown in 100% Design Drawings – Sheet 5.

4.6 Waste Management

Four potential waste streams have been identified that may be generated during the remedial action:

- Non-hazardous shallow surface soil excavations material;
- Soil boring cuttings;
- Monitoring and injection well purge water or construction water; and
- Incidental project wastes such as personal protective equipment (PPE).

All excavated material will be disposed of off-site. Excavated material to be sent off-site will be sent to a licensed off-site disposal facility approved by NYSEG.

Soil boring cuttings and purge / construction water generated during the remedial actions will be managed as described in Section 4.6.4 and Section 4.6.5.

PPE will be disposed of as municipal waste unless grossly contaminated, in which case PPE will be placed in 55-gallon drums for proper disposal.

Waste material details are further described in Appendix B – Transportation of Solid and/or Liquid Materials, Technical Specifications – 02120 Off-site Transportation and Disposal, and the Drawings.

4.6.1 On-site Waste Management

To the extent possible, all excavated soil will be loaded directly into trucks for off-site transportation to a permitted treatment or disposal facility. In the event of construction sequencing, off-site disposal facility scheduling issues, or waste characterization procedures, it may be necessary to store waste material on-site prior to loading and shipment. If stockpile areas are placed in non-impacted or restored areas, berms and liners will be used to protect underlying materials from becoming impacted.

Decontamination of remediation equipment will take place using brushes, steam cleaners, and/or pressure washers. Decontamination water, as well as residuals from dewatering activities, if necessary, will be temporarily stored in appropriate 55-gallon drums or a holding tank and transported to an appropriate off-site disposal facility as required.

4.6.2 Pre-Remediation Waste Characterization

Shallow surface soil to be excavated will be pre-characterized as part of the Contractor scope of work. Analytical parameters and sampling frequency are defined in the QAPP (Appendix C). Based on previously completed investigations at the Site, it is anticipated that excavated material will be managed in accordance with the following categories:

- Non-Impacted Soil – excavated material found not to contain any visual MGP impacts (i.e., coal tar).

Pre-characterization data will be used to facilitate the profiling and pre-acceptance of the materials by the intended disposal facility prior to soil excavation. The Remediation Engineer/Construction Manager will provide relevant data to the Contractor and the selected disposal facilities. Soil may need conditioning depending on its moisture content and the acceptance criteria of the receiving facility.

4.6.3 Off-Site Transportation

The Contractor will load, transport, and dispose of the shallow surface soil excavated material. Waste materials will be transported in dump or container trucks to the receiving disposal facilities. Transportation of impacted materials from the Project Site will be performed in accordance with all hazardous waste, non-hazardous waste, and transportation regulatory requirements.

All haul trucks will have poly bed liners, tarp covers, and gasketed tailgates. Trucks will be sprayed, as necessary, with odor suppressive foam prior to covering to reduce vapor and odor emissions.

All trucks will be thoroughly inspected for contamination prior to leaving the Project Site. In the case when truck exteriors do become contaminated, they will be cleaned and decontaminated prior to leaving the Project Site.

Based on prior investigations at the Site, hazardous waste shipments are not anticipated. Other waste materials that have no specific documentation requirements will be documented using waste tracking forms, bills of lading, and receipts. All shipments of waste from the Project Site will be documented describing the type and amount of waste and the receiving facility. A NYSEG designated representative will sign the transportation manifests prior to loads leaving the Project Site. Off-site trucking will follow the haul route shown in Appendix B – Transportation and Solid and/or Liquid Material.

4.6.4 Off-site Disposal

All excavated materials and soil boring and liquid waste will be sent to one of the following off-site disposal facilities approved by NYSEG:

Non-hazardous Soils:

- High Acres Landfill, Fairport, NY
- Mill Seat Landfill, Bergen, NY
- Seneca Meadows Landfill, Waterloo, NY

Non-hazardous Aqueous:

- Covanta, Syracuse, NY

4.6.5 Water Management

Dewatering of the shallow surface soil excavations is not expected to be necessary at the site given the shallow nature of the construction and known depths to groundwater. If dewatering is necessary due to rainwater collection, a sump will be dug in the excavation and pumps of proper sizing and capacity will be used to transfer runoff to a holding tank or 55-gallon drums. Collected water would be characterized and transported to an appropriate off-site disposal facility as required.

Monitoring well purge water generated during the remedial actions will be collected in properly labeled 55-gallon drums. Drums of purge water will be labeled as “pending analysis – investigation-derived residual – soil/water from drill cuttings” and temporarily stored pending characterization and proper disposal. Containerized groundwater or surface water will be disposed of offsite at a facility permitted to accept such material.

4.7 Project Site Restoration

Following remedial activities, the affected areas will be restored as shown on the Drawings. Final conditions shall meet the approval of the Oversight Engineer/Construction Manager and property owner. Disturbed public roadways, walkways, and other city-owned or public areas shall be restored in accordance with City and State specifications as indicated in the Drawing details.

All imported backfill must meet the requirements of NYSDEC Part 375-6.8(b) requirements for the anticipated use of the Site (Residential). Per DER-10 requirements the imported backfill material shall be sampled and analyzed for the following analyses – volatile organic compounds (VOCs), SVOCs, polychlorinated biphenyls (PCBs), pesticides, metals and perfluorooctanoic acid/perfluoroalkyl and polyfluoroalkyl substances (PFOA/PFAS) and 1,4-dioxane. The imported backfill shall be sampled at a frequency of 1 sample per 500 CY.

4.8 Environmental Monitoring and Controls

The Contractor will provide environmental controls to ensure that the work activities do not spread impacted soil outside the impacted areas and maintain the protection of human health and the environment throughout the project.

4.8.1 Odor, Vapor, Dust, and Noise Control

Odor, vapor, and dust control will be conducted for this project due to proximity to residential and commercial buildings.

Based on prior investigations at the Site, odor and vapor are not anticipated for the shallow surface soil excavation work. However, prior to mobilization, the selected Contractor shall provide detailed descriptions and drawings with the means and methods proposed for controlling and monitoring odors and vapors during the work. All odor and vapor control equipment and materials shall be approved by the Oversight Engineer/Construction Manager prior to use.

Air Monitoring will be performed in accordance with the CAMP (Appendix D). The work will be stopped, in a controlled stand-down procedure, if acceptable levels of air emissions are exceeded. The work stoppage will continue until the source of the emissions is found and the appropriate mitigation efforts are in place. Engineering controls will be applied as needed based upon Project Site conditions and the results of air monitoring activities.

Care will also be exercised to mitigate noise impacts during the project activities. Work hours will be limited to routine daytime hours (7 A.M. – 5 P.M.) and equipment will be maintained in proper working order. Where possible, shrouding and/or sound dampening measures will be utilized to minimize noise. All City ordinances and requirements regarding noise will be followed.

4.8.2 Air Monitoring

Community and work zone air monitoring will be performed per NYSDOH and Occupational Safety and Health Administration (OSHA) requirements, and according to the site-specific HASP to be generated by the selected contractor and CAMP. The contaminants of concern are VOCs and particulates.

Community air monitoring will be continuous during activities capable of generating dust or releasing odors or vapors, such as soil erosion fencing installation, excavation and handling of impacted soils, and backfilling and grading. Monitoring will be periodic during non-intrusive activities such as mobilization and site clearing.

Summaries of all air monitoring data will be provided on a weekly basis to NYSDEC/NYSDOH to facilitate the transfer of information related to protection of the local community.

5.0 Documentation of Site Activities

5.1 Daily Field Construction Report

A Daily Field Construction Report will be prepared by NYSEG project coordinator using the on-site computer to document daily on-site activities. The Daily Field Construction Reports will be submitted at the end of each week in an electronic format to Mr. John Ruspantini, NYSEG project manager at jjruspantini@nyseg.com.

5.2 Transportation Log

A Transportation Log will be prepared by NYSEG project coordinator using the on-site computer to document all loads of solid or liquid waste that are transported off-site. The Transportation Log will be submitted at the end of each week in an electronic format to Mr. John Ruspantini, NYSEG project manager at jjruspantini@nyseg.com.

5.3 Daily Community Air Monitoring Report

A Daily Community Air Monitoring Report will be prepared by a NYSEG sampling technician using an on-site computer to document daily air monitoring results. The Daily Community Air Monitoring Reports will be submitted at the end of each week in an electronic format to Mr. Mark Domaracki, NYSDEC at mark.domaracki@dec.ny.gov, Ms. Harolyn Hood, NYSDOH at Harolyn.hood@health.ny.gov, and Mr. John Ruspantini, NYSEG project manager at jjruspantini@nyseg.com.

5.4 Master Sample Log

A laboratory notebook will remain in the field office to record every sample collected. The sampling technician will log in all samples collected and those sent to the off-site analytical laboratory. Waybill numbers will be logged at the end of each day on the Master Sample Log.

5.5 Chain-of-Custody

A Chain-of-Custody form will document custody of all samples from the field to the laboratory.

5.6 Waybills

A waybill receipt will be obtained at the time of accepted sample shipment by Federal Express or courier and will be maintained in a folder and will become a part of the record for the Master Sample Log.

5.7 NYSEG's Public Liability Accident Report, NYSEG's Report of Employee Injury, and NYSEG's Incident Report

NYSEG's Public Liability Accident Report, NYSEG's Report of Employee Injury, and NYSEG's Incident Report forms will be used as applicable to document an accident occurring on-site during the remedial project. The sheets are attached to the HASP and will be located in the field project trailer.

6.0 Permitting and Regulatory Requirements

6.1 Permitting

The substantive requirements of the following permits shall be met prior to initiation of work at the site:

- City of Auburn Sidewalk Permit;

The proposed remedial project may require a sidewalk permit. If any sidewalk-specific work is required, there is a separate sidewalk permit and the sidewalk would also have to be restored to specification. Advance notice of the work schedule would also be required.

6.2 Regulatory Requirements

Environmental regulations regarding hazardous and non-hazardous waste management apply to this work and will be implemented accordingly. These include provisions for the containment and cleanup of spills and other standard provisions that will be included in the specifications.

Regulations promulgated by OSHA specify safety and health requirements for work procedures at all workplaces and specifically at construction sites and hazardous waste sites.

Industry standards for work at hazardous waste sites presented in 29 CFR 1910.120 describe specific requirements, including the following:

- Preparation of a project HASP;
- Training and medical monitoring of personnel who may be exposed to hazardous substances; and
- Air monitoring, respiratory protection, and PPE.

The Oversight Engineer/Construction Manager will provide a copy of the existing site-specific HASP to the Contractor. Procedures outlined in the HASP include daily health and safety review meetings, proper use of safety equipment, proper mechanical equipment use, and other policies. At a minimum, the PPE to be worn on site will include safety glasses, hard hat, and steel-toed shoes or boots.

The subjects covered in the HASP include:

- Health & Safety Risk Analysis;
- PPE;
- OSHA Air Monitoring & Action Levels;
- Site Control;
- Decontamination;
- Emergency Response Plan;
- Lockout/Tagout;

- Heavy Equipment Operations;
- Excavation and Trenching;
- Material Safety Data Sheets; and,
- Health and Safety Records and Reports.

The Contractor shall prepare, as a bid submittal, their own HASP, which shall be at least as stringent as the Oversight Engineer/Construction Manager's. The Contractor's HASP will be subject to the Oversight Engineer/Construction Manager's review and NYSEG's approval. The Contractor shall follow the requirements of their own HASP throughout the work.

Prior to the work, the selected Contractor will provide to the Oversight Engineer/Construction Manager written evidence of the following items for each person who will be entering the work zone:

- Date of respirator fit test;
- Date of OSHA 40-hour training (or 8-hour refresher training); and
- Date of annual physical.

Persons without these items, both up-to-date and on file with the Oversight Engineer/Construction Manager will not be allowed to enter the work zone.

6.3 Transportation Requirements

The federal Department of Transportation (DOT) has developed requirements which regulate the transportation of hazardous materials by road and rail. As noted above, prior investigations have not identified any materials in concentrations regulated as hazardous materials present at the Site. Therefore, hazardous material shipping requirements will not be required for this project.

Section 4.5.6.1 provides additional information regarding non-hazardous transportation requirements.

7.0 Quality Assurance

Quality assurance procedures will be implemented during the work to ensure that it is in conformance with the Remedial Design, and to provide the basis for implementation of contingency actions, if necessary, to bring the work into conformance with the Remedial Design. Additional quality assurance measures are detailed in the QAPP (Appendix C) and CQAP (Appendix E).

7.1 General Quality Assurance Procedures

The following quality assurance procedures and tests will be implemented as required under DER-10 (NYSDEC, 2010):

- Submittal by the Contractor of weigh tickets for all earthen materials transported to or from the Project Site;
- Evaluation by the Oversight Engineer/Construction Manager of the Contractor's proposed borrow source(s) for imported earthen materials. The Contractor will provide to the Oversight Engineer/Construction Manager analytical data indicating that imported material meets the requirements of DER-10;
- Surveying of the work limits as described in Section 4.3.4; and,
- Field verification by the Oversight Engineer/Construction Manager of excavation and placed material depths, areas, and volumes.

7.2 Contingency Plan

In the event of a site emergency, such as a spill, power loss, severe weather, fire, structural collapse, or other life-threatening incident not specifically addressed in the site HASP, the employees on scene should immediately check the scene, evacuate if life threatening, call 911, and give care as appropriate within the scope of their training. The site-specific Contingency Plan is included in Appendix F.

8.0 Project Reporting

During the course of the work, the Contractor will regularly provide to the Oversight Engineer/Construction Manager:

- Daily field logs;
- Equipment and material testing records; and
- Weigh tickets.

At the conclusion of each workday, the Contractor and the Oversight Engineer/Construction Manager will review the work completed and reach agreement on the quantities for payment obtained from the previous day.

During the course of the work, weekly progress meetings will be conducted with attendance by NYSDEC and NYSDOH, if needed.

The Oversight Engineer/Construction Manager will provide weekly Progress Reports to NYSEG and NYSDEC. Progress Reports will include:

- The previous week's actions;
- Next week's planned actions;
- Sampling and analytical results;
- Complaints/inquiry received from the community and local authorities in connection with the remedy construction (e.g. dust, traffic, noise, etc.) and resolution, if any;
- Photo log documenting critical events;
- Design changes and other modifications to the design; and
- Revised project schedules.

Within 90 days of completion of the remedial activities, the Oversight Engineer/Construction Manager will prepare a Final Engineering Report (FER) for the soil removal and installation and start-up of biosparging equipment at the Auburn Green Street Former Gas Holder MGP Site, certified by a Professional Engineer licensed in the State of New York.

The following items will be included in the Auburn Green Street Former Gas Holder MGP Site Remediation FER, as required by DER-10:

- A description of all field work performed;
- Record drawings;
- Identification of all changes to the Remedial Design;
- Copies of all pertinent analytical results, testing records, weigh tickets, bills of lading, and manifests from the disposal of materials;
- A discussion of green and sustainable practices implemented during remediation activities; and

- Engineer's certification.

9.0 Green Remediation

The work completed as part of this work plan will substantively comply with relevant NYSDEC guidance documents including DER-31: Green Remediation (NYSDEC 2011). To ensure compliance with DER-31, the work will be completed using the environmental best practices and techniques described below. In addition to the items discussed in Section 8.0 – Project Reporting specific reporting methods relative to DER-31 are further described below.

9.1 Best Practices and Techniques

DER-31 provides some examples of best practices and techniques that could be applied during all phases of remediation (Attachment 1 of the DER-31 policy). In addition, NYSDEC expects that the techniques identified below will be implemented at sites unless a site-specific evaluation demonstrates impracticability or favors an alternative green approach:

Practice/Technique	Potential Benefits[1]	Applicable to this Work Plan
Use renewable energy where possible or purchase Renewable Energy Credits (RECs)	Reduce/supplement purchased energy use	
Use of remediation technologies with an intermittent energy supply (i.e., energy use during peak energy generation only)	Reduce energy use	
Incorporate green building design	Reduce future use impacts	
Reuse existing buildings and infrastructure to reduce waste	Reduce waste and material use	
Design cover systems to be usable (i.e., habitat or recreation)	Reduce construction impacts of future development	
Reduce vehicle idling	Reduce air emissions and fuel use	X
Use of alternate fuels (i.e., biodiesel or E85)	Reduce air emissions	X
Sequence work to minimize double-handling of materials	Reduce construction impacts	X
Use energy efficient systems and office equipment in the job trailer	Reduce energy use	X

[1]Potential benefits listed are not all inclusive and will vary dependent upon the site and implementation of the practice or technique.

In order to comply with the requirements of DER-31 the following actions will be taken:

- All vehicles and fuel consuming equipment onsite will be shut off if not in use for more than 5 minutes;
- All electricity use associated with the site will be minimal and, therefore, RECs will not be purchased to offset that electricity use;
- Work will be sequenced, to the extent practicable, to allow the direct loading of waste containers for off-site disposal;

- To the extent practicable, energy efficient systems and office equipment will be utilized within the site trailers; and;
- All vehicles and equipment that consume diesel fuel will be required to use ULSD.

9.2 Best Practices and Techniques

All green and sustainable practices and techniques employed each day will be discussed within the daily reports described in Section 5.1 – Daily Reporting. Specifically, the report will acknowledge that the five actions described above were taken that day (if applicable). In addition, the following information will be provided within the daily report:

- The estimated quantity of fuel consumed by onsite vehicles and equipment;
- The estimated distance traveled by trucks and equipment delivering goods or removing waste; and,
- The estimated water use during onsite activities.

The information collected will be presented within the construction completion report with a discussion of the estimated environmental impact associated with the information.

10.0 Schedule and Hours of Operation

The shallow surface soil excavation remedial activities are planned to begin in fall 2025 and be substantially completed within one month of initiation. Biosparge activities are also anticipated to begin in fall 2025 and may require up to several years of periodic activity prior to completion. The Contractor shall maintain an electronic schedule.

Hours allowed for equipment operation during the remedial activities will be daylight hours between 7 A.M. and 5 P.M., Monday through Friday, unless otherwise allowed in writing by NYSEG. The Contractor may be on the Project Site earlier or later than actual hours of equipment operation, holding safety meetings and other daily planning associated with the Project Site work.

11.0 Bid Package

A bid proposal will be prepared and submitted by the prospective contractors during the bidding process for this work for the Engineer's review and NYSEG's approval. It will describe:

- The materials, equipment, and methods to be used to perform the work;
- Drawings, specifications, and a layout sequence of the proposed odor, vapor, dust, and noise controls;
- The proposed schedule for completing the work; and
- Resumes of key project personnel.

The selected Contractor may be required by the Engineer to provide additional clarifications to their bid documents prior to, and during, the work.

12.0 References

AECOM, 2016. Site Characterization Report – Auburn Green Street Former MGP Gas Holder Site, dated August 2016.

AECOM, 2019. Feasibility Study Report – NYSEG Auburn Green Street Former Manufactured Gas Plant Holder Site, April 2019.

AECOM, 2020. Final Feasibility Study Supplement – Evaluation of Anaerobic and Aerobic Technologies within Former Gas Holder, February 2020.

AECOM, 2022. Remedial Design Work Plan – NYSEG Auburn Green St. MGP Site, July 2022.

AECOM, 2023. Pre-Design Investigation Summary Report – NYSEG Auburn Green St. MGP Site, April 2023.

AECOM, 2024. 50% Remedial Design Report – NYSEG Auburn Green St. MGP Site, March 2024.

AECOM, 2025. 95% Remedial Design Report – NYSEG Auburn Green St. MGP Site, February 2025.

NYSDEC, 1994, Order on Consent, Index No. D0-0002-9309, between the Department and New York State Electric & Gas Corporation, executed on March 30, 1994.

NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values, Division of Water Technical and Operational Guidance Series (1.1.1). October 1998 and revisions.

NYSDEC, 2002, DER-4, Management of Coal Tar Waste and Coal Tar Contaminated Soils and Sediment From Former Manufactured Gas Plants ("MGP"s), January 2002.

NYSDEC, 2004. 6 NYCRR 703.5(f) Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations. Revised June 2004.

NYSDEC, 2006a. NYCRR Part 370 – 374 and Part 376 Environmental Remediation Programs.

NYSDEC, 2006b. 6 NYCRR Part 375 Environmental Remediation Programs Subparts 375-1 to 375- 4 & 375-6. December 2006.

NYSDEC, 2010a. DER-10, Technical Guidance for Site Investigation and Remediation. May 2010.

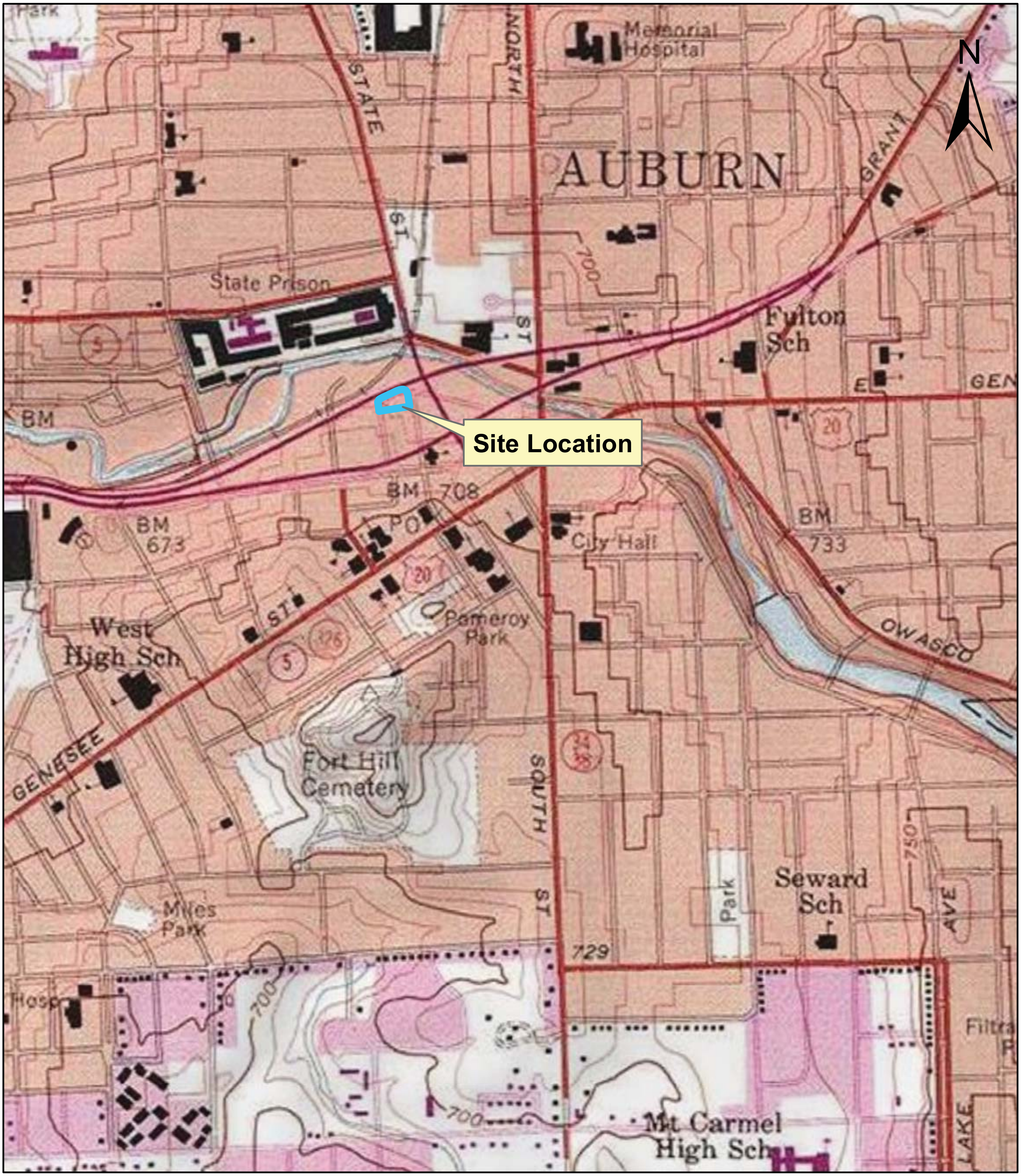
NYSDEC, 2010b. DER-31, Green Remediation, September 2010.

NYSDEC, 2016. Amended and Restated Multi-Site Order on Consent Index No. D0-0002-9309, between the Department and New York State Electric & Gas Corporation, executed on December 5, 2016.

NYSDEC, 2020. Record of Decision, Auburn Green St. MGP Manufactured Gas Plan Program Auburn, Cayuga County, Site No. 706009, July 2020.

NYSDEC, 2025. SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001, Construction General Permit

Figures



Legend

Approximate Site Boundary

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

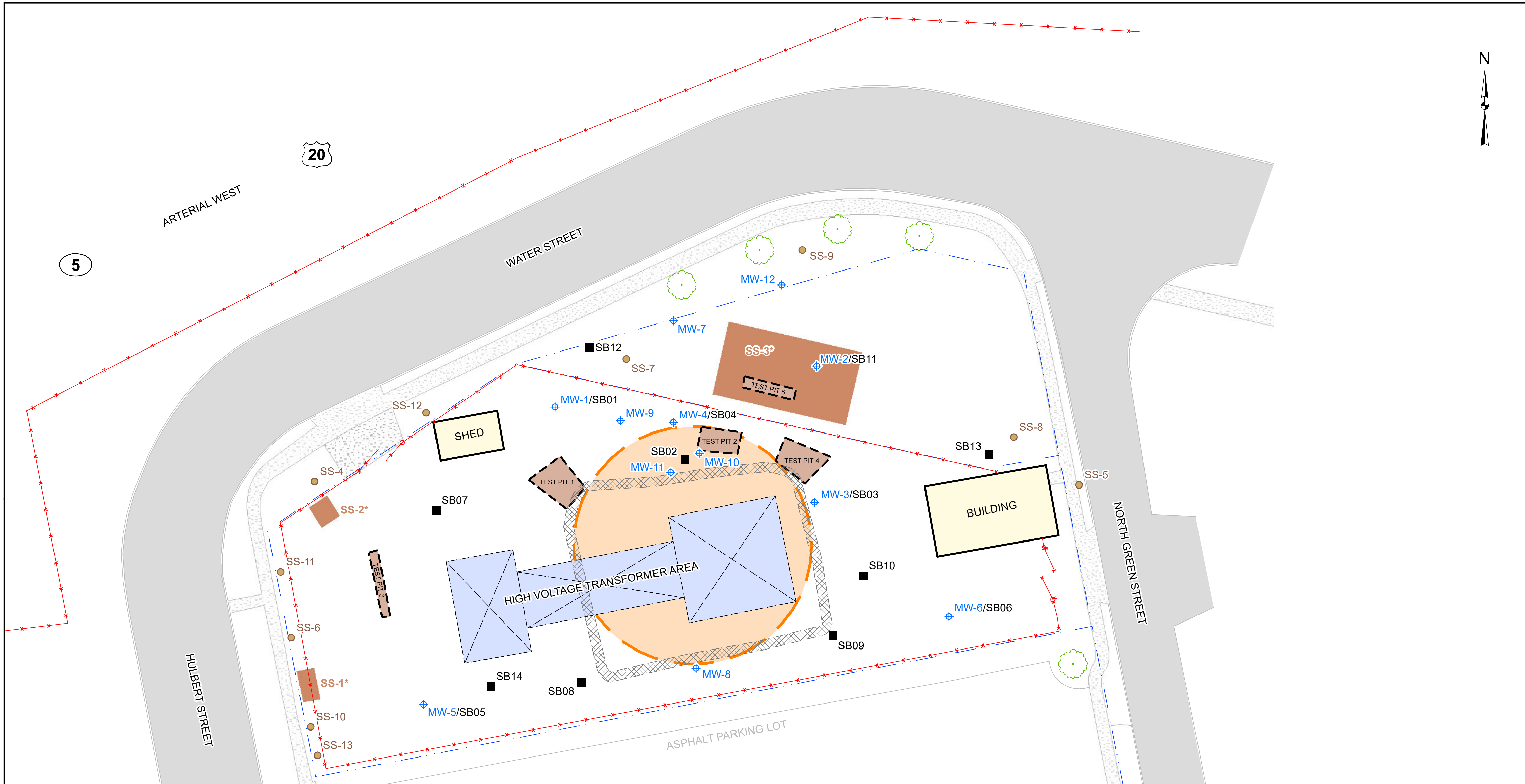
0 700 1,400 2,800 Feet

Figure 1-1

Site Location Map

AECOM

MARCH 2024



LEGEND

- ■ SOIL BORING LOCATION
- MONITORING WELL LOCATION
- SURFACE SOIL SAMPLE
- APPROXIMATE FORMER GAS HOLDER LOCATION
- HISTORICAL SURFACE SOIL SAMPLE*
- BERM
- BUILDING
- PAVEMENT
- APPROXIMATE PROPERTY BOUNDARY
- FENCE

NOTE: MW-09 WILL BE THE PILOT STUDY BIOSPARGE WELL LOCATION.

SOURCE: BASEMAP CREATED USING T.G. MILLER P.C. ENGINEERS AND SURVEYORS TOPOGRAPHIC MAP; JUNE 20, 2013.
* ATLANTIC ENVIRONMENTAL SERVICES, INC, SEPTEMBER 1991. "MANUFACTURED GAS PLANT SITE SCREENING REPORT, GREEN STREET SITE, AUBURN, NY"

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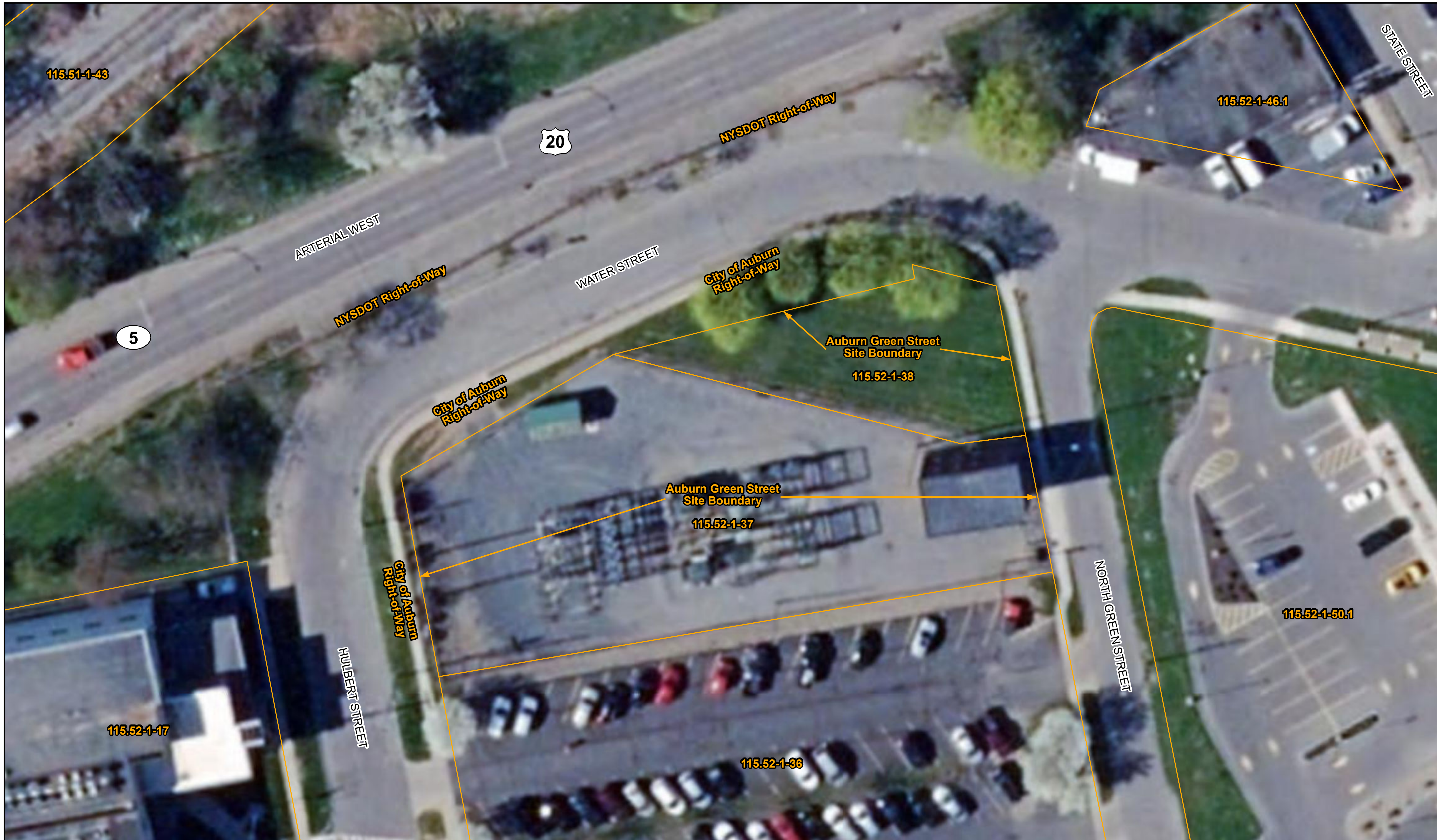
Figure 1-2
Site Layout and Historical Samples

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

November 2024 60652550

L:\DCS\Projects\60652550_AuburnGrnR\900_CAD_GIS\920_GIS\Maps\95% RD Report\Figure 1-2 Site Layout & Historical Samples.mxd 11/26/2024



LEGEND

TAX PARCEL BOUNDARY

NOTE: For the remedial action, City of Auburn property will be accessed along the west side and northwest corrner of parcel 115.52-1-37 to implement the surface soil remedy.

SOURCES: ESRI World Imagery; NYS ITS GIS Program Office, NYS Tax Parcels for Public Use, 2022

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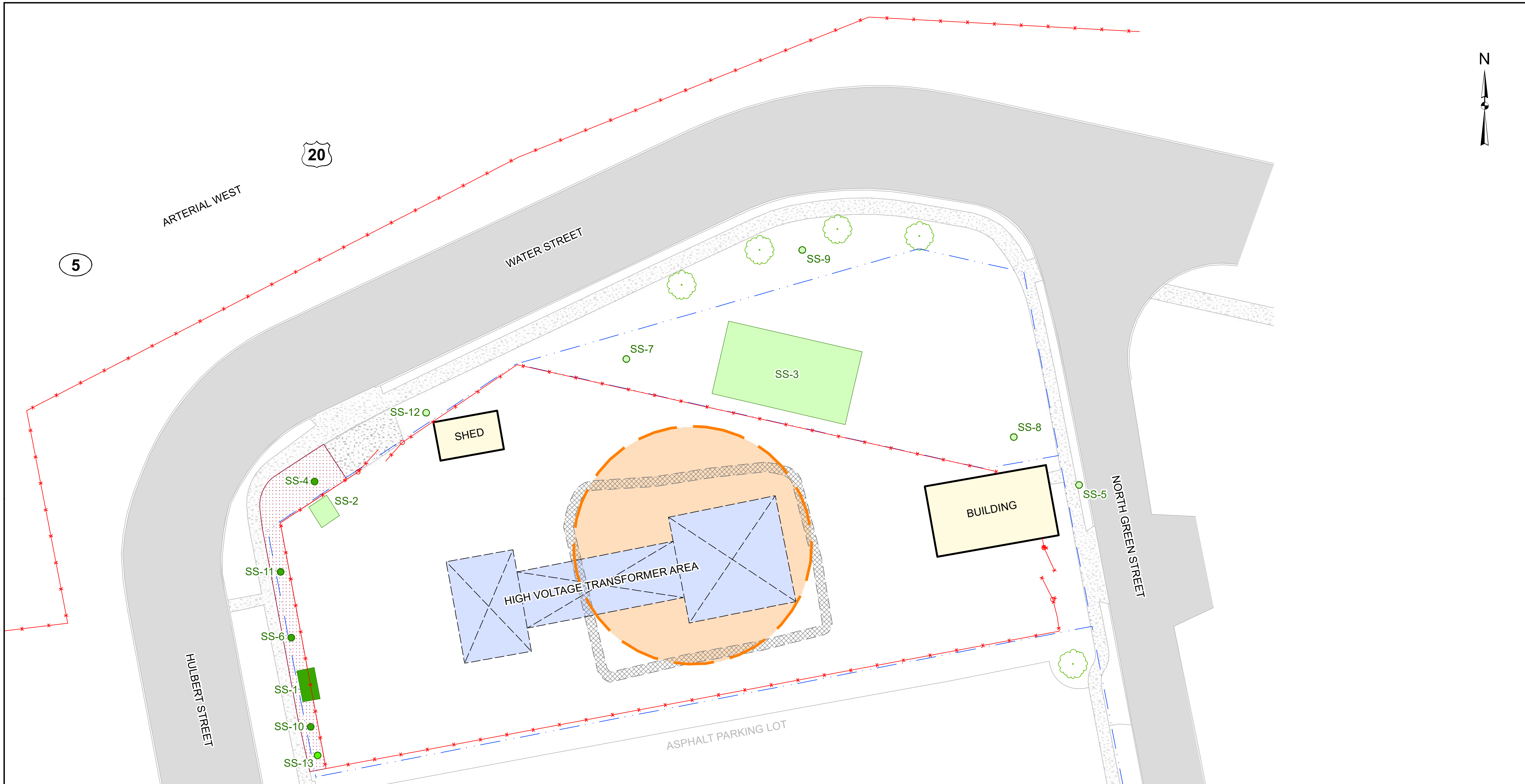
Figure 1-3
Area Parcel Map

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

March 2024 60652550

J:\Projects\60652550_AuburnGrnR\900_CAD_GIS\920_GIS\Maps\Figure 3-2 Area Parcel Map.mxd 4/5/2022



LEGEND

- PDI SURFACE SOIL SAMPLE
- HISTORICAL SURFACE SOIL SAMPLE WITH ARSENIC RESULTS ABOVE CRITERIA
- HISTORICAL SURFACE SOIL SAMPLE WITH ARSENIC RESULTS BELOW CRITERIA
- APPROXIMATE FORMER GAS HOLDER LOCATION
- BERM
- BUILDING
- EXCAVATION LIMITS SURFACE SOIL (0-1')
- PAVEMENT
- APPROXIMATE PROPERTY BOUNDARY
- FENCE

CRITERIA: (1) 6 NYCRR PART 375.6, REMEDIAL PROGRAM SOIL CLEANUP OBJECTIVES, EFFECTIVE 12/14/06. UNRESTRICTED USE, INCLUDING CP-51 TABLE 1, EFFECTIVE 12/2/10.
(2) 6 NYCRR PART 375.6, REMEDIAL PROGRAM SOIL CLEANUP OBJECTIVES, EFFECTIVE 12/14/06. RESTRICTED USE. PROTECTION OF GROUNDWATER, INCLUDING CP-51 TABLE 1, EFFECTIVE 12/2/10.
(3) 6 NYCRR PART 375.6, REMEDIAL PROGRAM SOIL CLEANUP OBJECTIVES, EFFECTIVE 12/14/06. PROTECTION OF PUBLIC HEALTH, COMMERCIAL, INCLUDING CP-51 TABLE 1, EFFECTIVE 12/2/10.
SOURCE: BASEMAP CREATED USING T.G. MILLER P.C. ENGINEERS AND SURVEYORS TOPOGRAPHIC MAP; JUNE 20, 2013.

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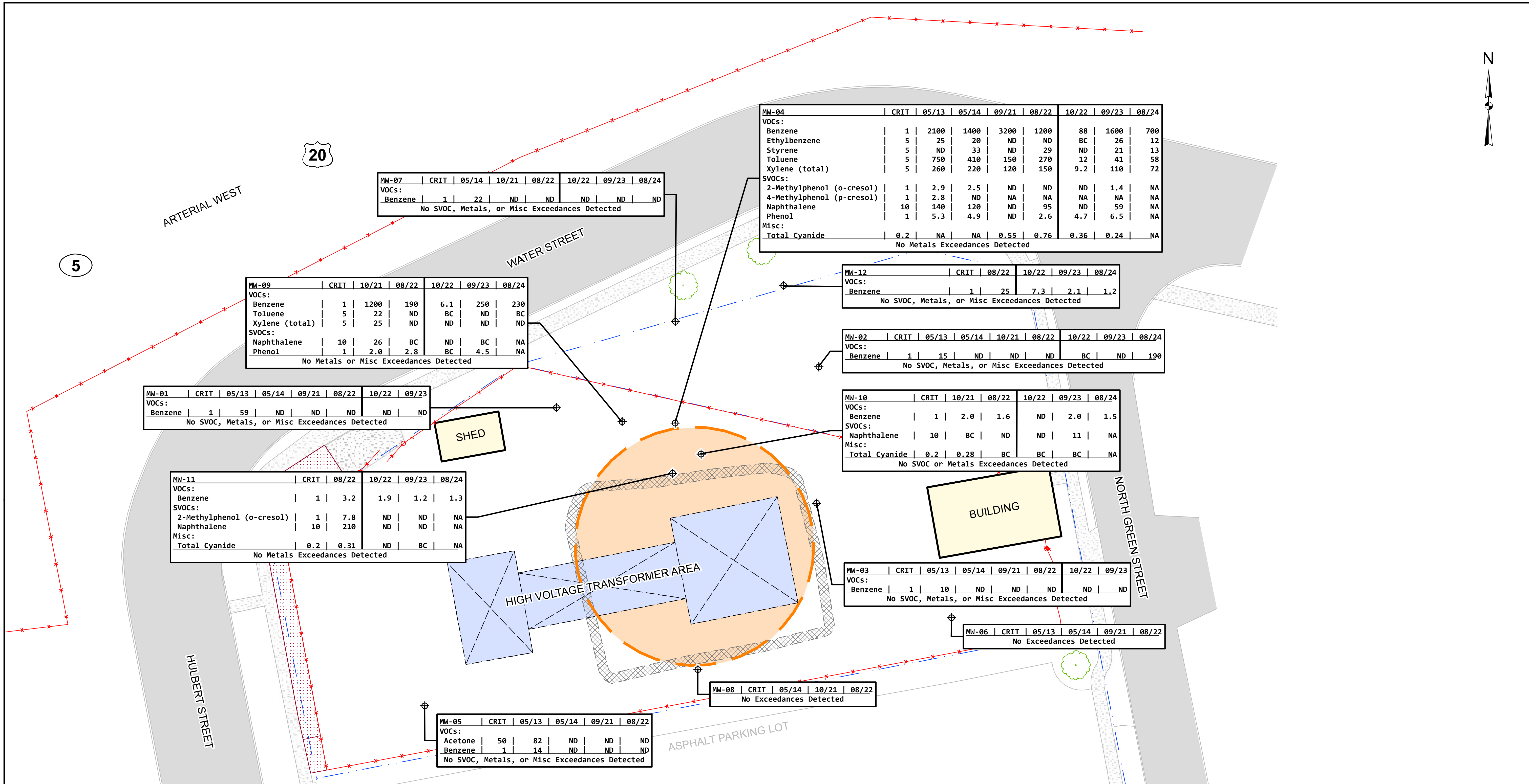
Figure 4-1
Surface Soil Excavation Area

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

November 2024 60652550

L:\DCS\Projects\60652550_AuburnGrnR\900_CAD_GIS\920_GIS\Maps\95% RD Report\Figure 4-1 Surface Soil Excavation Area.mxd 11/26/2024



MW-07	CRIT	05/14	10/21	08/22	10/22	09/23	08/24
VOCs:							
Benzene	1	22	ND	ND	ND	ND	ND
No SVOC, Metals, or Misc Exceedances Detected							

MW-04	CRIT	05/13	05/14	09/21	08/22	10/22	09/23	08/24
VOCs:								
Benzene	1	2100	1400	3200	1200	88	1600	700
Ethylbenzene	5	25	20	ND	ND	BC	26	12
Styrene	5	ND	33	ND	29	ND	21	13
Toluene	5	750	410	150	270	12	41	58
Xylene (total)	5	260	220	120	150	9.2	110	72
SVOCs:								
2-Methylphenol (o-cresol)	1	2.9	2.5	ND	ND	ND	1.4	NA
4-Methylphenol (p-cresol)	1	2.8	ND	NA	NA	NA	NA	NA
Naphthalene	10	140	120	ND	95	ND	59	NA
Phenol	1	5.3	4.9	ND	2.6	4.7	6.5	NA
Misc:								
Total Cyanide	0.2	NA	NA	0.55	0.76	0.36	0.24	NA
No Metals Exceedances Detected								

MW-09	CRIT	10/21	08/22	10/22	09/23	08/24
VOCs:						
Benzene	1	1200	190	6.1	250	230
Toluene	5	22	ND	BC	ND	BC
Xylene (total)	5	25	ND	ND	ND	ND
SVOCs:						
Naphthalene	10	26	BC	ND	BC	NA
Phenol	1	2.0	2.8	BC	4.5	NA
No Metals or Misc Exceedances Detected						

MW-12	CRIT	08/22	10/22	09/23	08/24
VOCs:					
Benzene	1	25	7.3	2.1	1.2
No SVOC, Metals, or Misc Exceedances Detected					

MW-02	CRIT	05/13	05/14	10/21	08/22	10/22	09/23	08/24
VOCs:								
Benzene	1	15	ND	ND	ND	BC	ND	190
No SVOC, Metals, or Misc Exceedances Detected								

MW-01	CRIT	05/13	05/14	09/21	08/22	10/22	09/23
VOCs:							
Benzene	1	59	ND	ND	ND	ND	ND
No SVOC, Metals, or Misc Exceedances Detected							

MW-10	CRIT	10/21	08/22	10/22	09/23	08/24
VOCs:						
Benzene	1	2.0	1.6	ND	2.0	1.5
SVOCs:						
Naphthalene	10	BC	ND	ND	11	NA
Misc:						
Total Cyanide	0.2	0.28	BC	BC	BC	NA
No SVOC or Metals Exceedances Detected						

MW-11	CRIT	08/22	10/22	09/23	08/24
VOCs:					
Benzene	1	3.2	1.9	1.2	1.3
SVOCs:					
2-Methylphenol (o-cresol)	1	7.8	ND	ND	NA
Naphthalene	10	210	ND	ND	NA
Misc:					
Total Cyanide	0.2	0.31	ND	BC	NA
No Metals Exceedances Detected					

MW-03	CRIT	05/13	05/14	09/21	08/22	10/22	09/23
VOCs:							
Benzene	1	10	ND	ND	ND	ND	ND
No SVOC, Metals, or Misc Exceedances Detected							

MW-06	CRIT	05/13	05/14	09/21	08/22
No Exceedances Detected					

MW-08	CRIT	05/14	10/21	08/22
No Exceedances Detected				

MW-05	CRIT	05/13	05/14	09/21	08/22
VOCs:					
Acetone	50	82	ND	ND	ND
Benzene	1	14	ND	ND	ND
No SVOC, Metals, or Misc Exceedances Detected					

LEGEND

- MONITORING WELL LOCATION
- APPROXIMATE FORMER GAS HOLDER LOCATION
- BERM
- BUILDING
- EXCAVATION LIMITS SURFACE SOIL (0-1')
- PAVEMENT
- APPROXIMATE PROPERTY BOUNDARY
- FENCE

NOTES

1. THE PDI BIOSPARGE PILOT TEST TOOK PLACE IN SEPTEMBER 2022.
2. THE BLACK DIVIDER LINE IN RESULTS INDICATES POST-BIOSPARGE PILOT TEST DATA.
3. RESULTS SHOWN IN UG/L, EXCEPT FOR TOTAL CYANIDE WHICH IS SHOWN IN MG/L.
4. BC = BELOW CRITERIA
5. NA = NOT ANALYZED
6. ND = NOT DETECTED
7. CRIT = CRITERIA

CRITERIA: NYSDEC TOGS (1.1.1), AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES AND GROUNDWATER EFFLUENT LIMITATIONS.
SOURCE: BASEMAP CREATED USING T.G. MILLER P.C. ENGINEERS AND SURVEYORS TOPOGRAPHIC MAP; JUNE 20, 2013.

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SCALE IN FEET

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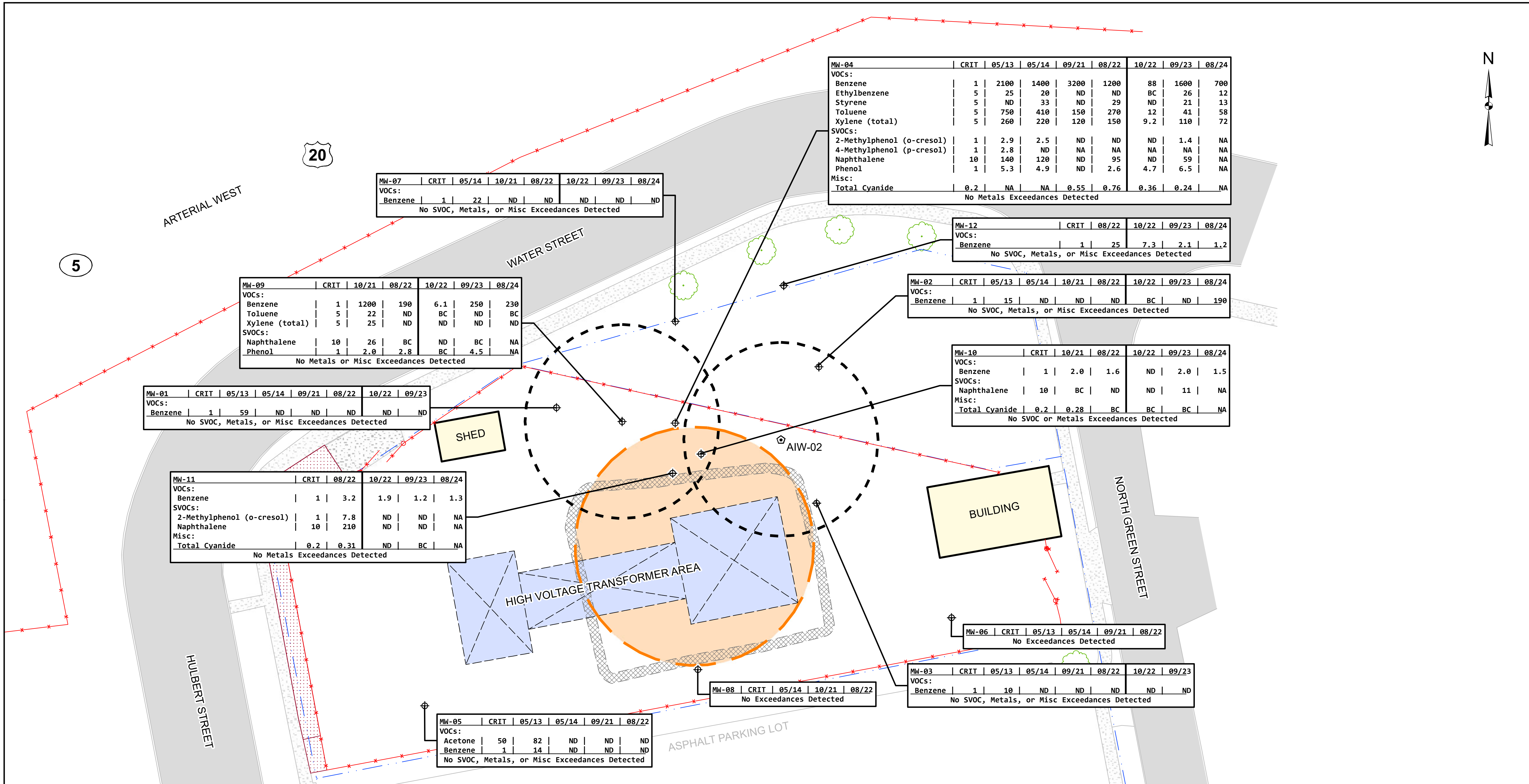
Figure 4-2
Historical and Pre-Design Investigation Groundwater Exceedances

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

December 2024 60652550



MW-04	CRIT	05/13	05/14	09/21	08/22	10/22	09/23	08/24
VOCs:								
Benzene	1	2100	1400	3200	1200	88	1600	700
Ethylbenzene	5	25	20	ND	ND	BC	26	12
Styrene	5	ND	33	ND	29	ND	21	13
Toluene	5	750	410	150	270	12	41	58
Xylene (total)	5	260	220	120	150	9.2	110	72
SVOCs:								
2-Methylphenol (o-cresol)	1	2.9	2.5	ND	ND	ND	1.4	NA
4-Methylphenol (p-cresol)	1	2.8	ND	NA	NA	NA	NA	NA
Naphthalene	10	140	120	ND	95	ND	59	NA
Phenol	1	5.3	4.9	ND	2.6	4.7	6.5	NA
Misc:								
Total Cyanide	0.2	NA	NA	0.55	0.76	0.36	0.24	NA
No Metals Exceedances Detected								

MW-07	CRIT	05/14	10/21	08/22	10/22	09/23	08/24
VOCs:							
Benzene	1	22	ND	ND	ND	ND	ND
No SVOC, Metals, or Misc Exceedances Detected							

MW-12	CRIT	08/22	10/22	09/23	08/24
VOCs:					
Benzene	1	25	7.3	2.1	1.2
No SVOC, Metals, or Misc Exceedances Detected					

MW-09	CRIT	10/21	08/22	10/22	09/23	08/24
VOCs:						
Benzene	1	1200	190	6.1	250	230
Toluene	5	22	ND	BC	ND	BC
Xylene (total)	5	25	ND	ND	ND	ND
SVOCs:						
Naphthalene	10	26	BC	ND	BC	NA
Phenol	1	2.0	2.8	BC	4.5	NA
No Metals or Misc Exceedances Detected						

MW-02	CRIT	05/13	05/14	10/21	08/22	10/22	09/23	08/24
VOCs:								
Benzene	1	15	ND	ND	ND	BC	ND	190
No SVOC, Metals, or Misc Exceedances Detected								

MW-10	CRIT	10/21	08/22	10/22	09/23	08/24
VOCs:						
Benzene	1	2.0	1.6	ND	2.0	1.5
SVOCs:						
Naphthalene	10	BC	ND	ND	11	NA
Misc:						
Total Cyanide	0.2	0.28	BC	BC	BC	NA
No SVOC or Metals Exceedances Detected						

MW-01	CRIT	05/13	05/14	09/21	08/22	10/22	09/23
VOCs:							
Benzene	1	59	ND	ND	ND	ND	ND
No SVOC, Metals, or Misc Exceedances Detected							

MW-11	CRIT	08/22	10/22	09/23	08/24
VOCs:					
Benzene	1	3.2	1.9	1.2	1.3
SVOCs:					
2-Methylphenol (o-cresol)	1	7.8	ND	ND	NA
Naphthalene	10	210	ND	ND	NA
Misc:					
Total Cyanide	0.2	0.31	ND	BC	NA
No Metals Exceedances Detected					

MW-06	CRIT	05/13	05/14	09/21	08/22
No Exceedances Detected					

MW-03	CRIT	05/13	05/14	09/21	08/22	10/22	09/23
VOCs:							
Benzene	1	10	ND	ND	ND	ND	ND
No SVOC, Metals, or Misc Exceedances Detected							

MW-08	CRIT	05/14	10/21	08/22
No Exceedances Detected				

MW-05	CRIT	05/13	05/14	09/21	08/22
VOCs:					
Acetone	50	82	ND	ND	ND
Benzene	1	14	ND	ND	ND
No SVOC, Metals, or Misc Exceedances Detected					

LEGEND

- AIR INJECTION WELL
- MONITORING WELL LOCATION
- APPROXIMATE FORMER GAS HOLDER LOCATION
- CONCEPTUAL BIOSPARGE TREATMENT AREA
- BERM
- BUILDING
- EXCAVATION LIMITS SURFACE SOIL (0-1')
- PAVEMENT
- APPROXIMATE PROPERTY BOUNDARY
- FENCE

NOTES

1. THE PDI BIOSPARGE PILOT TEST TOOK PLACE IN SEPTEMBER 2022.
2. THE BLACK DIVIDER LINE IN RESULTS INDICATES POST-BIOSPARGE PILOT TEST DATA.
3. RESULTS SHOWN IN UG/L, EXCEPT FOR TOTAL CYANIDE WHICH IS SHOWN IN MG/L.
4. BC = BELOW CRITERIA
5. NA = NOT ANALYZED
6. ND = NOT DETECTED
7. CRIT = CRITERIA

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SCALE IN FEET

CRITERIA: NYSDEC TOGS (1.1.1), AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES AND GROUNDWATER EFFLUENT LIMITATIONS.
SOURCE: BASEMAP CREATED USING T.G. MILLER P.C. ENGINEERS AND SURVEYORS TOPOGRAPHIC MAP; JUNE 20, 2013.

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Figure 4-3
Conceptual Biosparge Treatment Area

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

January 2025

60652550

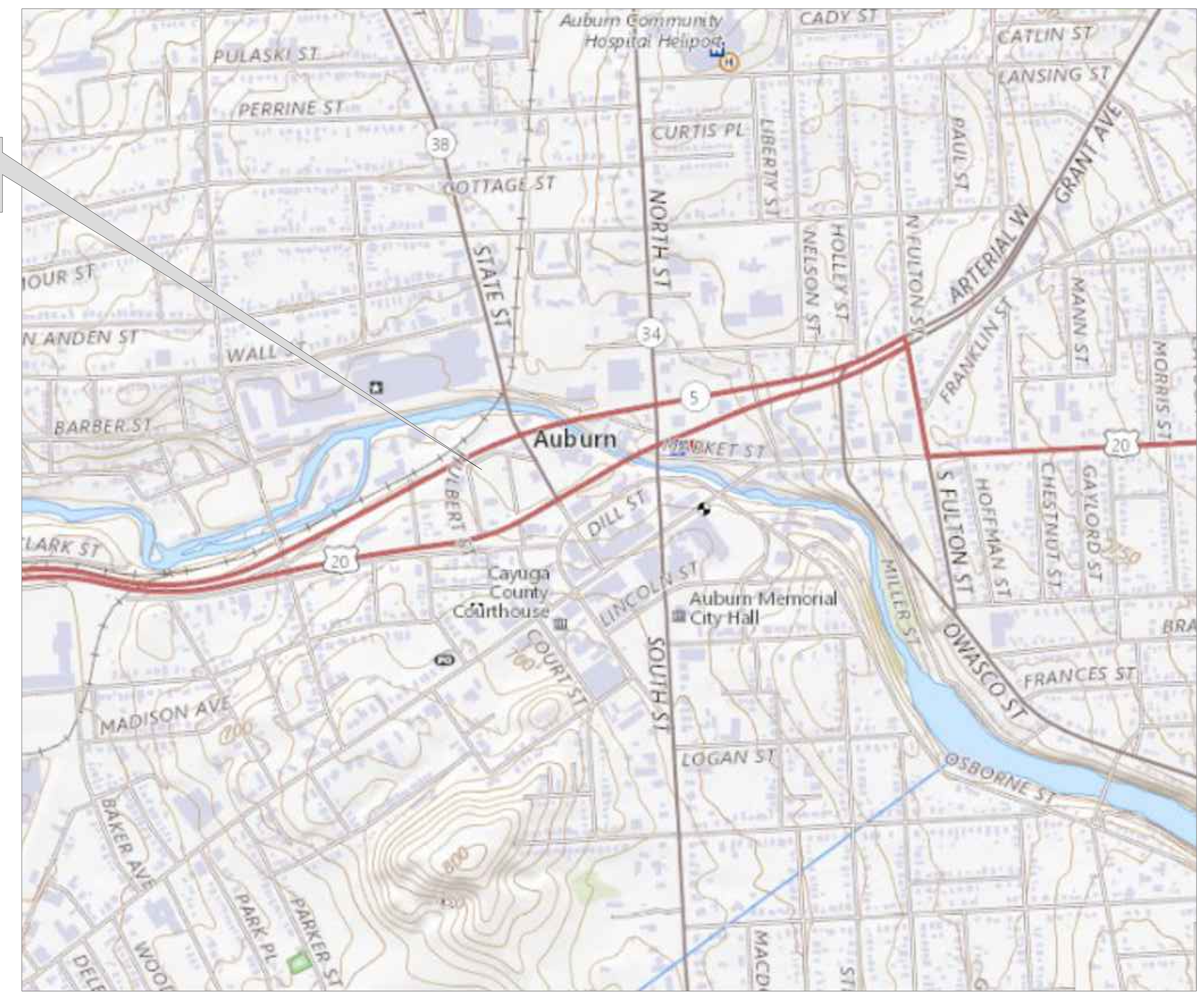
L:\DCS\Projects\60652550_AuburnGrnR\900_CAD_GIS\920_GIS\Maps\95% RD Report\Figure 4-3 Conceptual Biosparge Treatment Area (Alt).mxd 1/9/2025

Attachment 1

Design Drawings

NYSEG - REMEDIAL DESIGN FOR
FORMER AUBURN GREEN STREET MGP SITE
GREEN STREET
AUBURN, CAYUGA COUNTY, NEW YORK
APRIL 2025

SITE LOCATION



SOURCE: USGS - NATIONALMAP.GOV

PROJECT LOCATION

NTS

100% DESIGN DRAWINGS

Prepared For:

NYSEG

NEW YORK STATE ELECTRIC & GAS Corp.
18 Link Drive
Binghamton, New York 13904

Prepared By:

AECOM

AECOM USA, Inc.
Cert. of Auth. #021205
50 Lakefront Blvd. Suite 111
Buffalo, New York, 14202
(716) 856-5636

Edward M. Murphy, P.E.
Registration No. 081543
Exp. Sept. 30, 2027

ANSI D 22" x 34"
Approved:
Checked:
Designer:
Project Management Initials:

Last saved by: DOLANC1(2025-04-16) Last Plotted: 2025-04-16
Filename: Z:\BUFFALO-USBUF1\DCS\PROJECTS\60652550_AUBURNGRNR\900_CAD_GIS\910_CAD\20-SHEETS\100% RD\01 AUBURN-COVER.DWG

GENERAL NOTES

1. THE CONTRACTOR IS ADVISED THAT ADDITIONAL "NOTES" WILL BE FOUND ON SUBSEQUENT SHEETS OF THE CONTRACT PLANS AND SUCH "NOTES", WHILE PERTAINING TO THE SPECIFIC SHEETS ON WHICH THEY APPEAR, ALSO SUPPLEMENT THE GENERAL NOTES LISTED HEREIN.
2. EXISTING CONDITIONS, AS PRESENTED, REPRESENT THOSE CURRENT AS OF THE DATE OF THE FIELD SURVEY. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF SITE CONDITIONS PRIOR TO THE START OF WORK.
3. ALL ON-SITE REMEDIATION ACTIVITIES SHALL BE IN ACCORDANCE WITH THE ENTIRE CONTRACT DOCUMENTS AS DISCUSSED IN THE MSA AND/OR BID FORM AND/OR INSTRUCTIONS TO BIDDERS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY LOCAL, STATE, AND FEDERAL PERMITS REQUIRED THAT HAVE NOT BEEN PREVIOUSLY OBTAINED AND MADE PART OF THE CONTRACT DOCUMENTS.
5. ALL FUEL, OIL, PAINT OR OTHER HAZARDOUS MATERIALS SHALL BE STORED IN A SECONDARY CONTAINMENT AREA AND SECURED IN A LOCKED AREA WITH AN IMPERVIOUS FLOOR DURING NON-WORK HOURS.
6. A SUPPLY OF ABSORBENT SPILL RESPONSE MATERIAL SUCH AS BOOMS OR BLANKETS SHALL BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
7. CONTRACTOR TO PERFORM CLEARING AND GRUBBING AS NECESSARY WITHIN PROJECT LIMITS. LIMITS OF CLEARING AND GRUBBING SHALL NOT EXTEND BEYOND THE LIMITS SHOWN. PHASE ALL CLEARING TO MINIMIZE CLEARED AREAS REQUIRED TO COMPLETE SPECIFIED WORK.
8. CONTRACTOR SHALL OBTAIN CITY PERMIT FOR ALL WORK WITHIN THE CITY OF AUBURN STREET RIGHT-OF-WAY (R.O.W.).
9. CONTRACTOR SHALL CONTACT DIG-SAFE FOR UTILITY MARK OUTS PRIOR TO ANY SUBSURFACE WORK.
10. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITY VALVES AND OTHER APPURTENANCES WITHIN PROJECT WORK AREAS.
11. CONTRACTOR SHALL CONTACT NYSEG IMMEDIATELY IF IMPACTED MATERIAL IS ENCOUNTERED OUTSIDE OF IDENTIFIED AREAS.

PROTECTION OF THE TRAVELING PUBLIC

1. ALL WORK AREAS SHALL BE COMPLETELY FENCED, CONFORMING WITH OSHA REGULATIONS AND TO THE SATISFACTION OF THE ENGINEER, TO PROTECT THE PUBLIC AND PREVENT UNAUTHORIZED ENTRY. AT A MINIMUM, ALL TEMPORARY SECURITY FENCE SHALL MEET THE REQUIREMENTS OF THE IBERDROLA USA TECHNICAL MANUAL, YARD AND FENCING STANDARD AND APPLICABLE IBERDROLA USA FENCE GROUNDING STANDARDS.
2. WHILE WORKING WITHIN THE CITY OF AUBURN RIGHT OF WAY (R.O.W.), THE CONTRACTOR SHALL FOLLOW MAINTENANCE AND PROTECTION OF TRAFFIC, ITEM 619 OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, AND THE LATEST EDITION OF THE NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS INCLUDING THE NEW YORK STATE SUPPLEMENT.
3. TEMPORARY LANE CLOSURES FOR WORK OUTSIDE THE REMEDIAL EXCAVATION AREAS, IF REQUIRED, SHALL BE APPROVED BY NYSEG. CONTRACTOR SHALL PROVIDE FLAGGING AND CONFORM WITH THE APPLICABLE NEW YORK STATE DEPARTMENT OF TRANSPORTATION US CUSTOMARY STANDARD SHEETS 619-60 AND 619-61.

WORK WITHIN THE PUBLIC RIGHT OF WAY (R.O.W.)

1. ALL ACTIVE AND OPEN PORTIONS OF THE ROADWAYS SHALL BE KEPT CLEAN OF MUD AND DEBRIS AT ALL TIMES.
2. ROADSIDE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES.
3. MATERIALS, EQUIPMENT, AND CONSTRUCTION VEHICLES SHALL NOT BE STORED OR PARKED WITHIN THE CITY OF AUBURN RIGHT OF WAY (R.O.W.).
4. ALL BACKFILL MATERIALS SHALL BE TESTED BY THE CONTRACTOR FOR CHEMICAL AND GEOTECHNICAL PARAMETERS AS SPECIFIED IN THE CONTRACT DOCUMENTS. TESTING SHALL CONFORM TO THE APPLICABLE ASTM, NYSDOT, NYSDOH, AND NYSDEC STANDARDS AND SPECIFICATIONS. TESTING LABORATORY SHALL SUBMIT A WRITTEN REPORT DESCRIBING THE TESTS PERFORMED AND THE RESULTS OF SUCH TESTS TO THE CONTRACTOR AND ENGINEER.
5. ALL WORKMANSHIP AND MATERIALS USED FOR BACKFILL AND RESTORATION ITEMS WITHIN THE CITY OF AUBURN RIGHT OF WAY (R.O.W.) BOUNDARY SHALL BE IN ACCORDANCE WITH THE REFERENCED NYSDOT STANDARD SPECIFICATION (LATEST EDITION) INCLUDING PLACEMENT, COMPACTION, TESTING AND FINISHING.

CONTRACTOR STAGING

1. AVAILABLE CONTRACTOR STAGING AREAS ARE LIMITED TO THOSE INDICATED ON THE PLANS.
2. CONTRACTOR SHALL OBTAIN USE OF ADDITIONAL OFF SITE STAGING AREAS, AS NEEDED, FOR STORAGE OF EQUIPMENT AND MATERIALS.
3. CONTRACTOR SHALL NOT STAGE CONSTRUCTION VEHICLES AND TRUCKS ON ADJACENT ROADWAYS WHILE WAITING FOR ENTRY TO THE SITE. OBTAIN USE OF OFF SITE STAGING AREAS TO STAGE TRUCK TRAFFIC WAITING TO ACCESS THE SITE.
4. PROVIDE SIGNAGE AND FLAGMEN AS NECESSARY TO ALLOW SAFE SITE ENTRY AND EXIT FROM GREEN STREET AND OTHER ACCESS POINTS.
5. CONTRACTOR SHALL PROVIDE FOR OFF SITE WORKER PARKING.

GENERAL SUBSURFACE CONDITIONS

1. BORINGS INDICATE THAT OVERBURDEN IS VARIABLE, COMPRISING FILL AND SILTY SAND, WITH CLAY IN SOME AREAS.
2. TOP OF BEDROCK MAY VARY AND IS APPROXIMATELY 20 FEET BELOW EXISTING GRADE.

GENERAL GROUNDWATER CONDITIONS

1. GROUNDWATER DEPTH IS BASED ON AVAILABLE BORING LOGS AND POTENTIMETRIC SURFACE MAPS.
2. THE DESIGN GROUNDWATER LEVEL IS AT A DEPTH OF APPROXIMATELY 5 FEET BELOW EXISTING GRADE. GROUNDWATER LEVELS WILL VARY BY SEASON AND WEATHER CONDITIONS.

DEWATERING

1. IF DEWATERING IS NECESSARY DUE TO RAINWATER COLLECTION, INSTALL DEWATERING SUMP(S) WITHIN EACH EXCAVATION AREA AND PUMP TO DRAWDOWN THE GROUNDWATER LEVEL.
2. ALL WATER REMOVED FROM EXCAVATON AREAS SHALL BE CONTAINERIZED IN A HOLDING TANK OR 55-GALLON DRUMS. COLLECTED WATER SHALL BE CHARACTERIZED AND CONTRACTOR SHALL BE RESPONSIBLE FOR TRANSPORTATION TO AN OFFSITE DISPOSAL FACILITY.

EXCAVATION

1. THE CONTRACTOR SHALL EXCAVATE TO A DEPTH OF 1FT. IF VISIBLE MGP IMPACTS ARE OBSERVED BELOW THIS DEPTH, CONTRACTOR SHALL CONSULT WITH NYSEG TO DETERMINE APPROPRIATE COURSE OF ACTION. ADDITIONAL MEASURES MAY BE NECESSARY, AND SHALL ONLY BE PERFORMED IF DIRECTED BY NYSEG OR ITS DESIGNATED AGENT IN WRITING.
2. CONTRACTOR SHALL PROVIDE DUST AND ODOR CONTROL AS NECESSARY THROUGHOUT DURATION OF ALL PROJECT ACTIVITIES.
3. CONTRACTOR TO SECURE AND MAINTAIN OPEN REMEDIAL EXCAVATIONS AT ALL TIMES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TRANSPORT AND DISPOSAL OF ALL WASTES GENERATED DURING THIS PROJECT.

BACKFILLING EXCAVATION AREAS

1. EXCAVATION SHALL NOT BE BACKFILLED UNTIL CONFIRMATION THAT EXCAVATION IN THE AREA IS COMPLETE BY THE ENGINEER (FOLLOWING RECEIPT OF CONFIRMATION SAMPLING ANALYTICAL RESULTS).
2. ALL IMPORTED BACKFILL SHALL BE TESTED BY THE CONTRACTOR PRIOR TO ITS USE ON-SITE. THIS IMPORTED MATERIAL MUST MEET THE REQUIREMENTS OF NYSDEC PART 375-6.8(B) REQUIREMENTS AS SPECIFIED IN THE REMEDIAL DESIGN.
3. IMPORTED BACKFILL SHALL BE SAMPLED AT A FREQUENCY OF 1 SAMPLE PER 500 CUBIC YARDS FOR THIS PURPOSE.
4. IMPORTED BACKFILL PLACED BELOW SURFACE RESTORATION MEASURES WITHIN THE STREET RIGHT-OF-WAY SHALL MEET THE REQUIREMENTS OF NYSDOT SPECIFICATION SECTION 203.03 - EMBANKMENT IN PLACE.
5. AREAS TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. TOPSOIL SHALL BE APPLIED AND DISTRIBUTED TO A UNIFORM DEPTH (MINIMUM OF FOUR INCHES).
7. ALL FILL MATERIALS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE, OR OTHER RELATED PROBLEMS.
8. ALL FILL MATERIALS SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
9. FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH, OR PREVENT, CONSTRUCTION OF SATISFACTORY FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.

EROSION AND SEDIMENTATION CONTROL NOTES

1. THE CONTRACTOR SHALL CONSTRUCT ENTRANCE PAD(S) AND TEMPORARY ACCESS/HAUL ROAD(S) WHERE NEEDED TO COMPLETE THE WORK. THE INTENT IS THAT THERE SHALL BE NO OFF-SITE TRACKING OF MATERIAL. CONTRACTOR SHALL IMMEDIATELY SWEEP/CLEAN-UP ANY OFF-SITE TRACKING OF MATERIAL THAT OCCURS.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION AND SEDIMENT CONTROL DEVICES WITHIN THE IMMEDIATE VICINITY OF THE PROPOSED WORK ACTIVITIES.

TEMPORARY AND PERMANENT STABILIZATION

1. TEMPORARY SEEDING AND MULCHING SHALL BE COMPLETED WITHIN 4 DAYS WHEN AREAS WILL NOT BE REDISTURBED FOR MORE THAN 14 DAYS.
2. PERMANENT SEEDING AND MULCHING SHALL BE PERFORMED WITHIN 4 DAYS OF REACHING FINAL GRADE.
3. PERMANENT STABILIZATION IS DEFINED AS MINIMUM UNIFORM, 80% VEGETATIVE COVER.
4. AFTER FINAL STABILIZATION HAS BEEN ACHIEVED AND AGREED UPON BY THE ENGINEER, TEMPORARY EROSION CONTROL MEASURES MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL MUST BE STABILIZED IMMEDIATELY.

WELL INSTALLATION

1. AIR INJECTION WELL AIW-02 SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REMEDIAL DESIGN DOCUMENTS AND SPECIFICATIONS IDENTIFIED ON SHEET 5.

UTILITIES

1. LOCATION OF EXISTING UTILITIES IS BASED UPON BEST INFORMATION AVAILABLE AT TIME OF DESIGN.
2. CONTRACTOR SHALL COORDINATE WITH OWNERS OF UTILITIES THAT MAY BE IMPACTED BY REMEDIATION CONSTRUCTION.
3. CONTRACTOR TO CONFIRM LOCATION OF ALL UTILITIES PRIOR TO ANY EXCAVATION.

PROJECT COORDINATION

1. ENGINEER SHALL BE RESPONSIBLE FOR PERFORMING PERIMETER AIR MONITORING SPECIFIED IN THE COMMUNITY AIR MONITORING PLAN. CONTRACTOR SHALL COORDINATE WITH AND ASSIST ENGINEER WITH THESE EFFORTS.

CITY OF AUBURN - COORDINATION WITH OFFICE OF THE CITY ENGINEER

1. THE CONTRACTOR SHALL OBTAIN PERMITS FROM THE CITY OF AUBURN THAT ARE REQUIRED FOR PROPOSED WORK ALONG THE CITY SIDEWALK.
2. IF NEEDED, THE CONTRACTOR SHALL COMPLETE AND SUBMIT AN APPLICATION TO REQUEST STREET CLOSURE OF A CITY STREET AT LEAST (2) WEEKS BEFORE THE EVENT.

SURVEY AND STAKE-OUT

1. CONTRACTOR SHALL PROVIDE THE SERVICES OF A NEW YORK STATE LICENSED LAND SURVEYOR AS NECESSARY FOR ALL WORK. SURVEYOR SHALL STAKE OUT LIMITS OF EXCAVATION AS SPECIFIED AND OTHER PROJECT LOCATIONS WHERE REQUIRED. SURVEYOR SHALL LOCATE IN THE FIELD ALL SIGNIFICANT PROJECT COMPONENTS AND MILESTONES, INCLUDING BUT NOT LIMITED TO UTILITIES, FINAL LIMITS (VERTICAL AND HORIZONTAL) OF EXCAVATION, AND OTHER APPURTENANT FEATURES. SURVEYOR TO PROVIDE FINAL RECORD DRAWINGS OF THE ACTUAL WORK PERFORMED, INCLUDING A FINAL CONDITIONS SURVEY.
2. THE NEW YORK STATE LICENSED LAND SURVEYOR SHALL STAKEOUT IN THE FIELD THE EDGE OF THE CITY OF AUBURN STREET RIGHT-OF-WAY (R.O.W.) ALONG GREEN STREET. THE CONTRACTOR SHALL CONFINE ALL WORK ACTIVITIES WITHIN THE STREET RIGHT-OF-WAY AND PROPERTY CONTROLLED BY NYSEG.

SITE RESTORATION

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS WITHIN THE CITY OF AUBURN RIGHT-OF-WAY (R.O.W.) TO THE "FINAL REMEDIAL CONSTRUCTION GRADE AND CONDITION" AS DEPICTED ON THE DRAWINGS.
2. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS ON PRIVATE PROPERTY TO PRE-EXISTING GRADE AND CONDITIONS.

AS BUILT / FINAL CONDITIONS SURVEY

1. CONTRACTOR SHALL PROVIDE A FINAL CONDITION SURVEY PREPARED BY A NEW YORK STATE LICENSED LAND SURVEYOR. THE AS BUILT / FINAL CONDITION SURVEY SHALL INCLUDE ALL AREAS DISTURBED BY THE CONTRACTOR, INCLUDING STAGING AREAS.

AECOM

PROJECT

NYSEG - Remedial Design for
Former Auburn Green Street MGP Site
Green Street
Auburn, Cayuga County, New York
December 2024

CLIENT

NYSEG
New York State Electric and Gas Corp.
Binghamton, New York 13904

CONSULTANT

AECOM USA, Inc.
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Buffalo, New York, 14202
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REGISTRATION

Edward M. Murphy, P.E.
Registration No. 081543
Exp. Sept. 30, 2027

ISSUE/REVISION

A	2025-04-15	100% REMEDIAL DESIGN
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PROJECT NUMBER

60652550

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

2 of 9

LEGEND

X	FENCE
	BUILDING
	PAVEMENT
WV	WATER VALVE
FH	FIRE HYDRANT
	GAS VALVE
	MANHOLE
	CATCH BASIC
	UTILITY POLE
G	UTILITIES - GAS
EUG	UTILITIES - UNDERGROUND WIRES
EOH	UTILITIES - OVERHEAD WIRES
	UTILITIES - POWER POLE GUY
SA	UTILITIES - SANITARY
ST	UTILITIES - STORM
TUG	UTILITIES - TELEPHONE
W	UTILITIES - WATER
	SURFACE CONTOUR - 1 FT. INTERVAL
	APPROXIMATE PROPERTY BOUNDARY
	APPROXIMATE BELOW-GRADE LOCATION - HISTORICAL MGP STRUCTURE
	MONITORING WELL LOCATION

0 16' 32'

MAPPING NOTES:

1) EXACT LOCATION OF STREET LINE ALONG THIS AREA NOT KNOWN. STREET LINE ESTABLISHED AS PARALLEL TO TALL CHAIN LINK FENCE AND APPARENT RESPECTED STREET LINE.

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AECOM

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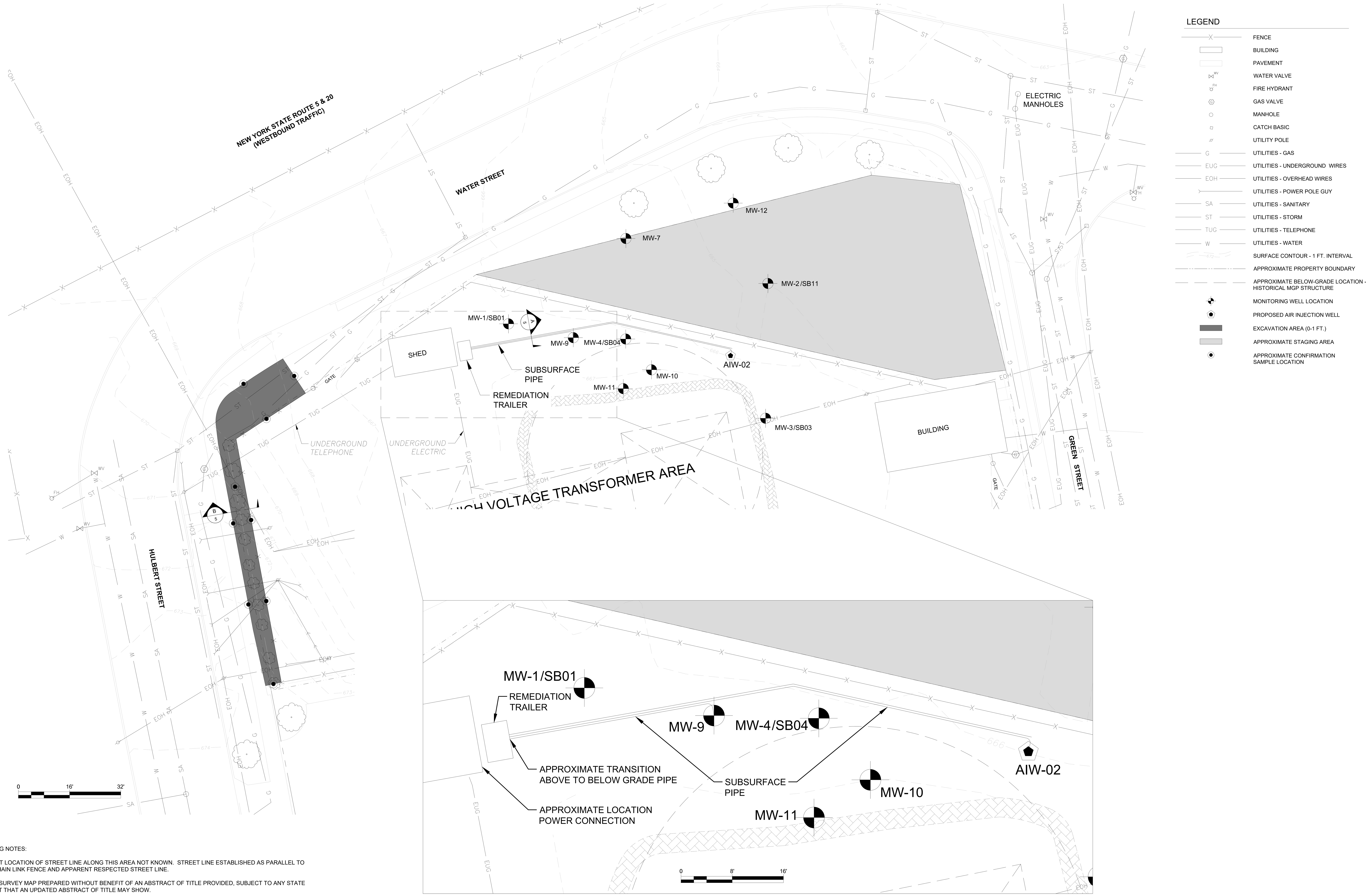
SHEET TITLE

EXISTING CONDITIONS AND SITE LAYOUT

SHEET NUMBER

3 of 9



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REMEDIATION NOTES:

1) SPARE SUBSURFACE AIR LINE TO BE INSTALLED AND CAPPED AT BOTH ENDS, BEGINNING AT THE REMEDIATION TRAILER AND TERMINATING ADJACENT TO AIW-2.

AECOM

PROJECT

NYSEG - Remedial Design for
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Green Street
Auburn, Cayuga County, New York
December 2024

CLIENT

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Binghamton, New York 13904

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60652550

SHEET TITLE

REMEDIATION LAYOUT

SHEET NUMBER

4 of 9

ANSI D 22" x 34"
Approved:
Checked:
Designer:
Project Management Initials:

Last saved by: DOLANC1(2025-04-15) Last Plotted: 2025-04-16
Filename: Z:\BUFFALO-USBUF1DCS\PROJECTS\60652550_AUBURNGRNR\900_CAD_GIS\910_CAD\20-SHEETS\100% RD\02-04 NOTES, PLANS.DWG

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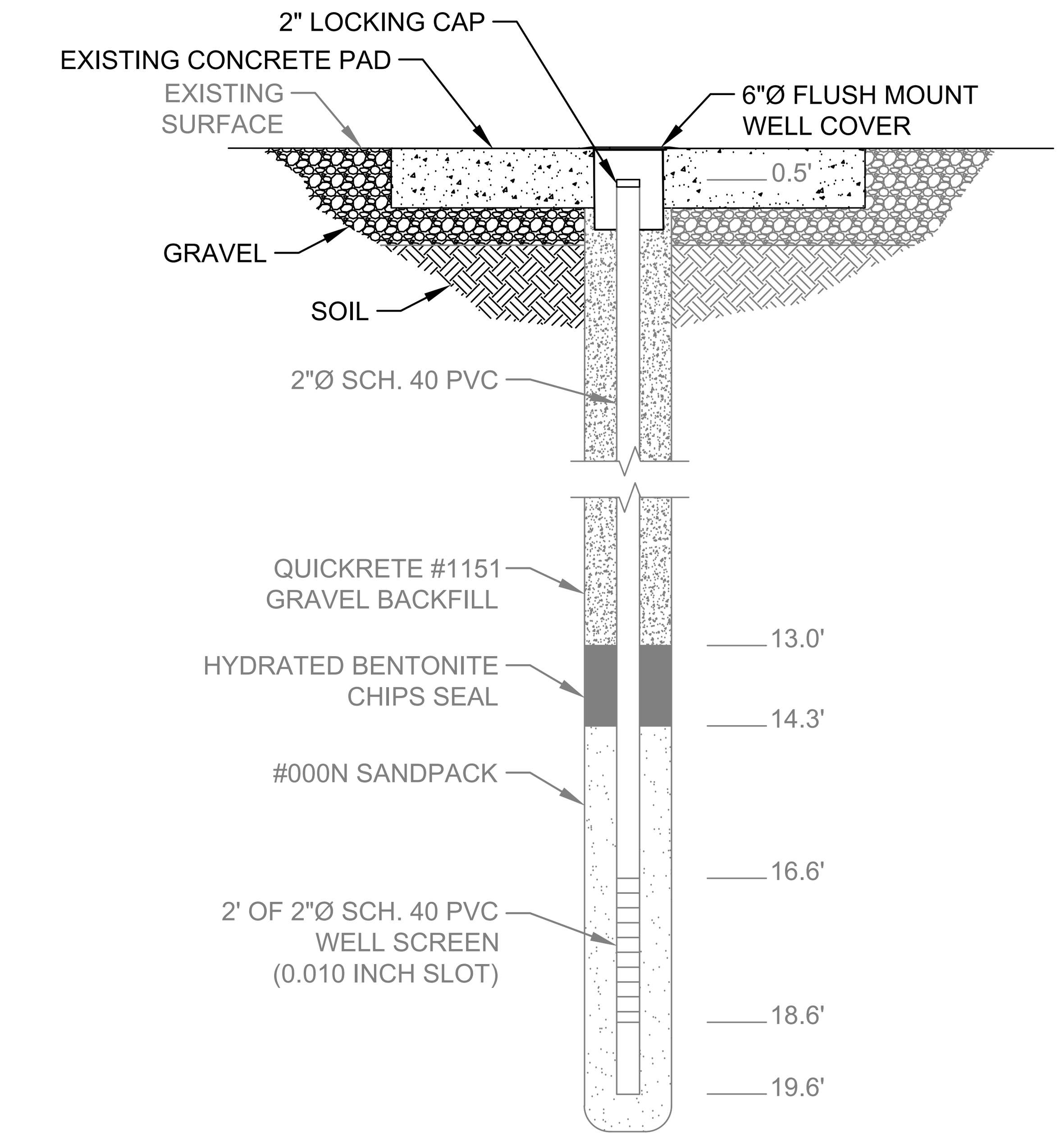
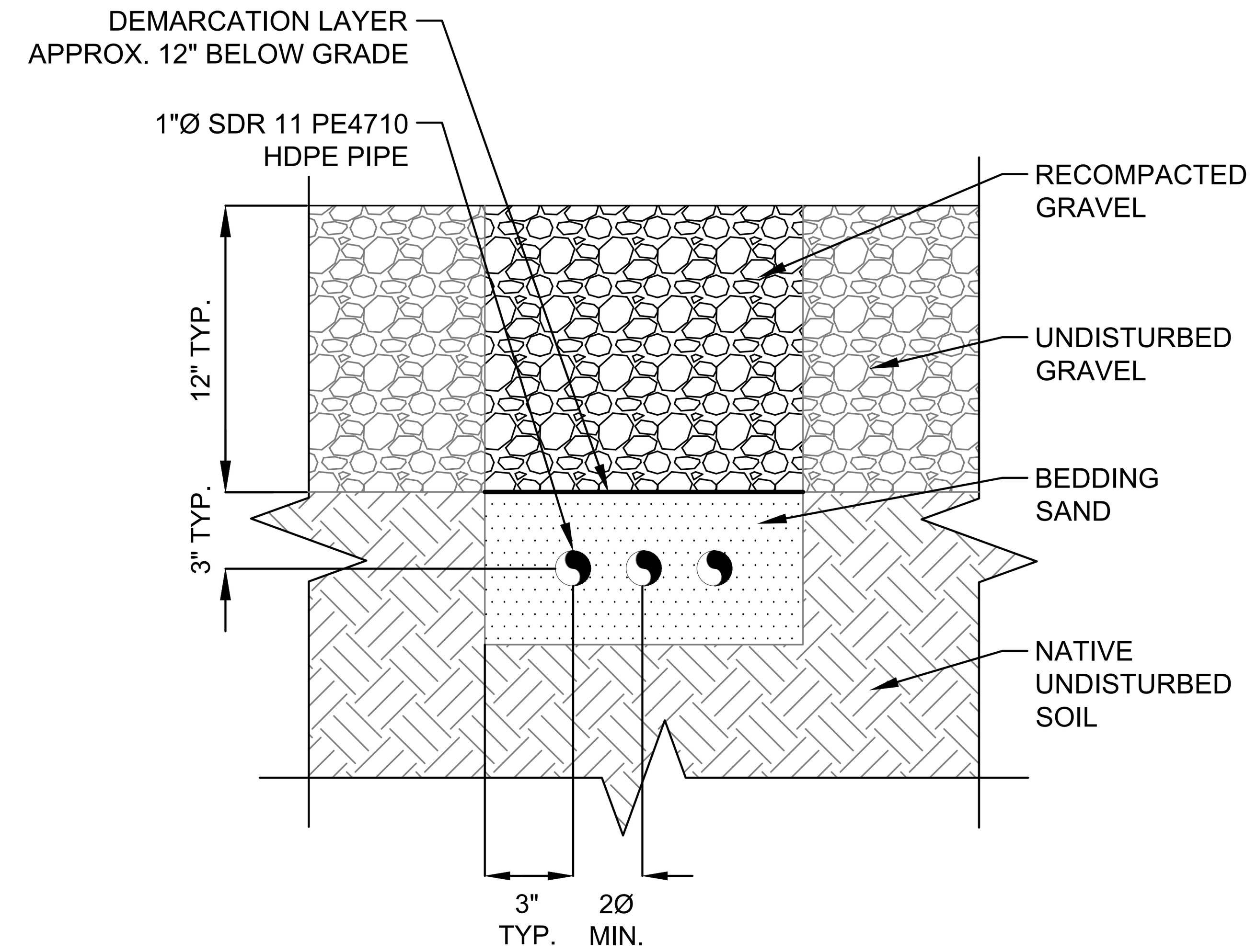
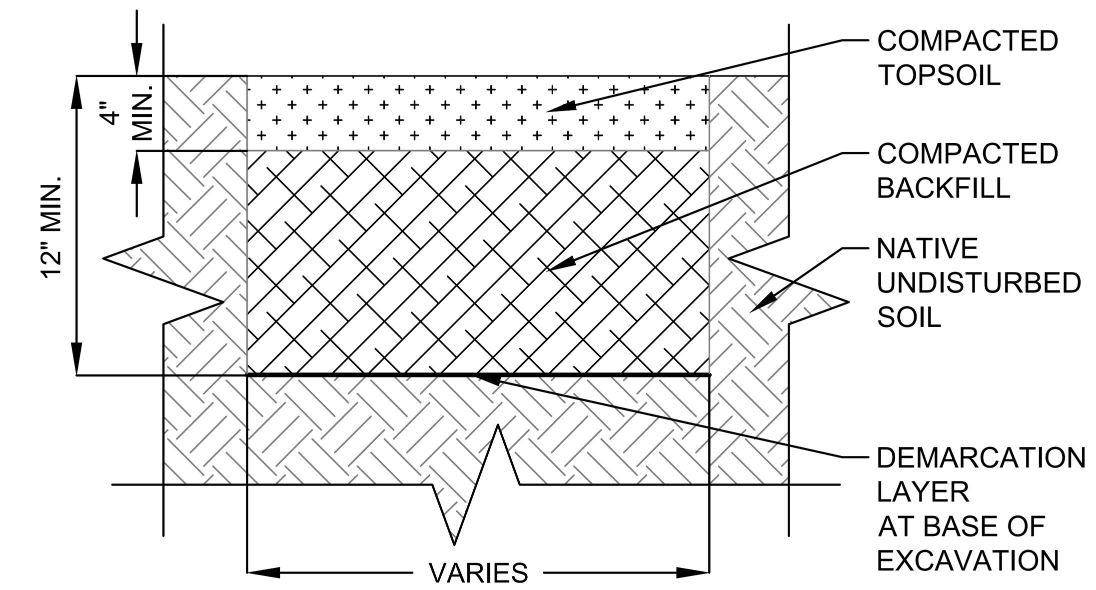


MONITORING WELL MW-09
EXISTING CONDITIONS
NTS



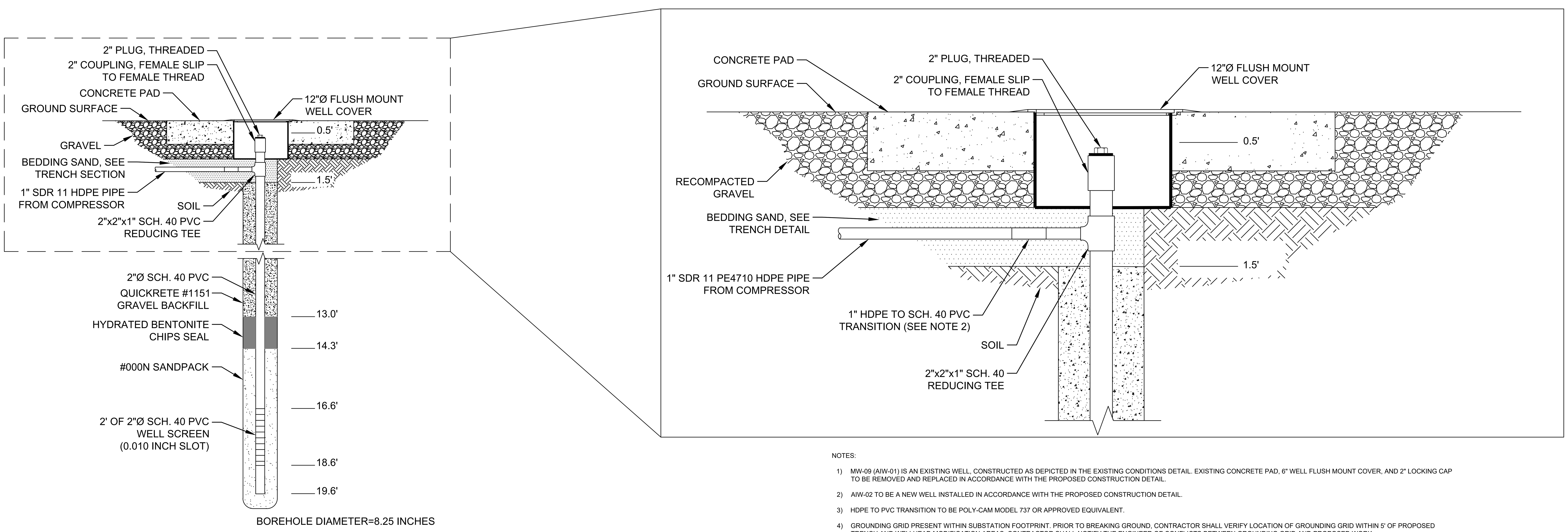
A
4
TYPICAL TRENCH DETAIL
NTS



B
4
EXCAVATION BACKFILL DETAIL
NTS

LEGEND

- EXISTING CONSTRUCTION TO REMAIN
- PROPOSED CONSTRUCTION TO BE MODIFIED
- PIPE
- CONCRETE
- GRAVEL
- SOIL
- BEDDING SAND
- QUICKRETE #1151 GRAVEL
- HYDRATED BENTONITE
- #000N SANDPACK
- EXCAVATION BACKFILL
- TOPSOIL



PROPOSED CONSTRUCTION
MW-09 (AIW-01) and AIW-02
NTS

NOTES:

1) MW-09 (AIW-01) IS AN EXISTING WELL, CONSTRUCTED AS DEPICTED IN THE EXISTING CONDITIONS DETAIL. EXISTING CONCRETE PAD, 6" WELL FLUSH MOUNT COVER, AND 2" LOCKING CAP TO BE REMOVED AND REPLACED IN ACCORDANCE WITH THE PROPOSED CONSTRUCTION DETAIL.
2) AIW-02 TO BE A NEW WELL INSTALLED IN ACCORDANCE WITH THE PROPOSED CONSTRUCTION DETAIL.
3) HDPE TO PVC TRANSITION TO BE POLY-CAM MODEL 737 OR APPROVED EQUIVALENT.
4) GROUNDING GRID PRESENT WITHIN SUBSTATION FOOTPRINT. PRIOR TO BREAKING GROUND, CONTRACTOR SHALL VERIFY LOCATION OF GROUNDING GRID WITHIN 5' OF PROPOSED TRENCH AND WELLHEAD MODIFICATION AREAS. CONTRACTOR SHALL NOTIFY THE ENGINEER OF CONFLICTS BETWEEN GROUNDING GRID AND PROPOSED WORK.
5) EXISTING SURFACE CONSISTS OF 12" OF CRUSHED STONE OVERLYING SOIL. CONTRACTOR SHALL SEGREGATE CRUSHED STONE COVER FOR REUSE AS TRENCH BACKFILL. CONTRACTOR SHALL SEGREGATE EXCAVATED SOIL FOR DISPOSAL WITH MATERIAL REMOVED DURING EXCAVATION OF WESTERN PORTION OF SITE.
6) BEDDING SAND TO BE FILPRO #1 SAND OR APPROVED EQUIVALENT. BEDDING SAND SHALL BE IMPORTED FROM AN OFFSITE SOURCE APPROVED BY THE ENGINEER.
7) FILL MATERIAL (BEDDING SAND AND GRAVEL) SHALL BE COMPACTED UNTIL VISIBLY STABLE. CONTRACTOR SHALL RESTORE GRAVEL TO MATCH SURROUNDING SURFACE CONDITIONS.

AECOM

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SHEET TITLE
BIOSPARGE DETAILS

SHEET NUMBER
5 of 9

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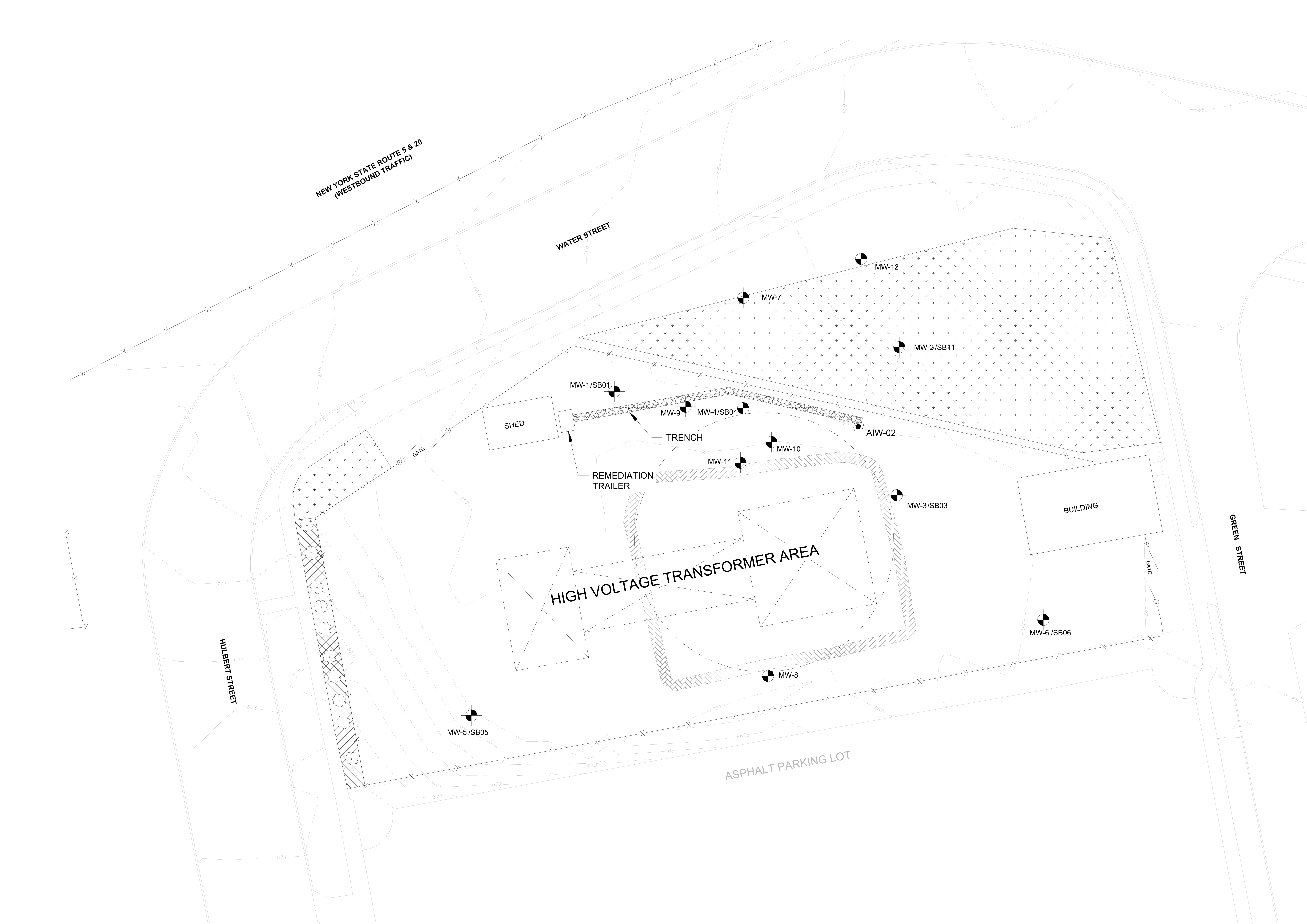

LEGEND

- FENCE
- BUILDING
- PAVEMENT
- WATER VALVE
- FIRE HYDRANT
- GAS VALVE
- MANHOLE
- CATCH BASIC
- UTILITY POLE
- G — UTILITIES - GAS
- EUG — UTILITIES - UNDERGROUND WIRES
- EOH — UTILITIES - OVERHEAD WIRES
- UTILITIES - POWER POLE GUY
- SA — UTILITIES - SANITARY
- ST — UTILITIES - STORM
- TUG — UTILITIES - TELEPHONE
- W — UTILITIES - WATER
- SURFACE CONTOUR - 1 FT. INTERVAL
- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE BELOW-GRADE LOCATION - HISTORICAL MGP STRUCTURE
- MONITORING WELL LOCATION
- PROPOSED AIR INJECTION WELL
- GRAVEL RESTORATION AREA
- SEED RESTORATION AREA
- MULCH RESTORATION AREA
- SHURBS TO BE REPLACED IN KIND

MAPPING NOTES:

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0 16' 32'

AECOM

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SHEET TITLE

RESTORATION LAYOUT

SHEET NUMBER

6 of 9

EQUIPMENT SYMBOLS

PUMPS

- HORIZONTAL CENTRIFUGAL
- VERTICAL INLINE
- CENTRIFUGAL SUMP
- PROGRESSIVE CAVITY
- POSITIVE DISPLACEMENT
- LIQUID RING
- SCREW PUMP

COMPRESSORS AND BLOWERS

- CENTRIFUGAL COMP.
- RECIPROCATING COMP.
- SCREW COMPRESSOR
- POSITIVE DISPLACEMENT BLOWER
- CENTRIFUGAL BLOWER

HEAT EXCHANGERS

- PLATE AND FRAME
- AIR COOLED
- GENERAL EXCHANGER

MISCELLANEOUS

- or WELL
- BLADDER PUMP
- ATMOSPHERIC TANK
- VESSEL
- PNEUMATIC DRAIN

VALVE SYMBOLS

COMMON VALVES

- ANGLE
- BUTTERFLY
- CHECK
- DIAPHRAGM
- EXCESS FLOW
- FOUR-WAY
- GATE
- GENERIC CONTROL
- ROTARY
- NEEDLE
- KNIFE
- PINCH
- PLUG
- STOP CHECK
- THREE-WAY
- GLOBE

ACTUATORS

- MANUAL
- HAND WHEEL ACTUATOR
- SOLENOID
- SOLENOID (REMOTE RESET)
- ROTARY MOTOR
- ELECTRO-HYDRAULIC
- DIAPHRAGM
- PRESSURE BALANCED DIAPHRAGM ACTUATOR
- PRESSURE REDUCING REGULATOR
- DIFFERENTIAL PRESSURE REDUCING REGULATOR
- BACKPRESSURE REGULATOR
- BACKPRESSURE REGULATOR (EXTERNAL TAP)
- TEMPERATURE REGULATOR (FILLED SYSTEM TYPE)
- POSITIONER AND SOLENOID
- PISTON

RELIEF VALVES

- RUPTURE DISC (PRESSURE)
- RUPTURE DISC (VACUUM)
- PRESSURE
- VACUUM
- PRESSURE AND VACUUM
- PILOT OPERATED

PIPING SYMBOLS

- REDUCER
- ECCENTRIC REDUCER
- HOSE
- FLANGE
- BLIND FLANGE
- PLUG
- CAP
- WELDED CONNECTION
- UNION
- PROCESS STREAM LINE NUMBER

SPECIALTY ITEMS

- CONE STRAINER
- TEMPORARY STRAINER
- T-TYPE STRAINER
- DUPLEX STRAINER
- Y-TYPE STRAINER
- BASKET STRAINER
- FILTER
- BREATHER
- DAMPER
- EXPANSION JOINT
- INLINE MIXER
- SLOPE INDICATOR
- VENT SILENCER
- INLINE SILENCER
- FLAME ARRESTOR
- DETONATION ARRESTOR
- (STEAM) TRAP
- DESUPERHEATER
- REMOVABLE SPOOL
- EJECTOR/EDUCTOR
- EXHAUST HEAD
- PULSATION DAMPER
- FLEXIBLE HOSE
- VENT COVER

PRIMARY ELEMENT SYMBOLS

FLOW

- ORIFICE
- MAGNETIC
- TURBINE
- ULTRASONIC
- VORTEX
- PITOT TUBE
- AVG. PITOT TUBE
- NOZZLE
- VENTURI
- WEDGE
- FLUME
- WEIR
- POSITIVE DISPLACEMENT
- ORIFICE (QUICK CHANGE)
- TARGET
- ROTAMETER
- ROTAMETER (INTEGRAL VALVE)
- FLOW CONDITIONER

NOTES:

1. SYMBOLOGY IS BASED ON A COMBINATION OF ACCEPTED PROCESS INDUSTRY PRACTICES AND PROJECT-SPECIFIC SYMBOLS/CONVENTIONS.

AECOM

PROJECT

NYSEG - Remedial Design for Former Auburn Green Street MGP Site
Green Street
Auburn, Cayuga County, New York
December 2024

CLIENT

NYSEG
New York State Electric and Gas Corp.
Binghamton, New York 13904

CONSULTANT

AECOM USA, Inc.
Cert. of Auth. #021205
50 Lakefront Blvd. Suite 111
Buffalo, New York, 14202
(716) 856-5636
www.aecom.com

REGISTRATION

STATE OF NEW YORK
EDWARD M. MURPHY
081543
LICENSED PROFESSIONAL ENGINEER

Edward M. Murphy, P.E.
Registration No. 081543
Exp. Sept. 30, 2027

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ISSUE/REVISION

I/R	DATE	DESCRIPTION
A	2025-04-15	100% REMEDIAL DESIGN

NOT FOR CONSTRUCTION

PROJECT NUMBER

60652550

SHEET TITLE

PROCESS DIAGRAM SYMBOLS AND LEGENDS 1

SHEET NUMBER

7 of 9

LINE TYPES

PIPES

PRIMARY PROCESS

SECONDARY PROCESS

OFF-PAGE CONNECTOR

CONNECTOR NUMBER
SERVICE TYPE
CONNECTED PAGE
P
1 D-101
To: U-101
CONNECTED PROCESS UNIT

INSTRUMENTS

ELECTRICAL SIGNAL

PNEUMATIC SIGNAL

HYDRAULIC SIGNAL

SOFTWARE LINK

CAPILLARY TUBE

INSTRUMENT SUPPLY LINE

ELECTROMAGNETIC SIGNAL

MECHANICAL LINK

PIPE LABELING CONVENTIONS

3"-CS-GW-100-2"PP

SIZE
MATERIAL
SERVICE TYPE
LINE NUMBER
INSULATION TYPE (IF APPLICABLE)

MATERIAL DESIGNATIONS

CS150	150# CARBON STEEL
GS150	150# GALVANIZED STEEL
SS150	150# STAINLESS STEEL
SCH 40 PVC	SCHEDULE 40 PVC
SCH 80 PVC	SCHEDULE 80 PVC
PE3608	POLYETHYLENE (3608)
NYLON	NYLON HOSE
ACM150	LINE CLASS SPECIFICATION

SERVICE TYPES

P	PROCESS (GENERAL)
LPA	LOW PRESSURE AIR
HPA	HIGH PRESSURE AIR
PC	PROCESS CONDENSATE
AC	AIR CONDENSATE
SV	SOIL VAPOR
GW	GROUNDWATER
PW	PROCESS WATER

INSULATION TYPES

HFG	HOT FOAMGLASS
HMW	HOT MINERAL WOOL
C	COLD
PP	PERSONAL PROT.

INSTRUMENT LABELING CONVENTIONS

VALVE OR INSTRUMENT TAG - POINTER STYLE
PIT
02
INSTRUMENT TYPE
LOOP NUMBER

DEVICE TYPE / LOCATION	DISCRETE INSTRUMENT	DISTRIBUTED CONTROL SYSTEM	PROGRAMMABLE LOGIC CONTROLLER
FIELD			
PRIMARY, ACCESSIBLE			
AUXILLIARY, ACCESSIBLE			
PRIMARY, INACCESSIBLE			
AUXILLIARY, INACCESSIBLE	PI 023		

PI 013 — DISCRETE HARDWARE INTERLOCK, PRIMARY LOCATION

PI 013 — DISCRETE HARDWARE INTERLOCK, AUXILIARY LOCATION

SC 100 / TIC 100 — DEVICES SHARE A COMMON HOUSING

LIGHT OR ILLUMINATED VISUAL DISPLAY

NOTES:

1. GENERAL INSTRUMENT SYMBOLS, LABELING CONVENTIONS, AND IDENTIFICATION LETTERS ARE BASED ON ANSI/ISA-5.1-2009. ALL OTHER SYMBOLS AND CONVENTIONS ARE BASED ON A COMBINATION OF ANSI/ISA-5.1-2009, ACCEPTED PROCESS INDUSTRY PRACTICES SYMBOLOGY AND METHODS, AND PROJECT-SPECIFIC SYMBOLS/CONVENTIONS.

3. PIPE LABELING, COATINGS (PAINT), AND COVERINGS (HEAT TRACE, INSULATION, AND JACKETING) ARE NOT DESIGNATED USING THESE SYMBOLS AND LABELING CONVENTIONS.

VALVE AND INSTRUMENT IDENTIFICATION LETTERS

	FIRST LETTERS		SUCCEEDING LETTERS		
	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
	MEASURED OR INITIATING VARIABLE	VARIABLE MODIFIER	READOUT/PASSIVE FUNCTION	OUTPUT/ACTIVE FUNCTION	FUNCTION MODIFIER
A	Analysis		Alarm		
B	Burner, Combustion		User's Choice	User's Choice	User's Choice
C	Control			Control	Close
D	User's Choice	Difference, Differential			Deviation
E	Voltage		Sensor, Primary Element		
F	Flow, Flow Rate	Ratio			
G	User's Choice		Glass, Gauge, Viewing Device		
H	Hand				High
I	Current		Indicate		
J	Power		Scan		
K	Time, Schedule	Time Rate of Change		Control Station	
L	Level		Light		Low
M	User's Choice				Middle, Intermediate
N	User's Choice		User's Choice	User's Choice	User's Choice
O	User's Choice		Orific, Restriction		Open
P	Pressure		Point (Test Connection)		
Q	Quantity	Integrate, Totalize	Integrate, Totalize		
R	Radiation	Regulating	Record		Run
S	Speed, Frequency	Safety		Switch	Stop
T	Temperature			Transmit	
U	Multivariable		Multifunction	Multifunction	
V	Vibration, Mechanical Analysis			Valve, Damper, Louver	
W	Weight, Force		Well Probe		
X	Unclassified	X-Axis	Accessor Devices, Unclassified	Unclassified	Unclassified
Y	Event, State, Presence	Y-Axis		Auxilliary Devices	
Z	Position, Dimension	Z-Axis, Safety Instrumented System		Driver, Actuator, Unclassified final control element	

AECOM

PROJECT

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Binghamton, New York 13904

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I/R	DATE	DESCRIPTION
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NOT FOR CONSTRUCTION

PROJECT NUMBER

60652550

SHEET TITLE

PROCESS DIAGRAM
SYMBOLS AND LEGENDS 2

SHEET NUMBER

8 of 9

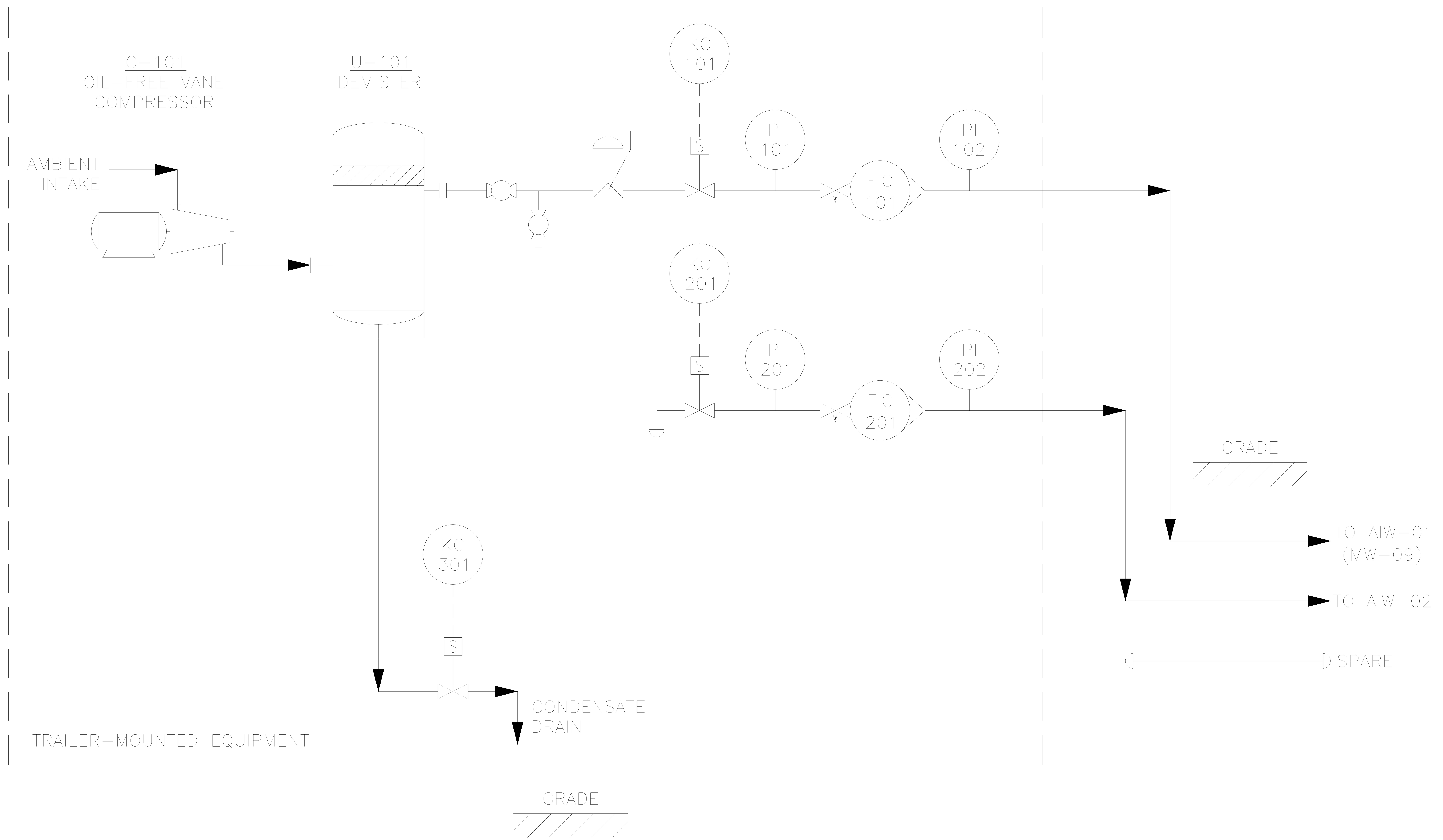
ANSI D 22" x 34"

Approved:

Checked:

Designer:

Project Management Initials:



NOTES:

1. THIS DRAWING IS A PROCESS FLOW DIAGRAM (PFD). PIPING AND INSTRUMENTATION DETAILS ARE NOT SHOWN ON PFDS.
2. ABOVE–GROUND DISTRIBUTION PIPING MAY REQUIRE ADDITIONAL DRYING EQUIPMENT OR HEAT TRACE TO PREVENT FREEZING.

ABBREVIATIONS PER ISA 5.1

FIC = FLOW INDICATING CONTROLLER
KC = TIMER CONTROL
PI = PRESSURE INDICATION

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60652550

SHEET TITLE

PROCESS FLOW DIAGRAM

SHEET NUMBER

9 of 9

Attachment 2

Specifications

Environment

Prepared for:
NYS Electric & Gas Corporation
Binghamton, NY

Prepared by:
AECOM USA, Inc.
Buffalo, NY
60652550

April 2025

NYSEG – Auburn Green St. MGP Site
Auburn, Cayuga County, New York

NYSDEC Site # 7-06-009

Remedial Design
100% Record Submittal
Technical Specifications

Contents

Division 1 Specifications – General Requirements

Division 2 Specifications – Site Work

Division 40 Specifications – Process Interconnections

Technical Specifications

Division 1 – General Requirements

Technical Specifications

Division 1 – General Requirements

SECTION 01110
SUMMARY OF WORK

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Defined Terms

B. Existing Conditions

C. Project Summary

D. Work by Others

1.02 DEFINED TERMS:

A. **Agreement:** The executed Contractual agreement between the Owner and the Contractor.

B. **Bid Item:** A part of the Work, work item which is defined in the Specifications and measured for payment in accordance with the Specifications.

C. **Bidder:** One who submits a Bid directly to the Owner (New York State Electric and Gas Corporation (NYSEG)) as distinct from a sub-bidder, who submits a bid to a Bidder.

D. **Bidding Documents:** The document issued by NYSEG setting the requirements for the Work and the procedures for submitting bids: The advertisement or invitation to Bid, Specifications, and Drawings.

E. **Contract Documents:** The Contract Documents include the Agreement, Schedule Of Quantities And Prices Schedule A, the Specifications, the Drawings, Project Plans identified in this Specifications Section, any properly executed Change Orders and Work Change Directives, and any properly executed Work Orders or addendums pertaining to Work set forth in the Specifications or Change Order.

F. **Daily Construction Report:** The Contractor's Daily Construction Report described in Specifications Section 01320 – Construction Progress Documentation and in the Agreement.

G. **Design Engineer:** For the purposes of the Work described herein, AECOM will be known as the Design Engineer.

H. **Disturbed Areas:** Areas which have been disrupted or otherwise changed from their pre-construction conditions by the Contractor's activities that have not been restored as required by the Contract Documents.

I. **Drawings:** The Drawings that show the scope, extent, and character of the Work to be furnished and performed by Contractor and which have been prepared or approved by the

Engineer and are included within or referred to in the Contract Documents. Shop Drawings are not Drawings as so defined.

J. **Engineer:** For the purposes of the Work described herein: in reference to preparation of the Remedial Design, Engineer will refer to the Design Engineer; and in reference to activities during the Remedial Construction, Engineer (or Remediation Engineer) will refer to the Oversight Engineer.

K. **Impacted:** An area, object, or material that contains or has been in contact with a substance at concentrations exceeding applicable standards or guidelines for that substance, or as determined by Engineer.

L. **Impacted Material:** Material determined to contain chemical constituents in concentrations exceeding applicable regulatory guidelines, or as determined by Engineer. Solid material to be removed from the Project Site may contain varying mixtures of sand, silt, and clay soil; gravel to boulder sized rock talus; organic material including driftwood, miscellaneous debris; etc. The terms “soil”, “debris”, “material”, etc., where used in the Drawings, Plans and Specifications to refer to the existing deposits in the subsurface, may be taken to be synonymous with each other as based on context.

M. **Issuing Office:** The office of the Owner from which the Bidding Documents are to be issued and where the bidding procedures are to be administered is identified below:

New York State Electric and Gas Corporation
James A. Carrigg Center, P.O. Box 5224
Binghamton, New York 13902-5224

N. **Normal Work Hours:** The hours during which the Contractor may perform the Work as defined in the Specifications.

O. **Oversight Enginee**r: The Engineering Consultant company, any and all personnel thereof assigned to the project, employed by the Owner to provide technical guidance in regard to implementation of the remedial design. To be determined.

P. **Owner:** For the purpose of the Work described here, NYSEG, will be known as the Owner.

Q. **Owner’s Representative/Construction Manager:** The authorized representative of the Owner who may be assigned to the Project site or any part thereof.

R. **Progress Schedule:** The Progress Schedule described in Specifications Section 01320 – Construction Progress Documentation.

S. **Project:** The Project consists of the Scope of Work as described in the Contract Documents.

SECTION 01110
SUMMARY OF WORK

T. **Project Plans:** Project Plans shall be considered Contract Documents. Project Plans for the Work shall include the Contractor's approved Submittals.

U. **Project Superintendent:** The Contractor's Project Superintendent described in Specifications Section 01310 – Project Management and Coordination.

V. **Record Documents:** The Record Documents and reports described in Specifications Section 01320 – Construction Progress Documentation.

W. **Request for Information:** A written notice by Contractor to receive clarification, direction or explanation from the Engineer regarding the Work.

X. **Engineering Representative:** The individual assigned to the Project by the Oversight Engineer to provide on-site support during construction.

Y. **Sediment:** The solid material that collects or runs off with surface water in association with erosion control is categorized as "sediment". Sediment, as defined herein, may contain varying mixtures of sand and clay soil; gravel; organic material; miscellaneous debris; etc..

Z. **Specifications:** Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, standards, workmanship, measurement, and payment as applied to the Work and certain administrative details, applicable thereto.

AA. **Submittals:** The submittals described in the Specifications including, but not limited to, Section 01330 of the Specifications.

BB. **Substantial Completion:** Substantial Completion shall mean all on-site Work is complete except for demobilization and Contract Closeout. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

CC. **Underground Facilities:** All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities that have been installed underground.

DD. **Work Zones:** Areas of the site where Work is conducted.

SECTION 01110
SUMMARY OF WORK

1.03 EXISTING CONDITIONS:

A. The remediation work area is located within and immediately adjacent to the NYSEG – Auburn Green Street Former Gas Holder MGP Site. The ground surface is relatively flat terrain located 500 feet south of the Owasco Outlet River. Unconfined overburden groundwater occurs generally between 5 and 14 ft below ground surface (bgs) at the Site and flows generally southwest to northeast across the Site. During site investigations, impacts to site groundwater and soil were identified. Local geology includes several layers of fill and native soil (the overburden). Overburden thickness averages approximately 20 feet. Fill materials range in thickness from 5 to 7 ft and consist of brown silt and fine to medium sand, some fine to coarse gravel, and trace wood, coal slag, brick fragments, ash, and/or cinders. Native soil beneath the fill consists of brown sandy silt ranging in thickness from approximately 3 to 8 feet. This unit is underlain by a red-brown silty clay/clayey silt ranging in thickness from 3 to 8 feet. The underlying bedrock is limestone of the Middle Devonian Onondaga Formation.

B. Utilities and Facilities Shown or Indicated:

1. The information and data shown or indicated on the Drawings with respect to existing utilities and facilities at or contiguous to the Project site are based on information and data furnished to the Owner or the Engineer by the owners of such utilities or facilities or by others.

2. The Owner and the Design or Oversight Engineer will not be held responsible for the accuracy or completeness of any such information or data relating to utilities or facilities. Contractor shall verify all utility locations prior to subsurface work.

3. The cost of all of the following shall be included in the Contract Price and the Contractor shall have full responsibility for:

a. Calling New York’s Utility locator service (DigSafe NY) to identify and obtain utilities in the work area.

b. Reviewing and checking all information and data regarding existing conditions, surface and subsurface including groundwater.

c. Locating all existing utilities and facilities.

d. Coordination of the Work with the owners of existing utilities and facilities during construction including with the Owner.

e. The safety and protection of all existing utilities and facilities and repairing any damage resulting from the Work as described in the Agreement.

SECTION 01110
SUMMARY OF WORK

C. Site Conditions:

1. Impacted material will be encountered during excavation and shall be handled within applicable regulatory requirements.

2. Protect adjacent facilities from damage. These include, but are not limited to, existing surface features/materials at Contractor laydown areas and access points, adjacent retaining walls, mature trees (i.e., greater than 6-inch diameter at breast height) to the extent practicable, existing monitoring wells, utilities, sidewalks, curbs, pavement, fencing, and light poles that are in and beyond project area and are to remain. Repair and/or replace damaged facilities as approved by NYSEG at no additional cost.

1.04 PROJECT SUMMARY:

A. General

1. It is the intent of the Specifications and Drawings to describe a complete Project to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result shall be provided whether or not specifically called for at no additional cost to the Owner.

2. The Agreement shall be the governing document. Any contradictions between the Specifications and Agreement shall default to the Agreement unless specified by the Owner or Engineer.

B. The Project objectives include the following:

1. Excavation of shallow surface soils (0-1 feet bgs).

2. Management, transportation, and disposal of impacted materials to an appropriately permitted off-site facility.

3. Procurement and installation of air injection well AIW-02.

4. Procurement and installation of in-situ biosparging equipment, piping, and appurtenances.

5. Surveying and Project Site restoration.

C. The Contractor shall have full responsibility for ensuring that all aspects of the Work are conducted in accordance with the requirements of the Contract Documents and in a manner consistent with industry standards for similar projects and all applicable Laws and Regulations. In these Specifications, certain potentially applicable Laws and Regulations have been identified. These are provided for information only. Neither the Owner nor the Engineer represents or warrants that such provided Laws and Regulations are exhaustive or complete. The Contractor shall conduct an independent review of the Laws and Regulations to identify any other requirements that may apply.

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

1. Site Preparation

a. Prepare submittals and obtain all required permits and approvals.

b. Mobilization to the Project Site.

c. Furnish and install temporary facilities.

d. Locate and protect existing utilities (buried and aboveground), structures, monitoring wells, and other facilities not designated for removal. Coordinate work by others as required.

e. Retain a New York State-licensed surveyor to survey site benchmarks and horizontal limits of excavation.

2. Excavation of Soils/Debris

a. Install and maintain temporary erosion and sediment controls as needed.

b. Prepare haul routes or access to excavation area.

c. Excavate impacted soils/debris from designated excavation area.

d. Retain a New York State-licensed surveyor to conduct a record survey of the completed work, including horizontal and vertical limits of excavation.

e. Management and transportation of impacted soils/debris.

f. Management and transportation of collected water.

3. Procurement and installation of air injection well AIW-02.

a. Retain an appropriately qualified subsurface drilling contractor to install MW-02 in accordance with the Remedial Design Documents and Drawings.

SECTION 01110
SUMMARY OF WORK

b. Schedule drilling in coordination with Oversight Engineer. Oversight Engineer will provide a field geologist or engineer on Site to supervise well construction and log details of the procedure.

c. Provide monitoring well completion diagram following completion of install activities.

d. Containment, management and transportation of soil cuttings.

4. Procurement and installation of in-situ biosparging components.

a. Procure and install trailer-mounted biosparge equipment (herein referred to as Remediation Trailer).

b. Procure and install field piping connecting Remediation Trailer to MW-09 well head.

c. Remove existing below grade well head assembly and surface completion.

d. Procure and install new below grade well head assembly and surface completion.

e. Conduct leak testing on all installed piping.

f. Management and transportation of removed materials.

5. Site Restoration

a. Restore the Site to its pre-construction condition or better and as required by the Contract Documents.

b. If used, restore Contractor access points and work areas that are outside the Project Site to their pre-construction condition or better.

c. Remove all temporary facilities and excess imported material.

d. Final conditions shall meet the approval of the Oversight Engineer/Construction Manager and Property Owner.

6. Demobilize from the Project Site.

1.05 WORK BY OTHERS

SECTION 01110
SUMMARY OF WORK

A. The Engineer may collect samples of the excavation sidewalls (to the extent possible) and bottom for documentation purposes. The Contractor shall support the Engineer for these sampling events at no additional charge.

B. The Engineer will perform air monitoring in accordance with the CAMP. The Engineer will acquire and operate CAMP monitoring equipment.

C. The Engineer will supervise well construction and log details of the procedure.

D. The Engineer will test the operation of the installed in-situ biosparging equipment prior to accepting installation as complete.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 01140
WORK RESTRICTIONS

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Contractor’s Use of Premises

B. Parking

C. Work Hours

D. Impacted Material Control

E. Restrictions on Noise, Dust, and Odor Emissions

F. Restrictions on Air Emissions of Toxic Chemicals

G. Protection of Existing Utilities

H. Protection of the Work and Existing Structures

I. Submittals

1.02 CONTRACTOR’S USE OF PREMISES:

A. Contractor shall confine all operations, including the storage of materials, to the designated areas of the Project Site as shown in the Drawings, or as otherwise approved in writing by the Engineer. Contractor shall be responsible for arranging for, and paying the costs of, any necessary off-site storage. Any further use of the Project Site shall be approved in writing by the Engineer.

B. Storage of all materials shall be limited to the Project Site and any approved Staging Area.

C. No Impacted Materials shall be stored in vehicles or stockpiled outside of the Project Site.

D. No Impacted Materials shall be stored past designated working hours in any approved Staging Area.

E. Contractor’s use of the premises shall be limited to the Work being performed under the Specifications and Drawings.

F. The Owner shall execute access agreements to obtain permission to complete any Work that is to be conducted on properties not owned by the Owner. Contractor shall not occupy, cross, or otherwise use any of the properties not owned by the Owner until such access agreements have been executed, and written notice has been provided to the Contractor.

G. Contractor shall be responsible for the security and safety of Contractor's equipment and facilities. Owner and the Engineer will not be liable for loss or damage of Contractor's tools, vehicles, equipment, or materials, whatever the cause. Such loss or damage shall not be sufficient reason for changes in the Project Schedule.

H. Contractor shall be responsible for any damage to roadways, facilities, utilities, trees, or structures on, or adjacent to, the Project Site due to negligence, carelessness, actions, errors, or omissions on the part of the Contractor. Such damage shall be repaired in timely manner at no additional cost to the Owner.

1.03 ACCESS ROADS:

A. Contractor vehicles shall enter and exit the Project Site only at the locations designated on the Drawings or as otherwise approved in writing by the Engineer.

B. Contractor shall be responsible for obtaining any permits and paying any fees necessary for Contractor's use of public streets or roads.

C. Contractor shall abide by local, State, and Federal regulations, including, but not limited to, any flaggers and signage for impeded traffic flow on public streets.

D. Contractor shall, at all times, provide for unimpeded access for emergency vehicles to the Project Site and nearby properties.

1.04 PARKING:

A. Contractor shall park construction vehicles and construction equipment only in areas designated for such purpose and not outside the Project Site.

B. Contractor employees shall park personal vehicles only in an employee parking area as approved by the Engineer.

C. Vehicles shall not be parked in any locations where they impede traffic or access to areas where Work is being conducted.

D. Contractor shall, at all times, provide for unimpeded access for residents to park in their residential parking areas.

1.05 WORK HOURS:

SECTION 01140
WORK RESTRICTIONS

A. Normal Work Hours shall be from no earlier than 7:00 A.M. to no later than 5:00 P.M., Monday through Friday, or as otherwise specified, or approved in advance by the Engineer, and subject to availability of adequate daylight to safely perform the Work.

B. Work hours established by any ordinance, Law, or Regulation shall supersede the requirements of this Specifications Section.

C. Contractor shall conduct all Work between sunrise and sunset when there is adequate light so that the Work can be conducted safely and the Engineer can effectively observe the Work; or Contractor shall otherwise furnish adequate lighting for activities conducted by prior written approval of the Engineer between sunset and sunrise as defined by OSHA regulation. Contractor shall provide adequate lighting at all times, as deemed necessary by the Engineer for safety reasons. However, the Engineer shall not require additional lighting if Contractor can demonstrate that light levels in the Work area meet or exceed OSHA and/or New York State Regulations.

D. Contractor may conduct regular equipment maintenance during hours outside of the Normal Work Hours defined in this Specifications Section, with prior approval from the Engineer for such activities.

E. Contractor personnel shall not work on the Project Site alone.

F. Any variation from Normal Work Hours or work on Sundays or Holidays shall be subject to approval by the Engineer and Owner. Any request for change shall be made to the Engineer no less than 48 hours in advance of such intended Work.

G. Emergency repairs of equipment outside of Normal Work Hours may be performed without 48-hour notice. However, Contractor shall verbally notify the Engineer prior to such emergency maintenance.

1.06 IMPACTED MATERIAL CONTROL

A. Contractor shall manage the Work to ensure that impacted materials (e.g., fill, soil, water, groundwater, and any other impacted materials) are not discharged from the Project Site including the surrounding streets properties, or returned to the Project Site.

1.07 RESTRICTIONS ON NOISE, DUST, AND ODOR EMISSIONS:

A. Contractor shall be responsible for conducting all Work in accordance with Laws and Regulations concerning noise or sound levels.

B. Contractor shall be responsible for conducting all Work in accordance with Laws and Regulations concerning airborne dust emissions, including the CAMP and the site-specific Health and Safety Plan (HASP).

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C. Contractor shall be responsible for conducting all Work in accordance with Laws and Regulations concerning odor emissions, including the CAMP and the HASP.

D. The Engineer shall have authority to direct Contractor to stop Work or modify Work methods or activities as necessary to enforce compliance with the CAMP or if the Engineer deems odor emissions, noise or sound levels, or dust emissions are exceeded.

1.08 RESTRICTIONS ON AIR EMISSIONS OF TOXIC CHEMICALS:

A. Contractor shall be responsible for conducting all Work in accordance with Laws and Regulations concerning airborne emissions of toxic chemicals including the CAMP and the HASP.

B. Contractor shall control the Work at all times such that concentrations of airborne constituents measured at the Project Site fence line are below the Action Levels set forth in the Air Monitoring Plans including the CAMP and the HASP.

C. The Engineer shall have authority to direct the Contractor to stop Work or modify Work methods or activities as necessary to enforce compliance with the Action Levels for airborne emissions of toxic chemicals or to address odor complaints and/or any other third party complaints or issues.

1.09 PROTECTION OF EXISTING UTILITIES:

A. Underground utilities are defined to include, but not be limited to, sanitary sewer, water, storm water, gas, cable, other piping, and electrical conduits. Underground structures known to Owner and/or the Engineer, are shown on the Drawings. This information is shown for the assistance of the Contractor in accordance with the best information available, but is not guaranteed to be correct or complete.

The Contractor shall field-verify all underground structures indicated on Drawings that may impact the Work or be encountered during the Work, and clearly field stakeout/mark out with highly-visible markers, to show locations, and maintain such marker throughout construction. The Contractor shall verify the location of underground utilities with the appropriate entities and agencies. Verification shall include careful hand digging and/or vacuum extraction to expose the utility in accordance with the requirements of the pertinent utility company and comply with the clearance requirements of that utility. The Contractor shall support and protect the utility as required by the pertinent utility company, to prevent damage and to prevent interruption to the services that the utility provides.

The Contractor shall be liable for damages to an active or decommissioned utility and shall be responsible to have it repaired promptly.

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WORK RESTRICTIONS

Necessary changes in the location of the proposed remedial activities may be made by Owner and/or the Engineer to avoid unanticipated underground utilities and structures.

B. Contractor shall contact and cooperate with utility companies to locate all utilities (including pipelines, cables, power poles, guy wires, and other structures) on the Project Site prior to beginning the Work.

C. Contractor shall comply with the requirements of City, County, and State utility protection Laws or Regulations.

D. All utilities shall be protected from damage during construction, unless otherwise indicated to be removed or abandoned. If damaged, the utilities shall be repaired as required by the utility’s Owner at the Contractor's expense.

E. If a utility is encountered that is not shown on the Drawings or otherwise made known to the Contractor prior to beginning the Work the Contractor shall promptly take necessary steps to assure that the utility is not damaged and give written notice to the Engineer. The Engineer shall complete a timely review of the conditions and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence of the utility

1.10 PROTECTION OF THE WORK AND EXISTING STRUCTURES:

A. Contractor shall comply with the requirements of City, County, and State protection Laws or Regulations

B. All existing surface facilities, including but not limited, fencing, guard rails, posts, guard, cables, signs, poles, markers, stone walls, and curbs which are temporarily removed or disturbed to facilitate the performance of the Work shall be replaced and restored to construction standards, in accordance with City of Auburn and NYSDOT requirements, at the Contractor's expense.

C. Structures designated to remain shall be sustained in place in their present condition and protected from direct or indirect damage. Such sustaining and supporting shall be performed carefully and as required by the party owning the structure. Before proceeding with the Work, the Contractor shall satisfy the Owner and/or the Engineer that the methods and procedures to be used have been approved by the owning party and that the appropriate information has been collected to restore these feature(s).

D. The Contractor shall be responsible for all expenses for direct or indirect damage caused by his Work to any structure. The Contractor shall repair immediately all damage caused by his Work, to the satisfaction of Owner and/or the Engineer.

SECTION 01140
WORK RESTRICTIONS

1.11 SUBMITTALS

A. Staffing Plan detailing work hours and shift requirements.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01250
CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Submittals

B. Procedures for Changes in the Work

C. Contractor Request for Change in Contract Price or Contract Time

D. Correlation of Contractor Submittals

1.02 SUBMITTALS:

A. Contractor shall submit all documentation and correspondence regarding changes in the Work in accordance with the procedures specified in Section 01330 - Submittal Procedures.

1.03 PROCEDURES FOR CHANGES IN THE WORK

A. The Engineer may at any time make changes in the Drawings, Specifications, and requirements of any Work Order that the Engineer deems necessary, or as directed by Owner. Contractor shall not make any changes to the Drawings or Specifications except upon written order from The Engineer.

B. Field Order: The Engineer may make minor modifications to the Work, and provide interpretations or clarifications, which do not entail any change to the Contract Price or Contract Times, through the issuance of a Field Order. The Field Order will include the date, name of person issuing it, the relevant Specification or Drawing number, and any additional information necessary for documentation.

C. Work Change Directive (applicable form follows this Specification Section and is entitled Section 01251 – Work Change Derivative Form): The Engineer may order an addition, deletion, or revision in the Work, or respond to differing or unforeseen physical conditions under which the Work is to be performed, such as by adding or modifying quantities under established unit price Bid Items, by issuance of a Work Change Directive. The Work Change Directive shall be signed by the Engineer's project manager or Resident Project Representative, the Contractor and by the Owner. The Work Change Directive shall include a description of the change to the Work, including reference to the subject Specification section(s) and Drawing number(s), the method for measurement of the Work covered by the unit price, and an estimate of the expected resulting change to the Contract Price and Contract Time.

D. Change Order (applicable form follows this Specifications Section and is entitled Section 01252 – Change Order Form): A Change Order will be executed for any necessary change to the Work that Contractor will perform on the basis of a unit price or lump sum price for a new work item that is not included on the Bid Form Schedule A. The Schedule of Values shall be modified by issuance of a Change Order. The Change Order shall be signed by the Engineer's project manager or Resident Project Representative, the Contractor and by the Owner, and shall include a description of the change to the Work including reference to the subject Specifications Section and Drawing number, the new unit price, the method for measurement of the Work covered by the unit price, and an estimate of the expected resulting change to the Contract Price and/or Contract Time.

E. If a change to the Work involves a deduction from the Work Order amount, not determinable by reference to the Schedule of Values, the Engineer's estimate of same shall be accepted by Contractor if Contractor fails to submit its own estimate within five (5) working days following notice of such proposed change. The amount of such deduction shall, at the Engineer's option, be a lump sum amount agreed upon between the Engineer and Contractor on the actual cost saved on labor, material, and equipment usage, which would have been necessary for the portion of the Work not performed.

F. The amount to be allowed to Contractor in excess of the Work Order amount for the performance of additional work, unless being accomplished on a Time and Materials (T&M) or Cost Plus Percentage (CP) basis or determined upon reference to an applicable unit price shall be at a lump sum agreed upon between parties.

G. In the event the Contractor performs any Work on a T&M basis, or Cost Plus Percentage basis, Contractor shall submit supporting documentation prior to the application for payment.

H. Contractor agrees that if the Engineer is not satisfied with the price quoted by Contractor, for any change in the Work with a value estimated by the Engineer to be more than $25,000, the Engineer may engage another Contractor to perform the change in the Work.

I. If the Engineer and Contractor are not able to agree as to the amount, either of money or time, to be allowed or deducted for any changes in the Drawings, Specifications or requirements for the Work or any Work Order, it shall, nevertheless, be the duty of the Contractor, upon written notice from the Engineer, to proceed immediately with the changes and continue the work as directed by the Engineer on behalf of the Owner.

1.04 CONTRACTOR REQUEST FOR CHANGE IN CONTRACT PRICE OR CONTRACT TIME:

A. Contractor shall maintain detailed records of Work done on the basis of T&M. Contractor shall include with the Daily Construction Report itemizing T&M Work for verification and approval by the Engineer each day that Contractor performs Work on the basis of T&M.

B. Contractor shall document each request for a change in cost or time with sufficient data to allow the Engineer's evaluation of the request, and if deemed necessary by the Engineer, Contractor shall provide the following types of additional data to support computations:

1. Quantities of products, labor, and equipment;

2. Taxes, where applicable;

3. Overhead and profit; and

4. Justification for any change in Contract Time.

C. Contractor shall support each claim for additional costs with the following additional information for verification by the Engineer:

1. Origin and date of claim;

2. Dates and times work was performed, and by whom;

3. Time records for labor and equipment solely applicable to claim; and

4. Invoices and receipts for products, equipment, and sub-subcontracts, similarly documented.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.01 CORRELATION OF CONTRACTOR SUBMITTALS:

A. Contractor shall promptly revise the Schedule of Values and Application for Payment forms to record each authorized Work Change Directive or Change Order as a separate line item and adjust the Contract Price.

B. Contractor shall promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

C. Contractor shall promptly enter changes in Project Record Documents.

END OF SECTION

Work Change Directive and Change Order Forms Follow under Separate Sections

WORK CHANGE DIRECTIVE

No. ____________

DATE OF ISSUANCE:______________________ EFFECTIVE DATE: ____________________

OWNER: NEW YORK STATE ELECTRIC & GAS CORP.
ENGINEER: ________________
SUBCONTRACTOR: ________________
Contract / Work Order:________________
Name of Site: ________________ Project No. ________________

You are directed to proceed with the following changes to the Work:

Description:

Purpose for Work Change Directive:

Attachments:

If Engineer or Contractor believe that the above change has affected Contract Price, any Claim for a Change Order based thereon will involve one or more of the following methods as defined in the Construction Sub-Agreement Documents:

____ Unit Prices

____ Lump Sum $____________

____ Cost of the Work

Estimated increase (decrease) in Contract Price:
$____________________.
If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Estimated increase (decrease) in Contract Times:
Substantial Completion:_______ days;
Ready for final payment: ______ days.

RECOMMENDED:	ACCEPTED:	APPROVED:
By:________________	By:________________	By:________________
Engineer's Representative	CONTRACTOR	NYSEG
Date:____________	Date:____________	Date:____________

Adapted from EJCDC 1910-8-B (1996 Edition)

CHANGE ORDER

No. ____________

DATE OF ISSUANCE:_______________________ EFFECTIVE DATE: ____________________

OWNER: NEW YORK STATE ELECTRIC & GAS CORP.
ENGINEER: ______________________________
CONTRACTOR: ______________________________
Contract / Work Order: ______________________________
Name of Site: ______________________________ Project No. ______________________________

You are directed to make the following changes to the Construction Sub-Agreement Documents:

Reasons for Change Order:

Attachments:

CHANGE IN CONTRACT PRICE		CHANGE IN CONTRACT TIMES
Original Contract Price $ ______________________		Date for Substantial Completion: ______________________________________
Net Increase (Decrease) from previous Change Orders No. ___ to ___ : $ ______________________		Date for Completion and Readiness for Final Payment: ______________________________________
Contract Price prior to this Change Order: $ ______________________		
Net increase (decrease) of this Change Order: $ ______________________		
Contract Price with all approved Change Orders: $ ______________________		

RECOMMENDED: ACCEPTED: APPROVED:

By:_________________________ By:_________________________ By:_________________________
Engineer's Representative CONTRACTOR NYSEG

Date:_______________________ Date: _______________________ Date: _______________________

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MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Quantity Estimates

B. Payment

C. Measurement of Quantities

D. Assessment of Non-Conforming Work

E. Eliminated Items

F. Application for Payment

G. Measurement and Payment of Bid Items

1.02 QUANTITY ESTIMATES:

A. For all Unit Price Work, the Contract Price will include an amount equal to the sum of the unit price for each pay item times the estimated quantity of each pay item as indicated in the Schedule Of Quantities And Prices. The estimated quantities shown on Schedule Of Quantities And Prices Schedule A are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Actual quantities and measurements supplied and placed in the Work in accordance with the Specifications and Drawings and verified by the Engineer will determine payment.

B. The Engineer will verify the actual quantities and classifications of Unit Price Work performed by the Contractor. The Engineer will review with the Contractor the Engineer's preliminary determinations before rendering a written decision on an Application for Payment.

C. If the actual Work requires more or fewer units than the estimated units indicated on Schedule Of Quantities And Prices Schedule A, Contractor shall provide the required units at the unit prices contracted. Under no circumstances may Contractor exceed those estimated quantities without prior written approval from the Engineer.

1.03 PAYMENT:

A. Payment includes: Full compensation for all required labor, products, tools, equipment, plant, transportation, services, and incidentals; and erection, application, or installation of an item of the Work; including overhead and profit.

B. Payment will not be made for any of the following:

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1. Products wasted or disposed of in a manner that is not acceptable.

2. Products determined as unacceptable before or after placement.

3. Products not completely unloaded from any transporting vehicle.

4. Products placed beyond the lines and levels of the required Work.

5. Loading, hauling, and disposing of rejected materials.

6. Products remaining on hand after completion of Work.

7. Additional work undertaken to expedite Contractor’s operations.

8. Repair or replacement of monitoring wells, utilities, or any other facilities on property located within or adjacent to the Work Area.

C. Payment will be made by the Owner for all Work actually performed and approved during a particular payment period. Payments for lump sum items will be made based on the percent completion of the pay item. Upon approval by the Engineer, judgments of percent completion of lump sum items will be made in reference to the Schedule of Quantities and Prices.

1.04 MEASUREMENT OF QUANTITIES:

A. Measurement by Weight:

1. Weigh Scales: Scales shall be certified in accordance with applicable laws and regulations for the State and County in which the scales are located. Certification shall have been made within a period of not more than one (1) year prior to date of use for weighing commodity.

2. The term “ton” will mean the short ton consisting of 2,000 pounds.

3. For shipments to off-site waste management facilities and locations, trucks shall be weighed at the receiving facility for the purpose of measuring the quantity of Work for payment.

B. Measurement by Volume:

1. Volumes measured as in-place volumes will be determined by survey approved by the Engineer. The Contractor shall retain the services of an independent land surveyor, licensed or registered in the State of New York, whose determination of in-place volumes shall be authoritative and final for the purpose of measurement for payment. To compute in-place volumes of excavation, the

average end area method or other methods acceptable to the Engineer shall be used.

C. Measurement by Area: Measured by square dimension using length and width or radius, and verified by the Engineer.

D. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord, and verified by the Engineer.

E. Measurement by Time: Measured by the actual time rounded to the nearest time unit and verified by the Engineer.

1.05 ASSESSMENT OF NON-CONFORMING WORK:

A. Contractor shall replace Work, or portions of the Work, that do not conform to the requirements of the Specifications and Drawings, as assessed by the Engineer.

B. If, in the opinion of the Engineer and agreed to by Owner, it is not practical to remove and replace the non-conforming Work, the Engineer on behalf of the Owner will direct one of the following remedies:

1. The non-conforming Work may remain, but the unit price will be adjusted to a new price at the discretion of the Engineer.

2. The non-conforming Work shall be partially repaired to the instructions of the Engineer, and the unit price will be adjusted to a new price at the discretion of the Engineer.

C. The individual Specification sections may modify these options or may identify a specific formula or percentage price reduction.

D. The authority of the Engineer to assess non-conforming work and identify payment adjustment is final.

1.06 ELIMINATED ITEMS:

A. Should any items contained in the Drawings or Specifications be found unnecessary for the proper completion of the Work, the Engineer may, upon written order to the Contractor, eliminate such items from the Work, and such action shall in no way invalidate the Agreement.

B. Contractor will be paid for actual Work done and all documented costs incurred, including mobilization of materials prior to elimination of such items.

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1.07 APPLICATION FOR PAYMENT:

A. Contractor shall submit Applications for Payment as specified in Specifications Section 01290 – Payment Procedures.

1.08 MEASUREMENT AND PAYMENT OF BID ITEMS:

A. Schedule A, Schedule Of Quantities And Prices, lists the Bid Items and Unit Price Items for the Work. Measurement and payment of the Work covered by the Contract Documents is specified herein below.

B. At the direction of the Engineer on behalf of the Owner, Contractor may be asked to perform Change Order work on a Unit Price basis. Schedule B – List of Equipment, and Schedule C – List of Personnel, shall be the basis for measurement and payment of equipment and labor for Unit Price Work. Hourly prices for equipment and labor listed on Schedule B and Schedule C shall include Contractor’s overhead and profit for such Unit Price Work.

C. The following paragraphs specify measurement and payment of the Bid items listed on Schedule Of Quantities And Prices Schedule A (attached to this Specification Package):

Bid Item T1 Mobilization and Project Support

1. Work required to complete Mobilization and Demobilization includes, but is not limited to, the following:

   a. Movement of personnel, equipment, and materials to the Project Site, if such movement is not included in any other Bid Item.

   b. Preconstruction coordination meetings.

   c. Preparation, submittal, and revision of all required start-up (i.e., pre-mobilization) submittals as described in Specifications Section 01330 – Submittal Procedures.

   d. Removal of all personnel, equipment, and materials from the Project Site at the completion of the Work.

   e. Acquiring and maintaining all necessary permits for the Work.

2. Mobilization and Project Support will be measured for payment as one unit, complete as specified.

3. Payment for Mobilization and Project Support Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Schedule Of Quantities And Prices Schedule A. Payment of the lump sum price for “Mobilization and Project Support” will constitute full compensation for all labor, supervision, materials, equipment, start up submittals, incidentals and all other costs necessary to complete Mobilization and Demobilization Work,

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including the transport of all equipment, labor and temporary facilities and materials to and from the Project Site. No more than 70% of this bid item may be invoiced prior to demobilization from the Project Site at substantial completion.

Bid Item T2 Temporary Facilities and Controls

1. Work required to complete the Temporary Facilities and Controls includes, but is not limited to, the following:

   a. Implement requirements for environmental protection specified in Specifications Section 01140 – Work Restrictions unless specifically identified as being provided by others.

   b. Perform utility mark-outs in planned work areas (DigSafeNY). Protect underground and overhead utilities.

   c. Implement health and safety requirements specified in Specifications Section 01415 – Health and Safety Requirements.

   d. Install and maintain temporary facilities and controls specified in Specifications Section 01500 – Mobilization and Temporary Facilities unless specifically identified as being provided by Others.

   e. Implement and maintain temporary erosion and sediment controls shown on the Drawings and as specified in Specification Section 01570 – Erosion and Sediment Control.

   f. Constructing, relocating as necessary, and maintaining a decontamination pad(s) and associated equipment; performing the necessary decontamination of all personnel, management and disposal of solids collected from the decontamination pad; heavy equipment, any shoring, tools and other equipment used by the Contractor to complete the remedial construction activities as specified within Specifications Sections 02130 – Decontamination; and Specifications Section 01770 – Closeout Procedures;

   g. Install decontamination facilities specified on the Drawings and in Specifications Section 02130 – Decontamination; and management and disposal of any liquids or residues generated during decontamination.

   h. Maintain and repair all temporary facilities and controls during the period when Work is taking place at the Site. Installation of temporary haul roads, any temporary on-site water treatment / storage pad and secondary containment, and restoration of same shall be included.

   i. Conduct surveying needed to control and document the Work.

   j. Providing continuous site security, continually protecting the Project Site and Work, construction photographs/video (including aerial), project submittals during the course of the work, fully accommodating the Engineer and Owner inspections on site, obtaining all required permits and associated fees, traffic control and protecting the traveling public, insurances and bonds, supervision and scheduling, home office support, well protection, and restoration of areas outside the limits of work damaged by the Contractor.

k. All other one-time and recurring activities required by the Contractor to complete the Work unless included in another pay item or specifically identified as being the responsibility of Others.

2. Temporary Facilities and Controls Work will be measured for payment as one unit, complete as specified.

3. Payment for Temporary Facilities and Controls Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Schedule Of Quantities And Prices Schedule A. Payment of the lump sum price for "Temporary Facilities and Controls" will constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Temporary Facilities and Controls Work.

Bid Item T3 Tree and Brush Clearing, Grubbing, Transport and Disposal

1. Work required to complete the Tree and Brush Clearing, Grubbing, Transport and Disposal includes, but is not limited to, the following:

a. Provide all labor, materials, equipment and incidentals necessary to completely and properly clear, grub, transport and dispose trees and brush for proper execution of the Contract and in accordance with the Contract Documents. This Item shall also include all handling and management of the cleared and grubbed materials necessary prior to transportation and off-site disposal of the material.

2. The Contractor shall not be reimbursed for tree and brush clearing and grubbing performed by the Contractor in error or for the Contractor's convenience. The Contractor shall not be reimbursed for unapproved clearing, grubbing, transport or disposal.

3. Payment for Tree and Brush Clearing, Grubbing, Transport and Disposal Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Schedule Of Quantities And Prices Schedule A. Payment of the lump sum price for "Tree and Brush Clearing, Grubbing, Transport and Disposal" will constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Tree and Brush Clearing, Grubbing, Transport and Disposal Work

Bid Item T4 Excavation

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1. Work required to complete excavation work, any amending of excavated materials, and loadout includes, but is not limited to, the following:

    a. Excavation and loading of materials as defined in the Drawings.

    b. Managing of excavated soils to include stockpiling and loading of impacted soils within the limits of the excavation area as defined in the Drawings.

    c. Performing any necessary amending/processing and management of excavated materials prior to off-site transportation and disposal.

    d. Decontamination of excavation and material handling equipment.

2. Excavation Work will constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Excavation Work as specified in the Specifications and as indicated on the Drawings.

1. Payment for Excavation will be made in accordance with the unit price listed on Schedule Of Quantities And Prices Schedule A. Payment will only be made for material excavation within the horizontal and vertical limits of excavation shown on the Drawings. Payment shall be made based on the bid unit price for each cubic yard of soil excavation removed, staged and dewatered, determined from the actual in-place volume of material which is properly excavated, measured and documented by a NYS-licensed surveyor and approved by the Engineer.

Bid Item T5 Backfilling and Restoration

1. Work required to complete Backfilling and Restoration work, includes, but is not limited to, the following:

    a. Purchase, deliver to the Site and place required backfill soils, gravel materials, and demarcation layer as shown on the Project Drawings.

    b. Backfill of approved imported soils, any moisture adjustment, placement, compaction, and density testing as specified in Specifications Section 02300 – Backfill and Grading.

    c. Installation of topsoil, vegetation, and other restoration items located as shown on the Project Drawings.

2. Backfilling and Restoration Work will constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Backfilling Work as specified in the Specifications and as indicated on the Drawings.

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3. Payment for Backfilling and Restoration will be made in accordance with the unit price listed on Schedule Of Quantities And Prices Schedule A. Payment will only be made for material placement within the horizontal and vertical limits of backfilling/fill shown on the Drawings. Measurement for payment shall be for the actual in-place quantity of material in cubic yards which is supplied and properly backfilled, compacted and graded as indicated by the Surveyor's records.

Bid Item T6 In-Situ Biosparging Equipment Procurement and Installation

1. Work required to complete in-situ biosparging equipment procurement and installation includes, but is not limited to, the following:

   a. Install air injection well AIW-02 in as described in the Remedial Design Report and shown on the Drawings.

   b. Remove existing below grade wellhead assembly and surface completion as shown on the Project Drawings.

   c. Purchase, deliver to the Site and install required materials to construct below grade well heads, well assemblies, and surface completion as shown on the Project Drawings.

   d. Purchase, deliver to the Site and install equipment and trailer for Remediation Trailer as specified in Specifications Section 02710 and 40120.

   e. Complete electrical connection as necessary to supply power to Remediation Trailer from adjacent Shed structure shown on the Project Drawings.

   f. Purchase, deliver to the Site and install required field piping to connect the Remediation Trailer to MW-09 (AIW-01) and AIW-02 well heads as shown on the Project Drawings and as specified in Specifications Section 02710 and 40120.

   g. Verification of all connections and leak testing of all installed piping as specified in Specifications Section 02710 and 40120.

   h. Purchase, deliver to the Site and install required backfill materials and demarcation layer to complete trench restoration as shown on the Project Drawings and as specified in Specifications Section –02300.

2. In-Situ Biosparging Component Installation will constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete In-Situ Biosparging Component Installation as specified in the Specifications and as indicated on the Drawings.

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3. Payment for In-Situ Biosparging Component Installation will be made on a percent complete basis of the lump sump price for the Bid item listed on Schedule Of Quantities And Prices Schedule A. Payment of the lump sum price for "In-Situ Biosparging Component Installation" will constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete In-Situ Biosparging Component Installation Work

Bid Item T7 Transportation and Disposal: Excavated Material

1. Work required to complete Transportation and Disposal: Excavated Material includes but is not limited to: truck preparation for transport, transportation, and final disposal of excavated Non-Impacted, Non-Hazardous Excavated Soil/Debris from the Project Site at disposal facilities approved by the Owner in accordance with Specifications Section 02120 – Off-Site Transportation and Disposal.

2. Transportation and Disposal: Excavated Material Work will be measured for payment on a per ton basis, as documented by scale weight tickets.

3. Payment for Transportation and Disposal: Non-Impacted, Non-Hazardous Excavated Soil/Debris Work will be made in accordance with the unit price listed on Schedule Of Quantities And Prices Schedule A. Payment of the unit price for "Transportation and Disposal: Non-Impacted, Non-Hazardous Excavated Soil/Debris" will constitute full compensation for all labor, supervision, materials, equipment, incidentals, approved disposal facility fees and all other costs necessary to complete Transportation and Disposal: Non-Impacted, Non-Hazardous Excavated Soil and Debris Work, as specified in Specifications Section 02120 – Off-Site Transportation and Disposal. Facility surcharges for fuel, sizing, or moisture shall be the responsibility of the Contractor and will not be reimbursable by the Owner.

4. The Contractor shall select a disposal facility from those listed below. The Contractor shall ensure that the selected disposal facility has capacity to accept excavated materials and spoils at a rate sufficient to eliminate the need for material storage. If multiple disposal facilities are required to achieve the construction milestones, the Bidder shall provide unit costs and percent of the total excavated material and spoils that is proposed to be shipped to each facility in Schedule A.

   a. High Acres Landfill, 425 Perinton Parkway, Fairport, NY 14450.

   b. Mill Seat Landfill, 303 Brew Road, Bergen, NY 14416.

   c. Seneca Meadows, 1786 Salcman Road, Waterloo, NY 13165

Bid Item T8 Site Cleanup and Demobilization

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1. Work required to complete Site Cleanup and Demobilization work includes, but is not limited to:

   a. Removal and transportation of staging refuse, PPE, and decontamination supplies at the designated disposal facility.

   b. Performance of miscellaneous site work, including cleanup and removal of temporary facilities and controls.

   c. Removal of all equipment from the Site.

   d. Preparation of all post-mobilization submittals, including survey documents, certifications and material requirements, quality control documentation, and other submittals as defined in various sections of the Specifications.

2. Site Cleanup and Demobilization Work will be measured for payment as one unit, complete as specified.

3. Payment for Site Cleanup and Demobilization Work will be made on a percent complete basis of the lump sum price for the Bid item listed on Bid Form Schedule A. Payment of the lump sum price for “Site Cleanup and Demobilization” shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete items as detailed in the Project Drawings and Specifications.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SCHEDULE A - Schedule of Quantities and Prices

Remedial Action
NYSEG - Auburn Green St. MGP Site
Cayuge County, New York

For Bids Due: ____________________

CONTRACTOR: ________________________________

Qualified Individual Printed Name: ________________________________

Title : ________________________________

Item	Description	Estimated Units		Cost per Unit	Line Item Total
		QTY	UOM	$$	
1	Mobilization and Project Support	1	LS		
2	Temporary Facilities and Controls	1	LS		
3	Tree and Brush clearing, Grubbing, Transport and Disposal	1	LS		
4	Excavation	27	CY		
5	Backfilling and Restoration	27	CY		
6	In-Situ Biosparging Component Installation	1	LS		
7	Transportation and Disposal: Excavated Materials	43	tons		
8	Site Cleanup and Demobilization	1	LS		
				TOTAL Project Estimate	

- Costs quoted here are for a complete project (i.e., cost for incidental work not specifically defined in a Line Item above shall be included in other line items). Any work suspected of being out of Scope shall be discussed and associated costs approved by Owner, in advance, prior to starting any of the out of scope work. Payment for out of scope work cannot be considered without Owner's prior approval.
- Costs quoted herein include all labor, materials, equipment, insurance, taxes surcharges, overhead and profit.
- Assume a soil density of 1.5 tons per cubic yard

Schedule Information (To Be Provided By Contractor)

Estimated on-site construction duration: ____________ DAYS

Submitted by: ________________________________

Signature Date

SECTION 01290
PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Format

B. Submittal Procedures

C. Applications for Payment

D. Invoices

E. Substantiating Data

1.02 FORMAT:

A. The Bid Form Schedule A, Schedule of Quantities and Prices, submitted by the Successful Bidder, as modified by any executed Change Orders, will be the basis of the Bid Form. The Owner may request further breakdown of certain lump sum items to be included in the Schedule of Values as deemed necessary by the Owner. The Schedule of Values will serve as the basis for progress payments and will be incorporated into a form of Application for Payment as specified herein.

B. Contractor shall submit one Application for Payment and invoice, covering the Work performed in each calendar month, for each month for the duration of the Work.

C. Contractor shall submit to the Owner an Application for Payment on the specified forms, and attach a separate invoice, for the Work completed in the calendar month covered by that Application for Payment.

1. Contractor's invoice shall be a separate page, or pages, in a form of Contractor's choosing, subject to approval by NYSEG, that includes the specified information. Contractor shall submit a separate invoice to NYSEG for each Work Order.

1.03 SUBMITTAL PROCEDURES:

A. Contractor shall submit original Application for Payment and invoice, plus one (1) copy of same, to the NYSEG Work Order Representative for review.

B. Payment Period: Submit invoices at intervals not less than 30 days. Submit an invoice for each month no later than the invoice closing date of the following month as set by NYSEG. The schedule of invoice closing dates will be given to the Contractor prior to mobilization.

C. Contractor shall prepare a final Application for Payment and invoice as specified in Section - 01770 Closeout Procedures.

SECTION 01290
PAYMENT PROCEDURES

1.04 APPLICATIONS FOR PAYMENT:

A. Contractor shall submit each application for payment in a standardized form approved by NYSEG. A completed copy of this form shall be the cover for each invoice.

B. Applications for Payment shall be executed and certified by signature of authorized officer of Contractor.

C. Contractor shall list original Work Order amount, and each authorized Change Order and Work Change Directive, listing Change Order and Work Change Directive number and dollar amount.

1.05 INVOICES:

A. Each invoice shall be accompanied by the specified Application for Payment form and shall show the following:

1. The date of the Master Services Agreement;
2. Work Order Number;
3. Work Order Date;
4. NYSEG’s Project Number;
5. The name of the NYSEG Representative named on the Work Order (“Work Order Representative”); and
6. A description of the Work performed. The description of the Work shall document site location, project code number and detail the actual Work performed and completed.

B. Invoices that include Work performed on a T&M or CP basis shall be supported with copies of daily time sheets, and Contractor shall attach photocopies of receipts for all materials and expenses claimed as T&M or CP Work. Lack of complete documentation for T&M or CP work will be just cause for refusal by NYSEG to pay such claimed costs, pending submittal of required documentation. All documentation shall be submitted and approved prior to invoice submittal. Contractor shall submit backup copies of all required paperwork that was previously submitted as a part of a daily or weekly submittal.

1.06 SUBSTANTIATING DATA:

A. NYSEG may request substantiating data for any claimed payment. When NYSEG requires substantiating data, Contractor shall submit within 30 days of such request, data justifying quantities of Work and dollar amounts in question. NYSEG may conditionally

SECTION 01290
PAYMENT PROCEDURES

approve any claimed payment pending submittal of acceptable substantiating data; however, unsubstantiated claims for payment will result in withholding of the unsubstantiated amounts from subsequent payment claims.

B. Contractor shall submit one (1) copy of substantiating data with cover letter for each request for substantiating data. Each submittal of substantiating data shall show Application for Payment number and date, and pay item by number and description.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

SECTION 01310
PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.01. SECTION INCLUDES:

A. Contractor's Project Superintendent

B. Submittals

C. Project Meetings

D. Coordination – General

E. Coordination of Contractor's Work with Work by Others

F. Layout of the Work

G. Modifications

1.02. CONTRACTOR'S PROJECT SUPERINTENDENT:

A. Contractor shall employ a qualified Project Superintendent for the duration of the Work. The Project Superintendent shall be experienced in building demolition, excavation of Impacted Soils, construction/installation of temporary excavation support, sheet pile construction, and coordinating truck transportation of soil and debris. Contractor shall employ an adequate Project coordination staff to assist the Project Superintendent in the required control of Subcontractors, obtaining permits and approvals, development of Progress Schedules, and preparation of Submittals.

B. Contractor shall not change the Project Superintendent for the duration of the Work without advance written approval of the Engineer and Owner.

C. Any requested changes in critical site personnel shall be requested in writing no sooner than 30 days prior to the anticipated change, and shall be approved by the Engineer and Owner.

D. The Contractor's Project Superintendent shall be on the Project Site at all times during the Work, including maintenance work and any Work performed by Subcontractors.

E. The Project Superintendent shall be responsible for the completion of the Work in accordance with the Drawings and Specifications, and shall perform the following specific duties:

1. Coordinate the Work of Contractor's labor and equipment, and that of the Subcontractors.

2. Serve as the Contractor's primary point of communication with the Engineer, Owner, and others who are responsible for other aspects of the Project.

3. Coordinate the Schedule by which the various tasks are completed within the specified Construction Milestones.

4. Participate in regularly scheduled Project meetings with the Regulator, Engineer and Owner.

5. Schedule and conduct meetings with Subcontractors and other concerned parties as necessary to maintain the Project Schedule, resolve matters in dispute, and coordinate use of utilities and other resources.

6. Ensure that quality control objectives are met, and that quality control Work is considered in the Project Schedule so as to avoid delays in the Work.

7. Ensure compliance with all Laws and Regulations and permit requirements.

1.03. SUBMITTALS:

A. Contractor shall prepare and transmit the following Submittals, and any other Submittals described in other Sections of the Specifications, in accordance with the procedures of Specifications Section 01330 – Submittal Procedures:

1. Contractor's Daily Construction Report as specified in Specifications Section 01320 – Construction Progress Documentation, by 10:00 A.M. the next Working day.

2. Applications for Payment as specified in Specifications Section 01290 – Payment Procedures.

3. Quality control reports and data as specified in other Sections of the Specifications.

4. Monitoring well completion documentation.

5. Routine revisions and updates of Progress Schedule as specified in Specification Section 01320 – Construction Progress Documentation with a detailed look ahead.

6. Weekly health and safety report, as specified in Specifications Section 01415 – Health and Safety Requirements.

B. Project Coordination Submittals:

SECTION 01310
PROJECT MANAGEMENT AND COORDINATION

1. Resume of Project Superintendent(s).

2. Identification of key personnel.

3. Detailed Project staffing plan showing staffing levels for each task and phase of Work, along with any plans for shift Work.

4. Detailed list of proposed subcontractors, including truckers, and disposal facilities.

5. List of major Equipment, Systems, and Material, other than listed in Bid Form Schedule A.

6. List of Permits and Approvals to be obtained by Contractor, including contact names, titles, and phone numbers.

1.04. PROJECT MEETINGS:

A. A Pre-Construction Conference shall be held between the Contractor, Engineer and Owner. Attendance by the Contractor's superintendent, quality control personnel, safety department personnel, and the superintendent of all major subcontractors will be required. The Owner will make arrangements for an acceptable site for the conference. The Engineer will take minutes of the conference and distribute copies to all participants for review and comment at the next progress meeting.

B. Weekly Progress Meetings:

1. Contractor shall attend scheduled Weekly Progress Meetings at the Project Site to review progress of the Work, Project Schedule, Submittal status and delivery schedule, Contract modifications, health and safety, and other matters. The Engineer will prepare a meeting agenda in cooperation with the Owner and the Contractor. The Engineer will preside at meetings. The Engineer will designate a representative to record minutes to include significant proceedings and decisions, and reproduce and distribute copies of minutes. The Engineer will provide a conference call-in procedure for attendees that cannot physically attend the meetings.

2. Attendees shall include, at a minimum, the following:

   a. The Owner;

   b. The Engineer;

   c. Contractor’s Project Superintendent;

d. Contractor, Subcontractors, and Suppliers, as appropriate;

e. Others, as appropriate.

C. Other meetings shall be scheduled in accordance with the Specifications or as may be required by the Engineer.

1.05. COORDINATION – GENERAL:

A. Contractor shall coordinate scheduling, Submittals, and Work of the various Sections of Specifications to assure an efficient and orderly sequence of interdependent construction elements, with provisions for accommodating Work performed later.

B. Contractor shall coordinate and schedule Work in cooperation with the Engineer, the Owner, the Owner's Air Monitoring Contractor, local utility companies, and other construction firms that may be conducting related Work at or near the Project Site.

C. Contractor shall direct all communications regarding the Work directly to the Engineer's Oversight Engineer. Contractor shall not discuss the Work nor take direction from any other contractor, consultant, public official, media representative, or any other person without prior written approval by the Engineer on behalf of the Owner.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following shall constitute an acceptance of Work that is not in accordance with these Specifications or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. Observation by the Engineer;

2. Recommendation of any progress payment or final payment by the Engineer;

3. Use or occupancy of the Work or any part thereof by the Engineer or Others;

4. Any acceptance by the Engineer, or failure to do so;

5. Any review and approval of a Submittal by the Engineer;

6. Any inspection, test, or approval by others; and/or

7. Any correction of Non-Conforming Work performed by the Engineer or Others**.**

E. Hazard Communication Program: Contractor shall be responsible for coordinating any exchange of Safety Data Sheets (SDS) or other hazard communication information required to be made available to or exchange between or among employees at the Project Site. Contractor shall compile and properly file SDSs on site for all materials furnished by Contractor or its Subcontractors and Suppliers.

SECTION 01310
PROJECT MANAGEMENT AND COORDINATION

1.06. COORDINATION OF CONTRACTOR'S WORK WITH WORK BY OTHERS:

A. Coordination of Work of Subcontractors: Contractor shall be responsible for overall coordination of the Work in accordance with the Construction Milestones set forth in Bid Form Schedule A. Contractor shall obtain from its Subcontractors a schedule similar to Contractor's Progress Schedule and shall be responsible for Subcontractors maintaining these schedules and for coordinating any required schedule modifications.

B. Work by Others: The Engineer, and others under subcontract to the Engineer and Owner, including the Owner's Air Monitoring Contractor, will be working on the Project Site while the Work is in progress. Contractor shall coordinate and schedule its Work in cooperation with the Engineer's other Contractors, adjacent property owners, City of Auburn, Owner, and the Engineer.

C. Contractor shall abide by all requirements of local or county requirements. Contractor shall obtain any necessary permits or approvals for closure of streets or sidewalks adjacent to the Project Site. Contractor shall notify the Owner prior to any contact with State, County and local officials.

D. Contractor shall abide by all the requirements of the Community Air Monitoring Plan developed for the Project Site.

E. Utilities: Contractor shall coordinate the Work with various utility companies serving the Project Site and shall secure any required permits and approvals. Contractor shall be solely responsible for notifying utility companies prior to commencing any Work, and for response to any emergencies that may arise during the Work. Certain active and inactive utilities may currently be present at the Project Site, the exact location and type of which shall be determined by Contractor without reliance on information provided by the Engineer. Several utilities may currently serve the Project Site or adjacent properties including, but not limited to, the following:

1. Electric;
2. Natural gas (fuel gas);
3. Water;
4. Sanitary sewer;
5. Storm sewer; and
6. Telephone or other communication (fiber optic cable.)

F. The Contractor shall coordinate waste shipments to off-site waste management facilities as specified in Specifications Section 02120 – Off-Site Transportation and Disposal.

SECTION 01310
PROJECT MANAGEMENT AND COORDINATION

1.07. LAYOUT OF THE WORK:

A. Contractor shall be solely responsible for laying out the Work, including lines and grades, and for the correctness thereof in accordance with the Specifications and Drawings.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 MODIFICATIONS

A. Any proposed material changes to the work, processes, staffing, sequencing, equipment, or materials shall require an amendment to the affected Submittal, and/or Plan, and review and approval by the Engineer.

END OF SECTION

SECTION 01320
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 – GENERAL

1.01. SECTION INCLUDES:

A. Submittals

B. Construction Milestones

C. Progress Schedule

D. Daily Construction Report

E. Health and Safety Reports

F. Record Documents

G. Progress Schedule Reviews, Acceptance, Updates, and Revisions

1.02. SUBMITTALS:

A. Baseline Progress Schedule and Updates: Work and progress payments shall not start without an initial Baseline Progress Schedule reviewed and approved by the Engineer and Owner. The Baseline Progress Schedule shall not be altered for the duration of the Project. Contractor shall submit an initial Baseline Progress Schedule for approval prior to the Notice to Proceed, and shall submit weekly updates of the Progress Schedule comparing progress to the Baseline during the Work in accordance with Specifications Section 01330 – Submittal Procedures. The Project name and date of Submittal shall be shown on each sheet. Include written statement(s) describing the cause of any delays.

B. Daily Construction Reports.

C. Incident Report(s).

D. Record Documents.

1.03. CONSTRUCTION MILESTONES:

A. Specific requirements for phasing of the Work are set forth in Remedial Design Report and Drawings. The initial Progress Schedule shall be based on progress and completion of the Work as described in the Remedial Design Report, Drawings, and Specifications.

SECTION 01320
CONSTRUCTION PROGRESS DOCUMENTATION

1.04. PROGRESS SCHEDULE:

A. The Progress Schedule shall be a bar graph (Gantt chart) showing the proposed order of Work, the expected beginning and completion times for the salient Work features, predecessor(s) for each item, and the duration of each item. The Progress Schedule shall show each activity and, as a minimum, each activity description shall contain the following:

1. Activity name and identifying number;

2. Predecessor(s);

3. Successor(s);

4. Activity duration (in calendar days);

5. Percent complete; and

6. Float for each activity, where float is the amount of time that an activity can be delayed without delaying the start of the next activity.

B. The Contractor's Progress Schedule shall be developed using the critical path method (CPM) and Microsoft Project or equivalent software.

C. Activities:

1. The Progress Schedule shall identify all major construction activities.

2. The Progress Schedule shall show all significant design, testing, submittals, manufacturing, shipping, construction, installation, commissioning and training activities, milestones for start of Work, completion of construction phases, and completion of commissioning, beneficial occupancy, and punch list.

3. Any utility service interruptions necessary to perform the Work shall be identified.

4. A separate activity shall be provided for each occasion where Work is to be performed by others.

5. The Progress Schedule shall identify permits and approvals that are the responsibility of the Contractor.

6. The Progress Schedule shall identify all Contractors' Work.

SECTION 01320
CONSTRUCTION PROGRESS DOCUMENTATION

7. The Progress Schedule shall identify any Owner-furnished and Engineer-furnished items and any Work to be performed by the Owner or Engineer.

8. The Progress Schedule shall identify draft invoice and final invoice submittal dates in accordance with monthly closing dates established by the Engineer.

D. Contractor's Progress Schedule shall explain any additional information or coding used.

E. Contractor shall consider normal calendar year holidays, weather delays, long lead items, review times, and Project phasing, Project Site conditions and space availability in preparing the Progress Schedule.

F. The Contractor shall consider off-site disposal facility and trucking restrictions in preparing the Progress Schedule.

G. The milestone completion dates proposed for the work based on the Remedial Design Report, Drawings, and Specifications, shall be clearly identified on the Progress Schedule. The critical path shall be clearly indicated.

H. The Progress Schedule shall be updated and submitted weekly at the time of the Weekly Progress Meeting. The Progress Schedule shall be available to all meeting participants during the Weekly Progress Meeting.

1.05. DAILY CONSTRUCTION REPORT:

A. Contractor shall prepare a written Daily Construction Report in a format acceptable to the Engineer. The Daily Construction Report shall be prepared for each day Contractor is on the Project Site and submitted to the Engineer, electronically and in hard copy, no later than 10:00 A.M. the next Working day.

B. Daily Construction Reports shall include the following:

1. Number of Workers for each trade and the names of the Workers;

2. Names of Sub-Contractors and their on-site employees;

3. Hours of Work for each trade or type of equipment;

4. Equipment on the Project Site and materials furnished;

5. Major Work activities performed, and progress thereof, including estimated amounts of specialty Work, stockpiling, loading, dewatering, stormwater diversion, and backfilling Work completed;

6. Odor, Vapor, or Dust mitigation work activities performed;

SECTION 01320
CONSTRUCTION PROGRESS DOCUMENTATION

7. Weather conditions and temperature to include daily precipitation total;

8. Unforeseen subsurface conditions;

9. A list of Submittals transmitted to or received from the Engineer;

10. Meetings attended;

11. Accidents, safety, and security issues;

12. Tests and inspections performed and the results of tests and inspections;

13. Reasons for construction delays;

14. Units of Cost Plus Work, subject to approval daily by the Engineer;

15. Daily Trucking Logs as specified in Specifications Section 02120 – Off-Site Transportation and Disposal; and

16. Vehicle Inspection Logs as specified in Specifications Section 02130 - Decontamination.

C. If multiple daily Work shifts are used, Contractor shall submit a Daily Construction Report for each shift.

D. The Daily Construction Reports may be used to substantiate any claim for delay, impact, or change, and shall contain sufficient information to document each potential impact.

E. The Daily Construction Report may be used as the basis for documentation of T&M Work. The units of T&M Work reported by the Contractor's Project Superintendent shall be reviewed daily by the Engineer and are subject to approval by the Engineer. Contractor's Project Superintendent shall promptly make any changes, as required by the Engineer, to the units of T&M Work recorded on the Daily Construction Report.

1.06. HEALTH AND SAFETY REPORTS:

A. Contractor's Daily Construction Report shall include a summary of daily Health and Safety meetings, conferences, issues, incidents, near misses, and actions taken to address and resolve Health and Safety issues.

B. Contractor shall immediately (within 30 minutes of an incident) verbally report to the Engineer the occurrence of any and all Health and Safety incidents, including, but not limited to, injuries, accidents, and unsafe conditions. An Incident Report form or Near-Miss Report form, which is included in Specifications Section 01415 – Health and Safety

SECTION 01320
CONSTRUCTION PROGRESS DOCUMENTATION

Requirements, shall be submitted to the Engineer within 24 hours of occurrence of the incident or near-miss.

C. Contractor shall provide to the Engineer weekly summary reports of Contractor's Health and Safety performance, including number of hours worked in the period and a list of Health and Safety incidents with the date, names of any individuals involved, type of incident, current status of any medical treatment of individuals for the incident, and actions taken by Contractor to address the incident or unsafe condition.

D. Contractor shall report to the Engineer the occurrence of any situations requiring a permit or checklist for confined space entry or hot work (welding or torch cutting), and maintain documentation as specified in Specifications Section 01415 – Health and Safety Requirements.

E. Additional reporting requirements are provided in Specifications Section 01415 – Health and Safety Requirements.

1.07. RECORD DOCUMENTS:

A. Contractor shall maintain in a safe place at the Project Site one (1) copy of all Weigh Tickets, Drawings, Survey Data, Specifications, Addenda, Permits, Change Orders, Field Orders, Work Change Directives, Submittals, Laboratory Data, Photographs and written interpretations and clarifications, in good order and annotated to show all changes made during construction. These Record Documents shall be available to the Engineer, Owner, and NYSDEC representative upon request.

B. During the course of the Work, Contractor shall maintain the following records up-to-date at the Project Site at all times, and shall submit the following documents to the Engineer prior to final Application for Payment:

1. General Records:

   a. Contractor's Daily Construction Reports;
   b. Daily Safety Meeting minutes or notes;
   c. Soil/Debris Tracking Logs;
   d. Soil and debris disposal documentation (manifests, weight tickets, etc.);
   e. Health and Safety Incident (Accident) Reports and Near-Miss Reports;
   f. Hot Work Permits and Confined Space Entry Permits;
   g. Minutes of all other Contractor meetings; and
   h. Progress Photographs and Videos.

SECTION 01320
CONSTRUCTION PROGRESS DOCUMENTATION

2. Test and Laboratory Analytical Results: One (1) copy of all test and analytical results.

3. Bills of Lading: One (1) copy of all bills of lading for materials received.

4. Record Drawings: At the end of construction, the Contractor's surveyor shall prepare Record Drawings showing horizontal and vertical limits of the excavation areas; final grades and elevations; horizontal and vertical location of the installed injection well, and other significant site features effected by or changed during construction. Record Drawings shall contain all components and be prepared as specified in Specifications Section 01720 – Surveying. Record drawings shall clearly show the proposed work and the actually completed work, using "clouds" and annotations to show any and all differences between proposed and record work; this includes lining out any drawing notes that do not apply to record conditions and added notes to describe record conditions.

C. At completion of the Project, the Contractor shall submit three (3) electronic copies of all Record Documents to the Engineer.

1.08. PROGRESS SCHEDULE REVIEWS, ACCEPTANCE, UPDATES, AND REVISIONS:

A. The initial Progress Schedule and all updates submitted by the Contractor shall be reviewed with the Owner and the Engineer and shall be revised and resubmitted if they do not receive the Owner's or the Engineer's approval. The schedule shall be reviewed for the following:

1. A sequence of Work that satisfies the requirements of the Contract Documents and is reasonable and logical; and

2. Activity durations, which are within an expected range, or can be justified by the Contractor to the satisfaction of the Owner and the Engineer.

B. This review shall not be construed as an assignment of responsibility of performance to the Owner or Engineer.

C. Contractor shall make all necessary revisions to the initial Progress Schedule based on the Owner's review and resubmit within two (2) days of receipt of comments from the Owner or Engineer.

1. After the Owner's review, Contractor shall use the Progress Schedule for planning, organizing, and directing the Work and reporting progress.

2. The Contractor shall bear sole responsibility for ensuring completion of the Work within the Contract Times.

SECTION 01320
CONSTRUCTION PROGRESS DOCUMENTATION

3. The Owner's or Engineer's acceptance of any Progress Schedule shall not transfer any of the Contractor's responsibilities to the Owner or Engineer. The Contractor alone shall remain responsible for adjusting forces, equipment, and schedules to ensure completion of the Work within the time(s) specified in the Contract Documents.

D. Updates

1. Contractor shall keep the Progress Schedule current during the Project so that it is an accurate indication of Project progress. Updates shall include any Field Orders, Work Change Directives, Change Orders, and delays.

2. All updates shall show progress compared to the project Baseline Schedule and include actual start dates.

3. Contractor shall update the Progress Schedule weekly to document the construction progress. Contractor shall submit the weekly update on the day of the weekly Project meeting. Failure to submit a weekly updated Progress Schedule shall be cause for withholding of progress payments until the update is received and reviewed. Updates shall include a detailed look ahead, providing day-by-day planned activities for the upcoming work period.

4. Activity descriptions shall not be changed.

5. Any proposed changes in the milestone dates shall be approved, in writing, by the Engineer. Changes in milestone dates shall not cause an extension of the Project completion date without the execution of a Change Order.

E. Revisions:

1. In addition to weekly Progress Schedule Submittals, Contractor shall revise the Progress Schedule when additional Work, delays, or accumulations of causes indicate the Contract Times will be exceeded. Contractor shall submit a written statement describing the cause of the delay.

2. The Engineer shall require a revised Progress Schedule when it is apparent that the Contractor's Schedule does not substantially match the actual progress and order of the Work as measured by the following:

    a. Accumulated delays, which are more than five (5) percent of the allotted Contract Times, or 15 calendar days, whichever is less; and

    b. Critical path activities (or activities restrained by critical path activities), which have been accomplished.

SECTION 01320
CONSTRUCTION PROGRESS DOCUMENTATION

PART 2 – MATERIALS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 01330
SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Submittal Procedures

B. Requests for Information

C. Start-Up Submittals

1.02 SUBMITTAL PROCEDURES:

A. Contractor shall prepare and transmit in electronic format (pdf) the following Submittals to the Engineer:

1. Contractor’s Daily Construction Report, electronically, by 10:00 A.M. the next Working day as specified in Specifications Section 01320 – Construction Progress Documentation.

2. Applications for Payment as specified in Specifications Section 01290 – Payment Procedures.

3. Quality Control Reports and Data as specified in other Sections of the Specifications.

4. Monitoring well completion documentation.

5. Weekly revisions and updates of Progress Schedule as required by the Engineer.

6. Weekly Health and Safety reports, as specified in Specifications Section 01415 – Health and Safety Requirements.

B. Each submittal will be reviewed and returned with one of the following Classifications:

1. Approved: No exceptions taken; Contractor may proceed with the work addressed by the submittal.

2. Approved As Noted: Contractor may proceed with the work addressed by the submittal, subject to the comments and/or notes on the Submittal. Resubmittal is not required.

3. Revise and Resubmit: Contractor may not proceed with the work addressed by the submittal. Resubmittal is required for certain items.

C. Contractor shall transmit each Submittal to the Engineer at the Project Site.

SECTION 01330
SUBMITTAL PROCEDURES

D. Contractor shall provide copies of each submittal (except Daily Construction Reports) in electronic format (pdf) to the Engineer.

E. Contractor shall submit carbon copies (with all signatures affixed) of all waste manifests, weigh tickets, and other shipping documentation.

F. Contractor shall transmit each Submittal with a cover letter signed by Contractor's Project Superintendent. Contractor shall, by signing each Submittal, certify that Contractor has reviewed the Submittal, and that the submitted information conforms to the requirements of the Work and these Specifications.

G. Contractor shall sequentially number the transmittals (e.g., Submittal No. 001, 002, 003, etc.). Contractor shall number revised Submittals with original number and a sequential alphabetic suffix (e.g., Submittal No. 001a). When revised for resubmission, Contractor shall clearly identify all changes made since previous submission. For revised Submittals, the submittal may be returned to the Contractor without review if it is not exactly clear what changes were made since previous submission.

H. Each Submittal shall include Project title, Contractor, Subcontractor or Supplier, title of Submittal, Specifications Section number, Specification Section paragraph/sub-paragraph number and, if applicable, Drawing number. If the submittal addresses only one or some of the submittal items that may be listed in a Specification Section paragraph/sub-paragraph then the submittal shall clearly indicate which item(s) are included in the submittal.

I. Submittals that do not conform to the requirements of the Specifications will be returned to the Contractor with a notation of deficiencies. Contractor shall revise the submittal to correct noted deficiencies and resubmit. When revised for resubmission, Contractor shall identify all changes made since previous submission.

J. Submittals not required by the Specifications will not necessarily be recognized or processed.

1.03 REQUESTS FOR INFORMATION:

A. Contractor shall submit all Requests for Information to the Engineer in writing. Requests for Information shall be numbered sequentially and shall include the related Specifications Section number or Drawing number.

B. The Engineer will provide any revisions to the Specifications or Drawings in writing.

C. Contractor shall request written confirmation of any interpretations or clarifications provided verbally by the Engineer.

SECTION 01330
SUBMITTAL PROCEDURES

1.04 START-UP SUBMITTALS:

A. This paragraph specifies Submittals that the Contractor shall prepare and transmit prior to commencing the Work at the Project Site. Additional Submittals are specified in other Sections of these Specifications.

1. Submit the initial Progress Schedule as specified in Specifications Section 01320 – Construction Progress Documentation.

2. Submit the Contractor's HASP as specified in Specifications Section 01415 – Health and Safety Requirements, including documentation of worker's OSHA training and medical monitoring and the name and qualifications of the full-time Site Safety and Health Officer.

3. Contractor shall provide for Engineer's approval the name and qualifications for Subcontractors proposed to provide any laboratory analyses, geotechnical, structural, or surveying services as required in the Specifications and/or Contract Documents. Such approvals shall not be unreasonably withheld.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

SECTION 01415
HEALTH AND SAFETY REQUIREMENTS

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. References

C. Contractor's Responsibility for Health and Safety

D. Overhead Protection

E. Submittals

F. Notifications

G. Equipment and Facilities

H. Personal Protective Equipment

I. Other Health and Safety Equipment

J. Training

K. Work Planning and Meetings

L. Engineering Controls

M. Monitoring

N. Evaluation of Performance

O. Form: Report of Incident

P. Form: Opportunity or Near Miss Report

Q. Form: Hot Work Permit

R. Form: Job Safety Analysis

S. Form: Safety Task Analysis Review (STAR)

SECTION 01415
HEALTH AND SAFETY REQUIREMENTS

1.02 SUMMARY:

A. This Section includes Specifications and requirements for Health and Safety during performance of Work, including identification of applicable regulations, submittals, notification requirements, and Health and Safety execution.

1.03 REFERENCES:

A. Applicable regulations and publications include, but are not limited to, the most recent versions of the following:

1. OSHA, Title 29 CFR Part 1910, Occupational Safety and Health Standards, and Title 29 CFR Part 1926, Safety and Health Regulations for Construction Sites.

2. NFPA, Flammable and Combustible Liquids Code, NFPA 30.

3. USEPA, Standard Operating Safety Guidelines.

4. DHHS, "Manual of Analytical Methods", 3rd edition Volumes I and II, DHHS (NIOSH) Publication 84-100.

5. ANSI, Practices for Respiratory Protection, Z88.2.

6. ANSI, Emergency Eyewash and Shower Equipment, Z358.1.

7. ANSI, Protective Footwear, Z41.1.

8. ANSI, Respirator Use Physical Qualification for Personnel, Z88.6.

9. ANSI, Practice for Occupational and Educational Eye and Face Protection, Z87.1.

10. NIOSH/OSHA/USCG/USEPA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, DHHS/PHS/CDC/NIOSH.

11. NIOSH Pocket Guide to Chemical Hazards, DHHS/PHS/CDC/NIOSH.

12. USEPA, Health and Safety Requirements for Personnel Engaged in Field Activities, USEPA Order No. 14402.

13. DOT Standards and Regulations, 49 CFR 171 and 49 CFR 172.

14. ACGIH, Threshold Limit Values and Biological Exposure Indices.

15. Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, EPA/600/4-87-006.

B. Where two or more regulations/documents conflict, the one(s) offering the greatest degree of protection shall apply.

1.04 CONTRACTOR'S RESPONSIBILITY FOR HEALTH AND SAFETY:

A. Contractor shall comply with any and all State, Federal, and local ordinances and Regulations.

B. Contractor shall be responsible for the Health and Safety of Contractor's employees, its Subcontractors, suppliers, agents, inspectors, visitors, the general public, and any others associated with or interacting with Contractor who provides labor, goods, or other services on the Project Site.

C. Contractor shall be responsible for emergency response planning and notification, and for actual response to any and all emergencies that may occur during the course of the Work, including emergencies that may occur when Contractor is not present at the Project Site.

D. Contractor is responsible for communicating daily with the Engineer regarding Health and Safety issues for the Owner Representative's safe conduct of the Owner Representative's duties, but such communication shall not imply any duty or responsibility on the part of the Engineer or Owner with regard to Health and Safety of Contractor's employees, its Subcontractors, suppliers, the general public, or Others. The Engineer's and Engineer's employees responsibility and duty with regard to Health and Safety shall be limited to the Engineer's and Engineer's employees. Contractor shall have responsibility and duty to the Engineer to communicate Health and Safety issues accurately and in a timely manner to allow the Engineer to take appropriate actions to protect the Engineer's, Engineer's employees and the Owner's employees.

E. Contractor shall designate a dedicated Contractor's Site Safety Health Officer (SSHO) on the Site during the Work who shall, at a minimum, have at least four (4) years of experience as an SSHO on an uncontrolled hazardous waste site, and have 40-hour OSHA Hazardous Waste Operations training and 8-hour OSHA Supervisor training. Contractor's SSHO shall be solely dedicated to Health and Safety issues from the start of the site activities through completion.

F. The SSHO shall enforce the requirements of safety for all Contractor personnel on site at all times. The SSHO shall ensure that all Contractor personnel, Subcontractor personnel, and Contractor visitors, follow the HASP, including wearing the designated level of PPE. If the SSHO elects to require a higher level of protection than that specified in the HASP, the extra costs associated with such higher level shall be borne by Contractor, unless such extra costs are approved in advance in writing by the Engineer.

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G. Prior to mobilization and continually through the duration of the Work, the SSHO shall inspect the Project Site and document area-specific and worker-specific protection requirements.

H. After mobilization, the SSHO shall monitor activities and shall document the need for additional worker protection as required, based on activities performed and Action Levels specified in the HASP.

I. The SSHO shall verify that all activities are performed in accordance with the HASP and all Federal, State, local, and Health and Safety standards, regulations, and guidelines.

J. In the event of a health or safety risk, as determined by the SSHO or by other Contractor personnel or by the Engineer, Contractor shall not proceed with the Work until a method for handling the risk has been determined in consultation with the Engineer and implemented. Any health or safety risk resulting in a stoppage of Work shall be reported immediately to the Engineer.

K. Contractor shall be responsible for implementing a "Behavior Based Safety" process and providing site training, observation, and feedback for Contractor personnel employed at the site.

L. Contractor shall be responsible for stability of excavations and slopes caused by the Contractor's Work. Contractor shall designate one competent person as defined in 29 CFR Part 1926, Subpart P, Excavations, to inspect and document excavation safety conditions daily, and to ensure excavation safety prior to any personnel entering an excavation.

M. Contractor shall designate one competent person (e.g., crane operator), certified in crane operations, to inspect and document safe crane operation daily, and to ensure safety of crane operation prior to start of excavation activities.

N. The Engineer will provide the Contractor with a copy of the Engineer's HASP as a reference.

1.05 OVERHEAD PROTECTION:

A. Excavation work poses potential hazards from falling overhead objects.

B. Prior to performing the work, the Contractor shall evaluate, design, and implement measures to enhance safety.

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1.06 SUBMITTALS:

A. Prior to mobilization, Contractor shall prepare and submit a HASP to the Engineer. The Contractor shall follow all applicable local, State, and Federal Health and Safety standards, regulations, and guidelines implemented through, but not limited to, the OSHA, NIOSH, ACGIH, and USEPA. Where these are in conflict, the most stringent requirement shall be followed. The following points shall be addressed in the Contractor's HASP:

1. Names of key personnel and alternates responsible for Health and Safety, including a Contractor Health and Safety Representative and SSHO. The Owner shall approve the SSHO.

2. A Health and Safety Risk or Job Safety Analysis (JSA) associated with each portion of the Work (i.e., list potential chemical and physical hazards), including JSHAs for demolition, excavation work around active utilities, excavation safety adjacent to shoring, crane operation safety, and truck traffic into and out of the site. The Contractor shall address vehicular accidents and the possible release of transported materials in their HASP.

3. Employee and Subcontractor training assignments to assure compliance with 29 CFR 1910.120.

4. A requirement that Contractor locate Underground Facilities by using "Safe Dig" procedures prior to the start of the Work.

5. Personal protective equipment (PPE) to be used for each of the site tasks and operations being conducted, as required by the PPE program in 29 CFR 1910.120 and 29 CFR 1926.

6. Medical surveillance requirements in accordance with the program in 29 CFR 1910.120.

7. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used by the Contractor, including methods of maintenance and calibration of monitoring and sampling equipment.

8. Corrective actions and upgrading of personnel protection based on monitoring of air, personnel, and environmental sampling, with specific Action Levels identified.

9. Site control measures in accordance with the control program required in 29 CFR 1910.120 and 29 CFR 1926.

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10. Decontamination procedures in accordance with 29 CFR 1910.120 and Specifications Section 02130 – Decontamination.

11. An Emergency Response Plan meeting Federal, State, and local requirements for safe and effective responses to emergencies, including the necessary PPE and other equipment. Explanation of potential emergencies and Contingency Plan of action, including description of the route to the nearest appropriate hospital, hospital route map, and posting of emergency telephone numbers at the site.

12. If confined space entry is required, include Confined Space Entry Procedures in accordance with 29 CFR 1910.146, and a list of all anticipated confined space entries required by Contractor in the course of the Work.

13. A Spill Containment Program meeting the requirements of all applicable local, State, and Federal Health and Safety standards.

14. A list of Health and Safety and emergency equipment available on the Site.

15. A description of engineering controls used to reduce the hazards of equipment operation and exposure to site hazardous chemicals.

16. An Air Monitoring Plan describing the method, type, frequency, locations of air monitoring, laboratories, and type of analysis to be performed at the Work area for the purpose of employee safety.

17. Open trench excavation procedures in accordance with applicable OSHA Regulations.

18. Procedures for earthwork near buried utilities, where hand digging should be performed within 24 inches of known utility lines unless more stringent requirements are specified by law, Regulation, or the affected utility.

19. Lockout/Tagout where the operation of machinery and/or equipment in which the unexpected energization on start up or the release of stored energy could cause injury to personnel.

20. Procedures for excavation and crane operation where highly visible safety barriers and where dedicated personnel are required as spotters.

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B. Contractor's Daily Construction Report, submitted in accordance with Specifications Section 01320 – Construction Progress Documentation, shall include a summary of daily safety issues and a summary of Contractor's Daily Safety Meeting.

C. Contractor shall submit weekly safety reports that include the following:

1. The names of all Contractor and Subcontractor personnel employed at the Site at any time during the month, and the names and duties of key personnel including Contractor's Project Manager, Project Superintendent, SSHO, excavation-competent person, and crane operation-competent person.

2. A summary of all Health and Safety incidents describing any medical treatment that was provided during the month, the current Work status of any individuals affected the names of individuals who may have observed the incident, and actions taken by Contractor to address the unsafe act or unsafe condition.

3. A summary of all Health and Safety near-misses or observations providing an opportunity for shared learning and future hazard avoidance. For any Health or Safety incident or near-miss, list the date, the nature of the incident or near-miss, and the names of individuals involved. A near-miss form for use in submitting near-misses is attached to this Section. Describe corrective action(s) using Corrective Action Plan.

4. The total number of labor hours worked at the site during that month.

5. Internal Health and Safety audits performed by the Contractor as part of the Contractor's HASP.

6. Results of Contractor behavioral observation and feedback evaluations as described in the Engineer's HASP.

D. Prior to initiating Work, Contractor shall provide the Engineer with documentation of employee and applicable Subcontractor training and medical certifications required by 20 CFR 1910.120 as described in 3.01A of this Section.

E. Contractor shall submit documentation of training and experience for the designated excavation-competent person and crane operation-competent person.

F. Contractor shall maintain all required and applicable training and medical monitoring records on-site including, but not limited to those specified in Part 3.01A of this Section.

G. Contractor shall submit a Hot Work Permit, using the form attached to this Section, for any welding, torch cutting, or activities that generate sparks. Proximity to any ignitable or combustible liquids including MGP waste such as NAPL or tar shall be accounted for and precautions and setbacks shall be provided for prior to issue of permit.

H. Contractor shall conduct a JSA for significant activities and submit the documentation to Engineer for review prior to the start of the activities. Contractor's JSA shall be submitted on the JSA forms attached to this Section, or other form acceptable to the Engineer.

I. Contractor shall submit copies of all periodic crane and drill rig inspections completed.

1.07 NOTIFICATIONS:

A. Contractor shall immediately (within 30 minutes of incident) verbally report to the Engineer the occurrence of any and all Health and Safety incidents. An Incident Report or Near-Miss Report forms as appropriate, which are attached to this Section, shall be submitted within 24 hours of occurrence of the incident or issue.

B. Contractor shall immediately and fully investigate any such incident or near miss and conduct a root cause analysis, and shall submit to the Engineer, the Contractor's written Corrective Action Plan for such incident within one (1) day after the incident occurs in accordance with Specifications Section 01330 – Submittal Procedures.

C. Contractor shall notify the Engineer in writing at least five (5) days prior to bringing any hazardous material, equipment, or process to the Site, or using the same on the Site. Contractor shall provide the Engineer with a SDS for all chemicals brought on to the Site.

D. Contractor shall immediately notify the Engineer in writing of any hazard that Contractor discovers or observes on the Site and corrective measures planned or taken to eliminate or minimize such hazard. Hazard reporting shall be completed as a Near Miss Report as described in Subsection 1.06C.3 of this Section.

PART 2 – PRODUCTS

2.01 EQUIPMENT AND FACILITIES:

A. Contractor shall provide all equipment, temporary facilities, and personnel required to perform activities on site safely in accordance with all Regulations and standards, and with the Contractor's HASP.

2.02 PERSONAL PROTECTIVE EQUIPMENT:

A. The appropriate level of PPE shall be determined by the Contractor for specific tasks as described in the Contractor's HASP. If hazards are identified that require a level of protection greater than Level C, Work shall be suspended and the Engineer notified. The Contractor's SSHO, in consultation with the Engineer, shall determine what actions are required prior to restarting Work. Contractor shall determine and document the appropriateness of suggested minimum PPE requirements for Contractor's employees and others at the Site.

B. Contractor shall furnish and maintain materials and equipment for the Health and Safety of Contractor employees, its Subcontractors, suppliers, and visitor personnel. Contractor shall provide all required Health and Safety equipment, first aid equipment, tools, monitoring equipment, PPE, and ancillary equipment and methods required to ensure workers' Health and Safety and to comply with the Contractor's HASP.

The Engineer will furnish PPE and monitoring for Engineer's employees and Owner's employees.

C. Level D protection will be required at all times while on site by all personnel and visitors on the Site, except in Support Zone areas. Level D PPE consists of the following:

1. Hard hat.
2. Steel-toed boots.
3. Safety glasses with permanent side shields.
4. Work clothes (long pants, shirts with sleeves).
5. Work gloves.
6. High visibility reflective safety vests.
7. Hearing protection (as needed to prevent exposure exceeding 85 dB level).

D. If additional protection consisting of Level C PPE is required during the Work, Level C PPE shall include protection from organic compounds and consist of Level D protection with the following additions:

1. Air purifying respirator, half-face or full-face (depending on required protection factor) with organic vapor/High Efficiency Particulate Air cartridges meeting NIOSH/Mine Safety and Health Administration Specifications.
2. Disposable poly-coated chemically protective coveralls (blue or grey).
3. Disposable chemically resistant outer gloves (nitrile).
4. Disposable chemically resistant inner gloves (nitrile).

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5. Chemically resistant, steel-toed, and steel-shank boots (PVC, neoprene, or nitrile), or outer booties.

E. In most cases, Level C will be the maximum allowed level of PPE. Level B may be allowed provided that personnel are properly trained and certified and exposure levels are below immediately dangerous to life and health (IDLH) conditions.

2.03 OTHER HEALTH AND SAFETY EQUIPMENT:

A. Contractor is required to have the following equipment available on the Site for the Health and Safety of Contractor, Subcontractors, suppliers, and visitors:

1. First aid kits.

2. Fire suppression equipment (appropriate to location and type of flammable materials present).

3. OSHA-approved emergency eyewash facilities.

4. Personnel decontamination facilities and equipment.

5. Other equipment or supplies as determined to be necessary or prudent by Contractor or the Engineer.

6. Flammable liquids storage cabinet, if necessary.

7. Fall protection equipment.

8. Heavy Blankets.

PART 3 – EXECUTION

3.01 TRAINING:

A. Contractor shall provide the following training to each worker except those who will be restricted to the Support Zone:

1. Initial 40-hour (or 80-hour where appropriate) OSHA hazardous waste Health and Safety training and current annual 8-hour refresher training.

2. Eight-hour OSHA hazardous waste supervisory training (required for the Contractor’s Superintendent and SSHO).

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3. Enrollment in a medical monitoring program, with clearance within the previous 12 months from a licensed physician allowing the worker to participate in field activities and use respiratory protective equipment. Contractor shall not submit detailed medical information for employees.

4. Current cardiopulmonary resuscitation (CPR) and first aid certification for at least two workers assigned to Work on the Site.

5. For one who is assigned the role of a "competent person," documentation of sufficient and relevant training and experience to perform the assigned duties and responsibilities of that role. As defined in 29 CFR 1926.31, the competent person shall be "*one who is capable of identifying existing and predictable hazards, and who has authority to take prompt corrective measures to eliminate them*." Relevant training and experience shall be in the same type of Project activities included in the Work under this Contract.

B. Contractor shall designate one "competent person" as defined in 29 CFR Part 1926, Subpart P, Excavations, to inspect and document excavation safety conditions daily, and to ensure excavation safety prior to any personnel entering an excavation.

3.02 WORK PLANNING AND MEETINGS:

A. Contractor shall conduct a daily Health and Safety meeting, prior to beginning Work for that day, to address Health and Safety issues, changing Site conditions, activities and personnel. All Contractor and Subcontractor employees working on the Site on that day shall attend the meeting. All meetings shall be documented and attendees shall sign acknowledgement of their presence at the meeting. Daily meetings shall include a Safety Task Analysis Review (STAR) evaluation of the Work to be conducted and to document meeting attendance and discussion points. The STAR evaluation and daily safety meeting shall be documented on STAR forms, which are attached to this Section.

B. Subcontractor personnel who are not in attendance for the daily Health and Safety meeting shall be briefed on the meeting notes upon arrival at the Site and prior to commencing their Work activities. Employees shall sign acknowledgement of briefings prior to commencing Work.

C. Contractor shall hold and document additional safety meetings at the start of each major task and whenever site conditions affecting personnel safety change. Any major task undertaken shall require the completion of a JSA as described in 1.06A of this Section.

3.03 ENGINEERING CONTROLS:

A. Contractor shall, at a minimum, provide the following engineering controls to reduce the hazards of equipment operation and exposure to site hazardous chemicals:

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1. Roll-over cages for bulldozers, back hoes, loaders, and tractors.

2. Back-up alarms for all trucks and moving equipment.

3. Wetting of soil or other means to control dust during the Work.

4. Decontamination of personnel and equipment in accordance with Specifications Section 02130 - Decontamination.

5. Barricades for open trenches and excavations.

6. Sloping, benching, shoring, drainage systems, or other controls as necessary to ensure stability of excavations and embankments.

7. Providing a dedicated flag person or persons to manage truck traffic along and into and out of the Site.

8. Provide odor, vapor, and dust emission control as specified in the CAMP.

9. Others as determined to be necessary or prudent by Contractor or as required by project plans.

B. Contractor shall post ground level warning signs every 50 feet below all overhead utilities on site.

3.04 MONITORING:

A. Contractor shall perform heat exposure and cold exposure monitoring activities as required by weather conditions.

B. The Contractor shall perform all air monitoring activities described in the Contractor’s HASP required to provide Health and Safety protection to the Contractor’s and Subcontractor’s personnel.

C. The Site Perimeter Community Air Monitoring shall be conducted by others.

3.05 EVALUATION OF PERFORMANCE:

A. Contractor shall routinely conduct internal safety audits on Subcontract and Sub-subcontract Work sites in accordance with the Contractor’s HASP. The focus of these routine audits shall be on compliance with OSHA and local occupational safety regulations.

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END OF SECTION
HEALTH AND SAFETY FORMS FOLLOW

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REPORT OF INCIDENT

1. Seek immediate medical attention if necessary.
2. Employee must report all incidents to their supervisor immediately.
3. Supervisor calls the on-site project Engineer's representative.

Section 1 - Organization Information

District:	Section/Dept Number:
Office Name:	
Client Name:	Project Number:
Project Name:	

Section 2 - Type of Incident (SRI Sections to be Completed)

☐ Injury/ illness (Sections 3, 4, and 7)	☐ Vehicle Incident (Sections 3, 4, 5, and 7)	☐ Property Damage (Sections 3, 4, 6 and 7)	☐Environmental Spill/Release☐ (Sections 3, 4, and 7)
☐ Regulatory Inspection or Notification: (Sections 3, 4, 7)			☐ Other (describe)

Section 3 – Contact/Incident Information

Employee/Claimant Name:	Employee Job Title:	☐ Full-Time Employee ☐ Subcontractor/Subconsultant ☐ Temp Agency Employee ☐ Part-Time Employee ☐ Third Party Employee	
Work Phone:	Cell Phone:	Home Phone:	Employee Number:
Date/Time of Incident:		Date/Time Reported to Supervisor:	
Street Address of Incident or approximately:		City:	State/Zip:
Body Part Injured:		Type of Treatment: Medical/hospital or doctor ☐ First Aid Only ☐	
Medical Facility Contact Info: (Name, Address, Phone)			

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Section 4 - Descriptions of Incident *(employee, supervisor and witness statements)*

Employee Description of Incident: (use additional paper if necessary)	
Employee Signature:	Date and Time:

Supervisor Description of Incident: (Supervisor signs in Section 7) (use additional paper if necessary)		
Witness Name :	Witness Address:	Witness Phone No.:
Witness Description of the Incident: (use additional paper if necessary)		
Witness Signature:		Date and time:

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Section 5 - Vehicle Incident Information (fill out for motor vehicle incidents only)

5a - Driver Name:		Driver's License #:		State Issued:	Expiration Date:
Vehicle Year:	Make:	Model:	Color:	License Plate:	State:
VIN Number:					
Vehicle was:	☐ Owned ☐ Leased	☐ Rented ☐ Personal Vehicle	Who was involved?	☐ Vehicle(Section 5a) ☐ Another Vehicle(Section 5b)	☐ Pedestrian ☐ Property
Use of Vehicle at Time of Incident: ☐ Office Visit ☐ Site Visit ☐ Client Meetings ☐ Field Work ☐ Personal ☐ Other___________				Vehicle Type: ☐ Commercial Motor Vehicle ☐ Non Commercial Motor Vehicle	
5b - Name of Other Driver:			Address:	City:	State/Zip:
Work Phone:			Cell Phone:		
Date of Birth:	Driver's License #:		State Issued:	Expiration Date:	
Vehicle Year:	Make:	Model:	Color:	License Plate:	State:
VIN Number, Insurance Company Name, Insurance Policy Number:					
If Vehicle Owner is different from driver then complete owner's contact information			Owner Name:		
			Address, City, State, Zip:		
			Work Phone:	Cell Phone:	
Authorities contacted? ☐ Yes ☐ No			If so, who responded?		
Citations Issued? ☐ Yes ☐ No			Type of Citation:	Person Cited:	

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Section 6 - General Liability (*Fill out for property damage only*)

Description of damaged property:	
Where can the property be seen?	
Property Owner Name:	
Address, City, State, Zip:	
Work Phone:	Cell Phone:

Section 7- Signatures

Supervisor

Print Name:	Signature:	Date:	Telephone:

Office/Location Manager

Print Name:	Signature:	Date:	Telephone:

NYSEG Project Manager

Print Name:	Signature:	Date:	Telephone:
Comments:			

Attention: This form must be completed and forward to the NYSEG Project Manager within one (1) business day following the occurrence of the incident.

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EHS OPPORTUNITY OR NEAR MISS REPORT

Reported by: ______________________ Incident Date/Time: __________________________

Date Reported: ______________________ Site Location: __________________________

Report Type (check one):

☐ EHS Opportunity (*suggestion for improvement, good EHS idea to share, or EHS observation*)
☐ EHS Near Miss (*event that could have resulted in an incident under different circumstances)*

Event Description:

Describe key aspects such as the operation in progress, worker experience, potential outcome of event, and any contributing conditions. Use additional sheets as necessary.

____
____
____
____
____

Hazard Category (check all that apply):

☐ Slip/trip/fall
☐ Chemical
☐ Weather
☐ Improper PPE
☐ Other: ____
☐ Traffic/vehicle
☐ Electrical
☐ Not following procedures
☐ Improper body position/tool use
☐ Plant/Animal
☐ Faulty equipment
☐ Fire

Possible Outcome (check all that apply):

☐ Injury/illness ☐ Property damage ☐ Environmental release

Were you able to correct the problem?

☐ Yes ☐ No If no, whom did you inform:____________ ☐ N/A

Potential Outcome if Circumstances Occurred:

____
____
____

Corrective Action Taken:

____
____
____

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HOT WORK PERMIT

Permit Valid
For One (1) Work Day

Site Name:______________________________ **Project Number**:_________________________

EHS Officer:_____________________________ **Client**:__________________________________

Hot Work Description:____

____

____

Workers/Welders Conducting Hot Work:____

Permits MUST be completed in its Entirety Before Hot Work Begins

	Yes	No
Has Project supervisor been notified of intended Hot Work?		
Does client representative need to be notified of the intended Hot Work?		
Will Hot Work impact the general public, clients, or operation employees?		
Will the intended Hot Work need to be coordinated with other contractors who may be working on the site to make them aware of any hazards and the scope of work to be performed?		
Have hazardous energy sources been identified, isolated, and locked out/tagged out before the start of the Project?		
Will Hot Work be conducted within a confined space?		
All testing equipment (i.e., CGI, oxygen meter, etc.) and firefighting equipment (i.e., extinguisher, etc.) have been checked to ensure proper operation and calibration before the start of this Project?		
Has a fire watch been designated and on station?		
Have coatings on metal surfaces been tested for ignitability and flame spread?		
Has the area been cleared of all flammable materials?		
Have all fuel sources been identified and protected?		
Has the area been restricted with proper barriers and signs?		
Has the area been tested to be certain that atmosphere is 0% LEL before starting Hot Work?		
Have flame sensitive areas and equipment (including cylinders and gas delivery lines) exposed to slag and sparks been protected by flame resistant blankets or removed from the area?		
Have all equipment and hoses been protected from falling metal structures and debris?		
Have escape routes been identified before starting work?		
Is ventilation equipment needed? Type needed:		

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The Following Protective Equipment will be required:

	Yes	No		Yes	No
Welding Goggles/Shield Tint			Supplied Air Respirator		
Safety Boots			Head Protection		
Leather gloves			Safety Harness		
Hearing Protection			Welding Leathers – Top		
APR Cartridge			Welding Leathers - Bottom		

Permit Valid for One (1) Work Day

The following procedures will be applicable prior to Hot Work on tanks or other types of enclosed structures. (Check all that apply and fill in appropriate information.)

- ☐ Ventilate to 0% LEL
- ☐ Confined Space Entry Permit
- ☐ Mechanical Ventilation Required
- ☐ Cold Cut Only Method Allowed:____
- ☐ Hot Cutting Permitted Method Allowed:____

Inert to <____________% Oxygen

Approvals:

____
Date

____
Client Representative

____
Contractor Site Safety Officer

____
Fire Watch

____
Performed Hot Work Employee

File Permit in Project Work File and Health and Safety Department

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JOB SAFETY ANALYSIS

JSA Type: ☐ Investigation ☐ O&M ☐Office ☐ Construction	☐ New ☐ Revised	Date:
Work Activity:		
Personal Protective Equipment (PPE):		

Development Team	Position/Title	Reviewed By	Position/Title	Date

❶ Job STEPs[1]	❷ Potential Hazards[2]	❸ Critical Actions[3]	Stop Work Criteria

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Safety Task Analysis Review (STAR)
Task Description:

____

List Tasks:

____
____
____
____
____
____
____
____
____
____
____

Company: ____________________
Completed By: ________________
Date: _______________________
Job Location: ________________
____

List Additional Hazards (Hazards Not Shown with Check Box)

____
____
____
____
____
____
____
____
____
____
____

List Additional Controls (Controls Not Shown with Check Box)

____
____

Tailgate Meeting Topic

____
____

Signatures of Personnel on Task Analysis Review/Tailgate Meeting:

____
____

Mentor Assigned to Work

____
____
____

Lessons Learned (Based on changes in conditions, EHS Near- Incidents/ Observations, Potential Emergencies)
Is there a better/safer way to perform the work/task?

____
____

Supervisor Review (date/Time): ______
____

EHS Review (date/time): ____________
____

Comments: ____________________
____
____

Identify Potential Hazards

☐ Abrasions
☐ Biological Hazards (Plants, Animals, Insects)
☐ Cave-in (Trench/Excavation Work)
☐ Chemical/Thermal Burn
☐ Cuts
☐ Dermatitis
☐ Dropping Materials/Tools to Lower Level
☐ Drowning/Flowing Water
☐ Dust
☐ Electrical Shock
☐ Elevated/Overhead Work
☐ Energized Equipment
☐ Fire
☐ Flammability
☐ Foreign Body in Eye
☐ Hazardous Materials (Exposure or Release)
☐ Heat or Cold Stress
☐ Heavy Equipment Operation
☐ Heavy Lifting
☐ High Noise Levels
☐ Impact Noise
☐ Inability to Maintain Communication
☐ Inclement Weather
☐ Overhead Work
☐ Overhead Utilities
☐Underground Utilities
☐ Pinch Points
☐ Pressurized Lines
☐ Slips, Trips, Falls
☐ Sprains/Strains
☐ Traffic
☐ Underground Utilities
☐ Confined Space
☐ New or Rental Equipment
☐ Surface Water Run-On/Run-Off
☐ Odor/VOC Emissions
☐ Compressed Gas Cylinders
☐ Generated Wastes (Solids/Liquids)
☐ Known/Unknown Visitors
☐ Visibility
☐ New Personnel
☐ Hoists/Rigging/Slings/Wire Rope
☐ Special Operations/Instructions (Attach)
☐ Ergonomics

Identify Controls

☐ Air Monitoring
☐ Barricades/Fencing/Silt Fencing
☐ Buddy System
☐ Appropriate Clothing/Monitoring of Weather
☐ Confined Space Procedures
☐ Decontamination
☐ Drinking Water/Fluids
☐ Dust abatement Measures
☐ Equipment Inspection
☐ Exclusion Zones
☐ Exhaust Ventilation
☐ Fall Protection
☐ Fire Extinguisher/Fire Watch
☐ Flotation Devices/Lifelines
☐ Grounds on Equipment/Tanks
☐ Ground Fault Interrupter
☐ Ground Hydraulic Attachments
☐ Hand Signal Communication
☐ Hazardous/Flammable Material Storage
☐ Hazardous Plant/Animal Training
☐ Hearing Protection (Specify)
☐ Hoses, Access to Water
☐ Hot Work Procedures
☐ Insect Repellent or Precautions
☐ Isolation of Equipment or Process (LO/TO)
☐ Stormwater Control Procedures/Methods
☐ Machine/Equipment Guarding
☐ Manual Lifting Equipment (Chain Falls)
☐ Protective Equipment (Specify)
☐ Proper Lifting Techniques
☐ Proper Tool for Job
☐ Radio Communication
☐ Respirator, (Specify Type)
☐ Safety Harness/Lanyard/Scaffold
☐ Sloping, Shoring, Trench Box
☐ Vehicle Inspection
☐ Spill Prevention Measures/Spill Kits
☐ Equipment Manuals/Training
☐ Emergency Procedures/Incident Management Plan
☐ Appropriate Labels/Signage
☐ Derived Waste Management Plan
☐ Visitor Escort/Orientation/Security
☐ Window Cleaning/Defrost
☐ Proper Work Position/Tools

Pre-Task Review (Yes/No/NA)

1. Has Job Hazard Analysis been completed and reviewed? _____
2. Is Job Scope understood by all Personnel? ________
3. Proper Safety Equipment on job site? ____________
4. Permit Issued?
   What type?
   ☐ Hot Work ☐ Confined Space
   ☐ Excavation ☐ Other:____________________
5. Proper Tools for Job on site? ___________________
6. Oxygen/Flammability checked? _________________
7. Reviewed MSDSs for any hazardous substance that might be present? _________________________
8. Proper training for all personnel? _______________
9. Are there any planned deviations from set procedures for equipment modifications? __ If so, contact supervisor to check applicability of MOC procedures.
10. Is there any work planned that could cause activation of emergency procedures? ____________________
    If so, have these procedures been discussed and communicated?

Post-Task Review

1. Work area cleaned up?________________________
2. All locks and tags removed and signed off by individuals?_____________________________
3. Have Permits been turned in? ___________________
4. STAR submitted to EHS Department? ___________
5. Were there any unplanned deviations from set procedures or equipment modifications? _________
   If so, contact supervisor to check applicability of MOC procedures.

SECTION 01450
QUALITY CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Submittals

B. Quality Control Organization

C. Contractor Responsibilities

D. The Engineer's Responsibilities

E. Storage and Protection

F. Materials and Equipment

G. Product Options

H. Substitutions

I. Laboratory and Testing Requirements

1.02 SUBMITTALS:

A. Contractor shall submit one (1) copy of all testing results, quality control reports, and other quality control documentation to the Engineer. The documentation submitted shall be clearly marked as to whether or not the test results meet the requirements of the Specifications.

B. Contractor's Daily Construction Report, as required by Specifications Section 01320 – Construction Progress Documentation, shall include daily reporting of quality control information and issues.

C. Substitutions, where applicable.

1.03 QUALITY CONTROL ORGANIZATION:

A. Contractor's Project Superintendent shall be responsible for coordinating all quality control tests performed by Contractor during the Work, including testing of Work or materials of Contractors and Suppliers.

B. Contractor's Project Superintendent shall report directly to the Engineer with regard to quality control issues.

C. Corrective action shall be undertaken by the Contractor for all Work and test results that do not meet Specifications. Testing shall be repeated at Contractor's cost until satisfactory results are obtained or Contractor shall correct the Work. If there is any question whether the Specifications are clear regarding what constitutes satisfactory results, the Engineer will determine when results are satisfactory. All results shall be made available to the Engineer for review.

1.04 CONTRACTOR RESPONSIBILITIES:

A. Contractor shall be responsible to obtain and pay for the services of independent laboratories or testing service companies to perform the following testing:

1. Any tests required by the Specifications or Change Orders.

B. Contractor's Project Superintendent shall control the Work to the extent necessary to achieve specified quality and ensure conformance with the Contract Documents.

C. Contractor's Project Superintendent shall receive testing results and shall ensure that appropriate corrections, including rework if necessary, are made by Contractor.

D. Contractor's Project Superintendent shall ensure that emissions of dust and odors do not exceed the applicable Action Levels described in the CAMP during performance of the Work, and shall take immediate corrective measures, including stopping work, whenever emissions or excessive odors are observed.

E. Contractor's Project Superintendent shall ensure that all materials meet the requirements of the applicable Specifications.

1.05 THE ENGINEER’S RESPONSIBILITIES:

A. The Engineer’s control of the Work will include authority for on-the-spot stopping or slowing of Work if it does not conform to quality control or Specification standards. The Engineer’s control of the Work will be through Contractor's Project Superintendent.

B. The Engineer will have authority to instruct Contractor to immediately stop work if dust emissions, excessive odors or vapors are detected at any time, or if, in the Engineer’s opinion, there exists any imminent threat to the health or safety of any person on site or off site. The Engineer’s authority to stop the Work shall not relieve Contractor of the sole responsibility for observation and control of emissions, and for health and safety.

C. The Engineer will be responsible for reviewing all quality control data generated by the Contractor. The Engineer’s review of data does not relieve Contractor of the responsibility to ensure that all Work conforms to the Specifications.

D. The Engineer will be responsible for any collection of samples and laboratory analysis.

1.06 STORAGE AND PROTECTION

A. Contractor shall be responsible for the following:

1. Store and protect products and materials in accordance with manufacturers' instructions.

2. Store products and materials with seals and labels intact and legible.

3. Provide any necessary sheds or enclosures. Store sensitive products in weather-tight, climate controlled enclosures in an environment favorable to product.

4. For exterior storage of fabricated products, place on sloped supports above ground.

5. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

6. Provide personnel and equipment to remove products from delivery trucks.

7. Arrange storage of products to permit for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

8. Fuel storage and dispensing shall be per Specifications Section 01500 – Mobilization And Temporary Facilities.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Contractor shall provide all materials and equipment necessary for the Work unless otherwise specified.

2.02 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or descriptions will be acceptable.

B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications; no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions or Equal Products: Submit a written request for substitution for any manufacturer not named in accordance with Paragraph 2.03 Substitutions.

2.03 SUBSTITUTIONS

A. Contractor shall document each request for substitution with complete data substantiating compliance of proposed substitution with the requirements of the Contract Documents.

B. Request for substitution constitutes a representation that the Contractor has met or shall meet the following:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.

2. Shall provide the same warranty for the substitution as for the specified product.

3. Shall coordinate installation and make changes to other Work as may be required to make the Work complete, with no additional cost to Owner or the Engineer.

4. Waives claims for additional costs or time extension that may subsequently become apparent.

5. Shall reimburse the Engineer for review or redesign services associated with re-approval by authorities.

C. Substitutions will not be considered when they are indicated or implied on shop drawings or product data submittals, without separate written request, or when acceptance will require revision to the Construction Sub-Agreement Documents.

D. Substitution Submittal Procedure:

1. Submit three (3) copies of request for substitution. Each request shall be limited to one (1) proposed substitution.

2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on the Subcontractor.

3. The Engineer will notify Contractor in writing of decision to accept or reject request.

PART 3 - EXECUTION

3.01 LABORATORY AND TESTING REQUIREMENTS:

A. All laboratories and testing companies selected by Contractor shall meet the following:

1. Certified by the State of New York, if certification for such testing is available.

2. Accepted by the Engineer prior to performing any analyses.

3. Organizations, independent from the Contractor and Subcontractors, unless prior written approval is received from the Engineer.

END OF SECTION

SECTION 01500
MOBILIZATION AND TEMPORARY FACILITIES

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Electric Service

B. Water Service

C. Temporary Sanitary Facilities

D. Traffic Control Signs

E. Work Zones

F. Enclosures and Fencing

G. Protection of the Work

H. Temporary Erosion and Sediment Controls

I. Haul Roads and Access Roads

J. Parking

K. Progress Cleaning and Waste Removal

L. Staging Area

M. Field Offices and Sheds

N. Removal and Restoration of Utilities, Facilities, and Controls

O. Fuel Storage and Dispensing

P. Submittals

1.02 ELECTRIC SERVICE:

A. A licensed electrician shall perform all electrical Work.

B. Contractor shall furnish and install electrical service to the Remediation Trailer and any other location Contractor deemed necessary to complete the Work.

SECTION 01500
MOBILIZATION AND TEMPORARY FACILITIES

C. All electrical connections shall meet appropriate NEMA ratings consistent with the intended service.

D. Contractor shall coordinate with local electric utility (NYSEG) and obtain any necessary inspections and permits.

1.03 WATER SERVICE:

A. Provide, maintain, and pay for a suitable quantity of potable drinking water for all on-site employees.

B. Provide, maintain, and pay for a suitable quantity of water service for dust control and decontamination.

C. Provide water conveyance from the water service terminal to any locations on the Project Site where water is used.

1.04 TEMPORARY SANITARY FACILITIES:

A. Provide a sufficient number of portable toilets for Contractor and Subcontractor Work crews, Remediation Engineer/Construction Manager, Owner, and visitors in accordance with usage ratings. The facilities shall be provided at time of project mobilization and maintained in clean and sanitary condition until Substantial Completion.

B. Provide and maintain in clean, good working order, a water hand washing facility for personnel decontamination.

C. Provide and maintain in clean, good working order an emergency decontamination and eye wash station at approved location.

D. Provide and maintain, in clean, good working order other personnel decontamination facilities required by the Contract Documents or the HASP.

1.05 TRAFFIC CONTROL SIGNS:

A. Contractor shall furnish, install, and maintain traffic control signs in accordance with requirements of Cayuga County, City of Auburn, NYSDOT, the Contractor’s Transportation Plan, the Contractor’s Traffic Plan, and as otherwise deemed necessary by the Engineer for the safety of the public.

1.06 WORK ZONES:

A. Establish a Secured Zone, Support Zone, Exclusion Zone, and Decontamination Zone, as defined herein.

SECTION 01500
MOBILIZATION AND TEMPORARY FACILITIES

1. Lay out the Work Zones and establish boundaries, barriers, facilities, and controls to ensure that all personnel and equipment exiting the Exclusion Zone shall pass through the Decontamination Zone before entering the Support Zone and before exiting the Project Site.

2. Furnish, install, and maintain in good condition, orange plastic mesh fencing secured to metal posts to delineate the boundaries between Work Zones, including the Exclusion Zone, Decontamination Zone, and Support Zone and around staging area.

B. Secured Zone: Contractor shall establish a general Secured Zone that excludes unauthorized personnel from entering the Project Site.

1. Access to Secured Zone shall be controlled by steel chain link fence and locking gates as shown on the Drawings.

2. Furnish locks for Secured Zone gates and provide duplicate keys to Remediation Engineer/Construction Manager, and Owner.

3. Contractor and Remediation Engineer/Construction Manager shall control access to the Secured Zone. The Remediation Engineer/Construction Manager and Owner shall be allowed free access to the Secured Zone 24 hours per day, subject to appropriate safety precautions.

4. Maintain a log sheet on which all Contractor personnel and visitors shall sign in and out upon entering or leaving the Secured Zone.

5. Contractor shall be responsible for the security and safety of equipment, facilities, personnel, and materials within the Secured Zone.

C. Support Zone: Contractor shall establish a Support Zone for field offices, storage, sanitary facilities, hand washing facilities, and non-construction vehicle parking.

1. The Support Zone shall be an area free of physical and chemical hazards.

2. Contractor shall maintain the Support Zone in a safe, clean, orderly, and sanitary manner at all times.

D. Exclusion Zone: Contractor shall establish an Exclusion Zone within the Secured Zone using the following criteria and other criteria deemed necessary by the Remediation Engineer/Construction Manager:

1. Signage.

2. Open excavation areas shall be included in the Exclusion Zone.

SECTION 01500
MOBILIZATION AND TEMPORARY FACILITIES

3. Excavated material loadout area shall be designated within Exclusion Zone.

4. Consideration of meteorological conditions and the potential for contaminants or other materials to be blown or washed from the area.

5. OSHA Regulations and other applicable Laws and Regulations.

E. Temporary Activity Zones within Exclusion Zone: Contractor shall establish Temporary Activity Zones within the Exclusion Zone using high-visibility warning tape fastened to metal posts or weighted barrels to delineate areas where specific Work tasks will take place. Temporary Activity Zones shall be revised as necessary and as the Work progresses. Temporary Activity Zones shall be established to include the following tasks:

1. Excavation: Excavation areas shall be marked with yellow or orange caution tape at all times.

2. Storage: Storage areas for materials or equipment shall be established and maintained as Temporary Activity Zones.

3. Decontamination: Any temporary decontamination areas shall be marked as Temporary Activity Zones.

F. Decontamination Zone: Contractor shall establish a Decontamination Zone between the Support Zone and the Exclusion Zone.

1. Contractor shall provide suitable facilities for personnel decontamination in the Decontamination Zone, including emergency eyewash, hand washing, and shower facilities.

2. Contractor shall construct a vehicle and equipment decontamination facility, which shall allow for containment and collection of liquid and solid residuals from decontamination of construction vehicles and trucks bound for off-site disposal.

3. Contractor shall inspect and document inspection of each truck bound for disposal of Impacted Soil and debris. Contractor shall inspect all vehicles and equipment that have been in the Exclusion Zone prior to exiting the Exclusion Zone. Contractor shall remove loose mud and debris from all vehicles that have been in the Exclusion Zone prior to movement of equipment between the Exclusion Zone and Non-Exclusion Zone areas of the Secured Zone.

4. Contractor shall provide splash protection around the vehicle decontamination facility. Splash protection shall minimize potential contamination from splatter and mist during the vehicle and equipment decontamination process. Splash

protection shall be temporary, but stable, and capable of being dismantled in the event of high winds.

5. Contractor shall provide a drainage and collection system for wastewater generated during decontamination procedures.

1.07 ENCLOSURES AND FENCING:

A. Contractor shall furnish, install, and maintain all other proposed temporary fencing, gates and barriers around impacted areas as required by the Contract Documents and to complete the Work.

1.08 PROTECTION OF THE WORK:

A. Contractor shall protect installed Work and provide special protection with regard to preventing the spread of residuals to areas outside the Exclusion Zone.

B. Contractor shall protect existing buildings, mature trees (i.e., greater than 6-inch diameter at breast height (DBH)) to the extent practicable, shrubs, sidewalks, driveways, streets, catch basins, manholes, subsurface facilities, electric lines/facilities, curbs, and gutters by such means as determined by Contractor to be adequate for such protection, unless such facilities are designated on the Drawings for removal. Contractor shall repair or replace any existing buildings, mature trees, sidewalks, driveways, streets, catch basins, manholes, subsurface facilities, electric lines/facilities, curbs, or gutters that are cracked, broken, or otherwise damaged by Contractor, in accordance with City of Auburn and NYSDOT requirements.

1.09 TEMPORARY EROSION AND SEDIMENT CONTROLS:

A. Contractor shall remove all soil, mud, and residuals from vehicle wheels, fenders, and tailgates before exiting to public streets.

B. The Contractor shall provide, install, and maintain all required sediment and erosion controls as specified in Specifications Section 01570 – Erosion and Sediment Controls.

1.10 HAUL ROADS AND ACCESS ROADS:

A. Contractor shall furnish, construct, and maintain on-site haul and access roads as designated on the Drawings, or as necessary to complete the work with Remediation Engineer/Construction Manager’s approval.

SECTION 01500
MOBILIZATION AND TEMPORARY FACILITIES

1.11 PARKING:

A. Remediation Engineer/Construction Manager shall designate a parking area to accommodate personal vehicles of Contractor employees, Remediation Engineer/Construction Manager, Owner, and visitors. Construction vehicles shall not be allowed in the areas designated for parking personal vehicles.

B. Contractor shall designate an area of the Secured Zone to be used for parking and maintenance of construction vehicles and equipment.

1.12 PROGRESS CLEANING AND WASTE REMOVAL:

A. Contractor shall maintain all Work areas free of waste materials, debris, and rubbish, maintain the Work site in a clean and orderly condition, and collect and remove waste materials, debris, and rubbish from the Work site weekly and dispose off site.

1.13 STAGING AREA:

A. The Staging Area shall be constructed by the Contractor. The Contractor shall maintain these facilities during the course of the Work, modify them as required to implement the Work, and remove them when the Work is complete.

1.14 REMOVAL AND RESTORATION OF UTILITIES, FACILITIES, AND CONTROLS:

A. Contractor shall remove temporary utilities, equipment, and construction facilities, prior to submitting final Application for Payment, including those provided or installed by others unless specifically identified for removal by others.

B. Contractor shall remove from the Work site all materials, equipment, vehicles, construction facilities, temporary controls, rubbish, debris, and wastes.

C. Contractor shall dismantle and remove from the Project Site any temporary fencing installed by the Contractor.

D. Repair and replace damaged facilities as approved by NYSEG at no additional cost.

E. Restore all disturbed areas to pre-construction conditions, or better, as approved by NYSEG and property Owner (if not NYSEG).

F. Provide before and after photographs documenting that final conditions are equivalent to pre-construction conditions, or better.

G. Provide documentation (e.g., letter) from property Owner (if not NYSEG) that site restoration is acceptable.

SECTION 01500
MOBILIZATION AND TEMPORARY FACILITIES

1.15 FUEL STORAGE AND DISPENSING:

A. Contractor shall store fuel on site only in approved containers that meet all relevant fire codes.

B. Contractor shall provide secondary containment and spill protection devices at all on-site fueling facilities.

C. Extreme care shall be taken to prevent fuel spills. Contractor’s representative shall be present at all time when equipment is being fueled. Subcontractor shall notify the Remediation Engineer/Construction Manager, the local Fire Department and other authorities as required in the event of a spill. Contractor shall be prepared and shall provide personal equipment and materials to immediately respond to fuel spills, and is responsible for all costs of containing, removing and disposing of materials contaminated by fuel spills.

D. Contractor shall provide and maintain absorbent materials, shovels, containers and other appropriate materials for spill response and cleanup. Cleanup materials shall be appropriate for the type of fuels, oils and other materials used.

E. Contractor shall not commingle waste materials caused by fueling or vehicle maintenance activities with excavated contaminated soil or with impacted water generated by the Work.

F. Contractor shall dispose of waste materials caused by fueling at no expense to the Owner.

1.17 SUBMITTALS

A. Locations, sizes, and requirements for utility services.

B. Layout of Support Zone and other Work Zones, including Decontamination Zone.

C. Proposed design for Site Access Road, if required.

D. Site Restorations Procedures: Describe proposed procedures, equipment and materials to be used to restore disturbed areas.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

SECTION 01570
EROSION AND SEDIMENT CONTROL

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Performance Requirements

B. Silt Fence

C. Straw Bales

D. Surface Water Run-on/Run-off Control

E. Inspection and Maintenance

1.02 PERFORMANCE REQUIREMENTS:

A. Permits and Approvals: The Contractor shall obtain any necessary permit equivalents and approvals for erosion and sediment control.

B. Compliance: Contractor shall be responsible for compliance with requirements of any and all permit equivalents and approvals.

C. Implementation: Contractor shall employ the following general procedures, and other procedures as required by all Regulations:

1. Run-on Controls: Contractor shall use appropriately sized/constructed ditches, berms, pumps, and other methods necessary to divert and drain surface water away from excavations and other Work areas.

2. Erosion and Sediment Controls:

a. The erosion and sediment control structures required by New York Department of Environmental Conservation shall be installed by the Contractor. The Contractor shall inspect and maintain these facilities in accordance with the Contract Documents.

b. Contractor shall take necessary precautions and implement best management practices to prevent sediment from entering roadways, storm sewers, catch basins, or surface water.

D. Street Cleanliness: Where construction vehicle access routes intersect public roads, Contractor shall make provisions to mitigate the transport of mud, spoils, soil, or dust onto the public road. Contractor shall construct haul roads with necessary controls to prevent soil transport to public streets. If soil, spoils, mud, or dust is transported onto a

SECTION 01570
EROSION AND SEDIMENT CONTROL

road surface, Contractor shall immediately clean the road thoroughly. Contractor shall remove soil from the roads by shoveling or sweeping; and sweepings shall be disposed in accordance with Section 02120 – Off-Site Transportation and Disposal. Street washing with water shall be allowed only after soil is removed to the extent practical by sweeping.

E. Control of Pollutants Other than Soil/Mud/Dust:

1. All pollutants that occur on the Project Site during construction shall be handled and disposed in a manner that does not impact stormwater runoff.

2. Fueling of Contractor's equipment shall be performed away from storm drain inlets and catch basins.

PART 2 – PRODUCTS

2.01 SILT SOCK

A. Silt sock shall be installed by the Contractor at the Engineer's discretion, and as required.

2.02 STRAW BALES

A. Straw bales shall be installed by the Contractor at the Engineer's discretion, and as required.

PART 3 – EXECUTION

3.01 SURFACE WATER RUN-ON/RUN-OFF CONTROL:

A. Contractor shall intercept surface water and divert it away from excavations and Work areas through use of dikes, ditches, curb walls, pipes, sumps, or other approved means. The requirement includes temporary measures as required to protect adjoining properties from surface drainage caused by construction operations.

B. Contractor shall prevent surface water run-on/run-off from transporting soil or other contaminants off site. Any stormwater coming into contact with contaminants shall be stored on Project Site and shipped off site for disposal. Should, in the opinion of the Engineer, the Contractor fails to provide adequate run-on controls, all costs related to the collection, storage and disposal of the resulting impacted storm water shall be the responsibility of the Contractor.

3.02 INSPECTION AND MAINTENANCE:

A. Contractor shall inspect and repair or replace damaged components of temporary erosion and sediment controls weekly including those installed by others. Inspection and repairs

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EROSION AND SEDIMENT CONTROL

shall be conducted immediately after rain or flooding events, and inspection and repairs shall be conducted at least once each day during prolonged rain events.

B. Contractor shall remove sediment deposits and place them in designated spoil areas. Sediment shall not be allowed to migrate off site. If sediment has been in contact with contaminated materials, it shall be incorporated into material to be disposed or further characterized to determine appropriate disposition.

C. Contractor's equipment and vehicles are prohibited from maneuvering on areas outside of dedicated rights-of-way and easements for construction.

D. Damage to erosion and sediment control systems shall be repaired immediately.

E. Erosion and Sediment Controls that contain impacted materials from excavation activities shall be replaced once excavation activities are complete and restoration activities begin.

END OF SECTION

SECTION 01720
SURVEYING

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Submittals

B. Examination

C. Survey Reference Points

D. Survey Requirements

1.02 SUBMITTALS:

A. Submit qualifications of proposed Land Surveyor licensed in the State of New York.

B. Submit all field notes, computations, data logger information, and other survey records for the purposes of layout of the Work, for payment quantity estimation, and for daily basis documentation of the Work.

C. Maintain and submit all survey data and survey Drawings as Record Documents.

1.03 EXAMINATION:

A. Contractor shall verify locations of any survey benchmarks shown on the Drawings prior to starting Work.

B. Contractor shall promptly notify the Remediation Engineer/Construction Manager of any discrepancies discovered.

1.04 SURVEY REFERENCE POINTS:

A. Contractor's surveyor shall establish temporary benchmark(s) and horizontal control for the Work.

B. Contractor shall locate and protect survey control and reference points during construction.

PART 2 – PRODUCTS

Not Used.

SECTION 01720
SURVEYING

PART 3 – EXECUTION

3.01. SURVEY REQUIREMENTS:

A. The Contractor's Land Surveyor shall conduct an initial survey, including topography, of areas that will be disturbed or impacted by the work activities, of the proposed well location, and of boundaries for proposed limits of excavation as shown on the Drawings. This survey shall utilize commonly recognized engineering survey practices appropriate for obtaining the information specified. The Contractor shall conduct additional layout survey during the Work as needed to ensure that the Work performed is to the limits shown on the Drawings and/or as needed to meet the intent of these Contract Documents.

B. The Contractor's Land Surveyor shall conduct a record topographic survey of the bottom of excavation and of boundaries for limits of excavation as directed by Remediation Engineer/Construction Manager on behalf of the Owner.

C. The Contractor's Land Surveyor shall conduct a record survey for horizontal and vertical location of the installed injection well.

D. Upon final completion and approval of the project the Contractor shall supply the Remediation Engineer/Construction Manager the required record drawing documentation as described below in AutoCAD format:

1. Drawing file(s) showing limits of all excavation elements;

2. Drawing file(s) showing limits, depth, invert elevation and sizes of any restored utilities;

3. Drawing file(s), containing contours (0.5 foot interval) and corresponding survey points and DTM files showing each of the following surfaces:

a. Final excavation grade;

b. Verification sample locations (9 locations);

c. Installed air injection well location; and

d. Cleared areas.

E. Surveying personnel shall be in full compliance with all requirements of CFR.1910.120 before entering the Exclusion Zone.

F. During the course of the Work, the Contractor shall record final locations and elevations of all excavation work when complete.

SECTION 01720
SURVEYING

G. The Work shall be executed in conformance with the lines and grades shown on the Drawings, unless otherwise approved by the Remediation Engineer/Construction Manager.

H. At the end of construction, the Contractor's surveyor shall prepare Record Drawings as required by Owner and Remediation Engineer/Construction Manager.

END OF SECTION

SECTION 01725
WELL PROTECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Condition of Wells

B. References

C. Well Protection

D. Well Repair and Replacement

1.02 CONDITION OF WELLS:

A. Monitoring well locations are shown in the Drawings.

B. Contractor shall protect the wells to ensure that the above and below ground portions of the wells are left unharmed as a result of the Work.

C. Contractor shall not inject or place any objects in the wells.

1.03 REFERENCES

A. The most recent version of the following document is incorporated into this Specification.

1. NYSDEC Commissioner Policy CP-43 – Groundwater Monitoring Well Decommissioning Policy.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

3.01 WELL PROTECTION:

A. Contractor shall be responsible for the protection of all wells located outside the horizontal limits of excavation, as shown on the Drawings.

B. Contractor shall determine appropriate construction methods and means of well protection, which may include hand excavation in areas immediately adjacent to wells.

C. The Contractor may convert any aboveground wells, which are at risk of damage to flush-mount wells. Flush mount construction shall include a steel valve cover box with a cover secured by bolts, installed in a 2-foot by 2-foot concrete pad. The well pipe shall be capped by a lockable expanding well cap. The Contractor shall establish and survey a new reference elevation for the top of the well casing, based on the local elevation reference system established for the site.

3.02 WELL REPAIR AND REPLACEMENT:

A. If any well designated to be protected becomes damaged, as determined by the Engineer, as a result of the Work, Contractor shall repair the damaged well to construction standards at the Contractor's own expense.

B. Any well repair or replacement shall be completed in conformance with NYSDEC CP-43.

END OF SECTION

SECTION 01770
CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Submittals

B. Final Clean-Up

C. Contract Closeout Procedures

1.02 SUBMITTALS

A. Contractor shall submit the following in accordance with the Specifications Section 01330 – Submittal Procedures:

1. Written statement that the Work has progressed to Substantial Completion.

2. Written request for a final inspection after Contractor has determined that the Work is complete in all respects.

3. Project Record Documents as described in Specifications Section 01320 – Construction Progress Documentation.

4. Final Application for Payment.

5. Closeout report.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 FINAL CLEAN-UP

A. Upon completion of the Work and before final inspection, Contractor shall clean the entire Work premises occupied or used in connection with the Work of all rubbish, surplus, and discarded materials, temporary facilities and controls, equipment, and debris. The entire Work premises shall be left in a clean, neat, and presentable condition.

3.02 CONTRACT CLOSEOUT PROCEDURES

A. Contract closeout procedures shall take place in the following order:

SECTION 01770
CLOSEOUT PROCEDURES

1. The Engineer will perform the final inspection.

2. If necessary, the Engineer shall prepare a punch list of Work items to be completed and transmit a copy of the punch list to Contractor.

3. Contractor shall complete all punch list items expeditiously to the satisfaction of the Engineer.

4. Contractor shall submit final Application for Payment to the Engineer identifying total adjusted Contract Price, previous payments, and amount remaining to be paid.

5. Contractor shall submit Application for Payment for retainage with required affidavits.

6. Contractor shall submit a Project closeout report that shall include the following:
   a. Description of remediation activities, including total work quantities;
   b. Variations from the Drawings, Plans and Specifications;
   c. Discussion of major problems encountered and the resolutions;
   d. Accident Injury Report summary;
   e. Complete list of all Contractor personnel and subcontractors on the Site during completion of the work; and
   f. Record Documents, work quantities in excel format, CADD drawings and drawings from a surveyor licensed in the State of New York.

END OF SECTION

Technical Specifications

Division 2 – Site Work

Technical Specifications

Division 2 – Site Work

SECTION 02114
LOADING SOIL

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. Submittals

C. Materials

D. Loading

1.02 SUMMARY:

A. Section includes on-site amending and loadout of materials for off-site transport and disposal.

B. Related Specifications Sections:

1. Section 01570 - Erosion and Sediment Control

2. Section 02260 – Excavation

3. Section 02120 – Off-Site Transportation and Disposal

4. Section 02130 - Decontamination

PART 2 – PRODUCTS

2.01 HAUL TRUCKS:

A. Excavated Material Haul Trucks – Contractor shall supply and utilize watertight trucks for the transfer of excavated materials. Watertight trucks may be, but are not limited to, locking gasketed tailgate dump trucks.

B. Furnish all materials required for construction.

C. Truck bottom liners shall consist of polyethylene sheeting resistant to weathering and degradation due to contact with impacted materials for the duration of the Work.

D. Truck covers shall be of sufficient length and width to cover each truck.

E. Covers and liners shall be free of holes or tears. Defective material shall be repaired or replaced, as determined by Engineer.

SECTION 02114
LOADING SOIL

PART 3 – EXECUTION

3.01 LOADING:

A. The Contractor shall prepare and load all trucks for transport and disposal of materials excavated from the Project Site as specified in the following paragraphs.

B. Coordinate with the selected waste hauler to furnish all vehicles required for transportation of materials from the Project Site as specified in Specifications Section 02120 – Off-Site Transportation and Disposal.

C. Visually inspect and decontaminate the exterior of all vehicles in compliance with all applicable regulations and Specifications Section 02130 - Decontamination.

D. Coordinate loading operations and hours with the operating hours of the disposal facilities identified in Specifications Section 02120 – Off-Site Transportation and Disposal.

E. Load all trucks carefully to prevent spills. Stage trucks within the exclusion zone so that spills can be contained within the area and removed. Spread polyethylene sheeting over an area sufficient for truck loading.

F. Contractor shall be solely responsible for proper loading of and abiding by the load limits, and weight limits for, all vehicles leaving the Project Site. All fines, taxes, penalties or judgments resulting from overweight or improperly loaded vehicles shall be the Contractor's responsibility.

G. Track-mounted equipment shall undergo decontamination per Specifications Section 02130 - Decontamination prior to leaving the Exclusion Zone.

H. Transportation shall be per Specifications Section 02120 – Off-Site Transportation and Disposal.

I. Contractor shall be responsible for ensuring that all material loaded for off-site disposal meets paint filter criteria in accordance with all applicable transportation laws and regulations and the requirements of the receiving facility.

END OF SECTION

SECTION 02120
OFF-SITE TRANSPORTATION AND DISPOSAL

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. Submittals

C. Waste Characterization

D. Coordination with Waste Management Facilities

E. Designated Haul Routes

F. Shipping Documentation

G. Truck Bed Liners

H. Preparation for Transport

I. Transportation to Waste Management Facility

J. Waste Management Documentation

K. Transportation

L. Permits

1.02 SUMMARY:

A. This Section includes transportation of excavated materials to specified disposal facilities. The Contractor shall only utilize routes designated in an approved Remedial Design Report Appendix B Transportation of Solid and/or Liquid Waste Plan. It is the responsibility of the Contractor to utilize equipment and personnel capable of navigating the local traffic patterns while maintaining minimum daily production required in order to meet the project milestones. The Contractor shall be responsible for all delays caused as a result of trucks not following approved traffic routes, due to inadequate scheduling of trucks causing traffic delays or from utilizing equipment that cannot safely navigate the local roadways.

B. Contractor shall be solely responsible for proper vehicles loading. The Contractor shall ensure the vehicle contents are properly contained and secured in the vehicle including proper lining and covering of loads. The Contractor shall abide by all load limits and weight limits for all vehicles leaving the Project Site, and is responsible for any monetary fines, taxes, penalties, or judgments resulting from overweight or improperly loaded vehicles

C. Contractor shall employ dedicated flaggers to stop and direct all traffic at the location where trucks will exit from the Project Site at all time during excavated material transportation activities and as needed along the trucking route.

D. Trucks shall only enter and exit the Project Site at locations shown on the Contractor's approved Traffic Plan unless approved by the Engineer.

E. The requirements specified in Remedial Design Report Appendix B Transportation of Solid and/or Liquid Waste and the Contractor's approved Traffic Plan shall be implemented including but not limited to the following:

  A. All truck drivers shall undergo an orientation detailing, at a minimum, the Work requirements of the Transportation of Solid and/or Liquid Waste Plan, Traffic Plan, City of Auburn traffic rules and regulations, driver conduct, approved haul routes, approved staging areas, and prohibition to stage or park trucks within Cayuga County except in pre-designated areas.

  B. All truck drivers shall be required to sign the orientation form.

  C. All truck drivers shall be provided with hard copies of the orientation package including the Transportation of Solid and/or Liquid Waste Plan and the Traffic Plan.

  D. A hand-out detailing the haul routes, speed limits, warnings, designated staging areas, etc, shall be provided to each truck driver.

  E. All truck drivers will be required to follow incident reporting requirements detailed in the Traffic Plan.

1.03 SUBMITTALS:

A. Transportation Plan:

  1. Contractor shall prepare a Transportation Plan providing waste hauler and disposal facility information in accordance with Remedial Design Report Appendix B Transportation of Solid and/or Liquid Waste prior to any actual trucking activity.

  2. Provide a list of proposed waste haulers and number of vehicles for each hauler, for approval by Engineer.

SECTION 02120
OFF-SITE TRANSPORTATION AND DISPOSAL

3. Contractor shall submit copies of all necessary permits and certifications of listed waste haulers to Engineer before commencing the Work.

4. Include detailed address/contact information and description of disposal facilities to be used and their daily capacities.

5. Truck driver orientation and acceptance forms that shall include truck driver responsibilities as specified in the Remedial Design Report Appendix B Transportation of Solid and/or Liquid Waste, designated haul route(s) to and from the off-site disposal facilities with posted speed limits, warnings, etc., and incident reporting procedures for trucking related incidents.

B. Traffic Plan: Include the following:

1. Proposed truck route(s) for review and approval by the Engineer prior to any actual trucking activity.

2. Procedures for addressing vehicular accidents and the possible release of transported materials.

3. Provide an estimate, by day, of the expected quantities of material to be shipped from the Project Site. Describe the number of trucks to be used, the expected turn-around-times, and the expected number of trips per day.

4. Describe locations and procedures for staging and sequencing trucks to minimize disruption and obstruction of the area around the Project Site.

5. Describe locations and equipment to be used to weigh haul trucks. Include frequency for obtaining true weight of trucks.

6. Show on to-scale figure how trucks will enter and exit the Project Site, the location of flaggers and signs.

7. Provide procedures for verifying the accuracy of weight scales.

C. Shipping Documentation: The Contractor shall submit written certification of proper transport of Impacted Materials to Engineer within one working day after receipt of the documentation. Contractor shall submit legible carbon copies (with all signatures affixed) of all waste manifests, weigh tickets, daily trucking logs, waste tracking logs, disposal facility scale weigh tickets, and any other shipping documentation.

D. Daily Construction Report: Report shall include detailed documentation of all loading and transport activities as specified in Specifications Section 01320 – Construction Progress Documentation.

SECTION 02120
OFF-SITE TRANSPORTATION AND DISPOSAL

E. Truck Driver Orientation Signature Sheets: For all truck drivers.

F. Incident Reporting Forms: Contractor shall verbally inform the Engineer of any trucking related incident within one (1) hour of the incident and provide any trucking related incident reporting forms to the Engineer within four (4) hours of the incident.

1.04 WASTE CHARACTERIZATION:

A. No material which does not meet requirements for non-hazardous solid waste shall be shipped from the site without the Engineer's and Owner's approval.

B. No material which does not meet regulatory or facility requirements for physical or chemical properties including moisture content shall be shipped from the site.

C. The Contractor shall be responsible for verifying that all impacted material shipped from the site meets facility requirements for acceptance.

D. The Contractor is responsible for obtaining approval from waste management facilities for disposal of impacted material as non-hazardous and hazardous solid waste.

E. Waste Characterization Data:

1. Soil -The Engineer will pre-characterize the material to be excavated at the Project Site for disposal at the facilities listed in Subsection 1.05 of this section. Additional characterization by the Contractor may be required by the disposal facilities based on actual material volumes. The data from the Engineer's pre-characterization will be provided to the Contractor to facilitate obtaining final approval from the Owner approved facilities. The Contractor shall coordinate with all of the selected facilities and schedule transportation to insure uninterrupted soil removal from the Project Site.
2. Clearing Waste – Above grade vegetation within the planned excavation area (i.e., landscape shrubs and bushes that have not been in contact with the soil in the excavation area) shall be classified as bulk (non-impacted) debris and disposed as such.

F. If additional waste characterization data is required to obtain facility approval, the Contractor shall notify the Engineer giving sufficient time to collect and analyze additional samples if needed.

SECTION 02120
OFF-SITE TRANSPORTATION AND DISPOSAL

1.05 COORDINATION WITH WASTE MANAGEMENT FACILITIES:

A. The Contractor shall be solely responsible for coordinating waste shipments with the waste management facilities. The Contractor shall utilize one of the following pre-approved facilities for all excavated material disposal:

1. Non-Impacted, Non-Hazardous Soil:

   a. High Acres Landfill, located 425 Perinton Parkway, Fairport, NY 14450.

   b. Mill Seat Landfill, located 303 Brew Road, Bergen, NY 14416.

   c. Seneca Meadows located 1786 Salcman Road, Waterloo, NY 13165.

B. The Contractor shall prioritize shipping to the lowest cost facility first. Additional approved facilities may then be used based on availability and cost, only should the lowest cost facility limit acceptance. The Engineer shall be notified on a daily basis of the anticipated shipping volume and the destination facility.

C. The Bidder’s proposal shall identify the names and locations of the debris disposal facilities they plan to use. The Contractor shall list their planned debris disposal facilities in Schedule D.

1.06 DESIGNATED HAUL ROUTES:

A. Contractor shall follow the designated haul routes as outlined in the Transportation of Solid and/or Liquid Waste Plan. The intent is to minimize traffic impacts to residential areas.

1.07 SHIPPING DOCUMENTATION:

A. Shipping documentation shall be prepared consistent with Federal, State, and local waste management and transportation requirements and the requirements of off-site disposal facilities.

B. The Contractor shall prepare necessary paperwork for transportation and disposal of all materials to the appropriate waste management facilities.

C. A non-hazardous/hazardous waste manifest or other tracking document shall be provided by the Contractor for each individual load depending on material classification. Each manifest shall be legible; and signed by designated authorized agent of the Owner, the truck driver as a transporter, and by the disposal facility operator.

D. The Contractor will not be paid for shipments with illegible or unsigned shipping documentation.

E. Daily Trucking Log:

1. The Contractor shall provide a Daily Trucking Log to the Engineer for approval providing information on each off-site shipment from the Project Site, including trucking company, truck and trailer registration number, date, pre-characterization source ID, destination facility, estimated quantity, verification of decontamination, and Contractor personnel's initials.

2. The Contractor shall fill in the Daily Trucking Log for each shipment at the time it leaves the Project Site.

3. The Contractor shall submit the completed Daily Trucking Log to the Engineer electronically as specified in Specification Section 01320 – Construction Progress Documentation and Section 01330 – Submittal Procedures.

4. The Contractor will not be paid for any shipment if there are discrepancies between Daily Trucking Logs and facility weigh tickets until the discrepancy is resolved, as determined by the Engineer.

PART 2 – PRODUCTS

2.01 TRUCK BED LINERS:

A. Truck bed liners for trucks transporting impacted sediments shall be 6-mil (minimum thickness) polyethylene sheets. Polyethylene sheets shall be of sufficient length and width to cover the interior bed of the haul truck with no seams and have sufficient material to completely cover over the load with overlap.

B. Contractor shall provide staging so that workers can place liners in the truck bed safely.

PART 3 – EXECUTION

3.01 PREPARATION FOR TRANSPORT:

A. Contractor shall coordinate transportation work with excavation and any soil amendment Work to maintain excavation production rates for completion of the Work in accordance with the Contractor's submitted work schedule and the Construction Milestones. Slowing or stopping of Work by Contractor due to lack of transportation, availability of trucks or shipping containers or availability of disposal facility capacity does not release the Contractor for obligations to achieve the documented construction milestones.

B. Due to Project Site conditions, truck staging shall be minimized prior to loading to the available on-site space. Additionally, trucks will not be allowed to idle or park on streets adjacent to the Project Site, awaiting entrance into the loading area.

C. No loading of materials shall take place in areas outside of the approved limits of erosion and sediment control features.

D. Tarps shall be placed over loads after the bed liner has been overlapped. All loads shall be secured and tarped prior to exiting the Project Site. All trucks shall have a watertight tailgate that has a gasket between the box and tailgate (or driver shall apply caulking between the box and the tailgate) with secondary securing devices or “turnbuckles”. Turnbuckles shall be in position to lock the tailgate before the truck leaves the Project Site.

E. Loading operations and hours shall be coordinated with the operating hours of the waste management facilities. Loaded trucks shall not leave the Project Site unless they can arrive at the designated waste management facility before it closes for the day. Loaded trucks shall discharge their loads at the designated waste management facility the same day they are loaded. Contractor shall coordinate excavation, demolition, soil amending, loading, and transportation, subject to the Engineer’s approval, to efficiently utilize combined resources.

3.02 TRANSPORTATION TO WASTE MANAGEMENT FACILITY:

A. Contractor shall furnish and operate all vehicles and containers for transportation of all waste materials from the Project Site.

B. Drivers hauling Impacted Material shall drive directly to disposal facility and shall not stop except in the event of an emergency.

C. Transportation of all Impacted Material shall be in compliance with all pertinent Regulations.

D. Contractor shall visually inspect each truck and fill out a Daily Trucking Log before the truck leaves the Project Site to ensure that the tailgate and tarp are secure. Contractor shall decontaminate vehicles as specified in Section 02130 - Decontamination.

E. Haul trucks shall be lined with polyethylene sheeting and/or decontaminated on site prior to re-use for hauling anything other than material from the Project Site. Contractor shall provide appropriate staging so that workers can safely line the truck bed. Truck beds shall be included in the decontamination.

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OFF-SITE TRANSPORTATION AND DISPOSAL

F. Contractor's remedial workers will reposition the cover bars over the waste material. Drivers shall not exit their vehicles on site and walk over waste material.

G. In the event that a loaded truck is involved in an incident that results in a release of the transported materials, the cleanup shall follow local and State Department of Transportation spill response procedures.

H. Contractor shall promptly clean up any spills on haul routes, if they occur, with suitable equipment at no cost to the Engineer or the Owner.

I. Contractor shall keep all haul routes and public rights-of-way free of any Project Site materials generated by the Contractor's operations. To this end, all Contractor trucks shall be covered to prevent any material from leaving the truck, and all vehicles shall be carefully loaded to prevent site materials from coming in contact with the exterior truck surfaces.

J. The load weight shall be documented by the disposal facility scale Weigh Ticket. Contractor shall provide copies of all disposal facility scale weigh tickets. Unsigned scale weigh tickets will be rejected and the Contractor will not be paid for material represented by these weights.

K. Contractor shall prevent any tracking of Project Site materials onto public rights-of-way.

L. Truck drivers shall be required to remain inside the truck cab with the windows and doors closed during loading. Drivers shall be instructed to proceed after loading through a decontamination area to a designated area outside the Exclusion Zone where they will be permitted to exit the truck cab to inspect the load.

M. The Contractor shall address vehicular accidents and the possible release of transported materials in their HASP and Traffic Plan.

3.03 WASTE MANAGEMENT DOCUMENTATION:

A. Contractor shall prepare legible manifests, and prepare necessary paperwork for transportation and disposal of impacted materials and debris.

3.04 TRANSPORTATION:

A. Transportation of Impacted Materials and debris shall be in accordance with applicable State, RCRA, US DOT, local, and other applicable Regulations, including: 40 CFR 261, 262, 263 and 49 CFR 171 through 179.

B. Truck drivers using routes other than the routes allowed in the Transportation of Solid and/or Liquid Waste Plan or found upon investigation to be at fault of causing an accident associated with this Project shall be barred from working on the Project Site.

C. Truck drivers not following the requirements detailed during the orientation, in the Transportation of Solid and/or Liquid Waste Plan, or in the Traffic Plan shall be barred from working on the Project Site.

3.05 PERMITS:

A. Contractor shall obtain all required transportation permits for shipment of Impacted Materials and debris. Contractor shall maintain a current copy of all transportation permits for all approved waste haulers on site in the Contractor's trailer which shall be made immediately available to the Engineer for inspection, upon request.

END OF SECTION

SECTION 02130
DECONTAMINATION

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. Submittals

C. Decontamination Facilities

D. Decontamination of Vehicles and Equipment

E. Personnel Decontamination

F. Truck and Equipment Decontamination Methods

G. Management of Decontamination Residuals

1.02 SUMMARY:

A. This Section covers the decontamination of personnel and equipment as they move from the Exclusion or Work Zones into the Support Zones, including also equipment in preparation for demobilization from the Project Site.

1.03 SUBMITTALS

A. Decontamination Procedures: Contractor shall submit personnel decontamination procedures as part of the Contractor's HASP specified in Specifications Section 01415 – Health and Safety Requirements. Contractor shall provide the following information:

1. Number, location, and design of decontamination stations.

2. Decontamination methods and equipment that will be used in accordance with New York State Department of Environmental Conservation (NYSDEC) requirements.

3. Procedures to prevent contamination of clean areas including procedures for decontamination of all trucks and equipment.

4. Methods and procedures to minimize worker contact with contaminants during removal of personal protective equipment (PPE).

5. Procedures for inspection and decontamination of vehicles leaving the Project Site.

6. Procedures for disposal of personal PPE.

7. Procedures for the collection and off-site treatment and disposal of all decontamination water and residuals.

8. Procedures for minimizing generation of wastewater.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 DECONTAMINATION FACILITIES

A. Construct and maintain decontamination facilities and, if needed based on Contractor's approach to the work, wheel wash stations in accordance with these specifications and/or as otherwise proposed by Contractor and approved by the Engineer.

3.02 DECONTAMINATION OF VEHICLES AND EQUIPMENT

A. Prior to exiting the Exclusion Zone and entering the Decontamination Zone, the Contractor shall inspect all vehicles and equipment for evidence of contamination. All vehicles and equipment exiting the Exclusion Zone shall be decontaminated without fail. All decontamination shall take place in the Decontamination Zone as specified in Specifications Section 01500 – Mobilization and Temporary Facilities.

B. Decontamination shall include removal of soils, debris and residues from the chassis (which includes undercarriage, suspension, and tire tracks) and other parts of the vehicle known to have been contaminated or visually appearing to be contaminated.

C. Contractor shall take care while decontaminating vehicles to avoid contaminating personnel, other parts of the vehicle or equipment, or the surroundings. Personnel involved in vehicle and equipment decontamination shall be dressed in the appropriate level of PPE as determined by the HASP. All personnel shall follow all applicable safety procedures described in Specifications Section 01415 – Health and Safety Requirements.

D. Contractor shall decontaminate haul trucks after loading and before the haul trucks exit onto public streets. Contractor shall ensure that all haul trucks exit through the Decontamination Zone and receive proper decontamination and inspection.

E. Contractor shall document decontamination of vehicles and equipment on the Daily Trucking Log as described in Specifications Section 02120 – Off-site Transportation and Disposal.

SECTION 02130
DECONTAMINATION

3.03 PERSONNEL DECONTAMINATION

A. Contractor shall ensure that personnel who have entered the Exclusion Zone perform decontamination as required in the HASP as specified in Specifications Section 01415 – Health and Safety Requirements prior to exiting the Decontamination Zone.

3.04 TRUCK AND HEAVY EQUIPMENT DECONTAMINATION METHODS:

A. Physical removal techniques used to decontaminate materials and wastes shall include, but are not limited to, brushing and spraying with heated-water pressure washer until all visible contamination and debris is removed.

B. Brushing shall consist of removal of loose materials with the use of a broom and/or brushes.

C. A heated water pressure washer shall be used to provide application of water of sufficient temperature, pressure, residence time, and agitation to remove soil, debris and contaminated residuals from surfaces.

D. Surfactants and detergents shall be approved by the Engineer prior to use in decontamination operations.

E. All equipment decontamination procedures shall be performed in a decontamination facility.

F. Overspray barriers shall be provided on each side of the decontamination area to prevent re-contamination of adjacent areas.

G. Contractor shall manage decontamination residuals, including water, soil, debris, residues, used PPE, and other materials removed during decontamination as specified in Subsection 3.05 of this section.

3.05 MANAGEMENT OF DECONTAMINATION RESIDUALS

A. Contractor shall collect decontamination liquid prior to off-site transfer. Decontamination water shall be properly characterized for appropriate disposal.

B. Contractor shall dewater and collect decontamination solids. Dewatered decontamination solids shall be managed as Impacted Material, as specified in Specifications Section 02120 – Off-Site Transportation and Disposal.

END OF SECTION

SECTION 02260
EXCAVATION

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. References

C. Quality Control

D. Project Conditions

E. Submittals

F. Excavation Requirements

G. Sequencing and Scheduling

H. Materials

I. Preparation

J. Excavation

1.02 SUMMARY:

K. Excavation shall occur at the location and to the limits shown on the Drawings, and all excavated material disposed off site.

L. Related Sections:

1. Section 01570 – Erosion and Sediment Control
2. Section 02120 – Off-Site Transportation and Disposal
3. Section 02130 – Decontamination
4. Section 02300 – Backfill and Grading

1.03 REFERENCES:

A. OSHA 29 CFR 1926 Subpart P – Excavations.

SECTION 02260
EXCAVATION

1.04 QUALITY CONTROL:

A. Contractor's Land Surveyor shall stake excavation boundaries indicated on the Drawings and perform initial survey as specified in Specifications Section 01720 - Surveying.

B. Contractor shall perform surveying to record elevations during the course of the excavation Work. During performance of the Work, Contractor shall employ all equipment necessary for control of excavation depths, lines, and grades within required tolerances.

C. Verification of final excavation horizontal limits and depths shall be accomplished by survey provided by Contractor's Land Surveyor and in a manner that is mutually acceptable to the Contractor and the Remediation Engineer/Construction Manager. During the progress of Work, the Contractor shall provide survey data as the excavation progresses that consist of the following:

1. Horizontal limits of completed excavation in sufficient detail to determine limits of the material removed.

2. Vertical limits of excavation consisting of top of final grade or excavation limit in sufficient detail to verify quadrant elevations and to establish the progress of the completed Work.

D. Contractor personnel and equipment shall meet the training standards and requirements of OSHA 29 CFR 1926: Subpart P-Excavations.

1.05 PROJECT CONDITIONS:

A. Excavation shall occur in a commercial neighborhood. Odors, noise, dust, and vapors shall be controlled accordingly and as described in the Contract Documents.

B. Contractor shall provide materials, and install all necessary controls required for stability of the excavation and to protect adjacent roadways, structures, and utilities.

1.06 SUBMITTALS:

A. Excavation Plan: Submit a detailed proposal for performing the excavation work including proposed procedures for managing the excavation, sequencing, staging, tracking, and loadout of the excavated materials. The Plan shall include the following:

1. Detailed description of equipment and procedures to be used to excavate impacted soil and debris.
2. Detailed description of excavation and backfill sequencing.

3. Excavation production rates in the form of a table of excavation and off-site disposal volumes per week for each week of the Project Schedule.
4. Figures showing locations of temporary on-site haul roads to support the progress of the excavation work.

C. Daily progress reports of excavation.

1.07 EXCAVATION REQUIREMENTS:

A. The Drawings show the limits and elevations of the excavation areas for this Work.

B. The Contractor shall lay out the Work and excavate soil and debris to the horizontal and vertical limits of excavation.

C. Contractor shall erect and maintain barriers as required/directed, and as specified in Specifications Section 01500 – Mobilization and Temporary Facilities and deemed necessary by the Remediation Engineer/Construction Manager, around open excavations to provide any other necessary safety precautions to safely secure the Project Site both during and after Work hours.

D. Work shall be performed in a manner that does not disturb or damage existing structures, utilities, monitoring wells, or other facilities not indicated to be removed, unless the removal of such items is shown on the Drawings. Damaged facilities shall be repaired or replaced at the Contractor's expense as determined by the Remediation Engineer/Construction Manager on behalf of the Owner.

E. Contractor shall maintain a written record of daily progress of the excavations, including all survey observations and data, and submit a copy to the Remediation Engineer/Construction Manager at the Weekly Progress Meetings, or as otherwise requested by the Remediation Engineer/Construction Manager.

F. The Contractor shall comply with Occupational Safety and Health Act Regulations (29 CFR 1926.651):

1. These regulations include but are not limited to specific excavation requirements including the following:

a. Removal of surface encumbrances.

b. Determination of underground installations.

c. Providing access and egress.

d. Protection of nearby structures and utilities.

e. Preventing exposure to vehicular traffic.

f. Preventing exposure to falling loads.

g. Providing a warning system for mobile equipment.

h. Preventing exposures to hazardous atmospheres.

i. Preventing hazards associated with water accumulation.

j. Protection of employees from loose rock or soil.

k. Providing work area lighting.

l. Inspections.

2. The Contractor shall be responsible for meeting requirements for excavation protection in OSHA 29 CFR 1926.652.

G. Contractor shall control dust emissions and odors during excavation activities in accordance with the requirements of Specifications including Section 02150 – Odor and Vapor Control.

H. Contractor shall protect all existing structures outside the limits of excavation areas. If Contractor damages any structures, Contractor shall repair or replace the damaged structure to acceptable construction standards at Contractor's own expense.

I. Contractor shall notify all utility companies and locate all underground utilities prior to starting excavation Work. Contractor shall be responsible for protection of utilities. If Contractor damages any utilities, Contractor shall repair or replace the damaged utility to acceptable construction standards at Contractor's own expense.

J. The Contractor shall sequence and stage excavation operations as approved, to meet the following requirements:

1. Balance the rate of excavation with the rates of on-site material management and off-site transportation operations described in Specifications Sections 02120 – Off-Site Transportation and Disposal, to ensure sufficient capacity for transportation.

2. Maintain stability of sidewalls.

1.08 SEQUENCING AND SCHEDULING:

A. Contractor shall conduct excavation in accordance with the Remedial Design Report, Specifications, and Drawings.

B. Contractor shall complete excavation in accordance with the sequence described in these Specifications.

SECTION 02260
EXCAVATION

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Material and equipment shall be furnished as deemed necessary by Contractor, as approved. Contractor shall furnish and install all materials necessary for excavation support. The materials and equipment used in this regard may be new or used but shall be suitable for the Work and be maintained in good condition.

B. All temporary excavation controls shall remain the property of the Contractor. All temporary excavation controls materials shall be decontaminated and removed from the Project Site at the completion of the Work.

PART 3 – EXECUTION

3.01 PREPARATION:

A. The Contractor shall comply with the requirements of the utility owners for protection of underground utilities.

3.02 EXCAVATION:

A. Excavation:

1. The Contractor shall excavate material from the existing grade elevations and extents shown on the Drawings.
2. The Contractor shall excavate using only approved equipment and procedures.
3. Excavated material shall be loaded directly into trucks and not stockpiled.

END OF SECTION

SECTION 02300
BACKFILLING AND GRADING

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary

B. References

C. Submittals

D. Quality Control

E. Project Conditions

F. General

G. Bedding Sand

H. Stone Topping

I. Topsoil

J. Surveying

K. Preparation

L. Placement of Backfill

M. Site Grading and Restoration

N. Maintenance

1.02 SUMMARY:

A. The Contractor shall provide all materials, equipment, and labor to place and compact backfill and grade to the final elevations in accordance with this Section and the Drawings.

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM):

1. ASTM D422, Standard Test Method for Particle Size Analysis of Soils.

SECTION 02300
BACKFILLING AND GRADING

2. ASTM D2487, Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).

B. New York State Department of Environmental Conservation (NYSDEC):

1. NYSDEC Title 6 of the New York Codes, Rules, and Regulation (NYCRR) Part 375, Environmental Remediation Programs.

2. NYSDEC DER-10, Technical Guidance for Site Investigation and Remediation. May 2010 (w/errata 2019).

1.04 SUBMITTALS:

A. For proposed backfill, Contractor shall submit written certification, signed by the material supplier, stating that the material meets or exceeds the specified requirements. Information shall be submitted to Engineer for review and approval no less than 14 calendar days prior to scheduled delivery of specified material to the Project Site.

B. Contractor shall submit samples of imported backfill material to Engineer for chemical analyses.

C. Soil Testing: The Contractor shall test the off-site backfill material and submit results at the following frequency or whenever a change of materials occurs (i.e., from each new off-site source to be used at the site):

1. Name and location of proposed source(s) of backfill.
2. Soil classification in accordance with ASTM D2487 for every source and every 2,500 cubic yards of material.
3. Particle size analysis in accordance with ASTM D422 for every source and every 2,500 cubic yards of material.
4. A full analysis for every 500 cubic yards of material from each source demonstrating conformance with the requirements soil cleanup objectives specified in 6NYCRR Subpart 375 soil cleanup objectives, Table 375-6.8(b), for Restricted Residential use.
5. All such testing shall be performed in the presence of the Engineer.

D. Contractor shall submit written documentation showing conformance of the materials and constructed work with the Specifications within five (5) days after test results are obtained.

SECTION 02300
BACKFILLING AND GRADING

1.05 QUALITY CONTROL:

A. Contractor shall retain the services of a New York State Department of Transportation (DOT) approved soils testing laboratory to document conformance of material type and compaction of backfill materials with the Specifications.

1.06 PROJECT CONDITIONS:

A. Work shall be performed in a manner that does not disturb existing utilities, structures, or other facilities required to be preserved within and adjacent to the project limits.

PART 2 – PRODUCTS

2.01 STONE TOPPING

A. Conform to NYSDOT Table 703-4, Size 1 that is supplied from a NYSDOT approved facility and conform to the following gradation requirements:

Sieve Size	Percent Passing
1-inch	100
1/2 inch	90 - 100
1/4 inch	0-15

2.02 TOPSOIL:

A. Topsoil shall be fertile, friable, natural loam. Topsoil shall be free from ice and snow, roots, sod, rubbish, and any other deleterious or organic matter. It shall have the following approximate analysis, or equivalent approved by Engineer:

Sieve Size	Percent Passing
2-inch	100
1-inch	85 - 100
¼ inch	65 - 100
No. 200	20 – 80

Other properties:

Organic Matter	>2% and <21%
% Passing a 2-inch Sieve	100%
pH	5.5 - 7.6

SECTION 02300
BACKFILLING AND GRADING

2.03 BEDDING SAND:

A. Bedding sand is to be Filpro #1 sand or equivalent approved by the Engineer, and shall be free of ice, clay, organic matter or other objectionable material. It shall have the following approximate analysis, or equivalent approved by Engineer:

Sieve Size	Percent Retained
No. 10	0
No. 12	0-10
No. 14	25-35
No. 16	35-45
No. 18	15-25
No. 20	0-10
No. 25	0-5
No. 30	0-5
No. 35	0

PART 3 – EXECUTION

3.01 SURVEYING:

A. The Contractor shall survey the final surface elevation of completed backfill with a New York State Registered Land Surveyor for payment quantity and as-built purposes. Final thickness of any placed backfill layer shall vary no more than 10 percent from the specified thickness.

3.02 PREPARATION:

A. Backfilling shall not proceed until the Engineer has approved the completion of excavation area in total, or in subareas where approved, of the Project Site and documented bottom and perimeter conditions including verification sampling as required and as-built survey. Verification sampling will be performed by the Engineer; Contractor should anticipate minimum 7 days from date of sample collection for Engineer's receipt of analytical results and NYSDEC acceptance of results allowing placement of backfill.

B. Backfilling shall not be performed when the ground or backfill is frozen or too wet to compact. The Contractor shall dewater the excavations as necessary to allow backfilling to proceed.

3.03 PLACEMENT OF BACKFILL:

A. Backfill shall be placed in uniform layers not exceeding 12 inches loose lift thickness.

SECTION 02300
BACKFILLING AND GRADING

B. Excavation backfill (topsoil) shall be compacted until visually stable.

C. Trenching backfill (above bedding sand) shall be compacted until visually stable.

D. Contractor shall place and compact backfill in the excavations up to the final grade as indicated on the Drawings.

3.04 SITE GRADING AND RESTORATION:

A. Contractor shall grade unpaved areas to the contours indicated on the Drawings. The final backfill surface shall be shaped to provide a smooth transition to existing grade at the limits of the disturbed areas.

B. Contractor shall shape and compact backfill with uniform levels or slopes between points where elevations are shown on the Drawings, or between such points and existing grades.

C. Contractor shall smooth the finished surfaces for general site grading within tolerance of two (2) inches above or below the required elevation.

D. Contractor shall grade areas adjacent to structures to achieve drainage away from the structures and to prevent ponding.

3.05 MAINTENANCE:

A. Contractor shall protect newly graded areas from traffic and erosion. The Work shall be sequenced to minimize disturbance of completed areas.

B. Where completed areas are disturbed by subsequent project operations or adverse weather, fill and reshape eroded areas until acceptance of the Work.

END OF SECTION

SECTION 02710
INTEGRATED GROUNDWATER TREATMENT EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Description

B. Quality Assurance

C. Submittals

D. Product Handling

E. Spare Parts

F. Warranty

G. Air Compressor and Related Equipment

H. Piping Systems

I. Distribution Piping

J. Electrical Equipment

K. Control Equipment

L. Trailer or Enclosure

M. Manufacturer's Guidance

1.02 DESCRIPTION

A. This section describes work to be completed by the Contractor.

B. Work Included: Provide a single Biosparge System for groundwater treatment comprised of the following major components that are integrated into one (1) package summarized below:

1. Oil-less (oil-free) air compressor, aftercooler, and receiver vessel

2. Instrumented air-distribution piping

3. Instrumented condensate discharge piping

4. A modified enclosed trailer or equivalent structure to contain Biosparge equipment

5. Electrical power and control equipment

C. References

1. 2023 City of Auburn Building Code

2. 2020 Building Code of New York State

3. 2020 Existing Building Code of New York State

4. API 500 Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class 1, Division 1, and Division 2

5. ASME B31.3 Process Piping

6. ASME Boiler and Pressure Vessel Code (BPVC)

7. ASTM B241 Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube

8. NFPA 70 National Electric Code

9. NFPA 496 Standard for Purged and Pressurized Enclosures for Electrical Equipment

10. PIP PN12CG0T01 Piping Material Specification 12CG0T01 Class 125, Galvanized Carbon Steel, Threaded, C.A.- None, Utility (Air & Water), Category D

11. PIP PCSIP001 Instrument Piping and Tubing Systems Specifications

D. Work By Others

1. [Not Used]

1.03 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Where the phrase “or equivalent” is indicated, equal products of other manufacturers complying with these specifications may be provided with approval by the Engineer.

C. Factory Acceptance Test: Provide access to Engineer for acceptance testing of the Biosparge System at the place of assembly. Acceptance testing shall include but is not limited to the following activities:

1. Documenting equipment performance capabilities.

2. Documenting functional integration of controls and alarms.

3. Verifying component arrangements “as-designed”.

1.04 SUBMITTALS

A. Project Data: Within 30 calendar days after the Contractor has received the Notice to Proceed, submit:

1. Equipment list of major equipment.

2. Manufacturer’s Data Sheets for major equipment.

3. Shop drawings and details showing the fabrication, installation, and anchorage of the proposed construction, and the alignment and elevations of all tie points.

4. List of local, factory-authorized service providers for major equipment.

B. Procedures: Provide the following procedures to the Engineer as indicated:

1. Factory Acceptance Testing Procedures approximately one (1) week prior to the FAT event.

2. Field Commissioning Procedures two (2) weeks prior to field commissioning.

C. Prior to final invoicing, provide an Operation and Maintenance Manual including:

1. Equipment List and Instrumentation List

2. Final shop drawings

3. Manufacturer’s data sheets and O&M/Instruction manuals for all components

4. Process troubleshooting and optimization discussions

5. Alternate and emergency operation processes and procedures

1.05 PRODUCT HANDLING

SECTION 02710
INTEGRATED GROUNDWATER TREATMENT EQUIPMENT

A. All components shall be delivered or freighted to the project location and are the responsibility of the Contractor to provide free of defect (F.O.B. Auburn, New York).

B. The Owner shall accept no risk related to the shipment of the equipment from the Contractor to the Site.

1.06 SPARE PARTS

A. Provide the following spare parts as applicable to the equipment:

1. All replaceable filters for one (1) year.
2. Annual consumables kit for the air compressor that at a minimum includes replacement vanes.
3. One (1) tube gear lube and motor grease as required.
4. Miscellaneous replaceable gaskets, seals, and washers as required.
5. One (1) set of special tools as required.

1.07 WARRANTY

A. One (1) year parts and labor.

PART 2 – PRODUCTS

2.01 AIR COMPRESSOR AND RELATED EQUIPMENT

A. Provide air compressor, aftercooler, and liquid coalescing filter.

1. Air compressor
   a. Manufacturer:
      i. Not specified
      ii. Must have field service division or licensed technicians that service project location for routine maintenance.
   b. Type:
      i. Oil-less (oil free) rotary vane compressor

SECTION 02710
INTEGRATED GROUNDWATER TREATMENT EQUIPMENT

c. Rated to provide at least 6 scfm at 25 psig

d. Rated for 100% duty cycle

e. Enclosed or other guarded drive

f. Integrated control system

g. 75 dBA or less at 3 feet

2. Aftercooler

a. Integrated with or separate from air compressor

b. Provide if needed to maintain downstream piping below 140F

c. Maximum outlet air temperature = 140F

d. Inlet temperature = 40F (min.) to 110 F (max)

3. Liquid Coalescing Filter

a. Code: ASME BPVC Section VIII D1

b. Safety Relief per ASME BPVC Section VIII D1

c. Element Performance: > 99% removal at 0.1 micron

B. Size all equipment to maintain compressor cycling within manufacturer's requirements.

C. Provide timer-automated separation of aqueous condensates.

1. Vapor/Liquid Separation: Blow-down from liquid coalescing filter to ground outside of trailer

2.02 PIPING SYSTEMS

A. Piping systems shall conform to the following codes and practices.

1. ASME BPVC Section VIII

2. ASME B31.3

B. The Contractor shall specify the design conditions for piping systems based on the selected compressor's performance and in accordance with the applicable referenced codes. Design conditions shall not be less than 25 psig at 140°F.

C. Piping and materials shall be protected from over-pressurization in accordance with the referenced code.

D. The following piping systems are acceptable for piping between equipment components, provided that adequate overpressure is provided in accordance with ASME B31.3 and that component temperature ratings are not exceeded:

1. 150# galvanized steel per PIP PN12CG0T01

2. 150# copper tubing per PIP PCSIP001 IP-01A

3. 150# type 316 stainless steel tubing per PIP PCSIP001 IP-03A

4. ASTM B241 modular aluminum pipe (Parker Transair® or equivalent) per manufacturer's installation instructions

E. Compressed air hose and tubing that conforms to the design conditions may be used for short segments for strain relief and to isolate vibrations provided that:

1. Adequate restraint and supports are installed.

2. Segments are rated for their intended service.

3. Factory-made ends are installed and pressure tested at the rated working pressure prior to installation.

F. Testing:

1. Piping and tubing shall be leak tested at maximum working pressure using compressed air or inert gas. Hydrostatic testing is not permitted.

2. All observed deficiencies shall be corrected. If a leak can be observed (bubble test) or is audible, it is an observable deficiency and shall be corrected.

2.03 DISTRIBUTION PIPING

A. General:

1. Provide two (2) active and one spare NPS 1-inch pipe for air delivery with valving and instrumentation described in this Section. Terminate the header with a capped tee to allow potential addition of further distribution piping.

2. Configure for up-flow. The air distribution leg(s) shall be supplied from the bottom and the distribution lines shall originate from the top of the header to reduce dirt and other contaminates collected on the bottom of the header piping from going to the distribution line.

3. Provide an air bleed/low point drain for the bottom of the distribution pipe.

4. Provide union fittings near the top and bottom of each distribution leg, to accommodate future maintenance to valving and instrumentation.

B. Provide the following valves on each of the two (2) legs of distribution piping:

1. One (1) manual block and bleed valve assembly to isolate and bleed pressure from the distribution piping.

2. One (1) pressure regulator with integral pressure indicators ranged for 10 psig (min.) to 100 psig (max.), for expected flows between 0 scfm and 10 scfm.

3. One (1) timer-controlled solenoid valve for cycling air flow.

4. Two (2) pressure indicators.

5. One (1) variable area flow meter/rotameter sized for low pressure drop and 6 scfm flow, 10:1 turndown.

6. One (1) needle valve for manual flow control. Integration with rotameters preferred.

7. One (1) check valve to prevent backflow from distribution piping.

C. Provide pressure relief in accordance with ASME B31.3 upstream of any components that have lower pressure ratings than compressed air supply pressure under failure scenarios.

2.04 ELECTRICAL EQUIPMENT

A. Available power is from a 230-volt, single-phase feeder circuit that originates from the Owner’s Shed building. Contractor shall notify the Engineer if specifications for available power are insufficient for operation of the remediation trailer.

B. Provide the following electrical components sized for the selected equipment:

1. Service disconnect

2. Service transformer

3. Transient voltage surge suppression device

4. Subpanels (as required)

5. Motor drives, contactors, and overloads

SECTION 02710
INTEGRATED GROUNDWATER TREATMENT EQUIPMENT

6. Equipment (i.e. service) disconnects

C. All components shall be sized and constructed in accordance with the most current version of NEC.

D. All disconnects shall be lockable.

E. All equipment shall be rated for an unclassified location in accordance with NFPA 70E, API 500, and NFPA 496.

2.05 CONTROL EQUIPMENT

A. Provide and integrate the following:

1. Control panel
2. Air distribution timer
3. Supplemental ESDs
4. Telemetry and Alarm Annunciation

B. Control Panel:

1. Relay-based
2. Location on the interior of the remediation trailer
3. NEMA 3R or NEMA 4 lockable panel
4. UL listed and certified to UL 508A Standards for Industrial Control Panels
5. Skid mounted
6. Location and clearance: per NEC
7. Partitions and interior guards and labels: per NEC
8. Spare capacity: at least 25% free space
9. Provide a 120-volt duplex electrical outlet with manual on/off switch
10. Provide the following panel-mounted devices on the panel cover:

    a. Manual ON-OFF switches for the major powered components:

        i. Air compressor

SECTION 02710
INTEGRATED GROUNDWATER TREATMENT EQUIPMENT

ii. Distribution valves and timers

b. Status lights/push buttons

i. Red fault light for each shutdown

ii. Common, Pushbutton Reset

iii. Green Run Light for each ON-OFF switch

c. Mushroom-style ESD

d. Hour meter and amp meter for all continuously operated motors, unless indicated elsewhere as part of equipment (e.g. air compressor or motor VFD).

11. Provide the following control functions unless they are otherwise integrated into equipment directly by manufacturers.

a. Power loss indication

b. Phase imbalance shutdown

c. ESD Event indication

d. Compressor common alarm

12. For an ESD shutdown, de-energize the entire integrated equipment system.

13. For all shutdowns except an ESD, automate the following outcome:

a. De-energize the compressor

b. Isolate the distribution piping

c. Annunciate the status and shutdown/alarm condition.

14. All faults/shutdown interlocks shall stay latched until the reset button is pushed.

C. Telemetry and Alarm Annunciation

1. Provide telemetry as follows:

a. Cellular telephone or web-based notification and remote verification of shutdown conditions

b. Sensaphone 600, Sensaphone 1400, Sensaphone Sentinel monitoring systems, or equivalent.

c. Details of service contract, access numbers, alarm acknowledgement codes, and notification lists may be coordinated with the Engineer during assembly.

2. Provide one (1) exterior yellow light above the remediation trailer that is continuously illuminated or pulsed at low frequency for all shutdown events.

3. Do not provide a local siren or flashing strobe.

2.06 TRAILER

A. Provide an enclosed trailer or equivalent structure equipped with the above-specified units.

B. Requirements for all buildings:

1. Designed in accordance with 2020 Building Code of New York State, 2020 Existing Building Code of New York State, and 2023 City of Auburn Building Code

2. Complies with requirements of City of Auburn Building Permits, if necessary. Contractor is responsible for permit application and issuance as necessary.

3. Equipped with intake louver or vent sized appropriately for compressor air supply.

4. Equipped with manually adjustable, temperature-controlled exhaust fan.

C. Equipment Arrangement:

1. Adequate space around and above storage vessel shall be provided for maintenance activities. The following clearances are targeted:

a. Horizontal: 3 feet (2 feet, minimum)

b. Vertical: 3 feet (1 foot, minimum)

2. Where the targeted clearances cannot be provided, reduced clearances may be tolerated on sides of storage vessels that do not require access.

PART 3 - EXECUTION

3.01 MANUFACTURER GUIDANCE

SECTION 02710
INTEGRATED GROUNDWATER TREATMENT EQUIPMENT

A. All equipment shall be installed in accordance with manufacturer’s recommended practices.

END OF SECTION

Technical Specifications

Division 40 – Process Interconnections

SECTION 40120
COMPRESSED AIR PIPING

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. General Requirements

B. Submittals

C. Acceptable Manufacturers

D. Above Grade Materials

E. Below Grade Materials

F. Protection of Work

G. Pipe Preparation

H. Pipe Installation

I. Pipe Support Installation

J. Pipe Testing

1.02 GENERAL REQUIREMENTS

A. This section describes the requirements for compressed air piping and fittings in exterior locations between the Remediation Trailer and the Well Head Assembly Locations.

B. The CONTRACTOR shall furnish and install all piping from the VENDOR-provided Remediation Trailer to the Well Head Assembly Locations.

1.03 SUBMITTALS

A. Statements of Materials Conformance

1. Piping

2. Fittings

3. Joint Compounds

4. Insulation

5. Jacketing

6. Detection Tape

SECTION 40120
COMPRESSED AIR PIPING

B. List of Spare Parts

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Where suggested manufacturers or suppliers are indicated on the Drawings, the CONTRACTOR may offer substitute material.

2.02 ABOVE GROUND MATERIALS

A. Process Piping and Fittings as specified in Specification Section 02710 Integrated Groundwater Treatment Equipment.

2.03 BELOW GROUND MATERIALS

A. Process Piping and Fittings

1. SDR 11 PE-4710 HDPE Pipe

2. Pipe, nipples, fittings per ASME B31.3

PART 3 - EXECUTION

3.01 PROTECTION OF WORK

A. The CONTRACTOR shall protect all piping from entry of dirt, pipe cuttings, lubricants, debris, stormwater, and other foreign material. The CONTRACTOR shall remove any foreign material and clean piping to the satisfaction of the ENGINEER.

3.02 PIPE PREPARATION

A. The CONTRACTOR shall mark pipe sections with required identification prior to assembly.

B. The CONTRACTOR shall inspect for defective or damaged pieces prior to assembly.

C. The CONTRACTOR shall remove scale, dirt, pipe fittings, and lubricants inside and outside, prior to assembly.

3.03 PIPE INSTALLATION

SECTION 40120
COMPRESSED AIR PIPING

D. Below-ground HDPE pipe shall be installed in accordance with PIP PNSC0036.

E. The CONTRACTOR shall install all pipes, including all transition joints between dissimilar materials, in accordance with the manufacturer’s recommendations and requirements.

F. The CONTRACTOR shall cut pipe to exact measurement and install without forcing or springing.

G. The CONTRACTOR shall install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

H. The CONTRACTOR shall provide adequate clearance, install unions, and orient fittings and appurtenances for ease of installation of equipment and access to valves, fittings, and appurtenances.

I. The CONTRACTOR shall install all piping and equipment as indicated in the Contract Documents. In the event that an installation requirement is unclear, the CONTRACTOR shall consult with the ENGINEER before proceeding with the work in question.

J. The CONTRACTOR shall install all fittings and valves as shown on the Drawings. However, the CONTRACTOR may install additional fittings, as necessary to complete the Contracted Work. The CONTRACTOR shall consult with ENGINEER prior to installation of additional fittings.

K. The CONTRACTOR shall protect all underground and surface structures using methods acceptable to the ENGINEER and the OWNER. The protection shall be furnished by the CONTRACTOR at no additional cost to the ENGINEER or the OWNER.

L. The CONTRACTOR shall plug open ends of pipe with a standard plug or cap at all times when pipe laying is not in progress. Trench water shall not be allowed to enter pipe.

3.04 PIPE SUPPORT INSTALLATION

A. Pipe supports and anchors shall be installed in accordance with the manufacturer’s recommendations.

3.05 PIPE TESTING

B. The CONTRACTOR shall perform pressure tests on all installed piping.

C. The CONTRACTOR shall isolate all equipment such as that may be damaged by the test.

D. The CONTRACTOR shall complete testing prior to backfilling underground piping; however, sections of the pipe shall be backfilled at intervals directed by the ENGINEER to hold the pipe in place during the test. The piping system may be tested in sections with acceptance from the ENGINEER. Temporary capping of the piping shall be done so the tests can be performed.

E. A test pressure of 50 psig shall be applied and allowed to stand for five minutes without make-up pressure for a sufficient time to allow for contraction or pipe/hose stretching. Acceptable results will be achieved if no more than a 10% drop in pressure occurs. However, any visibly detected seep or leak shall be repaired, even if the overall system test meets the 10% drop criterion.

F. The test shall be observed by the ENGINEER. The CONTRACTOR shall notify the ENGINEER three (3) days prior to performing the tests.

G. If test results are not acceptable to the ENGINEER, the CONTRACTOR shall identify and repair all leaks, or continue to purge the line if air contained in the piping caused the test pressure drop. Following the repair, the test shall be redone until acceptable results are achieved.

H. Any damaged or defective pipe, fittings, valves, or joints that are discovered following the pressure tests shall be repaired or replaced at no cost to the OWNER or ENGINEER.

END OF SECTION

Appendix A

Pre-Design Investigation Summary Report (April 2023)

AECOM
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716 856 5636 tel

April 28, 2023

SUBMITTED VIA ELECTRONIC MAIL

Mr. Sal Priore, P.E.
NYSDEC Division of Environmental Remediation
Remedial Bureau C
625 Broadway, 11th Floor
Albany, NY 12233-7014

RE: Pre-Design Investigation Summary Report
NYSEG – Auburn Green St. Site, Auburn NY
NYSDEC Site No. 7-06-009

Dear Mr. Priore,

On behalf of NYSEG, AECOM submits this pre-design investigation summary report for the completed investigation described in the *Remedial Design Work Plan* (RDWP) and accompanying *Pre-Design Investigation Work Plan* (PDIWP) dated July 2022 (final) for the above-referenced Auburn Green St. former manufactured gas plant (MGP) Site (Site).

The history of the Site is described in the PDIWP. Based upon investigations conducted to date, the primary contaminants of concern include arsenic in limited areas of surface soils, volatile organic compounds (VOC) (benzene, ethylbenzene, toluene, and xylene [BTEX]), semi-volatile organic compounds (SVOC), and arsenic in subsurface soils, with VOCs (BTEX), SVOCs, and cyanide in groundwater.

The PDI was completed to collect additional information required to complete the RD for the Site. The February 2020 Proposed Remedial Action Plan (PRAP) and July 2020 Record of Decision (ROD) identify targeted excavations of surface soil to address arsenic, and in-situ enhanced biodegradation as the preferred remedial technology to treat VOCs and SVOCs in groundwater within and outside of the subsurface former MGP gas holder. A PDI biosparging pilot study was performed to evaluate the ability of biosparging to distribute dissolved oxygen (DO) in groundwater in the shallow overburden unit. Results from the pilot study are used to estimate the radius of influence (ROI) of injected air at various air flow rates, which is a critical parameter for the remedial design.

This PDI summary report presents and evaluates data collected from the biosparging pilot study to evaluate technology feasibility, provide estimates of key design parameters such as the ROI for various air flow rates, and recommend a biosparging treatment system design for the Site. Included in the pilot study assessment is an evaluation of the ability of biosparging to create and sustain aerobic conditions in groundwater that will enhance aerobic biodegradation of contaminants.

An initial version of the RDWP/PDIWP was submitted to New York State Department of Environmental Conservation (NYSDEC) in August 2021. The initial version of the PDIWP was conditionally approved by NYSDEC on September 26, 2021.

The goals of the PDI are as follows:

- Confirm distribution of contaminants of concern and understand oxidation/reduction ("redox") conditions in groundwater to support delineation of the treatment area in the remedial design;
- Evaluate groundwater flow direction and velocity to support remedial design;
- Perform a field-scale biosparging pilot study to determine physical parameters for the remedial design and confirm feasibility of biosparging to meet remedial action objectives;

- Refine horizontal delineation of surface soil impacts;
- Update the survey.

Results of the PDI will be used in the RD for the Site to address the treatment of areas to the extent feasible. **Figure 1** presents the Site plan with the planned PDI investigation locations.

The scope of work in the initial version of the PDIWP included borings for new well installations, groundwater sampling, slug testing, biosparging pilot study, surface soil evaluation for arsenic, and survey of new investigation features. Elements of the initial PDI included the following:

Completed August/ September/ October 2021 (per August 2021 PDIWP):

- Installed two new monitoring wells (MW-9 and MW-10) to approximately 20 feet below ground surface (ft bgs) in the vicinity of MW-4.
- Collected groundwater samples from eight existing wells (MW-1 to MW-8) and two new wells (MW-9 and MW-10) to confirm distribution of groundwater contaminants of concern and redox conditions. Prior to the PDI, the most recent groundwater monitoring event for MW-1 through MW-8 was May 2014.
- Performed slug testing at five wells in the vicinity of the biosparging pilot study area to estimate hydraulic conductivity. Hydraulic conductivity will be used to confirm feasibility of biosparging and estimate groundwater velocity in support of the design of the biosparging and oxygen-releasing compound (ORC) wells (if needed).
- Performed delineation sampling of the upper foot of surface soils in a limited area west of the substation fence to confirm excavation limits and the suitability of existing surface and near surface soil as a site cover.
- Confirmed the extent of the crushed stone fill inside the substation fence to ensure it is sufficient for a site cover.

During installation of MW-9 and MW-10, it was determined that the location of the former gas holder was slightly further south of the previously estimated location, and that MW-4, previously believed to be inside the footprint of the former gas holder, was actually just north of and outside the former gas holder. MW-9 was also installed outside the former gas holder. MW-10 was installed inside the former gas holder. Following initial data reduction of MW-9 and MW-10 installation data, a technical meeting was held with NYSDEC and New York State Department of Health (NYSDOH) representatives on November 1, 2021, to discuss the updated conceptual site model (CSM) (i.e., location of the former gas holder). Pursuant to that meeting, NYSDEC/NYSDOH requested two additional wells be installed and one additional round of groundwater sampling be performed: The two new wells included: MW-11, to be installed within the footprint of the former gas holder; and, MW-12, as an additional site characterization well to be installed downgradient of the former gas holder near the northeast property corner. The additional round of groundwater sampling was requested to provide additional data from existing and new wells to supplement and provide more current data for evaluation of groundwater characteristics.

Subsequent to the November 2021 meeting, the August 2021 RDWP and PDIWP were updated to reflect the update to the CSM, summarize fall 2021 PDI investigations, and outline the requested additional well installations and groundwater sampling. The revised RDWP/PDIWP was submitted to NYSDEC for review in May 2022. Following review and comment/response communications, the revised plans were approved in July 2022.

The additional PDI scope and the biosparge pilot study was completed August/ September/ October 2022, and included:

- Installed two additional new monitoring wells: MW-11 (20 ft bgs) within the former gas holder and MW-12 (18 ft bgs) downgradient of the former gas holder near the northeast property boundary.

- Collected an additional round of groundwater samples from all wells (MW-1 through MW-12) to assess potential seasonal variations in groundwater quality. Measured depth to water and calculate groundwater elevations during the groundwater sampling event to determine the direction and magnitude of hydraulic gradients in the shallow aquifer.
- Implemented a biosparging pilot-scale study to more clearly define design parameters for enhanced bioremediation.
- Collected a post-pilot study round of groundwater samples from nine wells in the vicinity of the biosparging pilot study area (MW-1, MW-2, MW-3, MW-4, MW-7, MW-9, MW-10, MW-11, and MW-12). Measured depth to water and calculated groundwater elevations during the groundwater sampling event to determine the direction and magnitude of hydraulic gradients in the shallow aquifer.

This PDI summary report has been prepared to transmit a summary and analysis of the investigation work described above.

INVESTIGATION ACTIVITIES

Utility Clearance

Prior to the start of work for each of the well installation events (August 30, 2021, and August 3, 2022), Dig Safely New York was contacted for public utility mark outs. Utility clearance was performed using ground penetrating radar (GPR) by subcontractor Ground Penetrating Radar Systems (2021) and by Matrix Environmental Technologies Inc. (Matrix) (2022). AECOM marked the proposed drilling locations with pin-flags prior to the utility mark out.

Soil Borings, Well Installation and Development

On August 30, 2021, two soil borings were completed using hollow stem auger (HSA) methods and were completed as a biosparge pilot air injection well/monitoring well (MW-9) and a biosparge pilot monitoring well (MW-10). Following initial data collection in fall 2021 and PDIWP revisions in winter and spring 2022, on August 3, 2022, two additional soil borings were completed using HSA methods and were completed as a biosparge pilot monitoring well (MW-11) and a downgradient monitoring well (MW-12).

MW-9 was completed as a biosparging air injection well. This location was originally believed to be inside the former gas holder along with existing well MW-4. Upon evaluation of boring information and GPR data, it was determined that the location of the former gas holder was several feet south of the previously estimated location and MW-4 was located just outside of the holder. MW-9 was also installed outside and several feet north of the former gas holder.

MW-10 and MW-11 were installed as observation wells for the biosparge pilot study and are located inside the former gas holder footprint.

MW-12 was installed downgradient of the former gas holder, north of MW-2 and east of MW-7, near the northeast property corner as a new monitoring well providing additional groundwater quality data near the downgradient property boundary.

Borings and well installations in 2021 and 2022 were performed by Matrix Environmental Technologies Inc., using a Geoprobe® Model 6620DT rig under the direction of an AECOM geologist.

Borings were advanced to the bedrock surface refusal (approximately 18-21 feet bgs).

Potential impacts were not observed (based on visual and olfactory characteristics) in any of the borings except for a slight odor in MW-9 at approximately 13.5 ft bgs. Photoionization detector (PID) readings at this depth were 4.9 parts per million (ppm). There were no other elevated PID readings above background associated with the soil.

Boring locations were hand-cleared using an air knife and hand auger to a depth of approximately 5 feet bgs, after which soil samples were collected for the purpose of performing soil descriptions continuously to the bottom of the boring using 5-foot long, 2-inch diameter MacroCore™ samplers through HSAs. Soil samples were visually described and recorded by the field geologist. The descriptions were in accordance with the Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System), American Society for Testing and Materials (ASTM) D2487-17. The field geologist recorded the soil descriptions and any other observations (e.g., visual and olfactory observations, soil staining, etc.) in the field logbook. Immediately after describing the soil core, the field geologist scanned the soil with a 10.2 eV PID for organic vapors and recorded results. Boring logs are provided in **Attachment 1**. Well construction logs are provided in **Attachment 1**. Well development logs are presented in **Attachment 1**. In accordance with the PDIWP, no soil samples were collected from the borings for laboratory analysis.

Following new well installation, wells were developed by AECOM in accordance with the PDIWP. See **Attachment 1** for well development logs.

Groundwater Well Sampling

Three separate rounds of groundwater sampling were performed during the PDI. For each event, groundwater sampling was performed using low-flow protocols with a peristaltic pump. Field parameters for purge water and well samples were collected using a YSI water quality meter (temperature, pH, conductivity, DO, oxidation-reduction potential (ORP), and turbidity). Field parameter data are presented in **Table 1**. Groundwater well sampling forms are presented in **Attachment 1.**

The three rounds of groundwater sampling took place as follows:

- September 30-October 4, 2021 following the installation and development of new wells MW-9 and MW-10. Samples were collected from existing wells (MW-1 through MW-10).
- August 2022 after the installation of MW-11 and MW-12 and prior to the start of the biosparge pilot study. Samples were collected from existing wells (MW-1 through MW-12);
- October 3-4, 2022 after completion of the biosparge pilot study. Samples were collected from select wells within and close to the biosparge pilot study area (MW-1 through MW-4, and MW-7, and MW-9 through MW-12).

For each event, the groundwater samples were delivered to Eurofins TestAmerica, Amherst, New York.

Monitoring well low-flow groundwater samples were collected for the following analyses:

- VOCs (BTEX, + acetone, and styrene) by USEPA Method SW846 8260C;
- Site Specific SVOCs (PAHs) by USEPA Method SW846 8270D (2-methylphenol, 2-methylnapthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, Benzo(k)fluoranthene, chrysene, dibenz[a,h]anthracene, ideno(1,2,3-CD)pyrene, naphthalene, and phenol);
- Cyanide by 9012B.

Groundwater samples for select monitoring wells were collected for the following additional monitored natural attenuation (MNA) analyses:

- Dissolved Iron by USEPA Method 6010C;
- Nitrate by USEPA Method 300.0/4500; and
- Sulfate by USEPA Method 300.0.

A summary of the groundwater sample results is provided below in the Investigation Results section.

A round of water levels from all existing groundwater wells at the times of sampling was collected concurrent with the sampling rounds. Depth to water and groundwater elevation data are presented in **Table 2**. **Figure 2 through Figure 4** presents the groundwater elevation contours for the three rounds of groundwater sampling.

Slug Tests

Aquifer testing (slug testing) was completed October 4, 2021, at five wells (MW-1, MW-2, MW-4, MW-7, and MW-10) to estimate hydraulic conductivity. Prior to the start of slug testing, the depth to water was measured.

Both rising and falling head tests were performed. Slug tests were performed in a similar manner as described in ASTM D-4044. The tests were performed using slugs of varying lengths, diameters, and materials. Slugs used included a PVC slug 2 foot long by 1.5 inches in diameter, a PVC slug 2 foot long by 1.25 inches in diameter, and a stainless-steel slug approximately 4 feet long by 1 inch in diameter. Prior to testing, a Level TROLL 700 data logger was placed in the well. A slug was inserted into the well, and the drop in water level (falling head) was monitored using a Rugged Reader connected to the Level TROLL. The slug was removed after water level returned to approximately 95% of the original, static water level. The water level recovery (rising head) was then monitored to approximately 95% of the original, static water level.

The equipment (slug, water level meter, transducer) used in the test was decontaminated prior to use at the next well. A new length of polypropylene cord was used at each well to suspend the slug.

The electronic transducer was set to collect water levels at appropriate intervals to provide adequate data to determine the hydraulic conductivity of the monitoring well. Data collected by the data logger was checked in the field immediately following each test. If the data were not adequate (incorrect timing, transducer cable moved or disturbed, etc.) from the judgement of the field geologist, the test was re-run so that adequate data were collected. Results of the slug tests are discussed in the Investigation Results section.

Surface Soil Delineation Sampling

On September 28, 2021 AECOM performed delineation sampling of the upper foot of surface soils in a limited area west of the substation fence to confirm excavation limits to address arsenic concentrations in excess of 6 NYCRR Part 375 Soil Cleanup Objectives (SCO) for Unrestricted Use. Delineation samples were collected from the 0-6 inch and 6- inch to 12-inch intervals at location SS-13 shown on **Figure 1.**

The surface soil samples were delivered to Eurofins TestAmerica, Amherst, New York.

Surface soil samples were analyzed for Total Metals (Total Arsenic) by USEPA Method 6010C.

Results of the surface soil analyses are discussed in the Investigation Results section.

Biosparge Pilot Test

The biosparge pilot test was conducted between September 20, 2022 and October 3, 2022. Following setup and connection of the biosparge air-supply system to MW-9 on September 19, 2022, air injection step tests started on September 20, 2022. Prior to Step 1, baseline redox conditions in groundwater were measured at the monitoring well network. Following completion of the third step test on September 22, 2022, an extended air injection test was performed from September 23 to October 3, 2022.

During the pilot study, the following data was collected to support evaluation of biosparging at the Site:

- Air injection flowrates and pressures during the step and extended tests,
- DO, ORP, groundwater elevation, and observation of bubbling in select monitoring wells before, during, and after the step and extended tests,
- Continuous monitoring of DO and ORP at MW-4 during the three (3) step tests, and
- VOCs concentrations via a PID in MW-4 when bubbling was observed during the step tests.

The pilot study data and evaluation of the data are discussed in the Pilot Study Results section.

INVESTIGATION RESULTS

Aquifer Data (Slug Test) Evaluation

The testing data were reduced following the Bouwer and Rice Slug Test method (Bouwer and Rice, 1976; Bouwer, 1989) using AQTESOLV Version 4.50 software. Outside the former gas holder in native soils, the results indicate hydraulic conductivities range from 1.05 x 10^{-4} centimeters per second (cm/sec) in well MW-4 to 4.85 x 10^{-3} cm/sec in well MW-2. Inside the former gas holder in backfilled material/soil, a hydraulic conductivity value of 1.72 x 10^{-1} cm/sec was calculated for well MW-10. Hydraulic conductivity testing results are provided in **Attachment 2**.

Groundwater Sampling Analytical Results

Table 3 and **Figure 5** present the historical groundwater sample results and the results from the PDI's new and existing Site wells from October 2021, August 2022, and October 2022. The concentrations of the detected compounds were compared against the criteria in *NYSDEC Technical and Operational Guidance Series TOGS (1,1,1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, April 2000*.

September-October 2021

Following installation of new monitoring wells MW-9 and MW-10, groundwater samples were collected from existing monitoring wells (MW-1 through MW-10).

Three VOCs were detected above the groundwater criteria as follows: benzene, toluene, and xylene (total and m&p), Well locations where criteria exceeded groundwater standards in 2021 included: MW-4, MW-9, and MW-10. All three VOCs were detected above standards in MW-4 and MW-9. Only benzene was detected slightly above the standard in MW-10.

Two SVOCs (PAHs) at one location (MW-9) were detected above groundwater criteria as follows: naphthalene and phenol. The PDI VOC and SVOCs groundwater data are consistent with the results of the last previous sampling (2014 Site Characterization [SC]) (i.e., the results were similar in variety and concentration to VOCs and SVOCs detected in the SC).

Cyanide was detected in 9 of 10 locations and ranged from non-detect at 0.0050U milligrams per liter (mg/L) to 0.55 mg/L; one location (MW-4) had cyanide detected above groundwater criteria (0.2 mg/L).

Select wells were sampled for MNA parameters. The analytical results and relevant MNA field parameter results from all Fall 2021 groundwater samples are included below:

- Sulfate ranged from 6.2J mg/L to 52.4 mg/L. In 7 of 10 well locations, sulfate concentrations were greater than 20 mg/L and indicates that sulfate is available as an alternative electron acceptor to support natural attenuation of dissolved hydrocarbons via anaerobic biodegradation.

- Nitrate-Nitrogen ranged from non-detect to 3.5 mg/L indicating that nitrate is not readily available to support natural attenuation of dissolved hydrocarbons.

- Iron ranged from non-detect to 15.9 mg/L.
- pH ranged from 6.83 to 9.85, two locations, MW-04 (9.85) and MW-10 (9.23) had pH above 8.50.
- ORP ranged from -137.6 milliVolts (mV) to +294.3 mV.
- DO ranged from 0.65 mg/L to 2.28 mg/L.

<u>August 15-16, 2022</u>

Following installation of new monitoring wells MW-11 and MW-12 and prior to the biosparging pilot test, groundwater samples were collected from all twelve existing Site monitoring wells (MW-1 through MW-12).

Four VOCs were detected above the groundwater criteria as follows: benzene, styrene, toluene, and xylene (total and m&p). All four VOCs were detected above standards in MW-4. Only benzene was detected above the standard in four other locations: MW-9, MW-10, MW-11, and MW-12.

The slightly more elevated detection of benzene at new monitoring well MW-12 was consistent with other Site wells where the initial groundwater sample returned a more elevated result than subsequent samples. It is believed this behavior may be related to near-term disturbance associated with well installation and development.

Three SVOCs (PAHs) were detected above groundwater criteria as follows: 2-Methylphenol (o-cresol), naphthalene and phenol. Wells affected included: MW-4, MW-9 and MW-11. Naphthalene and phenol were above standard at location MW-4. Only phenol was above standard at MW-9. 2-Methylphenol (o-cresol) and naphthalene were above standard at MW-11. The PDI VOC and SVOCs groundwater data are consistent with the results of the SC and fall 2021 sampling event.

Cyanide was detected in 9 of 12 locations and ranged from 0.0054 J to 0.76 mg/L. Two locations (MW-4 and MW-11) had cyanide detected above groundwater criteria (0.2 mg/L)

Wells were sampled for MNA parameters. The analytical results and relevant MNA field parameter results from all August 2022 groundwater samples are included below:

- Sulfate ranged from 6.5 J mg/L to 81.2 mg/L. In 7 of 12 well locations, sulfate concentrations were greater than 20 mg/L and indicates that sulfate is available as an alternative electron acceptor to support natural attenuation of dissolved hydrocarbons via anaerobic biodegradation.
- Nitrate-Nitrogen ranged from non-detect to 1.5 mg/L indicating that nitrate is not readily available to support natural attenuation of dissolved hydrocarbons.
- Iron ranged from non-detect to 18.2 mg/L
- pH ranged from 6.75 to 9.97, Three locations MW-04 (9.97), MW-10 (8.89) and MW-11 (8.96) had pH above 8.50.
- ORP ranged from –215.5 milliVolts (mV) to +18.4 mV, all ORPs were negative except MW-02.
- Dissolved oxygen ranged from 0.51 mg/L to 4.26 mg/L.

<u>October 3-4, 2022</u>

Following the biosparge pilot test, groundwater samples were collected from nine of the existing Site wells (MW-1, MW-2, MW-3, MW-4, MW-7, MW-9, MW-10, MW-11, and MW-12). The post-pilot study VOC and SVOC groundwater data show a decrease in VOC and SVOC concentrations when compared to the September 2021 and August 2022 data collected prior to the biosparge pilot study.

Three VOCs were detected above the groundwater criteria as follows: benzene, toluene, and xylene (total and m&p). All three VOCs were detected above standards in MW-4. Only benzene was detected above the standard in four other locations: MW-9, MW-10, MW-11, and MW-12. Benzene was detected in MW-2 below criteria. Acetone and ethylbenzene were detected below criteria in MW-4. Acetone and toluene were detected below criteria in MW-9.

As observed in other Site wells with additional time since installation and development, the benzene concentration at MW-12 was much lower in October 2022 than the initial August 2022 sample. It is believed the declining trend in concentration will continue as additional time to reach equilibrium is provided.

One SVOC (PAH) was detected above groundwater criteria and only at one well location. Phenol was detected above criteria at MW-4. Phenol was also detected below criteria in MW-9.

Cyanide was detected in 4 of 9 locations and ranged from 0.023 mg/L to 0.36 mg/L. One location (MW-4) had cyanide detected above groundwater criteria (0.2 mg/L).

Wells were sampled for MNA parameters. The analytical results and relevant MNA field parameter results from October 2022 groundwater samples are included below:

- Sulfate ranged from 9.3 J mg/L to 239 mg/L. In 4 of 9 well locations, sulfate concentrations were greater that 20 mg/L and indicates that sulfate is available as an alternative electron acceptor to support natural attenuation of dissolved hydrocarbons via anaerobic biodegradation. Greater sulfate concentrations at MW-4 and MW-9 after the pilot study indicate that sulfide was oxidized to sulfate during the aerobic conditions when biosparging. This increase also indicates that sulfate was previously reduced to sulfide under anaerobic conditions prior to biosparging and supported natural attenuation of dissolved hydrocarbons.
- Nitrate-Nitrogen ranged from non-detect to 0.68 mg/L indicating that nitrate is not readily available to support natural attenuation of dissolved hydrocarbons.
- Iron ranged from non-detect to 15.3 mg/L
- pH ranged from 6.90 to 8.89, two locations MW-10 (8.56) and MW-11 (8.89) had pH above 8.50.
- ORP ranged from +33 milliVolts (mV) to +116.9 mV, all ORPs were positive.
- Dissolved oxygen ranged from 0.59 mg/L to 2.80 mg/L, with the highest value at the biosparge air injection location MW-9.

Soil Sampling Analytical Results

Table 4 and Figure 6 present the total arsenic results collected from location SS-13 in a limited area west of the substation fence at 0-6 in and 6-12 inch intervals. Arsenic was detected above the Part 375 Unrestricted Use SCO (13 ppm) and Protection of Groundwater and Commercial SCOs (16 ppm) in both intervals and the duplicate at the sampling location. Arsenic ranged from 21.2 mg/kg to 27 mg/kg.

Data Validation

A Data Usability Summary Report (DUSR) was prepared for the groundwater samples. The DUSR was prepared following the guidelines provided in NYSDEC Division of Environmental Remediation *DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 2B-Guidance for Data Deliverables and the Development of Data Usability and Summary Reports*, May 2010. The DUSR is provided as **Attachment 3**. All sample analyses were found to be compliant with the method criteria, except where noted in the DUSR. Those results qualified ‘J’ or UJ are considered conditionally usable. Those results qualified “U” should be considered non-detect. All other sample results are usable as reported. AECOM does not recommend the recollection of any samples.

Community Air Monitoring Plan (CAMP) Results

Community air monitoring was performed during 2021 and 2022 drilling activities and during the 2022 biosparge pilot study to verify that contaminants from the site activity did not impact nearby residents or visitors during the PDI in accordance with the NYSDOH's Generic CAMP (NYSDOH, 2000). Monitoring was performed using perimeter air monitoring (PAM) stations equipped to monitor for VOCs and airborne particulates (PM-10).

A total of two temporary monitoring stations collected data on the upwind and downwind perimeter and nearest receptor during intrusive activities. VOCs and dust monitoring results did not exceed the levels identified in the PDIWP. CAMP data are stored in the project file and can be provided upon request.

PILOT STUDY RESULTS

Airflow Rates and Pressures

Three step tests with durations of approximately 6 hours each at different airflow rates provided information on breakthrough pressures and pressures required to maintain various airflow rates at the Site. The breakthrough pressures, injection pressures, and average airflow rate for each step test is summarized in the following table.

Test ID	Breakthrough Pressure (psi)	Injection Pressure (psi)	Average Airflow Rate (scfm)
Step Test 1	25	Range: 9 to 14 Average: 12	2.7
Step Test 2	17	Range: 14 to 21 Average: 17	7.5
Step Test 3	18	Range: 20 to 21 Average: 20	15.7

Breakthrough and air injection pressures were measured using instrumentation in the mobile injection system and includes back pressure from friction loss through valves, hoses and instrumentation. Thus, breakthrough pressures are greater than the estimated pressure (7 pound per square inch) required to displace the water column in the air injection well (MW-9). As expected, greater injection pressures were required to maintain greater airflow rates. In addition, injection pressures were greatest at the beginning of each test and decreased during each test as continuous air channels developed in the formation between the injection well screen and the vadose zone.

Step Tests

During each step test, DO and ORP were measured in monitoring wells to evaluate the lateral influence of the injected air. In addition, observation of bubbling in monitoring wells was recorded to indicate influence. During Step 1 with an average air injection rate of 2.7 scfm, DO concentration remained less than 1 mg/L indicated limited influence within the monitoring well network (**Figure 7**). At the nearest (10 feet) well to the injection well (MW-4), ORP remained highly negative indicating no changes to redox conditions during Step 1 (**Figure 8**). Note that the ORP at MW-1 (27 feet from the injection well) was positive before and during Test 1 indicating aerobic conditions are likely present in groundwater upgradient of the injection well.

During Step 2 with an average air injection rate of 7.5 scfm, DO concentration increased above 1 mg/L and bubbling was observed at MW-4 indicating DO influence at 10 feet from the injection well (**Figure 9**). At MW-1, DO concentrations increased during the test but remained less than 1 mg/L. DO concentrations remained less than 1 mg/L at other monitoring wells. At MW-4, ORP increased during the test but remained negative indicating high oxidant demand (**Figure 10**). At MW-1, ORP was positive and greater than Step 1 and light bubbling was observed in the well towards the end of the test indicating influence.

PID monitoring in MW-4 during Step 2 showed an increase in VOCs as air channels were established between the injection well and MW-4. The PID reading at MW-4 increased to a maximum of 270 ppm as VOCs partitioned to the air flowing through the formation and out of MW-4. By the end of Step 2, VOCs at MW-4 were less than 43 ppm. VOCs were not detected by the PID in the light bubbling in MW-1, where VOCs are non-detect in groundwater.

During Step 3 with an average air injection rate of 15.7 scfm, DO concentration increased at MW-4 to 9 mg/L and ORP increased to 13 millivolts (**Figures 11** and **12**). DO concentrations remained less than 1 mg/L at other monitoring wells. However, ORP also increased at MW-1, MW-10, and MW-11 indicating that biosparging was likely influencing these wells. In addition, bubbling was observed in MW-1 and MW-4. The maximum PID reading was 423 ppm in the air bubbling through MW-4.

Oxygen Utilization Rates

The data from continuous measurement of DO and ORP at MW-4 during and after the step tests are presented in **Figures 13, 14,** and **15**. Following the completion of Tests 2 and 3, DO concentrations decrease as oxygen is utilized by microbes and other oxidation-reduction reactions. In addition, ORP continued to increase after Steps 2 and 3 as oxygen was utilized. Oxygen utilization or consumption rates typically follow first-order decay and the decay rate constants are estimated by fitting exponential curves to the data. After Step 2, the estimated first-order oxygen utilization rate constant is 0.16 per hour (1/hr) (**Figure 16**). Following Step 3, the first-order rate constant decreased to 0.032/hr indicating that the oxygen utilization rate slowed during Step 3.

Extended Test

Based on the DO responses during the step tests, the air injection flowrate for the extended test was set at 6 scfm. In addition, air injection was set to cycle on and off every 4 hours, which was expected to maintain DO concentration greater than 1 mg/L at MW-4 during an off cycle based on estimates of oxygen utilization rates. During the 10-day test, DO and ORP measurements indicate that aerobic conditions were maintained in groundwater monitored by MW-1 and MW-4 (**Figures 17** and **18**). Downgradient groundwater near MW-7 remained anaerobic and groundwater within the footprint of the former gas holder at MW-10 and MW-11 also remained anaerobic.

Radius of Influence

Per the workplan, the radius of influence (ROI) is estimated by the distance from the injection well where DO concentrations exceed 1 mg/L and can create aerobic conditions. To estimate the radius of influence at different air injection rates, maximum DO concentrations observed during the step tests are plotted versus distance from the injection well (**Figure 19**). The estimated ROI was greatest (~25 feet) at an air injection rate of 15.7 scfm (Step 3) and slightly less (~23 feet) at an air injection rate of 7.5 scfm (Step 2). However, data from the extended test showed that cycled operation for a longer duration at an air injection rate of 6 scfm has an ROI of at least 27 feet, which is the distance between MW-1 and the injection well.

The estimated ROI of at least 27 feet is greater than the distances between the injection well (MW-9) and MW-10 (20 feet) and MW-11 (19 feet) where DO did not increase above 1 mg/L during the step and extended tests. These results indicate that the subsurface structure of the former gas holder may be a barrier to migration of injected air and diffusion of DO in groundwater. Thus, a biosparge well within the footprint of the former gas holder would be required if groundwater treatment is needed.

CONCLUSIONS

The intent of the PDI was to confirm distribution of contaminants and gain better understanding of the redox conditions at the Site, evaluate groundwater flow and velocity to support the remedial design, determining the feasibility of biosparging to meet Site objectives, and refine the horizontal delineation of surface soil arsenic impacts.

New monitoring wells and recent groundwater monitoring results show that the location of the groundwater plume and its source is limited to the area outside of the former gas holder footprint near MW-4 and MW-9, which was the location of the biosparge pilot study. Within the footprint of the former gas holder at MW-10 and MW-11, contaminant concentrations are significantly less and near or below their criteria in groundwater.

The biosparge pilot study results show that biosparging can be feasibly implemented in the plume near MW-4 and MW-9. In addition, groundwater monitoring results show that biosparging significantly decreased the concentrations of contaminants at MW-4 and MW-9, which define the likely plume source. Thus, biosparging is the recommended remedial alternative to remove the plume source near MW-4 and MW-9 and achieve groundwater criteria at the Site. Recommended design parameters for biosparging are an air injection rate of at least 6 scfm and injection well spacing of 40 feet based on an ROI of at least 27 feet if additional injection wells are needed.

Groundwater elevation maps indicate groundwater flows from the area near MW-4 and MW-9 east-northeast towards MW-2, MW-7, and MW-12. The area where groundwater exceeds criteria has significantly decreased since 2014 to a narrow zone that extends from the MW-4 and MW-9 area to MW-12 that is bounded by MW-2 and MW-7 where groundwater is below criteria. The recommended remedial approach of biosparging is expected to remove the plume source and cause attenuation of the downgradient concentrations near MW-12. Thus, the previously proposed design presented in the RDWP that includes a series of wells to deliver oxygen is not expected to be needed near the property boundary to treat groundwater near MW-12. However, if groundwater treatment is needed near the property boundary, additional biosparge wells are expected to be more effective than oxygen delivery wells.

To support development of the remedial design for biosparging, a groundwater monitoring event should be performed following the methods and procedures outlined in the PDI Work Plan at monitoring wells MW-1, MW-2, MW-4, MW-7, MW-9, MW-10, MW-11, and MW-12 to evaluate the following:

- Rebound in contaminant concentrations at MW-4 and MW-9 to evaluate if contaminant mass was significantly reduced by the pilot study;
- How changes in contaminant concentrations and mass near MW-4 and MW-9 affect contaminant concentrations in downgradient groundwater near the property boundary at MW-12;
- The need to treat groundwater with biosparging near the property boundary and MW-12; and
- The need to implement biosparging within the former gas holder footprint where contaminant concentrations at MW-10 and MW-11 are low and may continue to decrease to less than criteria.

Results from surface soil sample location SS-13 were consistent with historical results along the outside of the western property fence indicating the shallow surface soil excavation planned for that area be extended southward to an extension of the southern property line (see Figure 6). The remedial design will incorporate this extended area for excavation and backfill.

If you have any questions, please feel free to contact me.

Very truly yours,

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Tables
Figures
Attachment 1 – Field Forms
Attachment 2 – Hydraulic Conductivity Calculations
Attachment 3 - DUSR

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Tables

TABLE 1

GROUNDWATER SAMPLING FIELD PARAMETER DATA
Auburn Green Street MGP Site, Auburn, NY
NYSDEC Site No. 7-06-009

Monitoring Well ID	Date	Temperature (deg C)	Specific Conductance (mS/cm)	Dissolved Oyxgen (mg/L)	pH (standard units)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
MW-01	9/30/2021	16.0	0.668	0.79	6.83	45.7	28.27
	8/16/2022	15.0	1.352	1.26	6.83	-60.0	11.0
	10/3/2022	16.2	1.260	0.89	6.90	108.5	40.0
MW-02	10/4/2021	16.3	0.973	1.21	6.77	294.3	3.01
	8/17/2022	15.4	0.839	4.26	6.75	18.4	2.44
	10/3/2022	16.3	0.840	1.93	6.92	98.00	2.77
MW-03	9/30/2021	15.8	3.59	0.68	6.99	-122.6	15.31
	8/15/2022	15.2	3.782	1.81	7.08	-215.5	18.2
	10/3/2022	15.5	3.490	0.60	7.10	89.1	6.60
MW-04	9/30/2021	15.3	0.387	0.75	9.85	-150.8	2.61
	8/15/2022	16.7	0.324	0.51	9.97	-108.2	9.49
	10/4/2022	14.8	1.397	2.08	7.76	110.4	65.0
MW-05	9/30/2021	15.8	1.132	2.28	6.98	147.3	347.34
	8/15/2022	20.7	1.231	1.23	7.14	-22.0	NM
MW-06	9/30/2021	18.1	1.529	0.80	7.06	-64.8	12.96
	8/15/2022	17.7	0.997	0.56	7.08	-32.0	53.22
MW-07	10/4/2021	15.4	1.134	0.65	7.04	-122.6	13.06
	8/16/2022	14.4	1.400	0.65	7.00	-103.1	44.66
	10/4/2022	14.7	1.380	0.65	7.03	89.0	21.00
MW-08	10/4/2021	17.6	2.669	0.68	7.05	-137.6	4.14
	8/15/2022	17.5	3.110	0.53	7.08	-159.0	62.76
MW-09	10/4/2021	15.2	1.900	0.75	7.29	-77.3	85.30
	8/15/2022	15.4	2.610	1.20	7.37	-180.3	136
	10/4/2022	14.3	2.137	2.80	7.67	116.9	24.50
MW-10	10/4/2021	14.9	0.229	0.73	9.23	-44.0	11.09
	8/15/2022	14.4	0.319	1.29	8.89	-167.7	5.61
	10/3/2022	14.9	0.270	0.66	8.56	49.7	4.29
MW-11	8/15/2022	14.6	0.213	0.59	8.96	-35.2	18.37
	10/3/2022	14.5	0.218	0.61	8.89	40.5	4.67
MW-12	8/16/2022	15.2	1.204	0.60	6.94	-87.0	95.96
	10/3/2022	15.2	1.394	0.59	6.98	33.2	13.24

Notes:

deg C - degrees Celcius
mS/cm - milliSiemens per centimeter
mg/L - milligrams per Liter
mV - milliVolts
NTU - nephelometric turbidity unit
NM - not measured

TABLE 2

GROUNDWATER ELEVATION DATA
Auburn Green Street MGP Site, Auburn, NY
NYSDEC Site No. 7-06-009

Location ID	Northing	Easting	Ground Elevation (feet)	Casing Elevation (feet)	Meas.point (Riser) Elev. (feet)	Geol. Zone	10/4/2021		8/15/22-8/16/22		10/3/22-10/4/22	
							Depth to Water (feet)	Water Elev. (feet)	Depth to Water (feet)	Water Elev. (feet)	Depth to Water (feet)	Water Elev. (feet)
MW-01	1068697.849	823538.421	666.54	666.54	666.13	OB	5.43	660.70	7.24	658.89	6.90	659.23
MW-02	1068710.462	823619.474	664.87	664.87	664.48	OB	6.50	657.98	7.95	656.53	7.45	657.03
MW-03	1068668.327	823618.748	666.75	666.75	666.35	OB	7.22	659.13	7.71	658.64	7.75	658.60
MW-04	1068693.101	823575.046	666.54	666.54	666.23	OB	8.14	658.09	8.51	657.72	9.32	656.91
MW-05	1068605.684	823497.747	668.12	668.12	667.77	OB	12.65	655.12	14.58	653.19	NM	NM
MW-06	1068632.896	823660.439	665.85	665.85	665.50	OB	5.45	660.05	6.28	659.22	NM	NM
MW-07	1068724.513	823575.102	665.5	665.5	665.0	OB	7.12	657.88	8.43	656.57	7.79	657.21
MW-08	1068616.910	823582.108	667.0	667.0	666.6	OB	4.64	661.96	5.62	660.98	NM	NM
MW-09	1068693.533	823558.675	666.85	666.85	666.23	OB	5.98	660.25	7.30	658.93	9.31	656.92
MW-10	1068683.478	823583.105	666.93	666.93	666.60	OB	4.81	661.79	5.20	661.40	5.12	661.48
MW-11	1068677.587	823574.298	667.14	667.14	666.67	OB	NA	NA	5.32	661.35	5.22	661.45
MW-12	1068735.580	823608.627	664.74	664.74	664.30	OB	NA	NA	8.00	656.30	7.39	656.91

Notes:

Geologic Zone: OB Shallow Unconfined Zone in Overburden

NM - Not measured - MW-5, MW-6, and MW-8 not measured in October 2022.

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-01	MW-01	MW-01	MW-02	MW-02
Sample ID			MW-1	MW-01	MW-01	MW-2	MW-02
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			09/30/21	08/16/22	10/03/22	10/04/21	08/16/22
Parameter	Units	Criteria*					
Volatile Organic Compounds							
Acetone	UG/L	50	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Benzene	UG/L	1	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Ethylbenzene	UG/L	5	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U
Styrene	UG/L	5	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Toluene	UG/L	5	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
Xylene (total)	UG/L	5	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U
Semivolatile Organic Compounds							
2-Methylphenol (o-cresol)	UG/L	1	0.40 U	0.43 U	0.42 U	0.40 U	0.40 U
Benzo(a)anthracene	UG/L	0.002	0.36 U	0.39 U	0.38 U	0.36 U	0.36 U
Benzo(a)pyrene	UG/L	ND	0.47 U	0.51 U	0.49 U	0.47 U	0.47 U
Benzo(b)fluoranthene	UG/L	0.002	0.34 U	0.37 U	0.35 U	0.34 U	0.34 U
Benzo(k)fluoranthene	UG/L	0.002	0.73 U	0.79 U	0.76 U	0.73 U	0.73 U
Chrysene	UG/L	0.002	0.33 U	0.36 U	0.34 U	0.33 U	0.33 U
Dibenz(a,h)anthracene	UG/L	-	0.42 U	0.46 U	0.44 U	0.42 U	0.42 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	0.47 U	0.51 U	0.49 U	0.47 U	0.47 U
Naphthalene	UG/L	10	0.76 U	0.83 U	0.79 U	0.76 U	0.76 U
Phenol	UG/L	1	0.39 U	0.42 U	0.41 U	0.39 U	0.39 U
Dissolved Metals							
Iron	MG/L	-	0.019 U	0.019 U	0.32	0.050 U	0.050 U
Miscellaneous Parameters							
Total Cyanide	MG/L	0.2	0.0073 J	0.0051 J	0.0041 U	0.053	0.11
Nitrate-Nitrogen	MG/L	10	2.6	0.15	0.24	1.7	1.5

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-01	MW-01	MW-01	MW-02	MW-02
Sample ID			MW-1	MW-01	MW-01	MW-2	MW-02
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			09/30/21	08/16/22	10/03/22	10/04/21	08/16/22
Parameter	Units	Criteria*					
Miscellaneous Parameters							
Nitrite-Nitrogen	MG/L	1	NA	0.020 U	NA	NA	0.020 U
Sulfate (as SO4)	MG/L	2.50E+05	39.3	15.5	17.9	32.1	31.6

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

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Detection Limits shown are MDL

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-02	MW-03	MW-03	MW-03	MW-04
Sample ID			MW-02	MW-3	MW-03	MW-03	MW-4
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			10/03/22	09/30/21	08/15/22	10/03/22	09/30/21
Parameter	Units	Criteria*					
Volatile Organic Compounds							
Acetone	UG/L	50	3.0 U	3.0 U	3.0 U	3.0 U	240 U
Benzene	UG/L	1	0.53 J	0.41 U	0.41 U	0.41 U	3,200
Ethylbenzene	UG/L	5	0.74 U	0.74 U	0.74 U	0.74 U	59 U
Styrene	UG/L	5	0.73 U	0.73 U	0.73 U	0.73 U	58 U
Toluene	UG/L	5	0.51 U	0.51 U	0.51 U	0.51 U	150
Xylene (total)	UG/L	5	0.66 U	0.66 U	0.66 U	0.66 U	120 J
Semivolatile Organic Compounds							
2-Methylphenol (o-cresol)	UG/L	1	0.40 U	2.0 U	0.42 U	0.42 U	0.40 U
Benzo(a)anthracene	UG/L	0.002	0.36 U	1.8 U	0.38 U	0.38 U	0.36 U
Benzo(a)pyrene	UG/L	ND	0.47 U	2.4 U	0.49 U	0.49 U	0.47 U
Benzo(b)fluoranthene	UG/L	0.002	0.34 U	1.7 U	0.35 U	0.35 U	0.34 U
Benzo(k)fluoranthene	UG/L	0.002	0.73 U	3.7 U	0.76 U	0.76 U	0.73 U
Chrysene	UG/L	0.002	0.33 U	1.7 U	0.34 U	0.34 U	0.33 U
Dibenz(a,h)anthracene	UG/L	-	0.42 U	2.1 U	0.44 U	0.44 U	0.42 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	0.47 U	2.4 U	0.49 U	0.49 U	0.47 U
Naphthalene	UG/L	10	0.76 U	3.8 U	0.79 U	0.79 U	0.76 U
Phenol	UG/L	1	0.39 U	2.0 U	0.41 U	0.41 U	0.39 U
Dissolved Metals							
Iron	MG/L	-	0.068	15.9	16.5 J	15.3	0.22
Miscellaneous Parameters							
Total Cyanide	MG/L	0.2	0.046	0.0091 J	0.012 J	0.010 U	0.55
Nitrate-Nitrogen	MG/L	10	0.68	0.020 U	0.020 U	0.020 U	0.020 U

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

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J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-02	MW-03	MW-03	MW-03	MW-04
Sample ID			MW-02	MW-3	MW-03	MW-03	MW-4
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			10/03/22	09/30/21	08/15/22	10/03/22	09/30/21
Parameter	Units	Criteria*					
Miscellaneous Parameters							
Nitrite-Nitrogen	MG/L	1	NA	NA	0.020 U	NA	NA
Sulfate (as SO4)	MG/L	2.50E+05	30.3	8.9 J	13.4 J	9.3 J	23.0

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

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NA - Not analyzed.

Detection Limits shown are MDL

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-04	MW-04	MW-05	MW-05	MW-06
Sample ID			MW-04	MW-04	MW-5	MW-05	DUPLICATE
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			08/15/22	10/04/22	09/30/21	08/15/22	09/30/21
Parameter	Units	Criteria*					Field Duplicate (1-1)
Volatile Organic Compounds							
Acetone	UG/L	50	120 U	17 J	3.0 U	3.0 U	3.0 U
Benzene	UG/L	1	1,200	88	0.41 U	0.41 U	0.41 U
Ethylbenzene	UG/L	5	30 U	2.0	0.74 U	0.74 U	0.74 U
Styrene	UG/L	5	29 J	1.5 U	0.73 U	0.73 U	0.73 U
Toluene	UG/L	5	270	12	0.51 U	0.51 U	0.51 U
Xylene (total)	UG/L	5	150	9.2	0.66 U	0.66 U	0.66 U
Semivolatile Organic Compounds							
2-Methylphenol (o-cresol)	UG/L	1	2.0 U	2.0 U	0.40 U	0.42 U	0.40 U
Benzo(a)anthracene	UG/L	0.002	1.8 U	1.8 U	0.36 U	0.38 U	0.36 U
Benzo(a)pyrene	UG/L	ND	2.4 U	2.4 U	0.47 U	0.49 U	0.47 U
Benzo(b)fluoranthene	UG/L	0.002	1.7 U	1.7 U	0.34 U	0.35 U	0.34 U
Benzo(k)fluoranthene	UG/L	0.002	3.7 U	3.7 U	0.73 U	0.76 U	0.73 U
Chrysene	UG/L	0.002	1.7 U	1.7 U	0.33 U	0.34 U	0.33 U
Dibenz(a,h)anthracene	UG/L	-	2.1 U	2.1 U	0.42 U	0.44 U	0.42 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	2.4 U	2.4 U	0.47 U	0.49 U	0.47 U
Naphthalene	UG/L	10	95	3.8 U	0.76 U	0.79 U	0.76 U
Phenol	UG/L	1	2.6 J	4.7 J	0.39 U	0.41 U	0.39 U
Dissolved Metals							
Iron	MG/L	-	0.21	0.45	0.019 U	0.050 U	0.97
Miscellaneous Parameters							
Total Cyanide	MG/L	0.2	0.76	0.36	0.0050 U	0.0050 U	0.0057 J
Nitrate-Nitrogen	MG/L	10	0.37	0.086	3.5	1.4	0.020 U

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

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J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-04	MW-04	MW-05	MW-05	MW-06
Sample ID			MW-04	MW-04	MW-5	MW-05	DUPLICATE
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			08/15/22	10/04/22	09/30/21	08/15/22	09/30/21
Parameter	Units	Criteria*					Field Duplicate (1-1)
Miscellaneous Parameters							
Nitrite-Nitrogen	MG/L	1	0.046 J	NA	NA	0.042 J	NA
Sulfate (as SO4)	MG/L	2.50E+05	36.0	56.8	52.4	81.2	26.2

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-06	MW-06	MW-06	MW-07	MW-07
Sample ID			MW-6	DUPLICATE	MW-06	MW-7	MW-07
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			09/30/21	08/15/22	08/15/22	10/04/21	08/16/22
Parameter	Units	Criteria*		Field Duplicate (1-1)			
Volatile Organic Compounds							
Acetone	UG/L	50	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Benzene	UG/L	1	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Ethylbenzene	UG/L	5	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U
Styrene	UG/L	5	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Toluene	UG/L	5	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
Xylene (total)	UG/L	5	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U
Semivolatile Organic Compounds							
2-Methylphenol (o-cresol)	UG/L	1	0.40 U	0.42 U	0.40 U	0.40 U	0.40 U
Benzo(a)anthracene	UG/L	0.002	0.36 U	0.38 U	0.36 U	0.36 U	0.36 U
Benzo(a)pyrene	UG/L	ND	0.47 U	0.49 U	0.47 U	0.47 U	0.47 U
Benzo(b)fluoranthene	UG/L	0.002	0.34 U	0.35 U	0.34 U	0.34 U	0.34 U
Benzo(k)fluoranthene	UG/L	0.002	0.73 U	0.76 U	0.73 U	0.73 U	0.73 U
Chrysene	UG/L	0.002	0.33 U	0.34 U	0.33 U	0.33 U	0.33 U
Dibenz(a,h)anthracene	UG/L	-	0.42 U	0.44 U	0.42 U	0.42 U	0.42 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	0.47 U	0.49 U	0.47 U	0.47 U	0.47 U
Naphthalene	UG/L	10	0.76 U	0.79 U	0.76 U	0.76 U	0.76 U
Phenol	UG/L	1	0.39 U	0.41 U	0.39 U	0.39 U	0.39 U
Dissolved Metals							
Iron	MG/L	-	0.99	0.34	0.35	10	8.0
Miscellaneous Parameters							
Total Cyanide	MG/L	0.2	0.0063 J	0.0050 U	0.0050 U	0.0088 J	0.0062 J
Nitrate-Nitrogen	MG/L	10	0.020 U	0.076	0.065	0.020 U	0.040 J

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Advanced Selection: amk-temp
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[SITE KEY] = 35 AND [LOGDATE] > #1/1/2021# AND [MATRIX] = 'WG'

Detection Limits shown are MDL

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-06	MW-06	MW-06	MW-07	MW-07
Sample ID			MW-6	DUPLICATE	MW-06	MW-7	MW-07
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			09/30/21	08/15/22	08/15/22	10/04/21	08/16/22
Parameter	Units	Criteria*		Field Duplicate (1-1)			
Miscellaneous Parameters							
Nitrite-Nitrogen	MG/L	1	NA	0.020 U	0.020 U	NA	0.020 U
Sulfate (as SO4)	MG/L	2.50E+05	26.4	27.9	28.0	6.2 J	14.7

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

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NA - Not analyzed.

Detection Limits shown are MDL

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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-07	MW-08	MW-08	MW-09	MW-09
Sample ID			MW-07	MW-8	MW-08	MW-09	MW-09
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			10/04/22	10/04/21	08/16/22	10/04/21	08/15/22
Parameter	Units	Criteria*					
Volatile Organic Compounds							
Acetone	UG/L	50	3.0 U	3.0 U	3.0 U	60 U	24 U
Benzene	UG/L	1	0.41 U	0.41 U	0.41 U	1,200	190
Ethylbenzene	UG/L	5	0.74 U	0.74 U	0.74 U	15 U	5.9 U
Styrene	UG/L	5	0.73 U	0.73 U	0.73 U	15 U	5.8 U
Toluene	UG/L	5	0.51 U	0.51 U	0.51 U	22	4.1 U
Xylene (total)	UG/L	5	0.66 U	0.66 U	0.66 U	25 J	5.3 U
Semivolatile Organic Compounds							
2-Methylphenol (o-cresol)	UG/L	1	0.42 U	0.40 U	0.43 U	0.40 U	0.45 U
Benzo(a)anthracene	UG/L	0.002	0.38 U	0.36 U	0.39 U	0.36 U	0.41 U
Benzo(a)pyrene	UG/L	ND	0.49 U	0.47 U	0.51 U	0.47 U	0.53 U
Benzo(b)fluoranthene	UG/L	0.002	0.35 U	0.34 U	0.37 U	0.34 U	0.39 U
Benzo(k)fluoranthene	UG/L	0.002	0.76 U	0.73 U	0.79 U	0.73 U	0.83 U
Chrysene	UG/L	0.002	0.34 U	0.33 U	0.36 U	0.33 U	0.38 U
Dibenz(a,h)anthracene	UG/L	-	0.44 U	0.42 U	0.46 U	0.42 U	0.48 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	0.49 U	0.47 U	0.51 U	0.47 U	0.53 U
Naphthalene	UG/L	10	0.79 U	0.76 U	0.83 U	26	1.0 J
Phenol	UG/L	1	0.41 U	0.39 U	0.42 U	2.0 J	2.8 J
Dissolved Metals							
Iron	MG/L	-	9.7	14.5	18.2	0.92 B	5.8
Miscellaneous Parameters							
Total Cyanide	MG/L	0.2	0.0041 U	0.0054 J	0.0050 U	0.088	0.017
Nitrate-Nitrogen	MG/L	10	0.020 U	0.37	0.027 J	0.036 J	0.11

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-07	MW-08	MW-08	MW-09	MW-09
Sample ID			MW-07	MW-8	MW-08	MW-09	MW-09
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			10/04/22	10/04/21	08/16/22	10/04/21	08/15/22
Parameter	Units	Criteria*					
Miscellaneous Parameters							
Nitrite-Nitrogen	MG/L	1	NA	NA	0.020 U	NA	0.020 U
Sulfate (as SO4)	MG/L	2.50E+05	10.8	19.5 J	15.2 J	20.6	6.5 J

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-09	MW-10	MW-10	MW-10	MW-10
Sample ID			MW-09	MW-10	MW-10	DUPLICATE	MW-10
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			10/04/22	10/04/21	08/15/22	10/03/22	10/03/22
Parameter	Units	Criteria*				Field Duplicate (1-1)	
Volatile Organic Compounds							
Acetone	UG/L	50	7.7 J	3.0 U	3.0 U	3.0 U	3.0 U
Benzene	UG/L	1	6.1	2.0	1.6	0.41 U	0.41 U
Ethylbenzene	UG/L	5	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U
Styrene	UG/L	5	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Toluene	UG/L	5	0.70 J	0.51 U	0.51 U	0.51 U	0.51 U
Xylene (total)	UG/L	5	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U
Semivolatile Organic Compounds							
2-Methylphenol (o-cresol)	UG/L	1	0.40 U	0.40 U	0.42 U	0.42 U	0.45 U
Benzo(a)anthracene	UG/L	0.002	0.36 U	0.36 U	0.38 U	0.38 U	0.41 U
Benzo(a)pyrene	UG/L	ND	0.47 U	0.47 U	0.49 U	0.49 U	0.53 U
Benzo(b)fluoranthene	UG/L	0.002	0.34 U	0.34 U	0.35 U	0.35 U	0.39 U
Benzo(k)fluoranthene	UG/L	0.002	0.73 U	0.73 U	0.76 U	0.76 U	0.83 U
Chrysene	UG/L	0.002	0.33 U	0.33 U	0.34 U	0.34 U	0.38 U
Dibenz(a,h)anthracene	UG/L	-	0.42 U	0.42 U	0.44 U	0.44 U	0.48 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	0.47 U	0.47 U	0.49 U	0.49 U	0.53 U
Naphthalene	UG/L	10	0.76 U	5.8	0.79 U	0.79 U	0.86 U
Phenol	UG/L	1	0.74 J	0.39 U	0.41 U	0.41 U	0.44 U
Dissolved Metals							
Iron	MG/L	-	0.019 U	0.11 B	0.085	0.11	0.067
Miscellaneous Parameters							
Total Cyanide	MG/L	0.2	0.023	0.28	0.19	0.15	0.15
Nitrate-Nitrogen	MG/L	10	0.020 U	0.029 J	0.020 U	0.020 U	0.020 U

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Advanced Selection: amk-temp
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Printed: 3/28/2023 1:08:16 PM
[SITE KEY] = 35 AND [LOGDATE] > #1/1/2021# AND [MATRIX] = 'WG'

Detection Limits shown are MDL

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-09	MW-10	MW-10	MW-10	MW-10
Sample ID			MW-09	MW-10	MW-10	DUPLICATE	MW-10
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			10/04/22	10/04/21	08/15/22	10/03/22	10/03/22
Parameter	Units	Criteria*				Field Duplicate (1-1)	
Miscellaneous Parameters							
Nitrite-Nitrogen	MG/L	1	NA	NA	0.020 U	NA	NA
Sulfate (as SO4)	MG/L	2.50E+05	239	23.2	18.8	21.2	21.1

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

Advanced Selection: amk-temp
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[SITE KEY] = 35 AND [LOGDATE] > #1/1/2021# AND [MATRIX] = 'WG'

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-11	MW-11	MW-12	MW-12
Sample ID			MW-11	MW-11	MW-12	MW-12
Matrix			Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-
Date Sampled			08/15/22	10/03/22	08/16/22	10/03/22
Parameter	**Units**	**Criteria***				
Volatile Organic Compounds						
Acetone	UG/L	50	6.0 U	6.0 U	3.0 U	3.0 U
Benzene	UG/L	1	3.2	1.9 J	25	7.3
Ethylbenzene	UG/L	5	1.5 U	1.5 U	0.74 U	0.74 U
Styrene	UG/L	5	1.5 U	1.5 U	0.73 U	0.73 U
Toluene	UG/L	5	1.0 U	1.0 U	0.51 U	0.51 U
Xylene (total)	UG/L	5	1.3 U	1.3 U	0.66 U	0.66 U
Semivolatile Organic Compounds						
2-Methylphenol (o-cresol)	UG/L	1	7.8 J	4.2 U	0.42 U	0.40 U
Benzo(a)anthracene	UG/L	0.002	3.8 U	3.8 U	0.38 U	0.36 U
Benzo(a)pyrene	UG/L	ND	4.9 U	4.9 U	0.49 U	0.47 U
Benzo(b)fluoranthene	UG/L	0.002	3.5 U	3.5 U	0.35 U	0.34 U
Benzo(k)fluoranthene	UG/L	0.002	7.6 U	7.6 U	0.76 U	0.73 U
Chrysene	UG/L	0.002	3.4 U	3.4 U	0.34 U	0.33 U
Dibenz(a,h)anthracene	UG/L	-	4.4 U	4.4 U	0.44 U	0.42 U
Indeno(1,2,3-cd)pyrene	UG/L	0.002	4.9 U	4.9 U	0.49 U	0.47 U
Naphthalene	UG/L	10	210	7.9 U	0.79 U	0.76 U
Phenol	UG/L	1	4.1 U	4.1 U	0.74 J	0.39 U
Dissolved Metals						
Iron	MG/L	-	0.14	0.13	6.5	8.8
Miscellaneous Parameters						
Total Cyanide	MG/L	0.2	0.31	0.010 U	0.0070 J	0.010 U
Nitrate-Nitrogen	MG/L	10	0.020 U	0.020 U	0.020 U	0.020 U

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.
J - The reported concentration is an estimated value.
NA - Not analyzed.

Detection Limits shown are MDL

Advanced Selection: amk-temp
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TABLE 3
GROUNDWATER ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID			MW-11	MW-11	MW-12	MW-12
Sample ID			MW-11	MW-11	MW-12	MW-12
Matrix			Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-
Date Sampled			08/15/22	10/03/22	08/16/22	10/03/22
Parameter	Units	Criteria*				
Miscellaneous Parameters						
Nitrite-Nitrogen	MG/L	1	0.020 U	NA	0.020 U	NA
Sulfate (as SO4)	MG/L	2.50E+05	25.8	17.3	22.6	19.0

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

NA - Not analyzed.

Detection Limits shown are MDL

Advanced Selection: amk-temp
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[SITE KEY] = 35 AND [LOGDATE] > #1/1/2021# AND [MATRIX] = 'WG'

TABLE 4
SOIL ANALYTICAL RESULTS
AUBURN GREEN STREET FORMER MGP GAS HOLDER SITE
AUBURN, NY

Location ID					SS-13	SS-13	SS-13
Sample ID					SS-13-0-6"	SS-13 6-12	SS-13-0-6"-12"
Matrix					Soil	Soil	Soil
Depth Interval (ft)					0.0-6.0	6.0-12.0	6.0-12.0
Date Sampled					09/28/22	09/28/22	09/28/22
Parameter	**Units**	**Criteria (1)**	**Criteria (2)**	**Criteria (3)**		Field Duplicate (1-1)	
Metals							
Arsenic	MG/KG	13	16	16	21.2	27.0	24.1

Criteria (1)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Unrestricted Use, including CP-51 Table 1, Effective 12/2/10.

Criteria (2)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Restricted Use. Protection of Groundwater, including CP-51 Table 1, Effective 12/2/10.

Criteria (3)- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Protection of Public Health, Commercial, including CP-51 Table 1, Effective 12/2/10.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria 1

Concentration Exceeds Criteria (2)

Border Concentration Exceeds Criteria (3)

Detection Limits shown are MDL

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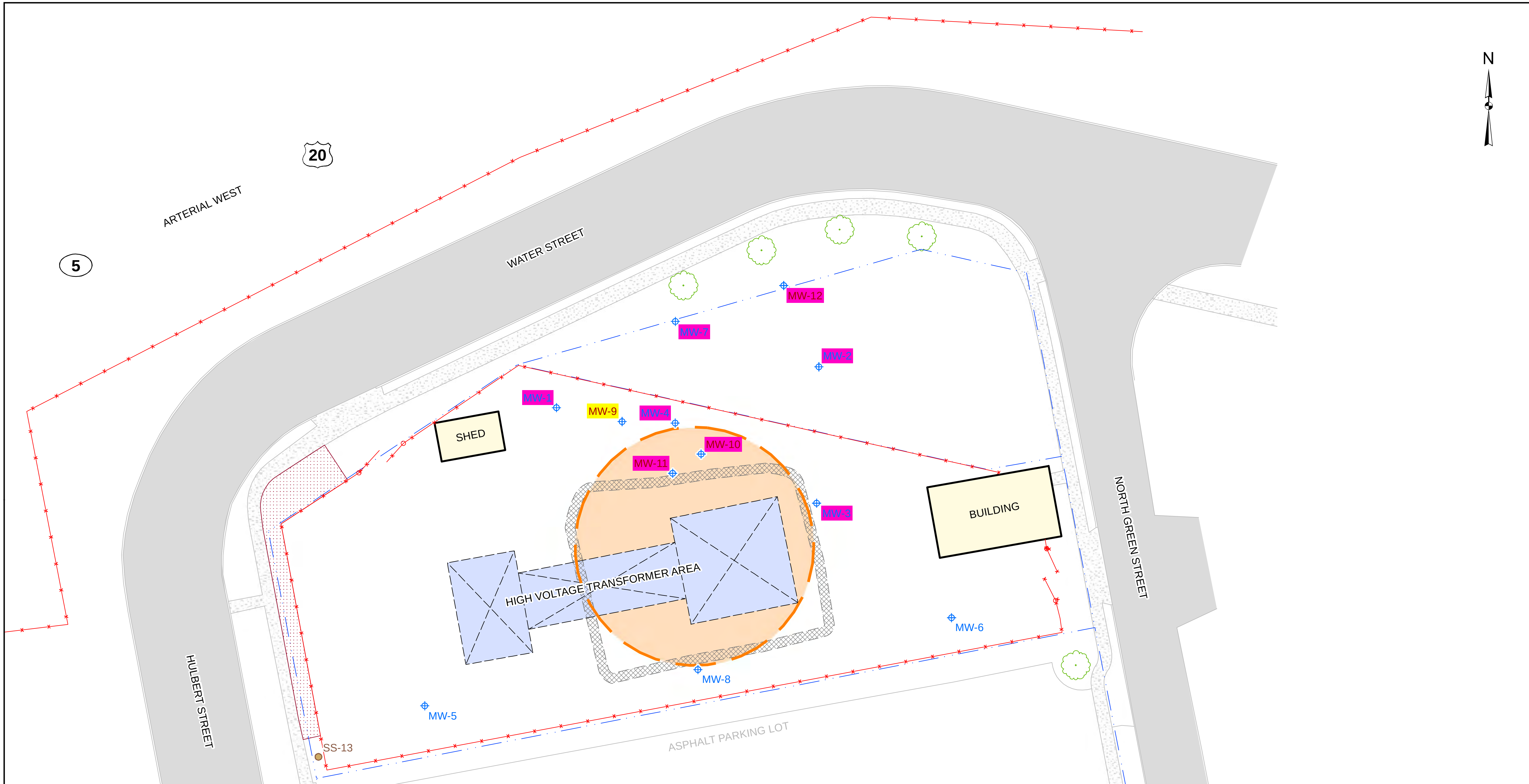
[SITE KEY] = 35 AND [LOGDATE] > #1/1/2021# AND [MATRIX] = 'so'

Figures



LEGEND

- MONITORING WELL LOCATION
- NEW MONITORING WELL LOCATION
- SURFACE SOIL SAMPLE
- APPROXIMATE FORMER GAS HOLDER LOCATION
- BIOSPARGE STEP TEST MONITORING WELL
- BIOSPARGE STEP TEST AIR INJECTION WELL
- BERM
- BUILDING
- EXCAVATION LIMITS SURFACE SOIL (0-1')
- PAVEMENT
- APPROXIMATE PROPERTY BOUNDARY
- FENCE

0 15 30 60
SCALE IN FEET

SOURCE: BASEMAP CREATED USING T.G. MILLER P.C. ENGINEERS AND SURVEYORS TOPOGRAPHIC MAP; JUNE 20, 2013.

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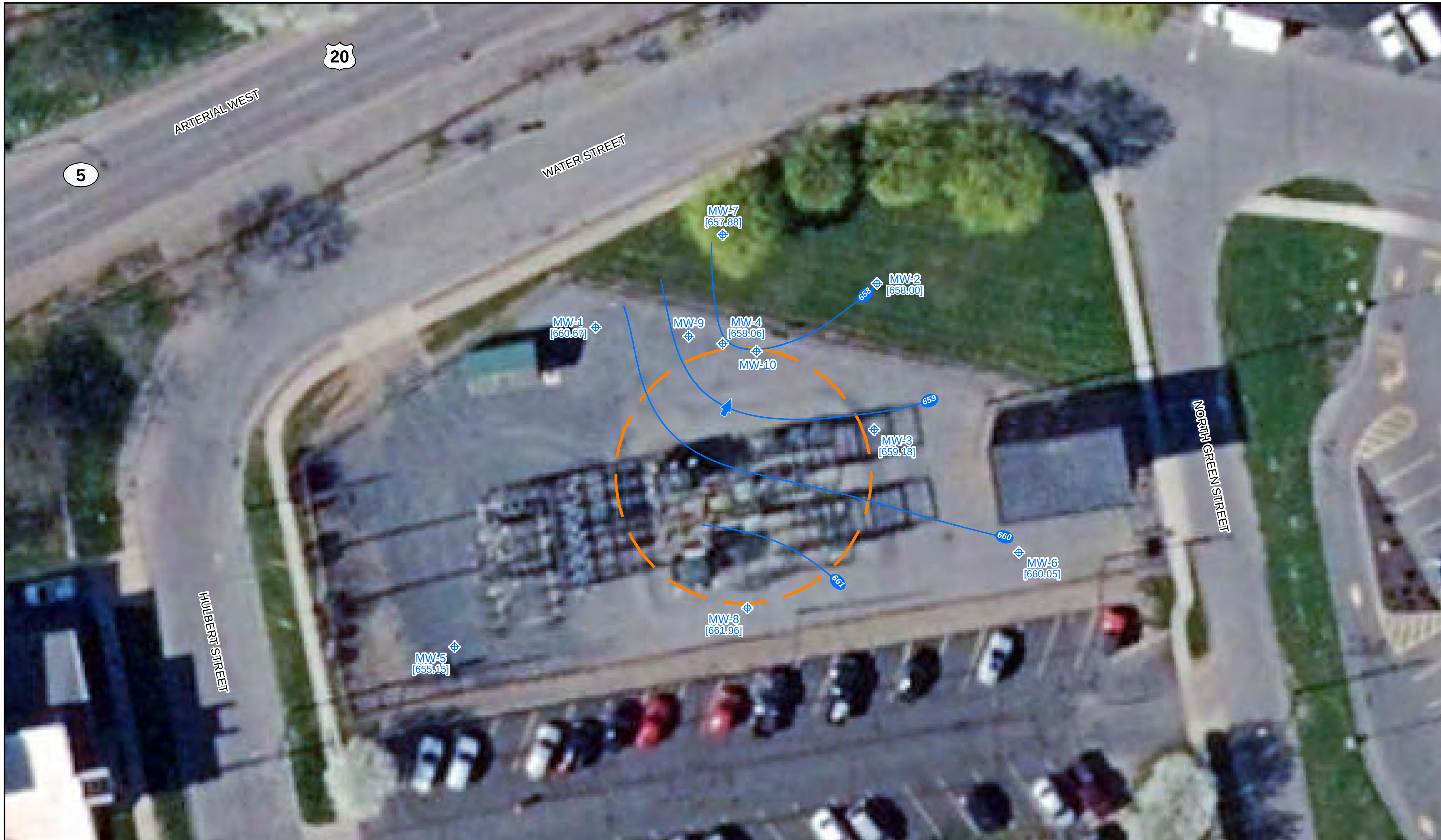
Amherst, NY 14228
P: 716.856.5636

Figure 1
Site Plan and Pre-Design Investigation
Wells and Sampling Locations

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

March 2023 60652550

L:\DCS\Projects\60652550_AuburnGrnR\900_CAD_GIS\920_GIS\Maps\Figure 1 Site Plan & PDI Wells & Sampling Locations.mxd 3/31/2023



N

LEGEND

- MONITORING WELL LOCATION
- [658.00] GROUNDWATER RESULT (feet NAVD 88)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION CONTOUR
- APPROXIMATE FORMER GAS HOLDER LOCATION

NOTES

1. GROUNDWATER ELEVATIONS MEASURED ON OCTOBER 4, 2021.
2. MW-5 GROUNDWATER ELEVATION WAS NOT INCLUDED IN CONTOURING. THIS WELL ELEVATION IS BELIEVED TO REPRESENT A DIFFERENT WATER LAYER WITH A LOWER HYDRAULIC HEAD COMPARED TO OTHER SITE WELLS.
3. MW-9 AND MW-10 WERE NOT INCLUDED IN CONTOURING AS THEY HAVE NOT BEEN SURVEYED YET.

0 15 30 60
SCALE IN FEET

SOURCES: NYS ITS GIS Program Office, Orthoimagery, 2018

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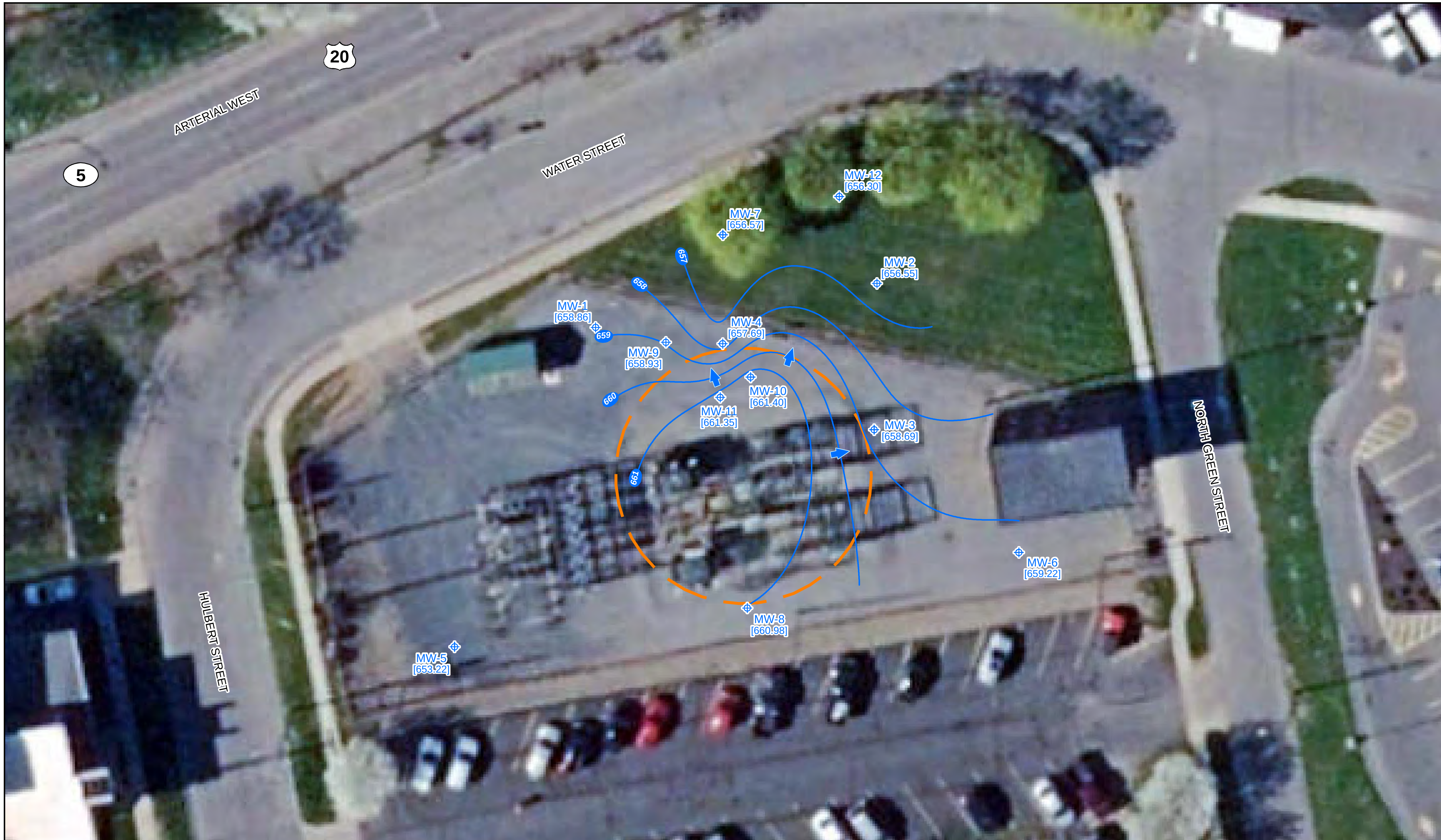
Figure 2
Groundwater Elevation Contours Map
(October 4, 2021)

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

March 2023 60652550



N

LEGEND

- MONITORING WELL LOCATION
- [658.00] GROUNDWATER RESULT (feet NAVD 88)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION CONTOUR
- APPROXIMATE FORMER GAS HOLDER LOCATION

NOTES

1. GROUNDWATER ELEVATIONS MEASURED ON AUGUST 15 & 16, 2022.
2. MW-5 GROUNDWATER ELEVATION WAS NOT INCLUDED IN CONTOURING. THIS WELL ELEVATION IS BELIEVED TO REPRESENT A DIFFERENT WATER LAYER WITH A LOWER HYDRAULIC HEAD COMPARED TO OTHER SITE WELLS.

0 15 30 60

SCALE IN FEET

SOURCES: NYS ITS GIS Program Office, Orthoimagery, 2018

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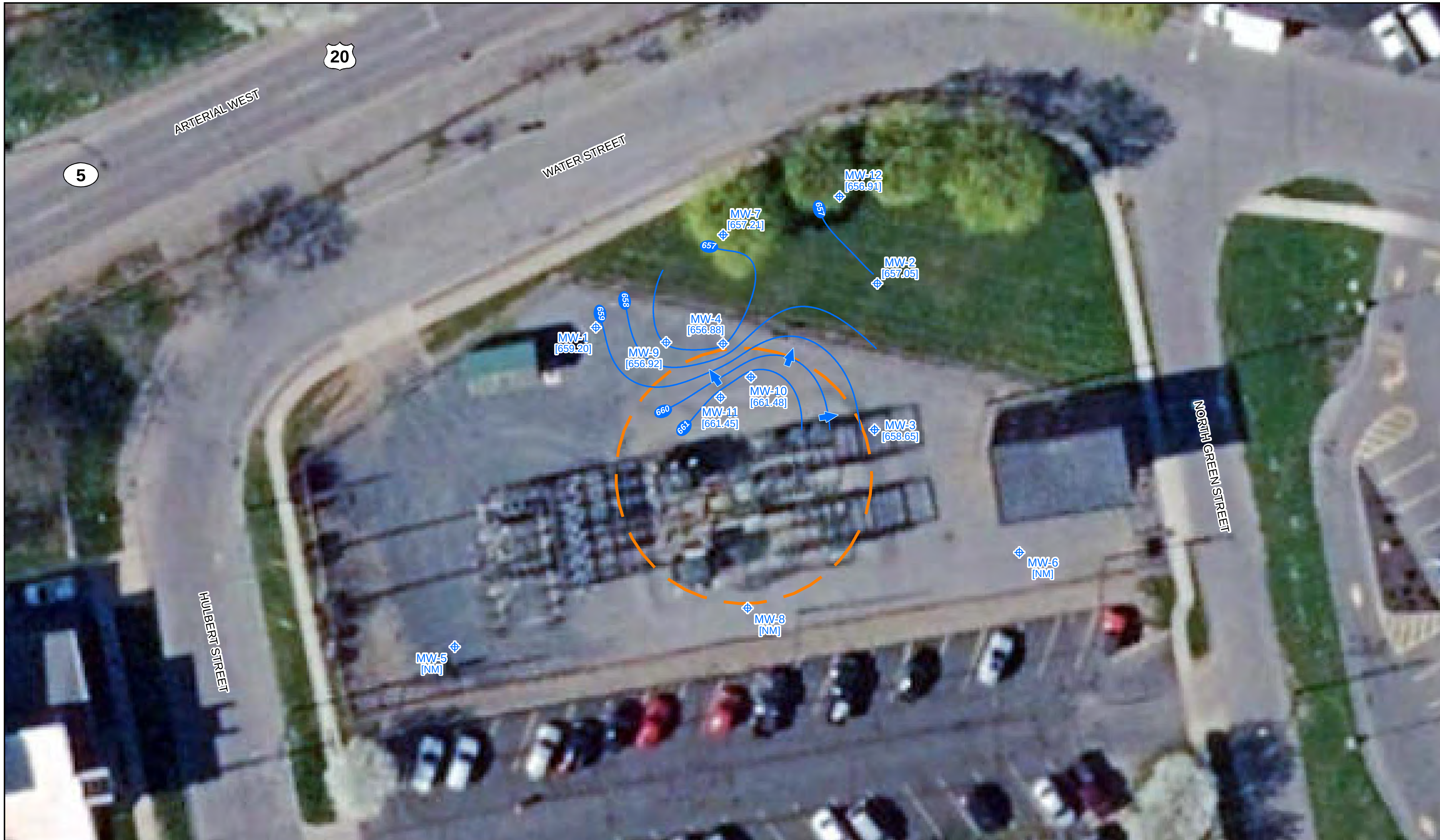
Figure 3
Groundwater Elevation Contours Map
(August 15 & 16, 2022)

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

March 2023

60652550

L:\DCS\Projects\60652550_AuburnGrnR\900_CAD_GIS\920_GIS\Maps\Figure 3 Groundwater Contour Map (Aug 2022).mxd 3/31/2023



N

LEGEND

- MONITORING WELL LOCATION
- [658.00] GROUNDWATER RESULT (feet NAVD 88)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION CONTOUR
- APPROXIMATE FORMER GAS HOLDER LOCATION

NOTES

1. GROUNDWATER ELEVATIONS MEASURED ON OCTOBER 3, 2022.
2. MW-5 GROUNDWATER ELEVATION WAS NOT INCLUDED IN CONTOURING. THIS WELL ELEVATION IS BELIEVED TO REPRESENT A DIFFERENT WATER LAYER WITH A LOWER HYDRAULIC HEAD COMPARED TO OTHER SITE WELLS.
3. NM = NOT MEASURED

0 15 30 60

SCALE IN FEET

SOURCES: NYS ITS GIS Program Office, Orthoimagery, 2018

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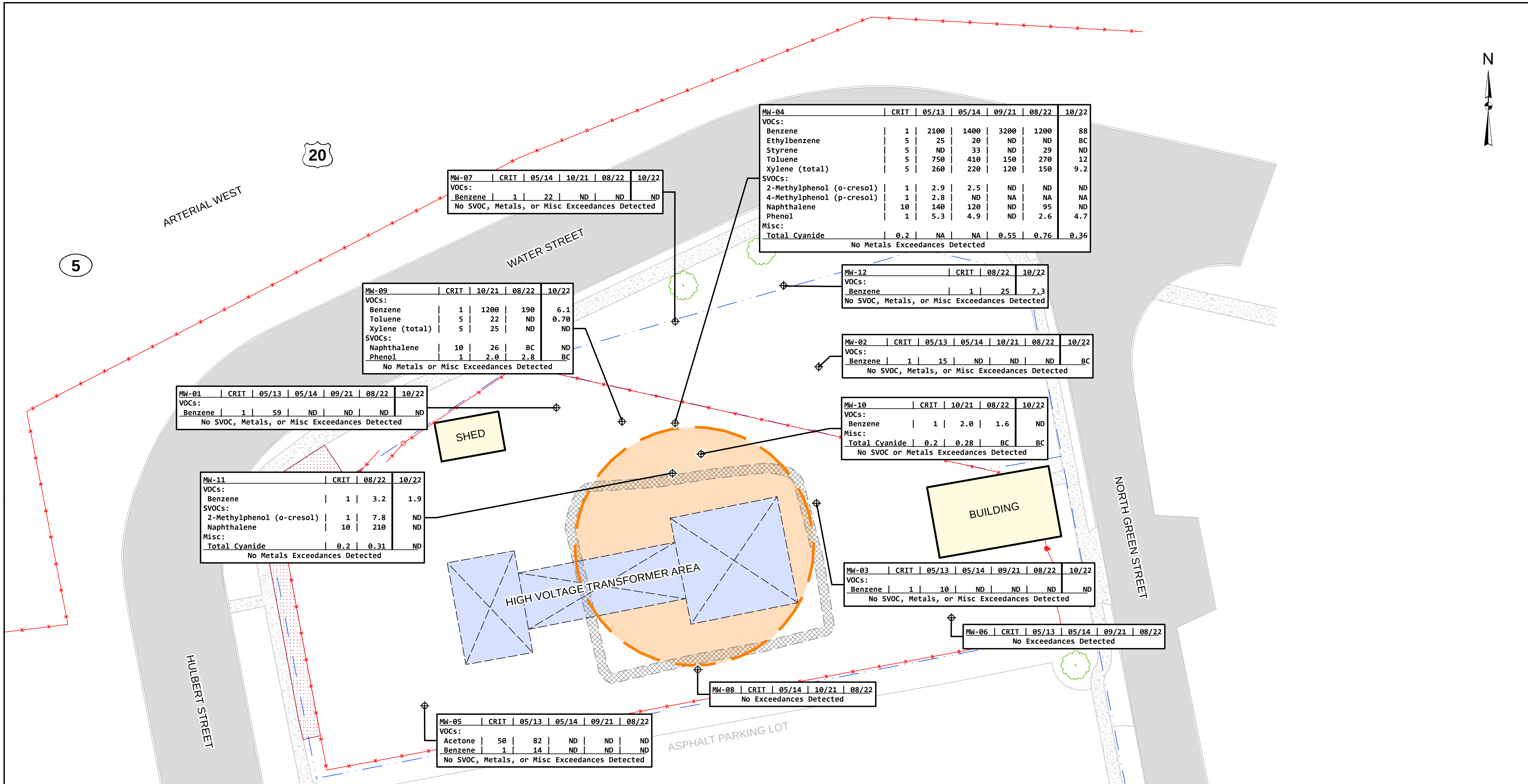
Figure 4
Groundwater Elevation Contours Map
(October 3, 2022)

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

March 2023 60652550

L:\DCS\Projects\60652550_AuburnGrnR\900_CAD_GIS\920_GIS\Maps\Figure 4 Groundwater Contour Map (Oct 2022).mxd 3/31/2023



MW-04	CRIT	05/13	05/14	09/21	08/22	10/22
VOCs:						
Benzene	1	2100	1400	3200	1200	88
Ethylbenzene	5	25	20	ND	ND	BC
Styrene	5	ND	33	ND	29	ND
Toluene	5	750	410	150	270	12
Xylene (total)	5	260	220	120	150	9.2
SVOCs:						
2-Methylphenol (o-cresol)	1	2.9	2.5	ND	ND	ND
4-Methylphenol (p-cresol)	1	2.8	ND	NA	NA	NA
Naphthalene	10	140	120	ND	95	ND
Phenol	1	5.3	4.9	ND	2.6	4.7
Misc:						
Total Cyanide	0.2	NA	NA	0.55	0.76	0.36
No Metals Exceedances Detected						

MW-07	CRIT	05/14	10/21	08/22	10/22
VOCs:					
Benzene	1	22	ND	ND	ND
No SVOC, Metals, or Misc Exceedances Detected					

MW-12	CRIT	08/22	10/22
VOCs:			
Benzene	1	25	7.3
No SVOC, Metals, or Misc Exceedances Detected			

MW-09	CRIT	10/21	08/22	10/22
VOCs:				
Benzene	1	1200	190	6.1
Toluene	5	22	ND	0.70
Xylene (total)	5	25	ND	ND
SVOCs:				
Naphthalene	10	26	BC	ND
Phenol	1	2.0	2.8	BC
No Metals or Misc Exceedances Detected				

MW-02	CRIT	05/13	05/14	10/21	08/22	10/22
VOCs:						
Benzene	1	15	ND	ND	ND	BC
No SVOC, Metals, or Misc Exceedances Detected						

MW-01	CRIT	05/13	05/14	09/21	08/22	10/22
VOCs:						
Benzene	1	59	ND	ND	ND	ND
No SVOC, Metals, or Misc Exceedances Detected						

MW-10	CRIT	10/21	08/22	10/22
VOCs:				
Benzene	1	2.0	1.6	ND
Misc:				
Total Cyanide	0.2	0.28	BC	BC
No SVOC or Metals Exceedances Detected				

MW-11	CRIT	08/22	10/22
VOCs:			
Benzene	1	3.2	1.9
SVOCs:			
2-Methylphenol (o-cresol)	1	7.8	ND
Naphthalene	10	210	ND
Misc:			
Total Cyanide	0.2	0.31	ND
No Metals Exceedances Detected			

MW-03	CRIT	05/13	05/14	09/21	08/22	10/22
VOCs:						
Benzene	1	10	ND	ND	ND	ND
No SVOC, Metals, or Misc Exceedances Detected						

MW-06	CRIT	05/13	05/14	09/21	08/22
No Exceedances Detected					

MW-08	CRIT	05/14	10/21	08/22
No Exceedances Detected				

MW-05	CRIT	05/13	05/14	09/21	08/22
VOCs:					
Acetone	50	82	ND	ND	ND
Benzene	1	14	ND	ND	ND
No SVOC, Metals, or Misc Exceedances Detected					

LEGEND

- MONITORING WELL LOCATION
- APPROXIMATE FORMER GAS HOLDER LOCATION
- BERM
- BUILDING
- EXCAVATION LIMITS SURFACE SOIL (0-1')
- PAVEMENT
- APPROXIMATE PROPERTY BOUNDARY
- FENCE

NOTES

1. THE PDI BIOSPARGE PILOT TEST TOOK PLACE IN SEPTEMBER 2022.
2. THE BLACK DIVIDER LINE IN RESULTS INDICATES POST-BIOSPARGE PILOT TEST DATA.
3. BC = BELOW CRITERIA
4. NA = NOT ANALYZED
5. ND = NOT DETECTED

CRITERIA: NYSDEC TOGS (1.1.1), AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES AND GROUNDWATER EFFLUENT LIMITATIONS.
SOURCE: BASEMAP CREATED USING T.G. MILLER P.C. ENGINEERS AND SURVEYORS TOPOGRAPHIC MAP; JUNE 20, 2013.

0 15 30 60
SCALE IN FEET

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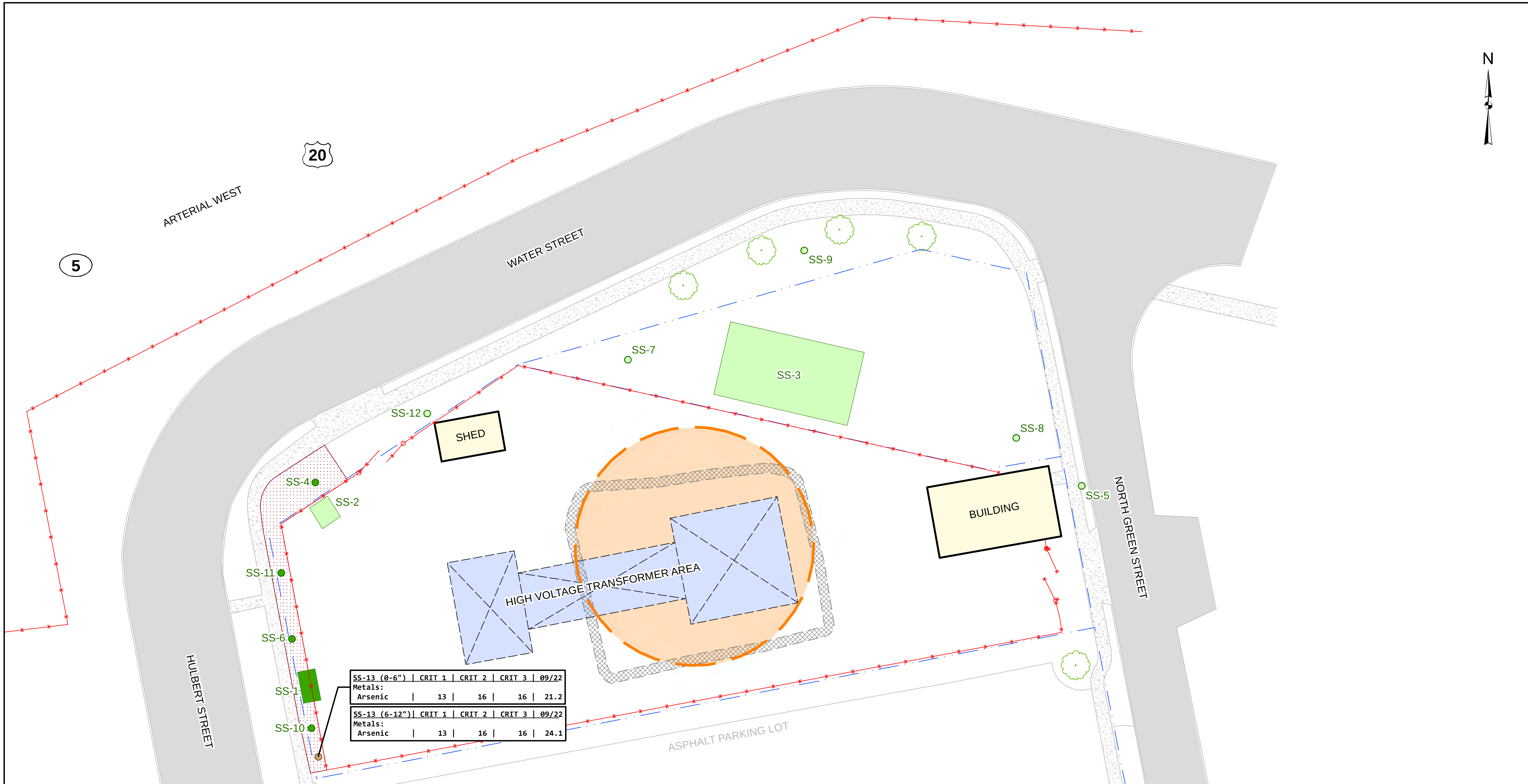
Figure 5
Historical and Pre-Design Investigation
Groundwater Exceedances

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

April 2023 60652550



LEGEND

- PDI SURFACE SOIL SAMPLE
- HISTORICAL SURFACE SOIL SAMPLE WITH ARSENIC RESULTS ABOVE CRITERIA
- HISTORICAL SURFACE SOIL SAMPLE WITH ARSENIC RESULTS BELOW CRITERIA
- APPROXIMATE FORMER GAS HOLDER LOCATION
- BERM
- BUILDING
- EXCAVATION LIMITS SURFACE SOIL (0-1')
- PAVEMENT
- APPROXIMATE PROPERTY BOUNDARY
- FENCE

CRITERIA: (1) 6 NYCRR PART 375.6, REMEDIAL PROGRAM SOIL CLEANUP OBJECTIVES, EFFECTIVE 12/14/06. UNRESTRICTED USE, INCLUDING CP-51 TABLE 1, EFFECTIVE 12/2/10.
(2) 6 NYCRR PART 375.6, REMEDIAL PROGRAM SOIL CLEANUP OBJECTIVES, EFFECTIVE 12/14/06. RESTRICTED USE. PROTECTION OF GROUNDWATER, INCLUDING CP-51 TABLE 1, EFFECTIVE 12/2/10.
(3) 6 NYCRR PART 375.6, REMEDIAL PROGRAM SOIL CLEANUP OBJECTIVES, EFFECTIVE 12/14/06. PROTECTION OF PUBLIC HEALTH, COMMERCIAL, INCLUDING CP-51 TABLE 1, EFFECTIVE 12/2/10.

SOURCE: BASEMAP CREATED USING T.G. MILLER P.C. ENGINEERS AND SURVEYORS TOPOGRAPHIC MAP; JUNE 20, 2013.

0 15 30 60
SCALE IN FEET

AECOM

1 John James Audubon Parkway, Suite 210
Amherst, NY 14228
P: 716.856.5636

Figure 6
Pre-Design Investigation
Soil Exceedances

NYSEG - Auburn Green St. MGP Site
Green Street
Auburn, Cayuga County, New York

April 2023 60652550

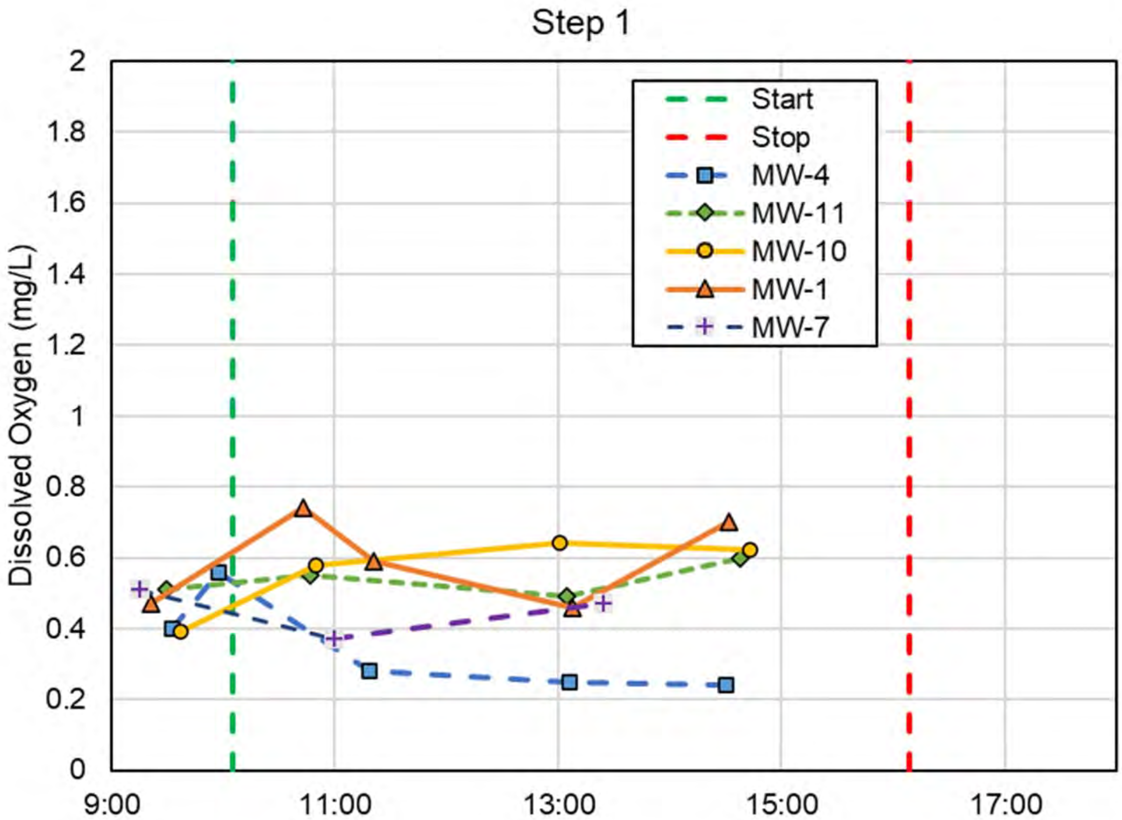


Figure 7. Dissolved oxygen concentrations in groundwater during Step 1 (2.7 scfm).

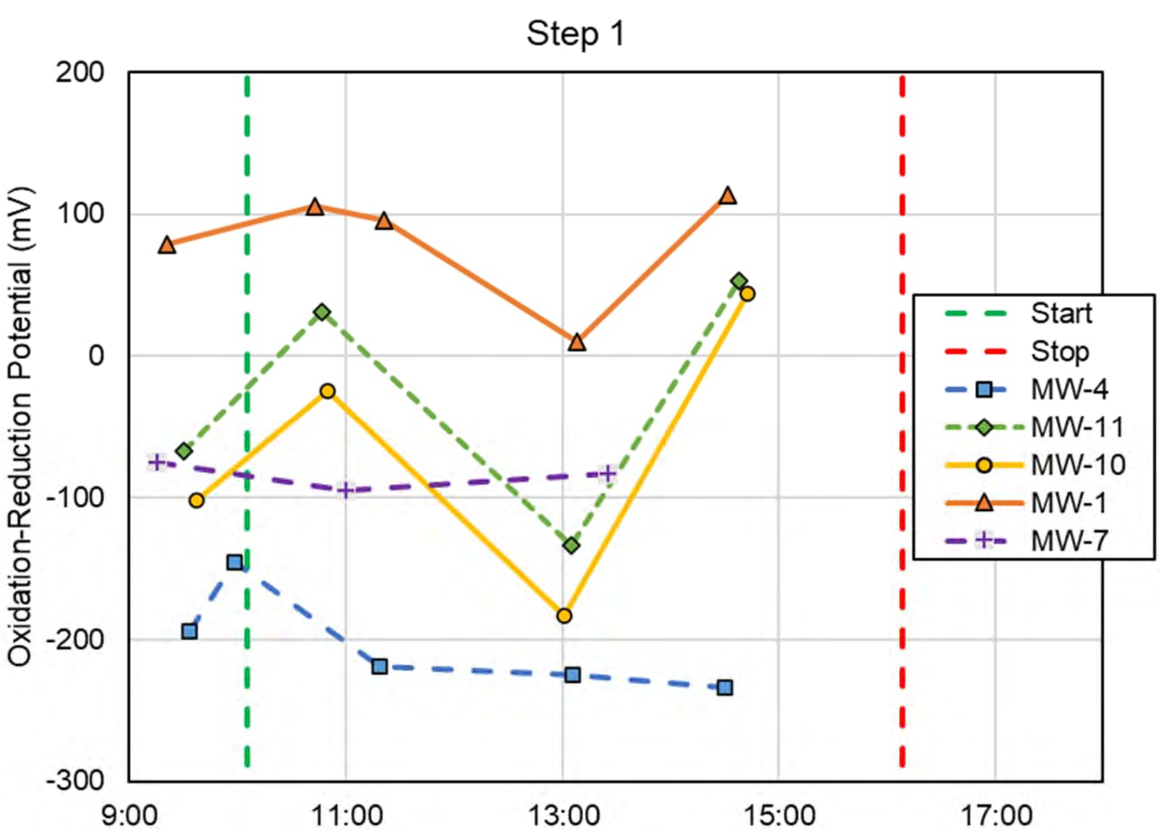


Figure 8. Oxidation-reduction potential in groundwater during Step 1 (2.7 scfm).

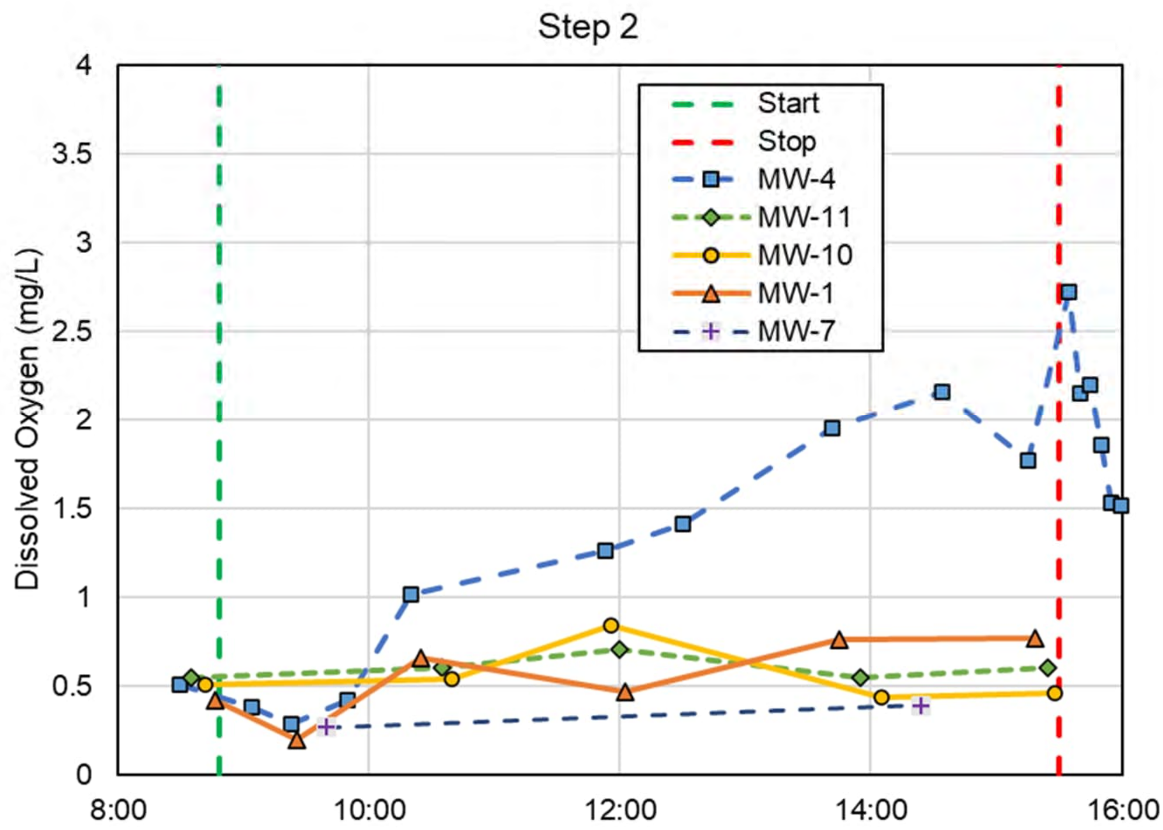


Figure 9. Dissolved oxygen concentrations in groundwater during Step 2 (7.5 scfm).

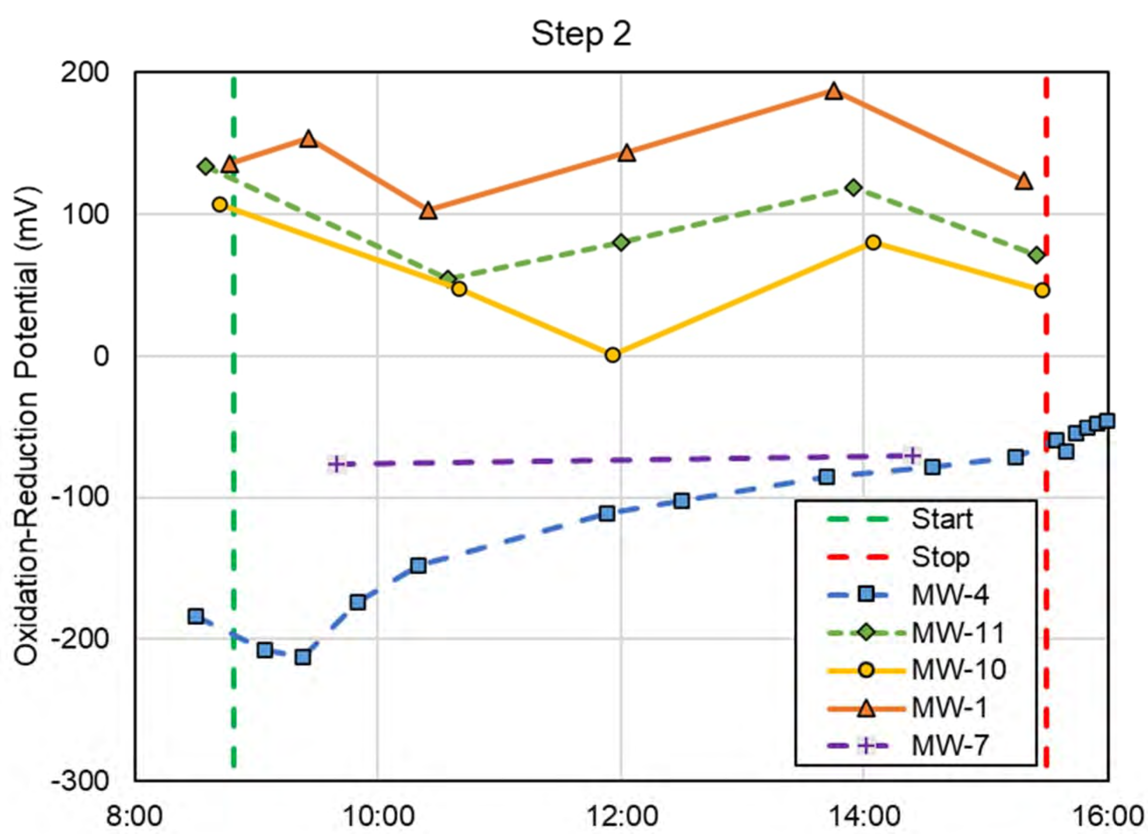


Figure 10. Oxidation-reduction potential in groundwater during Step 1 (7.5 scfm).

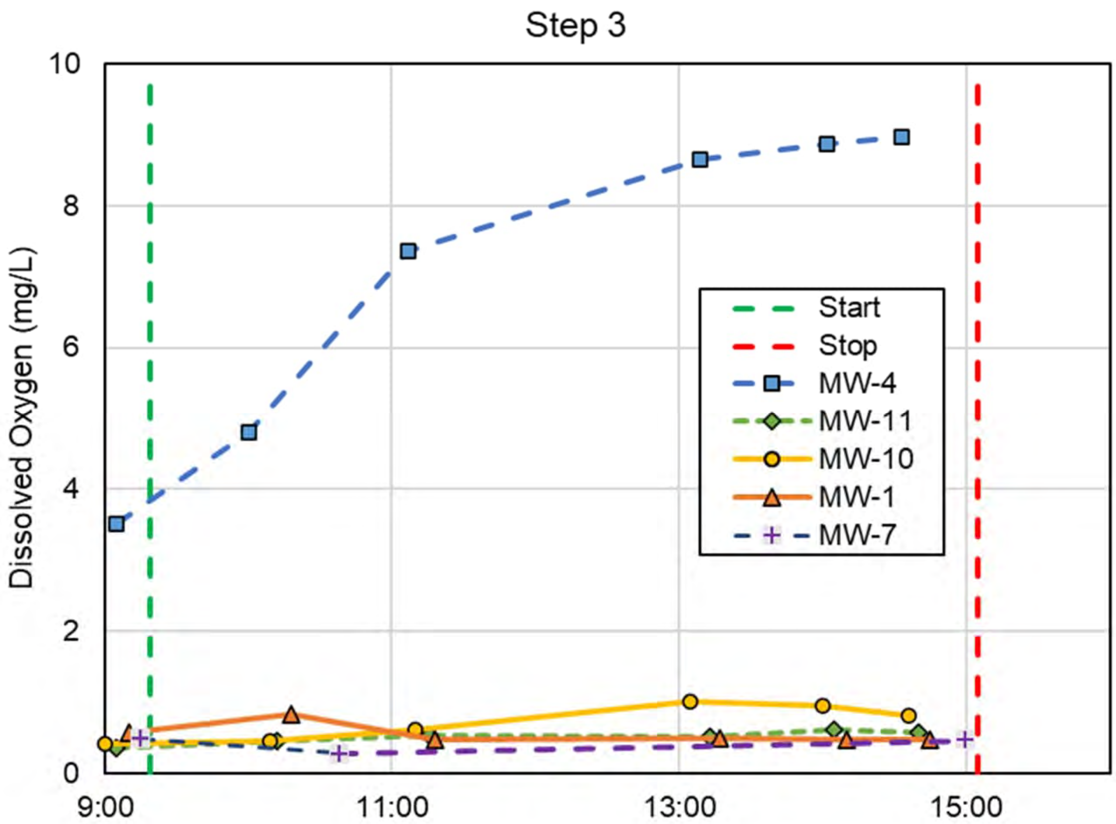


Figure 11. Dissolved oxygen concentrations in groundwater during Step 3 (15.7 scfm).

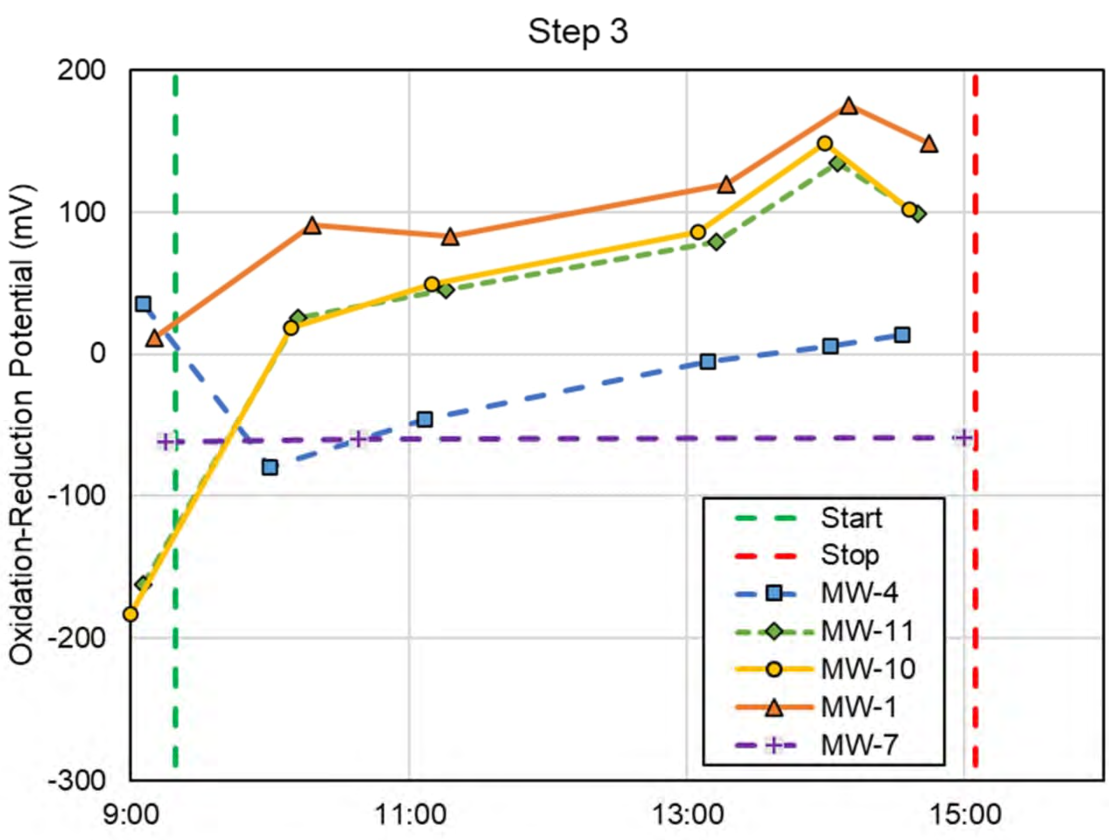


Figure 12. Oxidation-reduction potential in groundwater during Step 1 (15.7 scfm).

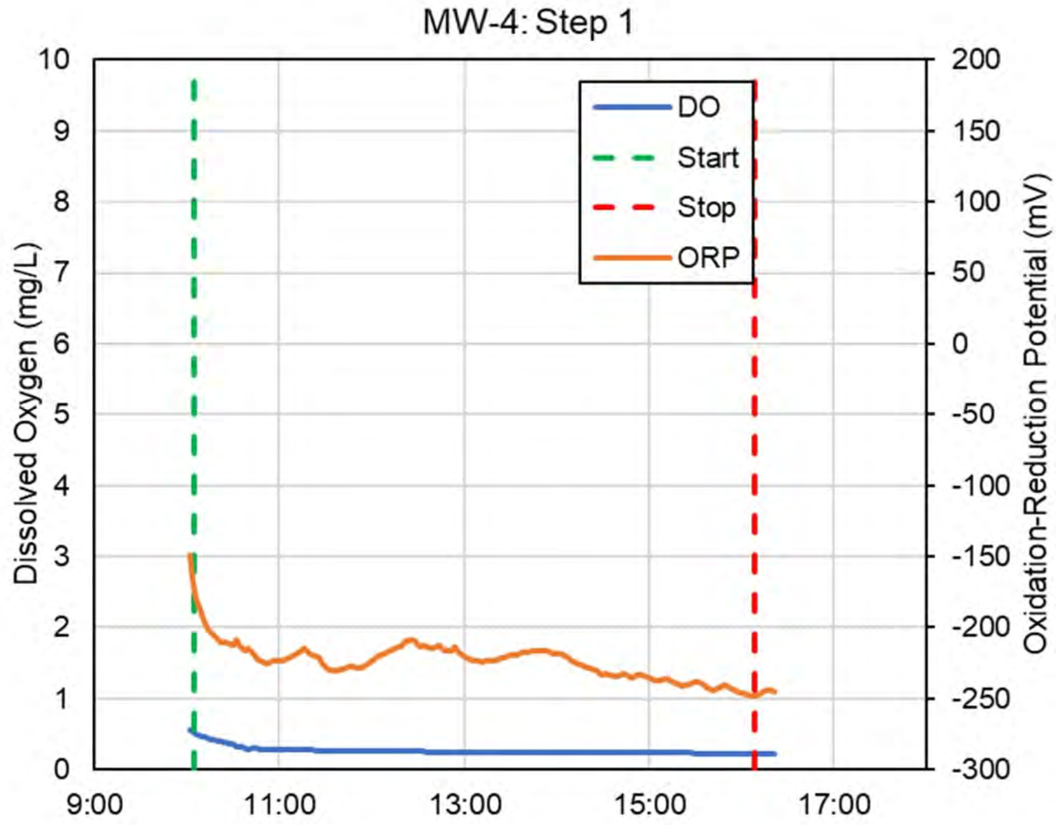


Figure 13. Dissolved oxygen concentrations and oxidation-reduction potential in groundwater at MW-4 during Step 1 (2.7 scfm).

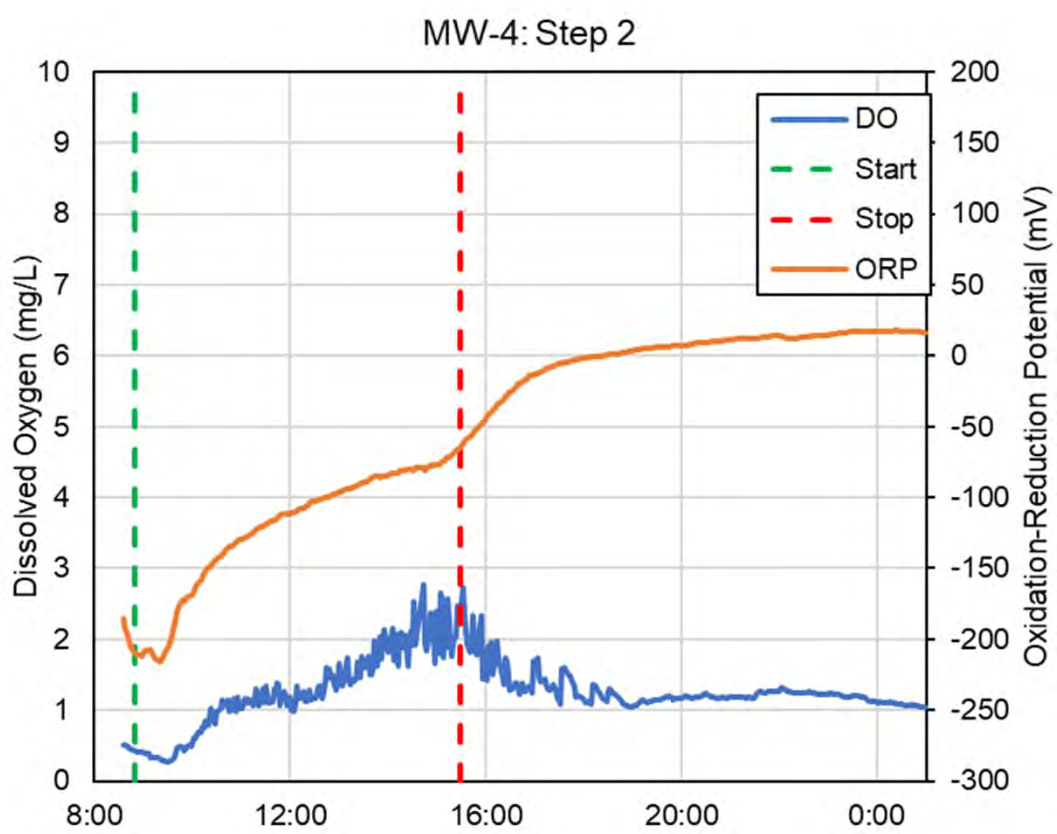


Figure 14. Dissolved oxygen concentrations and oxidation-reduction potential in groundwater at MW-4 during Step 2 (7.5 scfm).

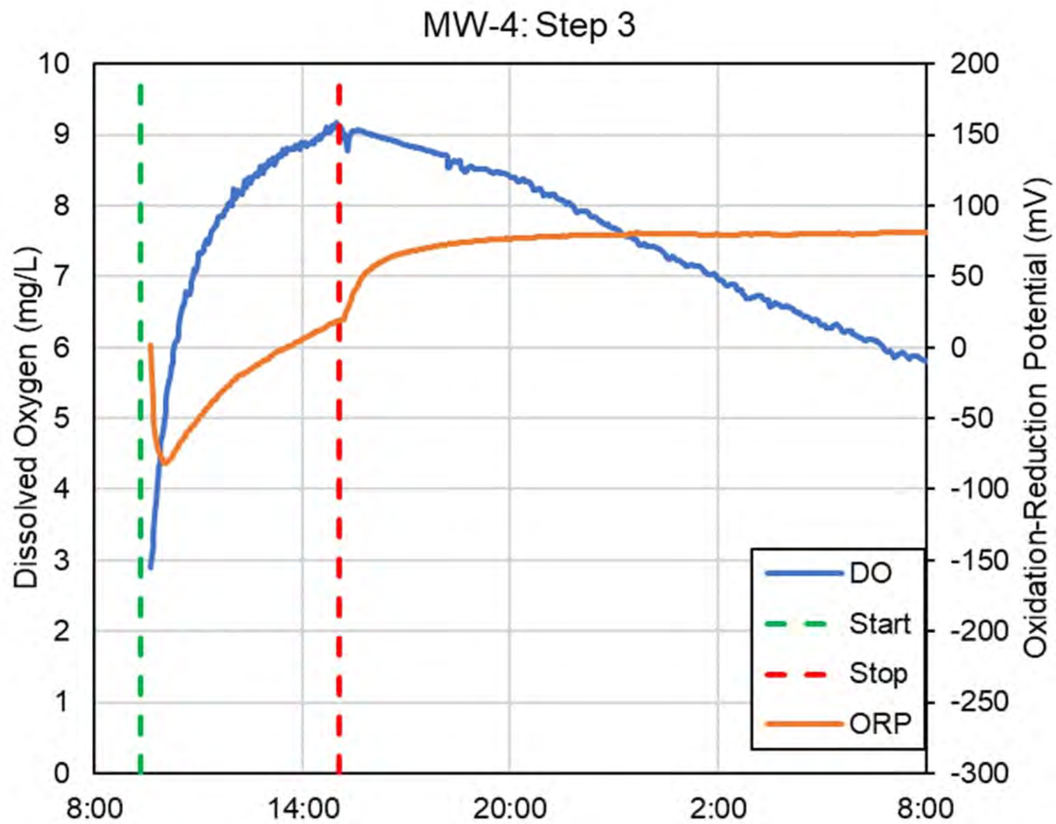


Figure 15. Dissolved oxygen concentrations and oxidation-reduction potential in groundwater at MW-4 during Step 3 (15.7 scfm).

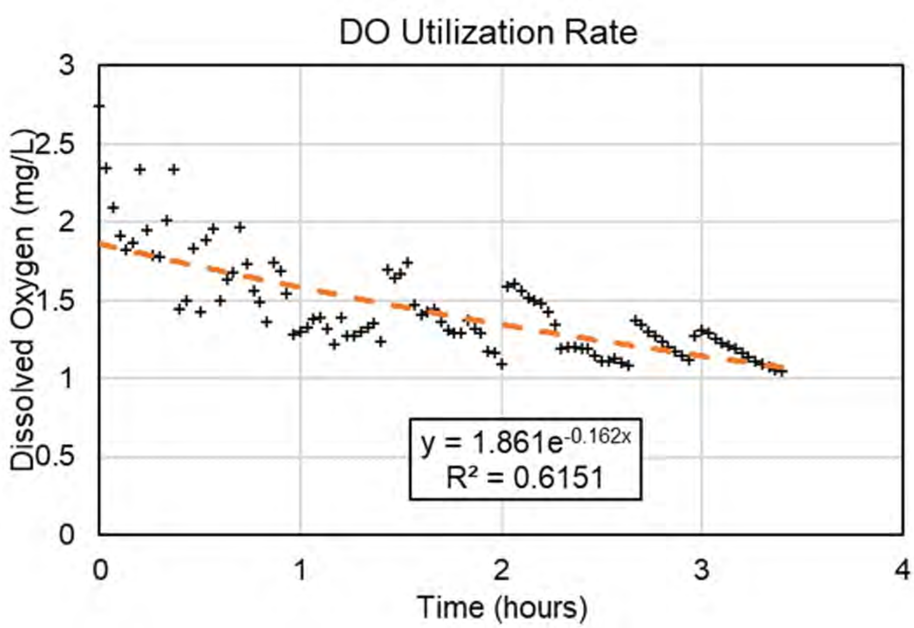


Figure 16. Dissolved oxygen utilization rate evaluation in groundwater at MW-4 after Step 2.

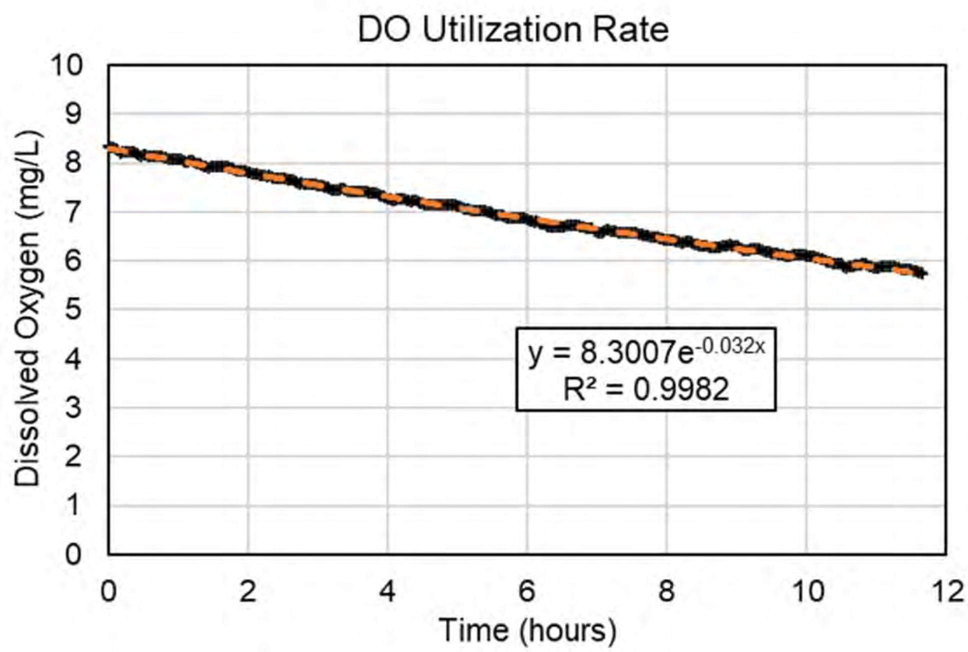


Figure 16. Dissolved oxygen utilization rate evaluation in groundwater at MW-4 after Step 3.

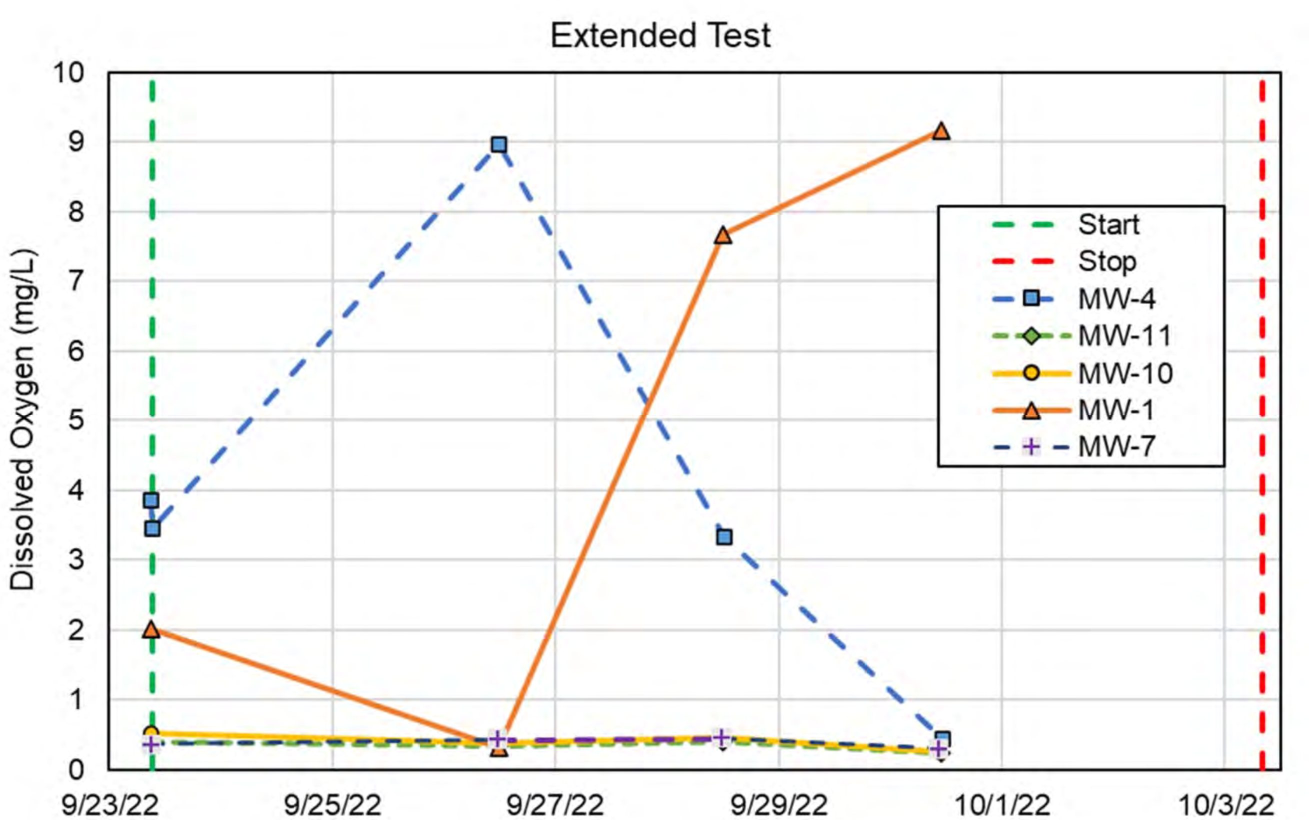


Figure 17. Dissolved oxygen concentrations in groundwater during the extended test (6.3 scfm).

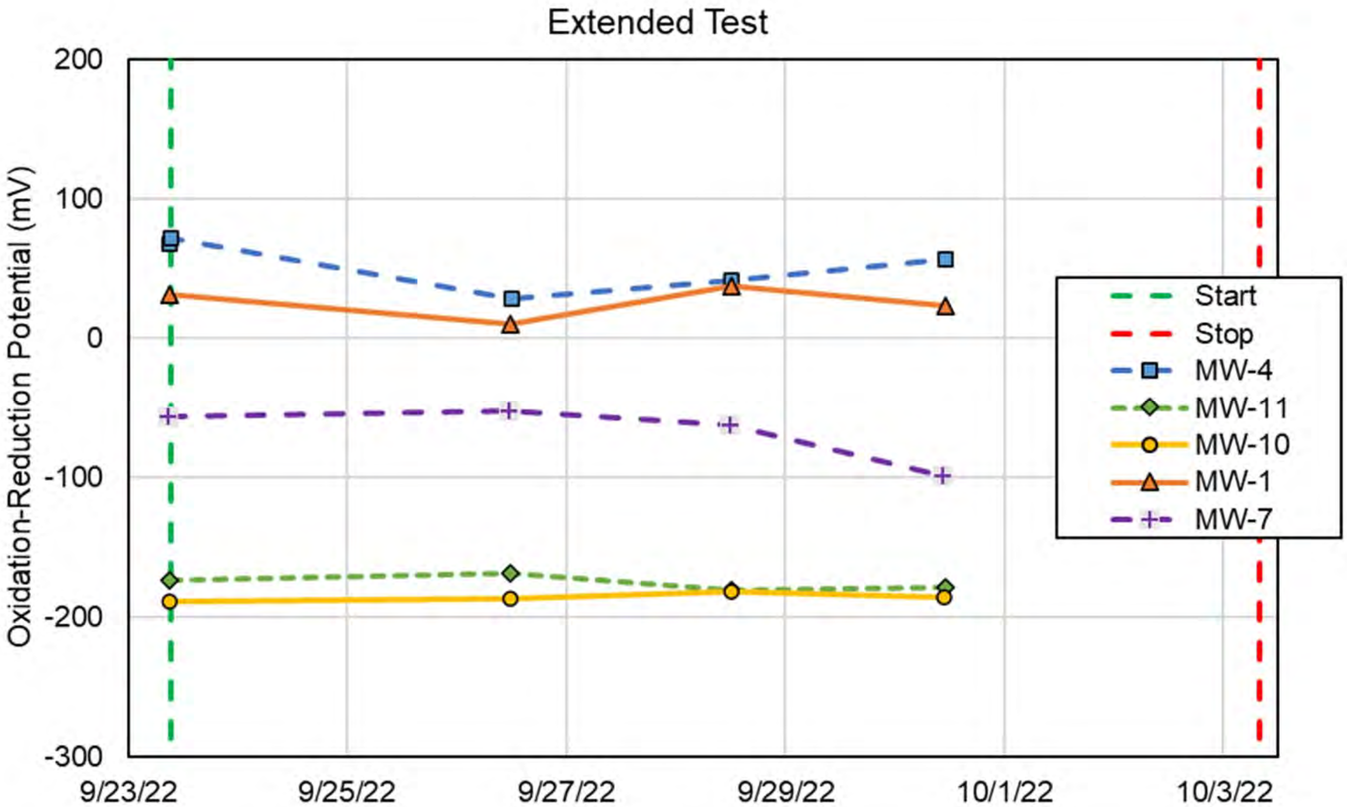


Figure 18. Oxidation-reduction potential in groundwater during the extended test (6.3 scfm).

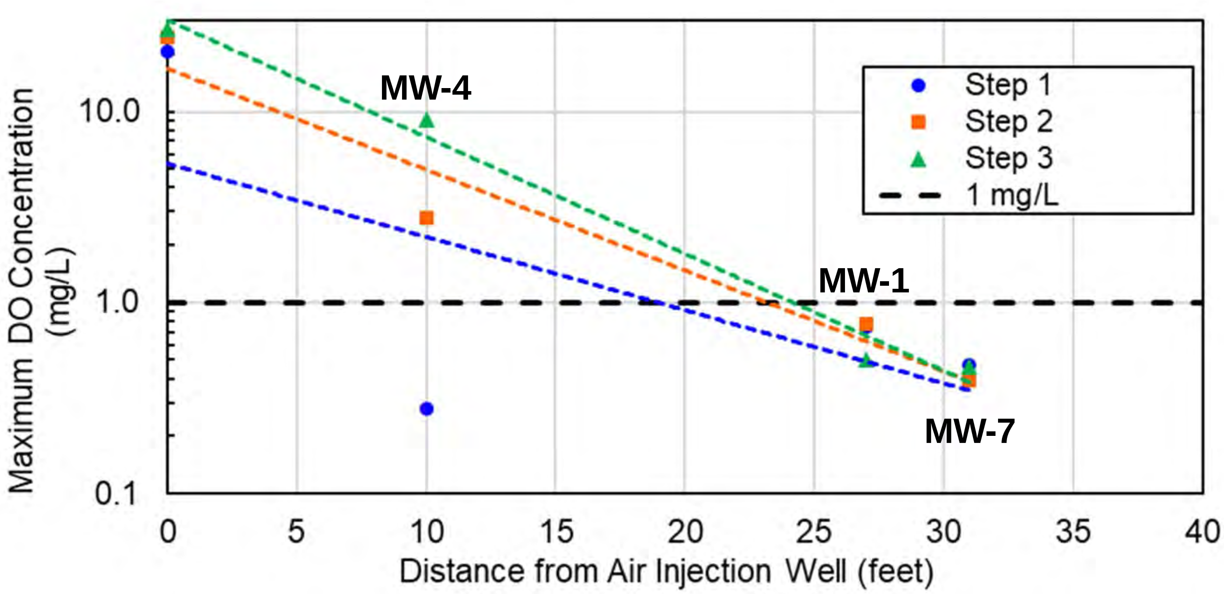


Figure 19. Estimated Radii of Influence (ROI) during Step Tests.

Attachment 1

Boring Logs

AECOM

TEST BORING LOG

PROJECT/PROJECT LOCATION: NYSEG Auburn Site	**BORING NO. :** MW-09
CLIENT: NYSEG	**SHEET:** 1 **OF** 1
BORING CONTRACTOR: Matrix	**JOB NO. :** 60652550
	NORTHING: 1068693.533 **EASTING:** 823558.675

GROUNDWATER: 18.51 ft bgs					CAS.	SAMPLER	CORE	TUBE
DATE	TIME	LEVEL	TYPE	TYPE		Macrocore		
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

GROUND ELEVATION:	666.85
DATE STARTED:	09/28/2021
DATE FINISHED:	09/28/2021
DRILLER:	Steve Marchetti
GEOLOGIST:	S. Connelly
REVIEWED BY:	J. Kaczor

DEPTH FEET	STRATA	SAMPLE NO.	BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		40	Dark Brown and Gray		FILL: Silt with medium Gravel and Brick fragments.		0.0	Dry, No Odor, No Staining
					Brn&Rd		CLAY	CL		
-5		2		10	Gray		Fine SILT, trace Sand and Gravel	ML	0.0	Moist
-10		3		94					0.0	
									4.9	
					Rd Brn		Clayey SILT			
					Gray		Fine to coarse GRAVEL and SAND	SW/GW		Dry and Slight Odor @ 13.4' Moist @ 13.7'
							Fine SAND	SM		
-15		4		50			Fine to coarse GRAVEL and SAND	SW/GW	0.0	
					Reddish Brown		Clayey SILT	ML		
							Refusal @ 19' bgs			
-20										
-25										

COMMENTS:
Boring advanced by Geoprobe® Model 6620DT

BORING NO. : MW-09

AECOM

TEST BORING LOG

BORING NO. : MW-10	
PROJECT/PROJECT LOCATION: NYSEG Auburn Site	SHEET: 1 OF 1
CLIENT: NYSEG	JOB NO. : 60652550
BORING CONTRACTOR: Matrix	NORTHING: 1068683.478 EASTING: 823583.105

GROUNDWATER: 6.5 ft bgs					CAS.	SAMPLER	CORE	TUBE
DATE	TIME	LEVEL	TYPE	TYPE		Macrocore		
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

GROUND ELEVATION:	666.93
DATE STARTED:	8/30/2021
DATE FINISHED:	8/30/2021
DRILLER:	Pat Bliek
GEOLOGIST:	K. McGovern
REVIEWED BY:	J. Kaczor

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		20	Gray		GRAVEL SUBBASE		0.0	Dry, No Odor, No Staining
					Red and Dark Gray		FILL: Gravel and Brick fragments, some to little coarse-fine Sand and Silt			
-5		2		20					0.0	Wet
-10		3		26					0.0	
-15		4		28			Trace coarse to fine Sand, no Silt		0.0	
-20		5		10					0.0	
							Refusal @ 21' bgs			
-25										

COMMENTS:
Boring advanced by Geoprobe® Model 6620DT

BORING NO. : MW-10

AECOM

TEST BORING LOG

PROJECT/PROJECT LOCATION: NYSEG Auburn Site	BORING NO. : MW-11
CLIENT: NYSEG	SHEET: 1 OF 1
BORING CONTRACTOR: Matrix	JOB NO. : 60652550
	NORTHING: 1068677.587 EASTING: 823574.298
GROUNDWATER: 5 ft bgs	GROUND ELEVATION: 667.14

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Macrocore		
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED:	8/3/2022
DATE FINISHED:	8/3/2022
DRILLER:	Rich Reagan
GEOLOGIST:	Emily Au
REVIEWED BY:	J. Kaczor

DEPTH FEET	STRATA	SAMPLE NO.	BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0					Gray Brown	Loose	GRAVEL SUBBASE		0.0	Dry, No Odor, No Staining
					Tan to Lt. Brown		FILL: Fine to medium Sand and fine to coarse Gravel with Brick Fragments and Slag		0.0	
									0.0	
									0.0	
									0.0	
-5		1		34					0.0	Wet
									0.0	
									0.0	
									0.0	
					Dark Gray		Medium to coarse Gravel, little Brick Fragments and Slag		0.0	
-10		2		54		Medium Dense			0.0	
									1.5	
									0.8	
									0.3	
									0.2	
-15		3		34					0.0	
									0.0	
									0.0	
-20							Refusal @ 20' bgs			
-25										

COMMENTS:
Boring advanced by Geoprobe® Model 6620DT

BORING NO. : MW-11

AECOM

TEST BORING LOG

PROJECT/PROJECT LOCATION: NYSEG Auburn Site	BORING NO. : MW-12
CLIENT: NYSEG	SHEET: 1 OF 1
	JOB NO. : 60652550
BORING CONTRACTOR: Matrix	NORTHING: 1068735.580 EASTING: 823608.627
GROUNDWATER: 10 ft bgs	GROUND ELEVATION: 664.74

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Macrocore		
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED:	8/3/2022
DATE FINISHED:	8/3/2022
DRILLER:	Rich Reagan
GEOLOGIST:	Emily Au
REVIEWED BY:	J. Kaczor

DEPTH FEET	STRATA	SAMPLE NO.	BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0					Brown	Medium Dense	FILL: Fine to medium Sandy Loam, some fine to coarse Gravel, trace to little Silt		0.0	Dry, No Odor, No Staining
									0.0	
									0.0	
									0.0	
									0.0	
-5		1		60			Trace Brick and Slag		0.0	
					Brown/ Tan/ Gray Mottled		SILT, little Clay, trace angular Gravel	ML	0.0	Dry to Moist
									0.0	
									0.0	
-10		2		48	Gray Brown		Fine to coarse angular GRAVEL, trace medium to coarse Sand	GW	0.0	Wet/ Saturated
									0.0	
									0.0	
									0.0	
-15		3		57	Red Brown	Very Stiff	SILT, trace Clay	ML	0.0	Wet
									0.0	
					Gray		Fine to coarse sub angular Sandy GRAVEL.	GW	0.0	
							Refusal @ 18' bgs			
-20										
-25										

COMMENTS:
Boring advanced by Geoprobe® Model 6620DT

BORING NO. : MW-12

Monitoring Well Construction Logs

DRILLING SUMMARY

Geologist:
Sean P. Connelly

Drilling Company:
Matrix

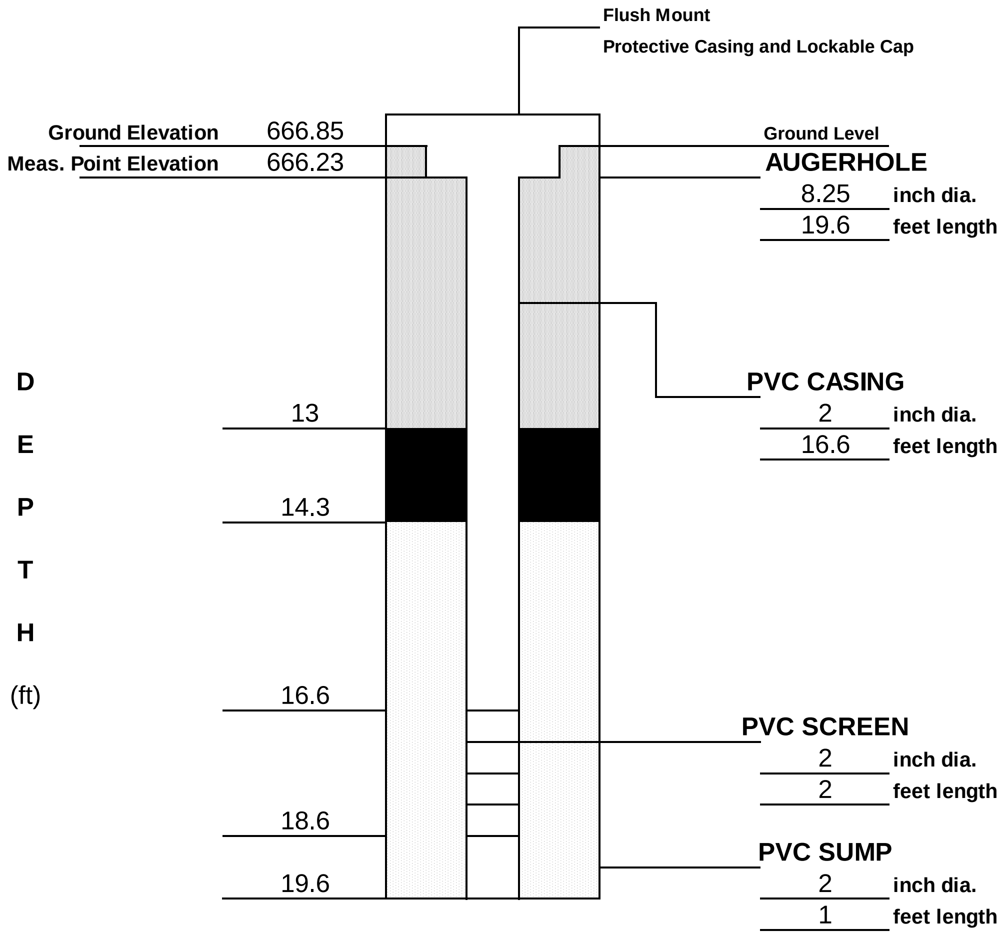
Driller:
Pat Bliek

Rig Make/Model:
Geoprobe® 6620DT

Date:
9/28/2021

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log for lithologic description.

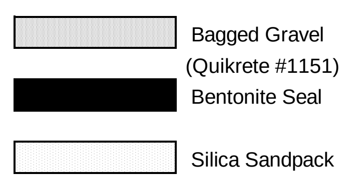


WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel grade box	**Type:** 2" SCH 40 PVC	**Type:** #00N Sand **Setting:** 14.3' - 19.6'
		SEAL MATERIAL
Monitor: 2" SCH 40 PVC	**Slot Size:** .010"	**Type:** Bentonite chips **Setting:** 13' - 14.3

COMMENTS:

LEGEND



Client: NYSEG	**Location: Auburn Site**	**Project No.: 60652550**
AECOM	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: MW-9**

DRILLING SUMMARY

Geologist:
Kevin J. McGovern

Drilling Company:
Matrix

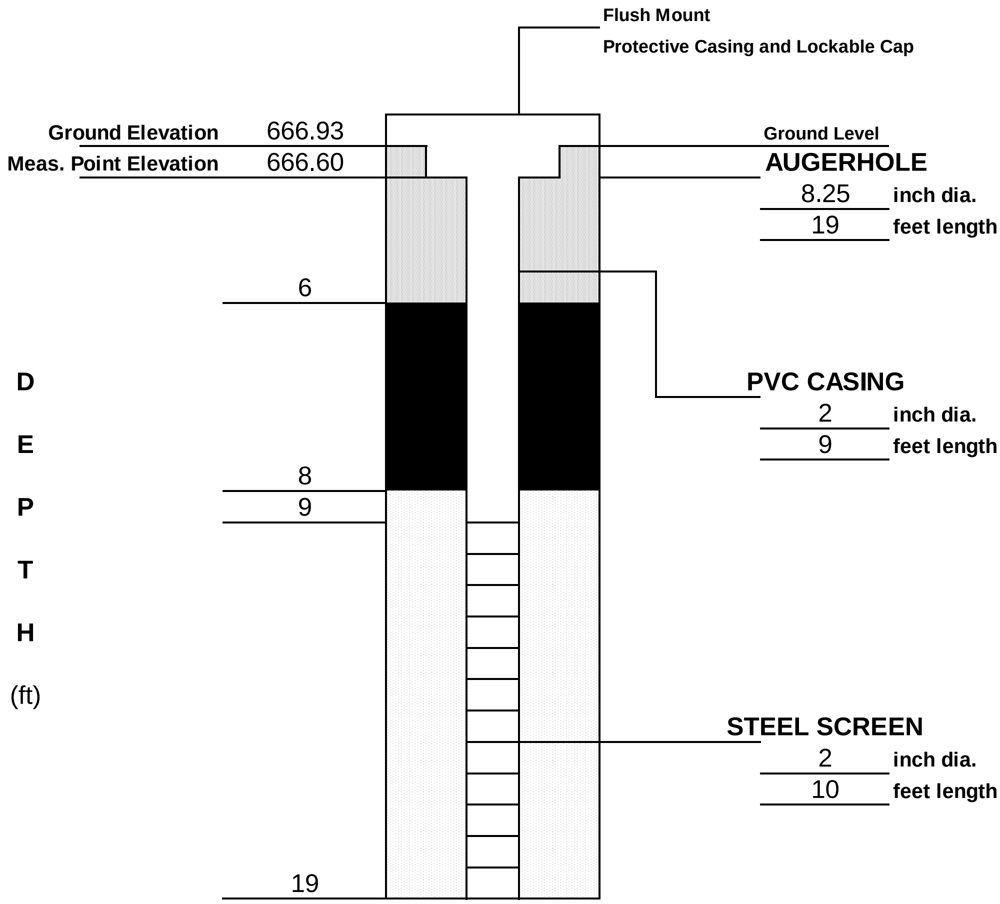
Driller:
Pat Bliek

Rig Make/Model:
Geoprobe® 6620DT

Date:
8/30/2021

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log for lithologic description.



WELL DESIGN

CASING MATERIAL		SCREEN MATERIAL		FILTER MATERIAL			
Surface:	Steel grade box	**Type:**	2" SCH 40 PVC	**Type:**	#00N Sand	**Setting:**	8' - 19'
				SEAL MATERIAL			
Monitor:	2" SCH 40 PVC	**Slot Size:**	.010"	**Type:**	Bentonite chips	**Setting:**	6' - 8'

COMMENTS:

LEGEND

Bagged Gravel (Quikrete #1151)

Bentonite Seal

Silica Sandpack

Client: NYSEG	**Location: Auburn Site**	**Project No.: 60652550**
AECOM	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: MW-10**

DRILLING SUMMARY

Geologist:
Emily Au

Drilling Company:
Matrix

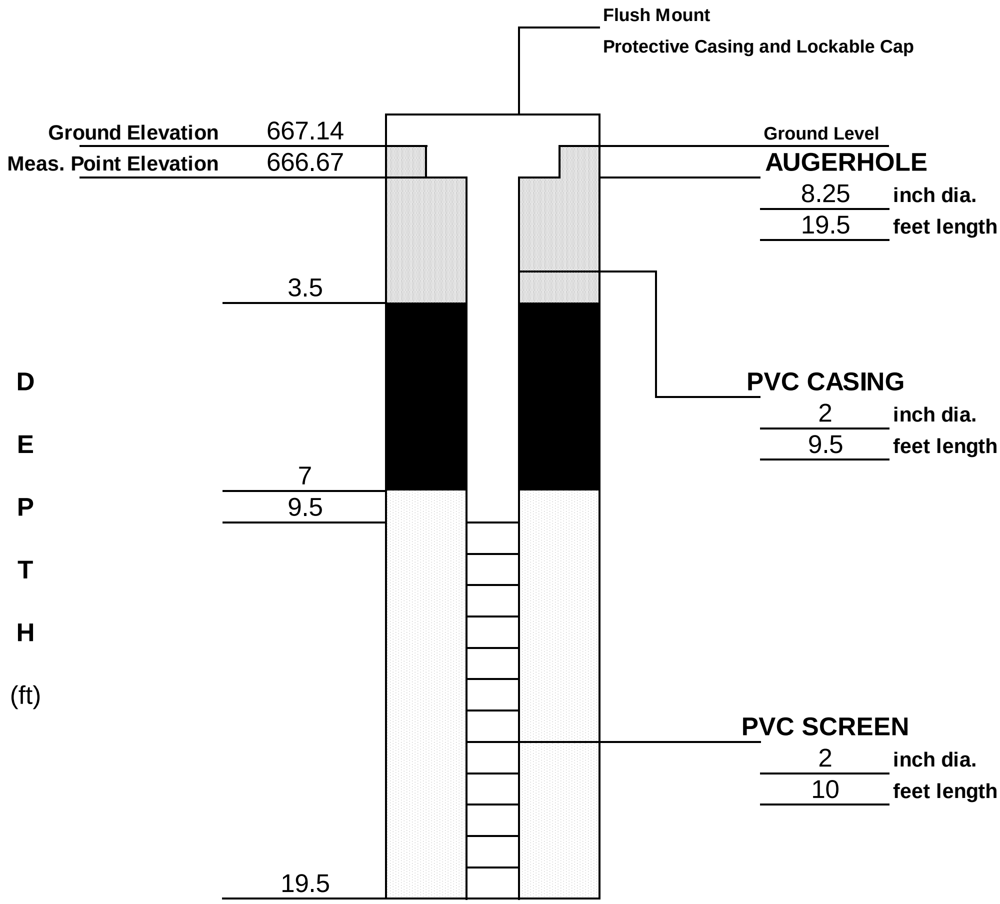
Driller:
Rich Reagan

Rig Make/Model:
Geoprobe® 6620DT

Date:
8/3/2022

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log for lithologic description.



WELL DESIGN

CASING MATERIAL		SCREEN MATERIAL		FILTER MATERIAL			
Surface:	Steel grade box	**Type:**	2" SCH 40 PVC	**Type:**	#00N Sand	**Setting:**	7.0'-19.5'
				SEAL MATERIAL			
Monitor:	2" SCH 40 PVC	**Slot Size:**	.010"	**Type:**	Bentonite chips	**Setting:**	3.5'-7.0'

COMMENTS:

Added 3 ft long 4-inch diameter PVC outer casing to the top 3 ft of the well to isolate the bagged gravel (washed)) from #2 stone provided by NYSEG that was used to fill in the void space in the top 3 ft created by collapsing holder material in the top of the drill hole.

Bedrock refusal at 20'. Screen pushed to 19.5, bottom of hole collapsed.

LEGEND

- Bagged Gravel (Quikrete #1151)
- Bentonite Seal
- Silica Sandpack

Client: NYSEG	**Location: Auburn Site**	**Project No.: 60652550**
AECOM	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: MW-11**

DRILLING SUMMARY

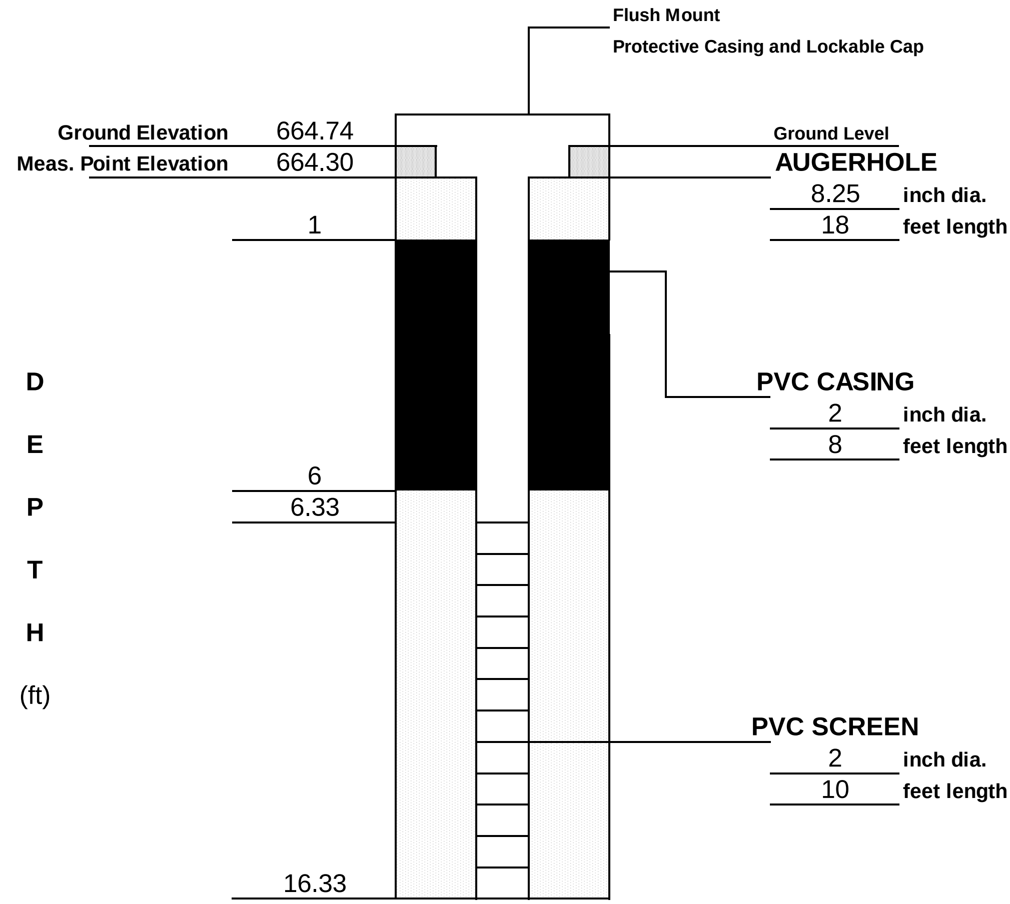
Geologist:
Emily Au

Drilling Company:
Matrix

Driller:
Rich Reagan

Rig Make/Model:
Geoprobe® 6620DT

Date:
8/3/2022



GEOLOGIC LOG

Depth(ft.)	Description
	See boring log for lithologic description.

WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel grade box	**Type:** 2" SCH 40 PVC	**Type:** #00N Sand **Setting:** 6.0'-16.33'
		SEAL MATERIAL
Monitor: 2" SCH 40 PVC	**Slot Size:** .010"	**Type:** Bentonite chips **Setting:** 1.0'-6.0'

COMMENTS:

A little sand was added in the top 1' for drainage of flushmount and to prevent the bentonite chips from swelling into the flushmount.

Bedrock refusal at 18'. Screen measured at 16.33 after installation complete. Hole collapsed and screen didn't push all the way to 18'. Short interval between bentonite and top of screen as a result.

LEGEND

Bentonite Seal

Silica Sandpack

Client: NYSEG	**Location: Auburn Site**	**Project No.: 60652550**
AECOM	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: MW-12**

Well Development Logs

WELL DEVELOPMENT LOG

AECOM

PROJECT TITLE: NYSEG Auburn

WELL NO.: MW - 09

PROJECT NO.: 60652550

STAFF: S. Connelly

DATE(S): 9/29/21

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	~~7.99~~ 12.73	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	18.51	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	6.18	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	1.05	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	3.15	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		0.75"	0.02

1 Let recharge to 15' Recharge 9 feet from 4 gall[illegible]

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	1	2	3	4	6	Initial	7.0	8.0		
PARAMETERS TIME	1134	1137	1141	1154	1212	1252	1324	1330	1340		
pH	7.50	7.41	7.50	7.39	7.41	7.47	7.52	7.52	7.50		
TEMPERATURE (°C)	22.8	19.5	19.9	15.8	16.1	15.8	17.7	15.6	15.7		
COND. (mS/cm)	2.053	2.116	2.118	2.088	2.095	2.072	2.132	2.104	2.135		
DO (mg/l)	4.17	3.21	6.96	3.34	4.18	8.51	6.90	7.87	9.44		
TURBIDITY (NTU)	375.78	3287.62	2392.26	2276.53	2371.93	4246.78	1730.18	1967.05	402.54		
ORP (mV)	-63.7	-76.9	-52.4	-20.1	-31.4	67.6	173.0	127.5	33.4		

COMMENTS: Began development @ 1133
Initial: silty water. Tubing / check valve @ ~2' off bottom. 1' sump. 2' screen.
WL 16.09 after 2 gallons. Will let recharge and drop tubing ~6". MW-1: 6.49 WL
~~MW-10~~: MW-4: 7.95'. 16.0' @ 1147 / 15.05' @ 1150. Will
drop tubing / check valve down into sump ~6" off bottom after ~~@~~ 3 gallons.
WL @ 17.2 @ 1204. Lowered tubing to try and clear out sump. WL @ 17.98
@ 1210. Lowest tubing can go to function properly. Will let Recharge ~~from~~ to
above screen (~15.0') then purge more. 15.0' WL @ 1238. Resumed development
Dry @ 1255. Turned off ~~[illegible]~~ WL @ 17.78. Will let Recharge to 15.40' then
purge dry again. WL @ 15.40 @ 13:23. Will Resume development
Initial water slightly turbid / Semi clear. Water becoming more clear @
8.0 gallons. MW-1 WL: 6.53 MW-4 WL: 8.0'

* MW-9 Dry after 8 gallons.

Initial WL: MW-1 6.49 MW-4: 7.99

WELL DEVELOPMENT LOG

AECOM

PROJECT TITLE: NYSEG Auburn WELL NO.: MW-10

PROJECT NO.: 60652550

STAFF: S. Connelly

DATE(S): 9/22/21

1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	18.81	**WELL ID.** 1"	**VOL. (GAL/FT)** 0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	6.49	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	12.32	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	2.09	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	6.28	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	~20.0	0.75"	0.02

OR

V=0.0408 x (CASING DIAMETER)²

	ACCUMULATED VOLUME PURGED (GALLONS)												
	Initial	1.0	2.0	3.0	4.0	6.0	~~6.0~~ 20	8.0	10.0	12.0	14.0	16.0	18
PARAMETERS TIME	1000	1005	1008	1014	1018	1023	1053	1025	1028	1034	1039	1043	1048
pH	8.69	8.82	8.85	8.87	8.91	8.89	8.86	8.90	8.80	8.71	8.70	8.85	8.90
TEMPERATURE (°C)	14.6	14.8	14.9	14.7	14.8	14.8	14.8	14.7	15.5	15.8	15.8	15.2	15.0
COND. (mS/cm)	0.218	0.244	0.249	0.243	0.238	0.245	0.245	0.246	0.264	0.286	0.288	0.260	0.255
DO (mg/l)	3.56	2.43	3.47	3.41	2.90	2.42	3.18	2.37	4.39	3.83	3.19	2.17	2.13
TURBIDITY (NTU)	68.02	167.44	125.89	95.21	77.18	70.78	23.48	58.95	67.51	416.71	259.08	79.72	40.56
ORP (mV)	167.1	154.7	151.3	148.7	139.7	137.2	81.3	133.6	130.2	130.2	121.7	115.9	110.2

COMMENTS:

Slight odor throughout all sampling
No sheens

Initial = clear water. Tubing/check valve @ ~2-2' off bottom of well.
1 gall = ~~clear water~~ murky " " " " "
2 gall = ~~murky~~ clear. Tubing/check valve @ ~2-3' off of bottom of well
MW-4 WL: 8.02 after 2 gallons
3 gall = clear. Tubing/check valve @ ~2-3' off of bottom of well 'WL 5.19
4 gall = clear. Tubing/check valve @ ~4-5' off bottom of well
MW-4 WL = 8.01 WL: 5.19
5 gall = clear. Tubing/check valve @ ~4-5' off bottom of well
8 gall = clear. Tubing/check valve @ ~5-6' off bottom of well
10 gall = clear " " " @ ~ " " " " " WL: 5.20
MW-4 WL: 8.02
12 gall = ~~clear~~. Tubing/check valve @ ~7-8' off bottom of well
14 gall = murky murky " " " " " " " WL: 5.19
16 gall Tubing/check valve @ ~5-6 " " " " "
18 gall Tubing/check valve @ ~3-4' " " " "

DO - Same as 18

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

MW-11

Project: 60652550 Site: Auburn Green St. Well I.D.: (Inside Sub-Station)

Date: 8/8/22 Sampling Personnel: SC/UT Company: AECOM

Purging/Sampling Device: Peristaltic Tubing Type: HDPE Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 4.95 Depth to Well Bottom: 19.10 ft Well Diameter: 2" Screen Length: 10 ft

Casing Type: PVC Volume in 1 Well Casing (~~liters~~) gallons: 2.31 Estimated Purge Volume (~~liters~~) gallons: 25

Sample ID: Sample Time: QA/QC:

Sample Parameters: VOCs (8260C)-Site Specific List - BTEX, acetone, styrene;
Total PAHs/SVOCs (8270D) - Site Specific List
Sulfate (300.0_28D), Nitrate;
Cyanide, Total (9012B); Dissolved Iron (6010 C - Field Filtered);

PURGE PARAMETERS

	TIME	pH	TEMP (°C)	Sp. COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)	
	1138	8.90	19.3	0.228	1.94	595.10	102.8	—	—	
2gal	1145	8.47	16.6	0.249	1.56	332.10	108.8	—	—	
4gal	1149	8.51	15.6	0.246	1.65	213.02	93.4	—	—	
6gal	1152	8.53	15.8	0.249	1.50	162.67	81.4	—	—	
8gal	1155	8.54	15.6	0.242	1.88	170.32	76.1	—	—	
10gal	1158	8.56	15.1	0.247	1.92	160.34	66.2	—	—	
12gal	1201	8.57	16.0	0.246	1.64	138.45	61.7	—	—	
14gal	1204	8.37	15.0	0.248	1.46	143.68	72.3	—	—	
16gal	1208	8.43	15.8	0.244	1.78	121.88	64.6	—	—	
18gal	1213	8.46	16.1	0.247	1.76	62.08	55.4	—	—	5.62
20gal	1218	8.46	15.6	0.249	1.32	54.31	48.3	—	—	
22gal	1226	8.48	16.1	0.252	1.78	45.67	52.7	—	—	
24gal	1230	8.50	16.5	0.250	1.77	31.24	47.3	—	—	
25gal	1234	8.49	16.5	0.252	1.78	28.32	42.1	—	—	
									5.25	
Tolerance:		0.1	---	3%	10%	10%	+ or - 10	---		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

Development

Started Development at 1138

Stopped at 1205

resumed at 1206

cccc

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: Auburn Green St. Well I.D.: MW-12

Date: 8/8/22 Sampling Personnel: SC/CH Company: AECOM

Purging/ Sampling Device: Peristaltic Tubing Type: LDPE Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: 8.67 Depth to Well Bottom: 16.16 ft Well Diameter: 2" Screen Length: ft

Casing Type: PVC Volume in 1 Well Casing ~~(liters)~~: gallons 1.22 Estimated Purge Volume ~~(liters)~~: gallons -

Sample ID: Sample Time: QA/QC:

Sample Parameters: VOCs (8260C)-Site Specific List - BTEX, acetone, styrene;
Total PAHs/SVOCs (8270D) - Site Specific List
Sulfate (300.0_28D), Nitrate;
Cyanide, Total (9012B); Dissolved Iron (6010 C - Field Filtered);

PURGE PARAMETERS

TIME	pH	TEMP (°C)	Sp. COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	ORP (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft $(vol_{cyl} = \pi r^2 h)$

Remarks: Development
initial - very turbid water, shield sample @ 1314
10 gallons @ 1340 . WL: 7.81
20 gallons @ 1353 . WL: 7.96

Groundwater Purge Logs

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-1

Date: 9/30/21 Sampling Personnel: S. Connelly Company: AECOM

Purging/ Sampling Device: Peri Pump Tubing Type: LDPE Pump/Tubing Inlet Location: ______

Measuring Point: Top of Casing Initial Depth to Water: 6.54 Depth to Well Bottom: 18.75 Well Diameter: 2" Screen Length: ______

Casing Type: ______ Volume in 1 Well Casing (liters): ______ Estimated Purge Volume (liters): ______

Sample ID: MW-1 Sample Time: 1547 QA/QC: —

Sample Parameters: Began purge @ 1520

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1522	8.03	16.4	0.701	3.74	134.20	58.4	350	6.87
1527	7.24	15.8	0.682	1.22	177.15	27.2	350	6.97
1532	6.95	16.1	0.669	0.87	55.80	36.7	350	7.26
1537	6.91	16.1	0.665	0.83	42.07	40.0	350	7.32
1542	6.87	16.1	0.665	0.81	34.18	43.4	350	7.43
1547	6.83	16.0	0.668	0.79	28.27	45.7	350	7.43
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 | Site: NYSEG Auburn | Well I.D.: MW-2

Date: 10/4/21 | Sampling Personnel: EAV | Company: AECOM

Purging/Sampling Device: Peristaltic Geopump | Tubing Type: Dedicated. HDPE | Pump/Tubing Inlet Location: ~3 ft from Bottom

Measuring Point: Top of Casing | Initial Depth to Water: 6.50 | Depth to Well Bottom: 18.7 | Well Diameter: 2" | Screen Length:

Casing Type: PVC | Volume in 1 Well Casing (liters): 1.92 | Estimated Purge Volume (liters): ~11 liters.

Sample ID: MW-2 | Sample Time: 1000 | QA/QC: –

Sample Parameters: VOCs, SVOCs, cyanide, Dissolved Iron, Nitrate, Sulfate
site specific → BTEX, Styrene, acetone

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
915	7.12	15.6	1.312	2.55	81.66	276.8	200	6.67
920	6.73	15.6	1.060	1.47	22.10	287.1	200	6.68
925	6.68	15.7	1.012	1.57	25.11	290.0	275	6.73
930	6.70	16.0	0.982	1.65	9.20	291.6	275	6.73
935	6.71	16.1	0.977	1.57	7.98	292.1	275	6.75
940	6.71	16.2	0.971	1.48	4.13	292.7	275	6.77
945	6.75	16.3	0.971	1.33	3.73	293.5	275	6.77
950	6.76	16.3	0.976	1.26	3.51	293.9	250	6.75
955	6.77	16.3	0.973	1.21	3.01	294.3	250	6.75
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: used dedicated HDPE tubing in well - added end piece ~~with~~ silicon ~~[illegible]~~ EAV of LDPE tubing. iron - field filtered.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550　　Site: NYSEG Auburn　　Well I.D.: MW-3

Date: 9/30/21　　Sampling Personnel: S. Connelly　　Company: AECOM

Purging/ Sampling Device: Peri Pump　　Tubing Type: LDPE　　Pump/Tubing Inlet Location:

Measuring Point: Top of Casing　　Initial Depth to Water: 7.79　　Depth to Well Bottom: 19.40　　Well Diameter: 2"　　Screen Length:

Casing Type: PVC　　Volume in 1 Well Casing (liters): 1.89　　Estimated Purge Volume (liters):

Sample ID: MW-3　　Sample Time: 1211　　QA/QC: MS/MSD

Sample Parameters: Begin purge @ 1140

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1141	6.96	15.0	3.499	1.77	16.21	-95.7	350	–
1146	6.95	15.7	3.548	0.87	4268	-107.5	350	8.51
1151	6.96	15.8	3.559	0.79	63.12	-111.3	350	8.66
1156	6.96	16.0	3.501	0.73	52.00	-114.0	350	8.85
1201	6.97	16.0	3.514	0.71	29.73	-115.9	350	8.90
1206	6.99	15.9	3.584	0.68	16.29	-122.3	350	8.93
1211	6.99	15.8	3.590	0.68	15.31	-122.6	350	8.96
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-4

Date: 9/30/21 Sampling Personnel: S. Connelly Company: AECOM

Purging/Sampling Device: Peri Pump Tubing Type: LDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 8.07 Depth to Well Bottom: Well Diameter: 2" Screen Length:

Casing Type: Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-4 Sample Time: 1440 QA/QC: —

Sample Parameters: Begin purge @ 1357

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1400	9.87	15.7	0.450	3.45	10.59	-2.7	300	8.42
1405	10.10	15.2	0.357	1.46	14.67	-45.7	300	8.87
1410	10.18	15.7	0.347	1.12	17.79	-83.6	300	9.69
1415	9.31	16.1	0.388	0.87	9.17	-64.3	300	10.49
1420	10.18	15.8	0.371	0.73	8.22	-120.9	300	10.87
1425	10.30	15.7	0.365	0.76	5.61	-154.1	300	11.51
1430	10.25	15.6	0.373	0.70	4.98	-155.0	300	11.71
1435	10.06	15.5	0.379	0.75	2.56	-153.2	300	12.27
1440	9.85	15.3	0.387	0.75	2.61	-150.8	300	12.91
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-5

Date: 9/30/21 Sampling Personnel: S. Connelly Company: AECOM

Purging/ Sampling Device: Tubing Type: Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 13.81 Depth to Well Bottom: 17.87 Well Diameter: Screen Length:

Casing Type: Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-5 Sample Time: 1651 QA/QC: —

Sample Parameters: Began purge @ 1625

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1630	7.00	15.8	1.129	3.17	327.59	164.7	250	–
1635	6.93	15.4	1.129	2.24	347.68	161.2	250	–
1647	6.96	15.7	1.135	2.26	378.74	150.0	250	–
1651	6.98	15.8	1.132	2.28	347.34	147.3	250	–
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

Dry @ 16:38. Will let recharge then pump dry.
Dry @ 1648 " " " " " "
Dry @ 1652 " " " " Sample

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-6

Date: ~~[illegible]~~ 9/30/2 Sampling Personnel: S. Connelly Company: AECOM

Purging/Sampling Device: Peri Pump Tubing Type: LDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 6.21 Depth to Well Bottom: 19.13 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): 2.11 Estimated Purge Volume (liters): 3 gallons

Sample ID: MW-6 Sample Time: 1105 QA/QC: Duplicate

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1040	7.91	16.7	1.641	3.01	11.67	179.4	450	6.61
1045	7.12	17.7	1.525	1.30	15.40	-48.4	400	7.05
1050	7.08	17.9	1.482	1.18	18.09	-52.0	350	7.28
1055	7.06	18.0	1.483	0.98	20.13	-54.2	350	7.49
1100	7.06	18.0	1.505	0.88	15.10	-58.0	350	7.61
1105	7.06	18.1	1.529	0.80	12.96	-64.8	350	7.78
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

Duplicate collected

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 | Site: NYSEG Auburn | Well I.D.: MW-7

Date: 10/4/21 | Sampling Personnel: E.Au | Company: AECOM

Purging/ Sampling Device: Peristaltic Geopump | Tubing Type: HDPE | Pump/Tubing Inlet Location: ~2ft off Bottom

Measuring Point: Top of Casing | Initial Depth to Water: 7.12 | Depth to Well Bottom: 17.75 | Well Diameter: 2" | Screen Length:

Casing Type: PVC | Volume in 1 Well Casing (liters): 1.73 | Estimated Purge Volume (liters): ~11 liters.

Sample ID: MW-7 | Sample Time: 1115 | QA/QC: —

Sample Parameters: VOCs (site specific)
SVOCs (site specific)
Cyanide
Filtered Dissolved Iron, Nitrate, Sulfate.

PURGE PARAMETERS

Start purge ~1020

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1025	6.95	15.6	1.142	2.68	135.22	-84.9	200	7.35
1030	6.92	15.6	1.134	@ 1.00	99.79	-93.9	200	7.35
1035	6.95	15.3	1.125	0.75	138.50	-103.7	200	7.40
1040	6.96	15.3	1.116	0.72	108.77	-106.5	200	7.46
1045	@ 7.00	15.3	1.118	0.69	31.21	-113.2	200	7.40
1050	7.07	15.4	1.123	0.68	19.89	-117.7	200	7.37
1100	7.04	15.4	1.128	0.66	14.75	-121.1	200	7.41
1105	7.04	15.4	1.126	0.66	12.90	-121.5	200	7.42
1110	7.04	15.4	1.134	0.65	13.06	-122.6	200	7.42
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: iron Bac. @ Start of purge - let run a few min to clear tubing - Then hooked up to flow thru cell.

- used dedicated HDPE Tubing That was already in well - added extra end piece of LDPE for sampling.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 | Site: NYSEG Auburn | Well I.D.: MW-8

Date: 10/4/21 | Sampling Personnel: E. Au | Company: AECOM

Purging/Sampling Device: Peristaltic pump | Tubing Type: HDPE (in well) | Pump/Tubing Inlet Location: ~2 feet off Bottom

Measuring Point: Top of Casing | Initial Depth to Water: 4.64 | Depth to Well Bottom: 17.50 | Well Diameter: 2" | Screen Length:

Casing Type: PVC | Volume in 1 Well Casing (liters): 2.09 | Estimated Purge Volume (liters): ~22

Sample ID: MW-8 | Sample Time: 1300 | QA/QC: –

Sample Parameters: VOCs + SVOCs - (Site specific)
Cyanide
Dissolved Iron (field filtered)
Nitrate, Sulfate

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)	
1150	6.80	16.5	5.271	2.54	11.13	-84.5	300	4.95	
1155	6.88	16.5	6.066	0.95	9.66	-123.3	325	5.02	
1200	7.11	16.9	2.913	0.76	8.99	-142.6	325	5.02	
1205	7.11	17.2	2.095	0.71	38.25	-136.6	325	5.20	
1210	7.09	17.4	2.096	0.74	45.11	-134.4	325	5.22	
1215	7.08	17.4	2.203	0.73	36.69	-134.9	325	5.23	
1220	7.07	17.5	2.300	0.72	27.46	-135.9	325	5.26	
1225	7.07	17.5	2.357	0.70	18.95	-137.0	325	5.26	
1230	7.06	17.6	2.481	0.70	11.25	-138.0	325	5.26	
1235	7.06	17.5	2.528	0.70	8.62	-138.1	325	5.26	~4gal.
1240	7.05	17.6	2.539	0.70	6.48	-138.0	325	5.26	
1245	7.05	17.6	2.606	0.69	4.02	-137.7	325	5.26	
1250	7.05	17.6	2.642	0.69	3.92	-137.6	325	5.26	
1255	7.05	17.6	2.669	0.68	4.14	-137.6	325	5.26	~5.5gal.
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: Slight sheen on bucket water
USED DEDICATED HDPE Tubing already in well.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-9

Date: 10/4/21 Sampling Personnel: E. Au Company: AECOM

Purging/ Sampling Device: Peristaltic Tubing Type: LDPE Pump/Tubing Inlet Location: ~2ft off Bottom.

Measuring Point: Top of Casing Initial Depth to Water: 5.83 Depth to Well Bottom: 18.55 Well Diameter: 2" Screen Length: 2'

Casing Type: PVC Volume in 1 Well Casing (liters): 2.07 Estimated Purge Volume (liters):

Sample ID: MW-9 Sample Time: 1655 QA/QC: Rinse Blank.

Sample Parameters: VOCs + SVOCs
Cyanide
Dissolved Iron (field filtered)
Nitrate, sulfate.

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1515	7.60	15.8	1.988	2.85	42.65	171.8	125	7.00
1520	7.33	16.9	2.022	2.03	12.14	81.0	125	7.45
1525	7.30	17.2	2.047	2.04	9.67	21.3	125	8.03
1530	7.29	17.2	2.067	1.92	8.36	-1.1	125	8.65
1535	7.28	17.3	2.065	1.93	9.92	-10.1	200	9.00
1540	7.28	16.0	2.034	1.87	16.79	-19.9	200	10.15
1545	7.27	16.2	2.052	1.89	10.27	-20.6	200	10.95
1550	7.27	16.1	2.052	1.85	27.47	-25.9	200	11.20
1555	7.29	16.5	1.958	2.40	49.95	-27.1	200	12.40
1600	7.30	16.2	1.961	2.29	20.60	-22.3	200	12.45
1605	7.28	15.9	1.991	1.69	25.85	-25.8	200	12.60
1610	7.23	15.7	2.033	1.21	375.58	-27.8	200	12.70
1615	7.27	15.5	1.957	0.98	535.24	-41.8	200	12.85
1620	7.28	15.5	1.950	0.92	359.13	-53.3	200	13.00
1625	7.27	15.5	1.960	0.79	239.95	-61.5	200	13.10
1630	7.28	15.3	1.944	0.76	168.15	-66.3	200	13.17
1635	7.28	15.3	1.939	0.77	129.46	-69.8	200	13.25
1640	7.28	15.3	1.945	0.78	70.19	-72.7	200	13.37
1645	7.28	15.3	1.952	0.78	81.34	-72.1	200	13.45
1650	7.29	15.2	1.900	0.75	85.30	-77.3	200	13.53
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: collected sample @ 1655 turbidity
LDPE Tubing put down New well - pulled and disposed of tubing
aftr sampling.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 | Site: NYSEG Auburn | Well I.D.: MW-10

Date: 10/4/21 | Sampling Personnel: E. Au | Company: AECOM

Purging/Sampling Device: Peristaltic pump | Tubing Type: LDPE | Pump/Tubing Inlet Location: ~3ft off bottom

Measuring Point: Top of Casing | Initial Depth to Water: 4.81 | Depth to Well Bottom: 18.80 | Well Diameter: 2" | Screen Length: 10'

Casing Type: PVC | Volume in 1 Well Casing (liters): 2.28 | Estimated Purge Volume (liters): 16

Sample ID: MW-10 | Sample Time: 1440 | QA/QC: —

Sample Parameters: VOCs + SVOCs (site specific)
Cyanide
Sulfate, Nitrate
Diss. Iron. (field filtered)

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1355	9.13	15.0	0.218	1.74	127.29	+12.9	300	4.83
1400	9.24	15.0	0.206	1.03	14.83	-6.6	300	4.83
1405	9.28	15.0	0.204	0.87	14.18	-19.9	300	4.83
1410	9.29	15.1	0.206	0.80	18.93	-28.3	300	4.83
1415	9.27	15.1	0.214	0.77	~~1734.3~~	-34.4	300	4.83
1420	9.27	15.0	0.220	0.75	16.69	-37.5	300	4.83
1425	9.26	15.0	0.222	0.75	13.97	-40.0	300	4.85
1430	9.24	15.0	0.225	0.74	12.90	-41.8	300	4.85
1435	9.23	14.9	0.229	0.73	11.09	-44.0	300	4.85
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: New well - used LDPE Tubing Then Removed tubing.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-1

Date: 8/16/24 Sampling Personnel: KCM Company: AECOM

Purging/ Sampling Device: PPM Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 7.24 Depth to Well Bottom: 18.74 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-1 Sample Time: 08:50 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
08:20	6.92	16.1	1.548	3.35	160	-53.1	200	7.42
08:25	6.79	14.9	1.556	1.41	68	-52.9	"	7.60
08:30	6.81	14.9	1.513	1.32	74.0	-53.7	"	7.75
08:35	6.83	15.0	1.360	1.29	26.0	-55.8	"	7.82
08:40	6.83	15.1	1.337	1.27	15.9	-57.1	"	7.89
08:45	6.82	14.8	1.382	1.26	13.5	-58.0	"	7.95
08:50	6.83	15.0	1.352	1.26	11.0	-60.0	"	7.97
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-2

Date: 8/16/22 Sampling Personnel: KM Company: AECOM

Purging/ Sampling Device: PGM Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 7.95 Depth to Well Bottom: 18.30' Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-2 Sample Time: 10:00 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
09:25	7.25	16.0	1.069	4.77	390.0	-52.2	200	8.05
09:30	6.90	14.5	0.946	2.40	690	-52.2	"	8.09
09:35	6.80	14.6	0.854	3.77	42.7	-22.8	"	8.12
09:40	6.76	14.9	0.834	4.22	35.0	-2.6	"	8.12
09:45	6.75	15.1	0.832	4.29	17.8	5.9	"	"
09:50	6.74	15.2	0.832	4.31	7.37	13.2	"	"
09:55	6.74	~~15.3~~ 15.3	0.834	4.36	4.33	16.7	"	"
10:00	6.75	15.4	0.839	~~2.20~~	2.44	18.4	"	"
10:00				4.26				
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES—0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-3

Date: 8/15/22 Sampling Personnel: KSA / CN Company: AECOM

Purging/ Sampling Device: Peri Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 7.71 Depth to Well Bottom: 19.41 Well Diameter: Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-3 Sample Time: 12:15 QA/QC: MS/MSD

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:40	7.16	15.2	3.862	2.36	597	-218.8	200	—
11:45	7.08	14.5	3.861	2.18	121	-204.4	"	8.10
11:50	7.06	14.6	3.847	2.13	521	-216.8	"	8.48
11:55	7.06	14.1	3.820	2.13	74.1	-216.7	"	8.58
12:00	7.06	14.8	3.785	1.88	21.1	-217.5	"	8.71
12:05	7.07	15.0	3.791	1.87	118.1	-216.6	"	8.79
12:10	7.07	15.0	3.787	1.85	119.2	-212.8		8.85
12:15	7.08	15.2	3.782	1.71	118.2	-215.5	"	8.98
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

103.9

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-4

Date: 8/15 Sampling Personnel: C/A Company: AECOM

Purging/Sampling Device: Peri-Pump Tubing Type: HDPE Pump/Tubing Inlet Location: 2 ft off bott.

Measuring Point: Top of Casing Initial Depth to Water: 8.51 Depth to Well Bottom: 19.32 Well Diameter: 2in Screen Length:

Casing Type: PVC Volume in 1 Well Casing (~~liters~~) gallons: 1.76 Estimated Purge Volume (~~liters~~) gallons: 2

Sample ID: MW-4 Sample Time: 1515 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
~~1445~~								
1450	10.12	16.7	0.320	2.40	48.22	-34.9	250	8.84
1455	10.14	16.1	0.316	0.66	21.39	-74.4	200	9.14
1500	10.17	16.5	0.316	0.57	14.72	-96.1	200	9.60
1505	9.99	16.6	0.322	0.54	9.09	-107.1	200	9.93
1510	9.99	16.9	0.320	0.52	11.03	-108.5	200	10.26
1515	9.97	16.7	0.324	0.51	9.49	-108.12	200	10.58
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

Started purge at 1448

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-5

Date: 8/15/22 Sampling Personnel: KSM/CH Company: AECOM

Purging/ Sampling Device: PGvl Tubing Type: HDPE Pump/Tubing Inlet Location: MID SCREEN

Measuring Point: Top of Casing Initial Depth to Water: 14.58 Depth to Well Bottom: 17.86 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-5 Sample Time: 10:55 QA/QC: —

Sample Parameters:

STARTED @ 10:15

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:16	7.11	18.0	1.144	3.30	194	-227	250	✓
								✓
10:35	7.14	20.7	1.231	1.032	635	-920	"	
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

Dry @ 10:28 WAIT FOR RECHARGE + PUMP DRY
Dry @ 10:37 " / " + SAMPLE

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550　Site: NYSEG Auburn　Well I.D.: MW-6

Date: 8/15　Sampling Personnel: C.f　Company: AECOM

Purging/ Sampling Device: Peri-Pump　Tubing Type: HDPE　Pump/Tubing Inlet Location: ≈ 2ft off Bottom

Measuring Point: Top of Casing　Initial Depth to Water: 6.28　Depth to Well Bottom: 19.10　Well Diameter: 2 in　Screen Length:

Casing Type: PVC　Volume in 1 Well Casing (~~liters~~) gallons: 2.10　Estimated Purge Volume (~~liters~~) gallons: 2.5

Sample ID: MW-6　Sample Time: 1245　QA/QC: Dup

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1215	7.36	18.1	1.042	0.81	322.24	22.6	200	6.62
1220	7.21	17.1	1.033	0.65	63.08	-81.0	250	6.81
1225	7.16	17.3	1.023	0.60	229.08	-26.8	250	7.02
1230	7.15	17.6	1.020	0.58	54.79	-34.4	250	7.21
1235	7.13	17.7	1.008	0.56	55.63	-36.9	250	7.33
1240	7.09	17.7	0.996	0.66	49.12	-35.9	250	7.48
1245	7.08	17.7	0.997	0.56	53.22	-32.0	250	7.62
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: Started Purge at 1210

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-7

Date: 8/16 Sampling Personnel: CH Company: AECOM

Purging/ Sampling Device: Peri - Pump Tubing Type: HDPE Pump/Tubing Inlet Location: 2 ft off bott.

Measuring Point: Top of Casing Initial Depth to Water: 8.43 Depth to Well Bottom: 18.78 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (~~liters~~) gallons: 1.69 Estimated Purge Volume (~~liters~~) gallons: 2.5

Sample ID: MW-7 Sample Time: 0910 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
~~0825~~								
0830	6.86	14.4	1.359	1.28	40.58	-14.1	225	8.64
0835	6.95	14.4	1.367	0.85	30.02	-70.5	225	8.66
0840	6.99	14.4	1.381	0.78	57.84	-87.1	225	8.67
0845	6.99	14.4	1.382	0.72	102.14	-93.3	225	8.74
0850	7.00	14.4	1.389	0.70	144.04	-97.2	225	8.76
0855	7.00	14.5	1.400	0.68	44.78	-99.8	225	8.74
0900	7.00	14.4	1.403	0.65	43.02	-102.3	225	8.74
0905	7.00	14.4	1.398	0.65	43.71	-102.9	225	8.74
0910	7.00	14.4	1.400	0.65	44.66	-103.1	225	8.74
Tolerance:	0.1	—	3%	10%	10%	+ or - 10	—	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: Started Purge at 0816

Iron bacteria skipped flow through until 0825

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-8

Date: 5/18 Sampling Personnel: CH Company: AECOM

Purging/Sampling Device: Peri-pump Tubing Type: HDPE Pump/Tubing Inlet Location: ~2ft off bottom

Measuring Point: Top of Casing Initial Depth to Water: 5.62 Depth to Well Bottom: 17.54 Well Diameter: 2 in Screen Length:

Casing Type: PVC Volume in 1 Well Casing (~~liters~~) gallons: 1.95 Estimated Purge Volume (~~liters~~) gallons: 2.5

Sample ID: MW-8 Sample Time: 1130 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1025	7.01	16.8	5.940	2.48	26.47	-72.0	300	5.84
1030	6.95	16.1	5.942	0.90	6.47	-111.8	200	5.92
1035	6.97	16.7	5.909	0.69	4.20	-135.8	200	6.01
1040	6.99	17.0	5.742	0.62	9.98	-146.3	200	6.10
1045	7.08	17.2	4.444	0.58	14.22	-155.8	200	6.18
1050	7.13	17.2	3.297	0.58	66.27	-159.7	200	6.27
1055	7.13	17.3	2.798	0.58	118.35	-159.3	200	6.31
1100	7.13	17.3	2.719	0.58	149.55	-157.9	200	6.38
1105	7.11	17.3	2.812	0.57	132.93	-156.5	200	6.40
1110	7.10	17.5	2.893	0.57	106.98	-156.3	200	6.46
1115	7.10	17.4	3.019	0.56	81.42	-156.8	200	6.52
1120	7.09	17.4	3.139	0.55	63.03	-157.4	200	6.56
1125	7.08	17.5	3.149	0.54	62.99	-158.3	200	6.60
1130	7.08	17.5	3.110	0.53	62.76	-159.0	200	6.66
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks: Started Purge at 1023

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-9

Date: 8/15/22 Sampling Personnel: KM/HC Company: AECOM

Purging/ Sampling Device: PERI Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: ~~8.42~~ 7.30 Depth to Well Bottom: 18.54' Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-9 Sample Time: 15:52 QA/QC: —

Sample Parameters:

STARTED PUMPING @ 14:45

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
14:47	7.27	16.6	2.497	2.07	757	-132.3	200	8.05
14:52	7.26	15.2	2.640	1.37	485	-158.3	"	9.05
14:57	7.19	15.2	2290	1.32	192.2	-142.7	"	9.82
15:02	7.08	15.1	2.090	1.28	86.7	-131	"	10.60
15:07	7.09	14.9	2.150	1.28	78.0	-133.7	"	11.10
15:12	7.15	14.9	2.241	1.26	133.0	-142.6	"	11.60
15:17	7.18	14.9	2.312	1.26	172.0	-147.0	"	11.75
15:22	7.23	15.0	2.378	1.24	70.2	-155.4	"	11.95
15:27	7.23	15.1	2.347	1.25	109.1	-156.0	"	11.95
15:32	7.27	14.8	2.455	1.25	129.4	-162.0	"	"
15:37	7.30	15.0	2.505	1.24	137.0	-167.4	"	"
15:42	7.33	15.6	2.518	1.21	135.0	-172.3	"	"
15:47	7.34	15.7	2.506	1.22	140.1	-175.7	"	"
15:52	7.37	15.4	2.610	1.20	136	-180.3	"	"
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

320
179

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-10

Date: 8/15/22 Sampling Personnel: JLM/HC Company: AECOM

Purging/ Sampling Device: Peri Tubing Type: HDPE Pump/Tubing Inlet Location: ______

Measuring Point: Top of Casing Initial Depth to Water: 5.20 Depth to Well Bottom: 18.80' Well Diameter: 2" Screen Length: ______

Casing Type: PVC Volume in 1 Well Casing (liters): ______ Estimated Purge Volume (liters): ______

Sample ID: MW-10 Sample Time: 14:00 QA/QC: —

Sample Parameters: ______

~~Rinsate~~ Pumpup B 1700

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:30	8.85	15.3	0.326	2.36	95.0	-184	250	5.25
13:35	8.89	14.4	0.318	1.42	75.2	-148.2	"	"
13:40	8.94	14.5	0.315	1.36	39.6	-156.1	"	"
13:45	8.95	14.3	0.314	1.35	22.2	-162.4	"	"
13:50	8.94	14.3	0.315	1.33	14.5	-165.8	"	"
13:55	8.92	14.3	0.316	1.31	9.28	-168.3	"	"
14:00	8.89	14.4	0.319	1.29	5.61	-167.0	"	"
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-11

Date: 8/15 Sampling Personnel: CH Company: AECOM

Purging/Sampling Device: Peri-Pump Tubing Type: HDPE Pump/Tubing Inlet Location: ~2ft off bott.

Measuring Point: Top of Casing Initial Depth to Water: 5.32 Depth to Well Bottom: 17.08 Well Diameter: 2 in Screen Length:

Casing Type: PVC Volume in 1 Well Casing (~~liters~~ gallons): 2.25 Estimated Purge Volume (~~liters~~ gallons): 2.5

Sample ID: MW-11 Sample Time: 1410 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
1340	9.08	14.4	0.224	0.97	38.50	36.5	250	5.35
1345	9.06	14.4	0.216	0.72	25.18	15.1	250	5.38
1350	9.05	14.7	0.215	6.66	26.44	-2.5	250	5.36
1355	9.06	14.6	0.214	0.63	21.00	-18.1	280	5.36
1400	9.04	14.7	0.213	0.61	18.15	-28.6	280	5.36
1405	8.99	14.5	0.213	0.60	20.31	-36.5	250	5.36
1410	8.96	14.6	0.213	0.59	18.37	-35.2	250	5.36
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:
Started Purge at 1335

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 | Site: NYSEG Auburn | Well I.D.: MW-12

Date: 8/16 | Sampling Personnel: CH | Company: AECOM

Purging/Sampling Device: Peri-Pump | Tubing Type: HDPE | Pump/Tubing Inlet Location: ~2ft off both.

Measuring Point: Top of Casing | Initial Depth to Water: 8.08 | Depth to Well Bottom: 16.18 | Well Diameter: 2 in | Screen Length:

Casing Type: PVC | Volume in 1 Well Casing ~~(liters)~~ gallons: 1.33 | Estimated Purge Volume ~~(liters)~~ gallons: 2.5

Sample ID: MW-12 | Sample Time: 1010 | QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
0945	6.95	14.7	1.116	0.80	763.45	-52.2	225	8.10
0950	6.95	14.9	1.122	0.69	122.72	-71.8	225	8.11
0955	6.94	15.0	1.163	0.64	112.38	-79.3	225	8.12
1000	6.94	15.0	1.197	0.62	95.39	-83.1	225	8.12
1005	6.94	15.1	1.208	0.62	93.91	-85.2	225	8.12
1010	6.94	15.2	1.204	0.60	95.96	-87.0	225	8.12
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

Started Purge at 0942

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-1

Date: 10/3/22 Sampling Personnel: KGM Company: AECOM

Purging/ Sampling Device: PGM Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 6.90 Depth to Well Bottom: 18.74' Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-1 Sample Time: ~~[illegible]~~ ~~[illegible]~~ 13:40 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
13:00	7.02	16.1	1.242	2.83	190	104.4	250	7.00
1305	6.86	16.4	1.018	2.37	152	104.4	"	7.10
1310	6.85	16.3	1.063	1.93	110	106.7	"	7.10
1315	6.87	16.2	1.205	1.41	91	107.8	"	"
1320	6.88	16.2	1.174	1.24	98	108.2	"	"
1325	6.88	16.2	1.197	1.12	94	108.5	"	"
1330	6.89	16.1	1.248	0.94	74.0	109.3	"	"
1335	6.90	16.1	1.252	0.89	45.0	109.0	"	"
1340	6.90	16.2	1.260	0.89	40.0	108.5	"	"
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES—0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-2

Date: 10/3/22 Sampling Personnel: Company: AECOM

Purging/ Sampling Device: Peri Pump Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 7.45 Depth to Well Bottom: 18.30 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-2 Sample Time: 15:39 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
15:09	7.18	15.9	0.877	2.30	188.0	78.4	250	7.59
15:14	6.95	16.1	0.843	2.20	40.74	85.9	"	7.59
15:19	6.93	16.3	0.841	2.30	10.19	89.7	"	"
15:24	6.92	16.3	0.840	2.33	6.78	92.3	"	"
15:29	6.92	16.5	0.844	2.12	4.15	94.4	"	"
15:34	6.92	16.4	0.845	1.99	3.15	96.5	"	"
15:39	6.92	16.3	0.840	1.93	2.77	98.0	"	"
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-3

Date: 11/3/22 Sampling Personnel: KGM Company: AECOM

Purging/ Sampling Device: ~~PER~~ PERI Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 7.75 Depth to Well Bottom: 19.40 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-3 Sample Time: 09:34 QA/QC: MS/MSD

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
08:54	6.46	13.9	3.470	2.90	56.0	312	200	7.85
0859	6.80	14.5	3.663	0.87	28.25	229.2	"	8.15
0904	6.97	14.9	3.648	0.73	29.45	251.0	"	8.40
0909	6.99	15.0	3.636	0.70	37.30	217.0	"	8.50
0914	7.03	15.2	3.607	0.60	32.60	166.0	"	8.60
0919	7.03	15.3	3.548	0.64	19.60	126.5	"	8.70
0924	7.06	15.4	3.510	0.62	13.7	96.2	"	8.70
09:29	7.08	15.4	3.500	0.61	8.6	93.0	"	08.70
09:34	7.10	15.5	3.490	0.60	6.6	89.1	"	"
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-4

Date: 10/4/22 Sampling Personnel: KSM Company: AECOM

Purging/Sampling Device: Peri Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 9.32 Depth to Well Bottom: 19.31' Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-4 Sample Time: 09:55 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
09:25	7.90	13.8	1.366	5.47	103.0	109.1	225	9.62
09:30	7.79	14.2	1.383	3.38	95.4	111.0	"	9.91
09:35	7.79	14.4	1.382	3.17	83.0	111.4	"	10.25
0940	7.78	14.4	1.397	2.76	74.1	112.2	"	10.3
0945	7.76	14.6	1.418	2.22	63.0	112.3	"	10.6
0950	7.76	14.7	1.418	2.13	66.0	112.0	"	10.7
0955	7.76	14.8	1.397	2.08	65.0	110.4	"	10.82
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-7

Date: 10/4/22 Sampling Personnel: KGM Company: AECOM

Purging/Sampling Device: PGM Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 7.79 Depth to Well Bottom: 18.73 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-7 Sample Time: 08:23 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
07:43	7.04	13.8	1.330	2.94	88.72	234.2	250	7.90
07:48	6.92	14.5	1.324	1.00	43.22	231.7	"	7.92
07:53	6.96	14.7	1.307	0.83	28.07	208.8	"	"
07:58	6.99	14.8	1.333	0.77	12.50	184.2	"	"
08:03	7.0	14.8	1.356	0.73	12.06	158.3	"	"
08:08	7.01	14.8	1.365	0.79	8.60	131.0	"	"
08:13	7.02	14.7	1.370	0.68	23.0	97.7	"	"
08:18	7.02	14.8	1.380	0.66	24.0	92.3	"	"
08:23	7.03	14.7	1.370	0.65	21.00	82.0	"	"
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

RB 10/4/22 08:50

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-9

Date: 10/4/22 Sampling Personnel: KJW Company: AECOM

Purging/ Sampling Device: PGM Tubing Type: HDPG Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 9.31 Depth to Well Bottom: 18.54 Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-9 Sample Time: 10:48 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:18	6.93	14.5	1.819	6.78	460	113.9	250	9.25
10 23	7.61	14.4	1.962	3.22	1355	120.0	"	10.15
10 28	7.63	14.4	2.068	2.90	20.86	118.0	"	10.40
10 33	7.64	14.4	2.065	2.85	30.00	117.6	"	~~[illegible]~~ 10.50
10 38	7.64	14.2	2.122	2.97	25.00	112.6	"	10.60
10 43	7.02	14.3	2.139	2.81	21.00	116.0	"	10.70
10 48	7.07	14.3	2.137	2.80	24.0	116.9	"	10.80
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550   Site: NYSEG Auburn   Well I.D.: MW-10

Date: 10/3/22   Sampling Personnel: KGM   Company: AECOM

Purging/ Sampling Device: PGM   Tubing Type: HDPE   Pump/Tubing Inlet Location: ______

Measuring Point: Top of Casing   Initial Depth to Water: 5.12   Depth to Well Bottom: 78.80'   Well Diameter: 2"   Screen Length: ______

Casing Type: PVC   Volume in 1 Well Casing (liters): ______   Estimated Purge Volume (liters): ______

Sample ID: ~~[illegible]~~ MW-10   Sample Time: 11:02   QA/QC: DUP

Sample Parameters: ______

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
10:32	8.64	14.9	0.377	2.07	22.81	25.8	250	5.12
10:37	8.61	14.6	0.276	0.90	14.15	41.0	"	"
10:42	8.57	14.7	0.271	0.73	8.85	47.7	"	"
10:47	8.56	14.8	0.270	0.71	8.37	48.5	"	"
10:52	8.56	14.9	0.270	0.68	8.56	49.1	"	"
10:57	8.56	14.8	0.270	0.66	5.30	49.6	"	"
11:02	8.56	14.9	0.270	0.66	4.79	49.7	"	"
Tolerance:	0.1	—	3%	10%	10%	+ or - 10	—	

Information: WATER VOLUMES—0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

4&9 cart

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 Site: NYSEG Auburn Well I.D.: MW-11

Date: 10/3/22 Sampling Personnel: KGM Company: AECOM

Purging/ Sampling Device: PGRI Tubing Type: HDPE Pump/Tubing Inlet Location:

Measuring Point: Top of Casing Initial Depth to Water: 5.22 Depth to Well Bottom: 19.08' Well Diameter: 2" Screen Length:

Casing Type: PVC Volume in 1 Well Casing (liters): Estimated Purge Volume (liters):

Sample ID: MW-11 Sample Time: 12:10 QA/QC: —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
11:40	8.67	15.1	0.237	3.46	19.03	65.8	250	5.22
11 45	8.84	14.4	0.227	0.83	8.60	62.1	"	"
11 50	8.88	14.5	0.221	0.72	6.10	58.5	"	"
11 55	8.89	14.5	0.217	0.67	5.03	54.8	"	"
12 00	8.90	14.5	0.217	0.64	5.16	49.7	"	"
12 05	8.89	14.5	0.218	0.61	4.90	42.4	"	"
12 10	8.89	14.5	0.218	0.61	4.67	40.5	"	"
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 60652550 **Site:** NYSEG Auburn **Well I.D.:** MW-12

Date: 10/3/22 **Sampling Personnel:** KGM **Company:** AECOM

Purging/ Sampling Device: PGM **Tubing Type:** HDPE **Pump/Tubing Inlet Location:**

Measuring Point: Top of Casing **Initial Depth to Water:** 7.39 **Depth to Well Bottom:** 16.18' **Well Diameter:** 2" **Screen Length:**

Casing Type: PVC **Volume in 1 Well Casing (liters):** **Estimated Purge Volume (liters):**

Sample ID: MW-12 **Sample Time:** 14:50 **QA/QC:** —

Sample Parameters:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
14:20	7.01	15.1	1.243	1.61	209	136.3	250	7.45
14 25	6.95	15.1	1.245	0.87	179	121.4	"	"
14 30	6.96	15.2	1.289	0.69	57.0	97.6	"	"
14 35	6.97	15.3	1.334	0.64	22.00	71.8	"	"
14 40	6.97	15.2	1.360	0.62	13.72	41.6	"	"
14 45	6.97	15.2	1.321	0.61	14.5	35.0	"	"
14:50	6.98	15.2	1.394	0.59	13.24	33.2	"	"
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---	

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft.; 1 inch diameter well = 154 ml/ft.; 2 inch diameter well = 617 ml/ft.; 4 inch diameter well = 2470 ml/ft. ($vol_{cyl} = \pi r^2 h$)

Remarks:

Attachment 2

DCS

Calculation Cover Page Template

Q2[DCS]-351-FM5

Project	**Job No.**
Auburn Green Street PDI	60652550
Client	**Department/Discipline**
NYSEG	Environment
Software Name	
AQTESOLV for Windows Version 4.50	

Calculation Rev. No.	Originator Self Check (name and signature)	Reviewer/Checker (name and signature)	Independent Peer Reviewer (if used/required) (name & signature)	Approver (name & signature)
Initial	Robert Murphy	Kevin Connare		Jim Kaczor
	Robert J Murphy	Kevin Connare		James L. Kaczor

Add rows as required

Calculation Objective:
Determine the hydraulic conductivity of five wells using data obtained from slug tests.

Calculation Methodology:
Data was normalized and entered into the AQTESOLV Version 4.50 program.

References / Inputs/ Field Data:
Attached

Assumptions: (Include comments on need to revise calculations after more data is collected/confirmed and/or after assumptions have been verified.)

Conclusions including confirmations to be obtained:

This calculation is complete and ready for Discipline Review:

Robert J. Murphy, PG	Robert J Murphy	10/7/22
Originator Name	**Signature**	**Date**

SECTION 1:

SUMMARY OF RESULTS, AQTESOLV INPUT DATA, AND FIELD DATA

Summary of Results
Auburn Green Street Site
Slug Tests

Well ID	Hydraulic Conductivity [cm/sec]							
	FH1	RH1	FH2	RH2	FH3	RH3	N(**)	Mean (***)
MW-01	6.38E-04	1.05E-02	5.68E-04	5.42E-03	-	-	4	2.13E-03
MW-02	2.95E-03	8.78E-03	2.67E-03	8.03E-03	-	-	4	4.85E-03
MW-04	1.58E-05	7.01E-04	-	-	-	-	2	1.05E-04
MW-07	1.42E-03	9.26E-03	2.13E-03	3.42E-03	-	-	4	3.13E-03
MW-10	3.95E-01	1.36E-01	1.79E-01	1.38E-01	1.53E-01	1.28E-01	6	1.72E-01

(**) - number of valid tests
(***) - geometric mean

FH - Falling Head test
RH - Rising Head test

Note:
-For all graphs, normalized head is defined as H(t)/Ho, where H(t) is the displacement measured at time t and Ho is the initial displacement at time t=0.

-While the geometric mean for both the falling and rising head tests are given, it is understood that the rising head tests more accurately describe the overall hydraulic characteristics of the aquifer.
(See attached reference, *The Bouwer and Rice Slug Test - An Update*)

Auburn Green Street Site - Slug Tests
Well Construction Details

Well ID	Formation	Screen Length		Radii			Aquifer	Depth from Aquifer Top	
		Total	Submerged	Screen (*)	Casing		Thickness	to Top of	to Bottom
					Actual	Equivalent		Screen	of Screen
		L_e	$L_{e\text{-}sub}$	r_w	r_c	$r_{c\text{-}eq}$ (**)	H	d	L_w
		[ft]	[ft]	[in]	[in]	[in]	[ft]	[ft]	[ft]
MW-01	Overburden	15.0	12.65	4.13	1.00	2.41	13.75	-2.35	12.65
MW-02	Overburden	10.0	9.05	4.13	1.00	2.41	11.55	-0.95	9.05
MW-04	Overburden	15.0	10.63	4.13	1.00	2.41	11.63	-4.37	10.63
MW-07	Overburden	10.0	8.39	4.13	1.00	2.41	10.39	-1.61	8.39
MW-10	Overburden	10.0	10.00	4.13	1.00	1.00	15.86	3.86	13.86

Notes:
(*) - sand pack (overburden wells)
(**) - $r_{c\text{-}eq} = [(1 - n)\, r_c^2 + n\, r_w^2]^{1/2}$ if $L_{e\text{-}sub} < L_e$
$r_{c\text{-}eq} = r_c$ if $L_{e\text{-}sub} = L_e$
NM - not measured
N/A - not applicable

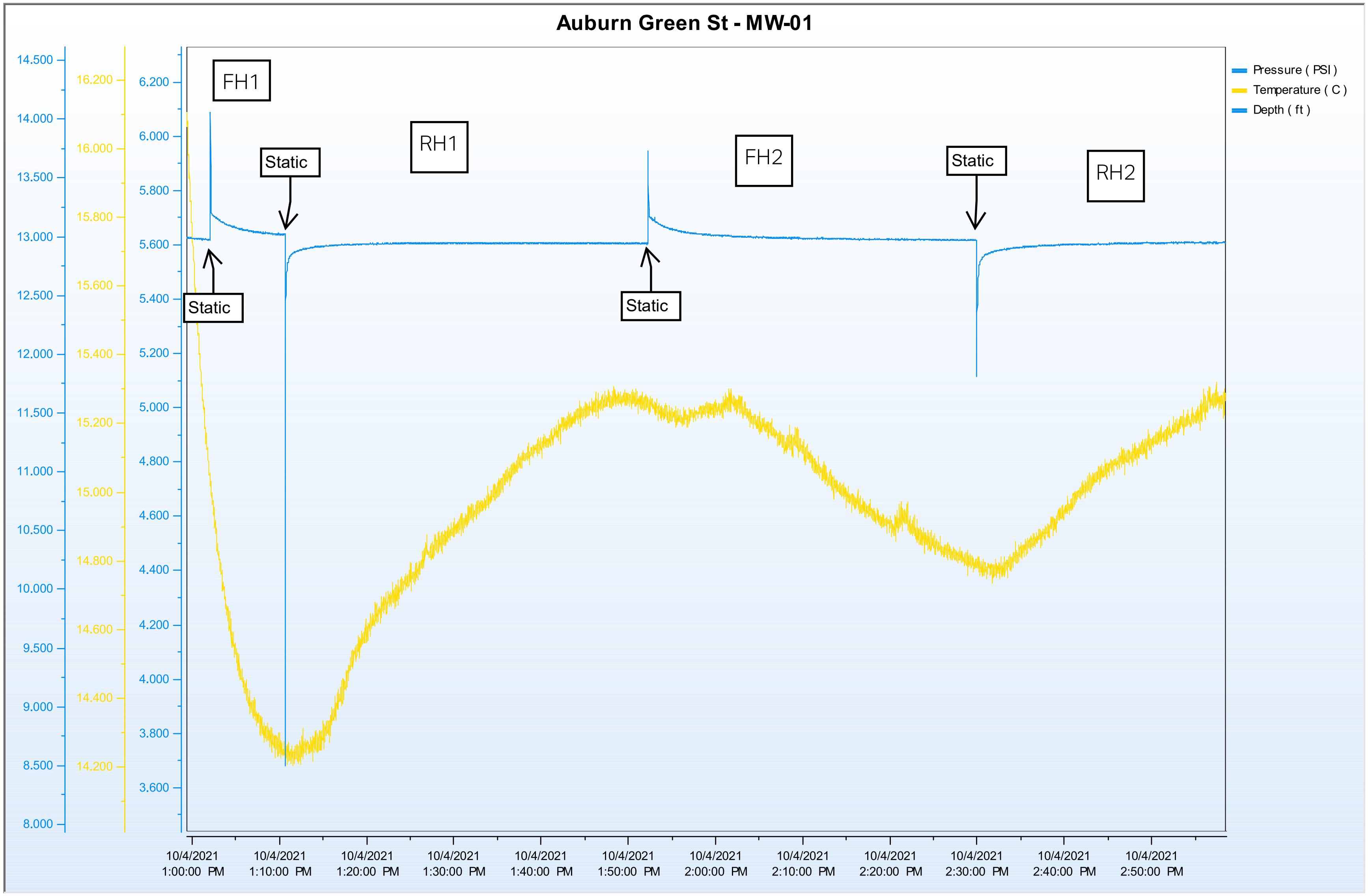
Assumptions:
(1) AQTESOLV ver. 4.50 was used for slug test analyses.
(2) Sandpack porosity of 0.32 was used for wells that were not fully submerged during testing.
(3) Bouwer and Rice (1976) solution was used for unconfined aquifers.
(4) Formulas and parameters used for this slug test analysis can be found in:
Bouwer, H., 1989. The Bouwer and Rice slug test--an update, Ground Water, vol. 27, no. 3, pp. 304-309.
(5) Used depth to water to determine aquifer thickness.

Auburn Green Street Site - Slug Tests
Useability of Data

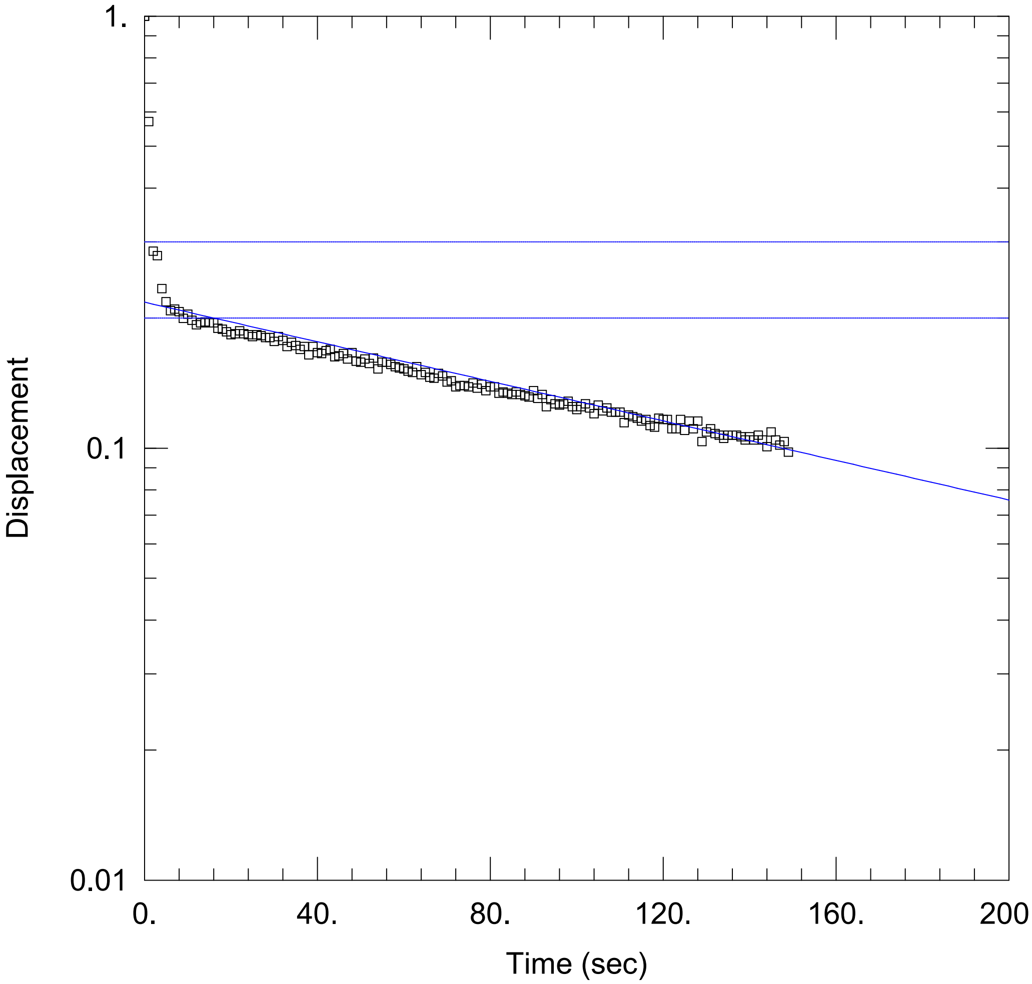
Well ID	Remarks					
	FH1	RH1	FH2	RH2	FH3	RH3
MW-01	OK	OK	OK	OK	-	-
MW-02	OK	OK	OK	OK	-	-
MW-04	OK	OK	-	-	-	-
MW-07	OK	OK	OK	OK	-	-
MW-10	OK	OK	OK	OK	OK	OK

SECTION 2:

SLUG TEST DATA AND
AQTESOLV CALCULATION REPORTS



Auburn Green St - MW-01
FH1
Static
RH1
FH2
Static
RH2
Static
Static
Pressure (PSI)
Temperature (C)
Depth (ft)
14.500
14.000
13.500
13.000
12.500
12.000
11.500
11.000
10.500
10.000
9.500
9.000
8.500
8.000
16.200
16.000
15.800
15.600
15.400
15.200
15.000
14.800
14.600
14.400
14.200
6.200
6.000
5.800
5.600
5.400
5.200
5.000
4.800
4.600
4.400
4.200
4.000
3.800
3.600
10/4/2021 1:00:00 PM
10/4/2021 1:10:00 PM
10/4/2021 1:20:00 PM
10/4/2021 1:30:00 PM
10/4/2021 1:40:00 PM
10/4/2021 1:50:00 PM
10/4/2021 2:00:00 PM
10/4/2021 2:10:00 PM
10/4/2021 2:20:00 PM
10/4/2021 2:30:00 PM
10/4/2021 2:40:00 PM
10/4/2021 2:50:00 PM



WELL TEST ANALYSIS

Data Set: L:\...\MW-01FH1.aqt
Date: 09/07/22 Time: 11:21:51

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-01
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 13.75 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-01)

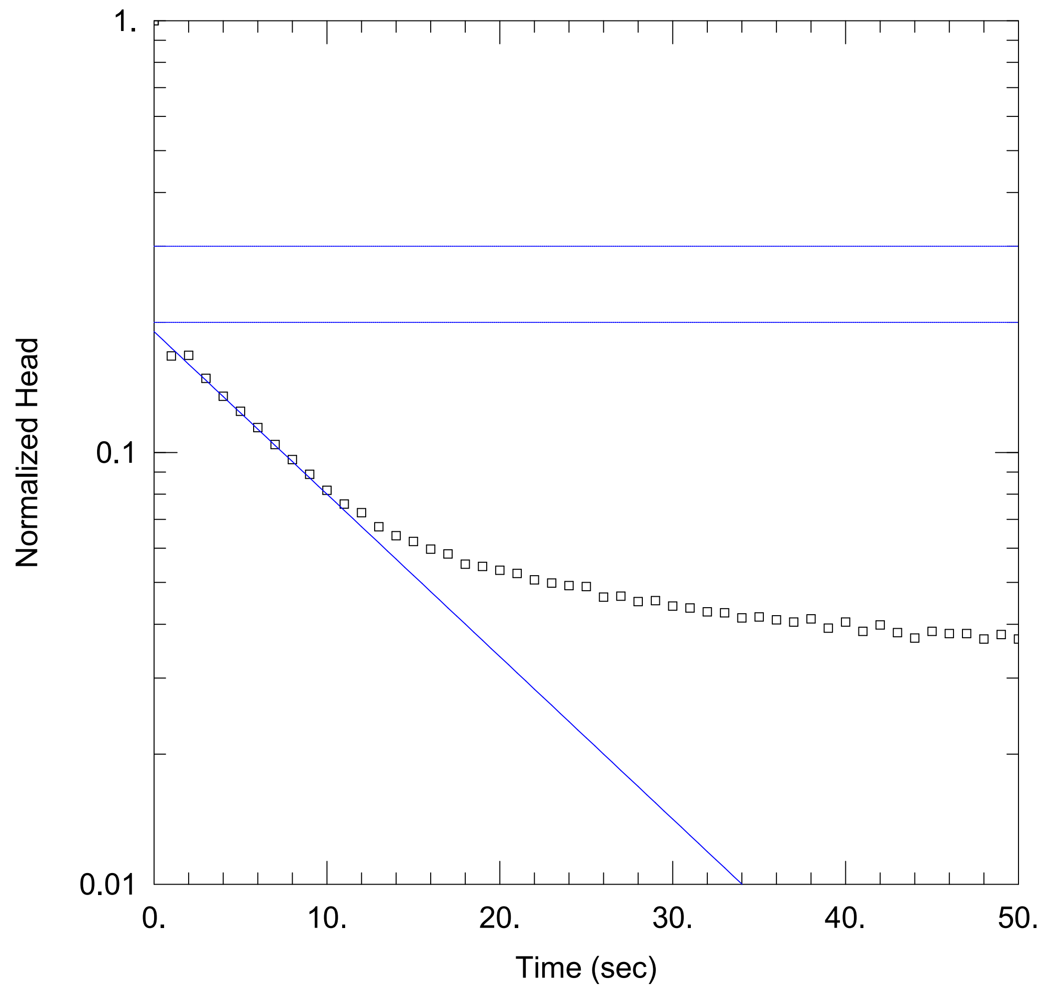
Initial Displacement: 1. ft
Total Well Penetration Depth: 12.65 ft
Casing Radius: 0.08 ft

Static Water Column Height: 13.75 ft
Screen Length: 12.65 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0006383 cm/sec y0 = 0.2177 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-01RH1.aqt
Date: 09/07/22 Time: 11:42:54

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-01
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 13.75 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-01)

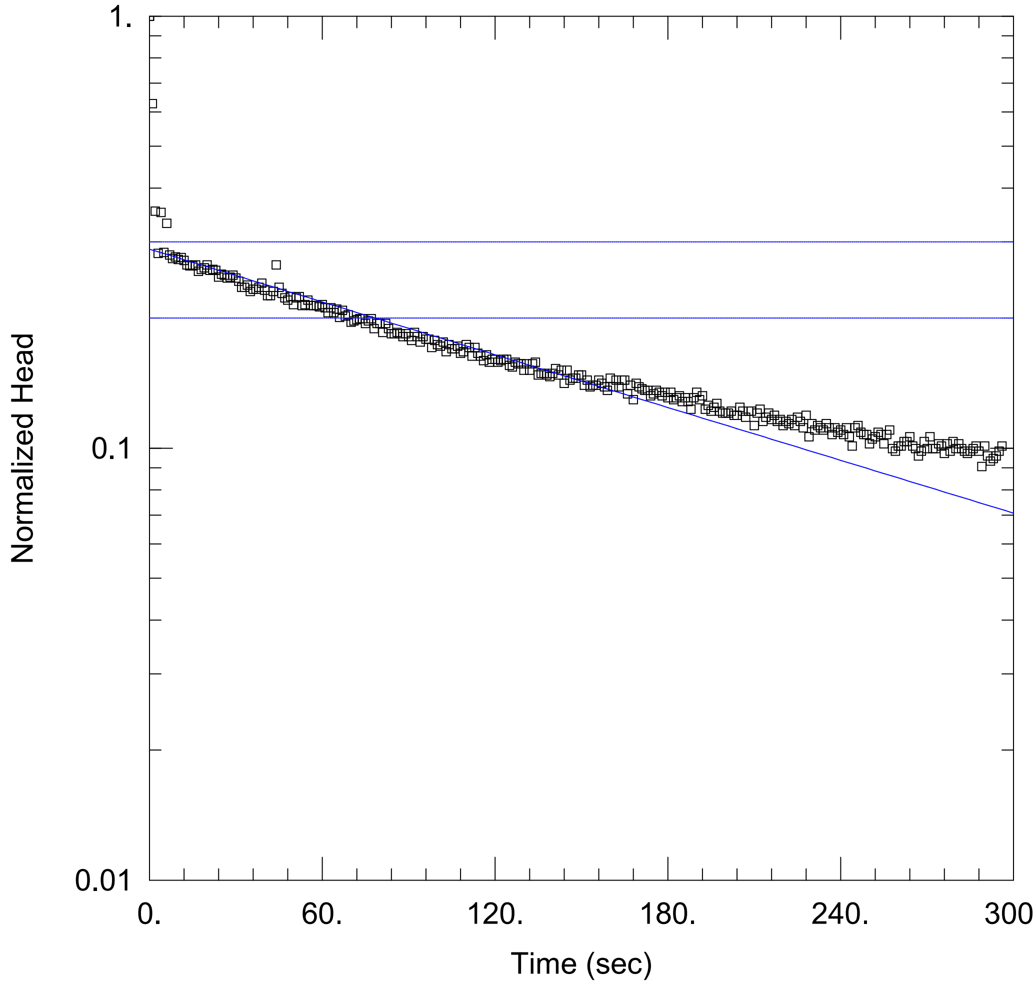
Initial Displacement: 1. ft
Total Well Penetration Depth: 12.65 ft
Casing Radius: 0.08 ft

Static Water Column Height: 13.75 ft
Screen Length: 12.65 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.01049 cm/sec y0 = 0.1904 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-01FH2.aqt
Date: 09/07/22 Time: 11:51:46

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-01
Test Date: 10/4/21

AQUIFER DATA

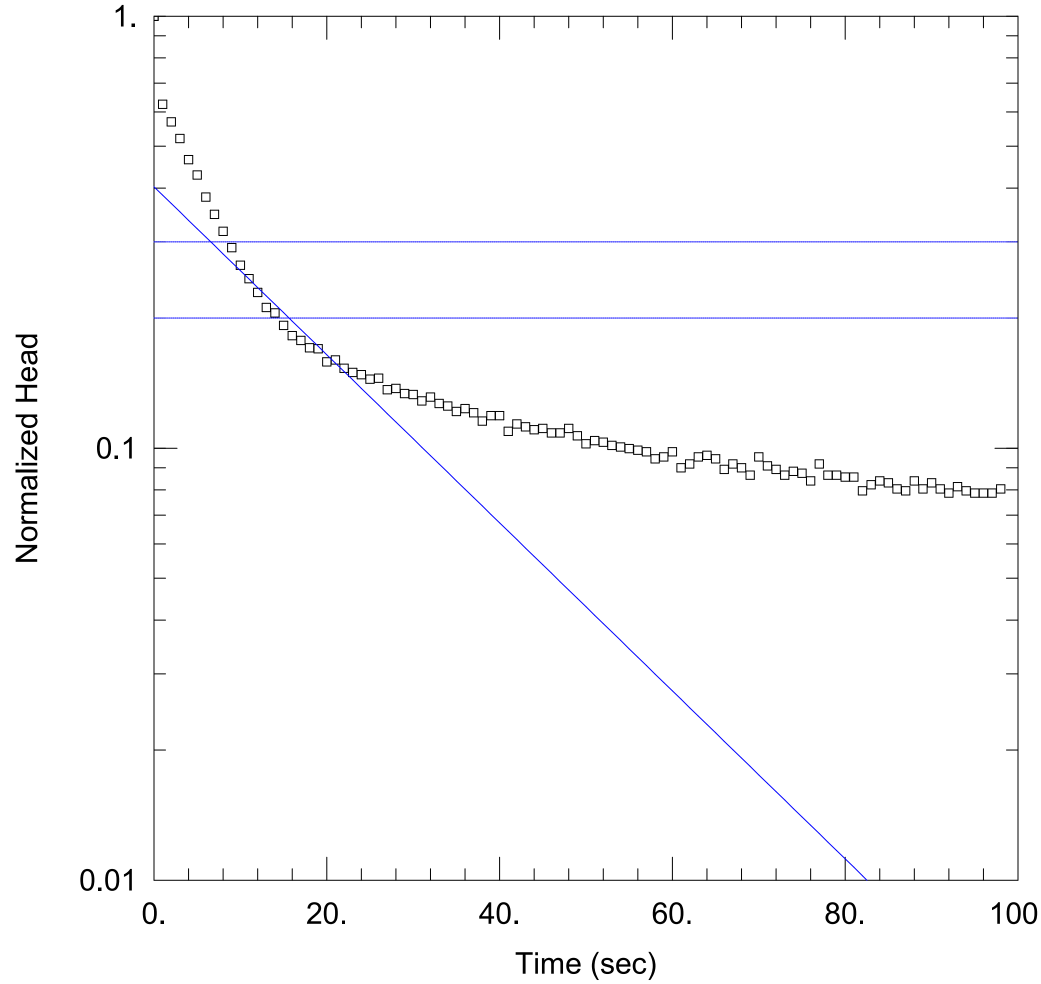
Saturated Thickness: 13.75 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-01)

Initial Displacement: 1. ft
Total Well Penetration Depth: 12.65 ft
Casing Radius: 0.08 ft
Static Water Column Height: 13.75 ft
Screen Length: 12.65 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0005679 cm/sec
y0 = 0.2888 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-01RH2.aqt
Date: 09/07/22 Time: 12:09:12

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-01
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 13.75 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-01)

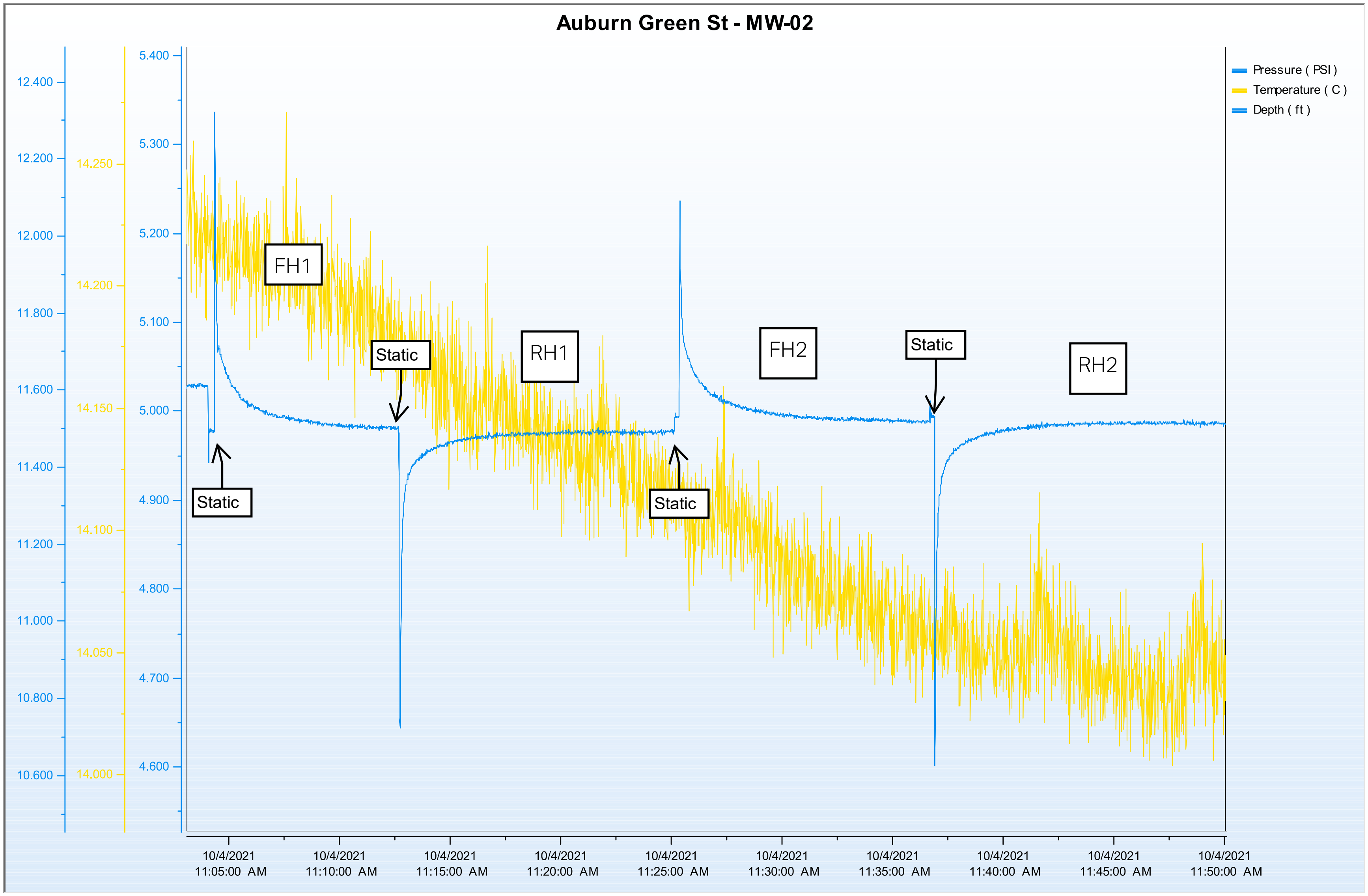
Initial Displacement: 1. ft
Total Well Penetration Depth: 12.65 ft
Casing Radius: 0.08 ft

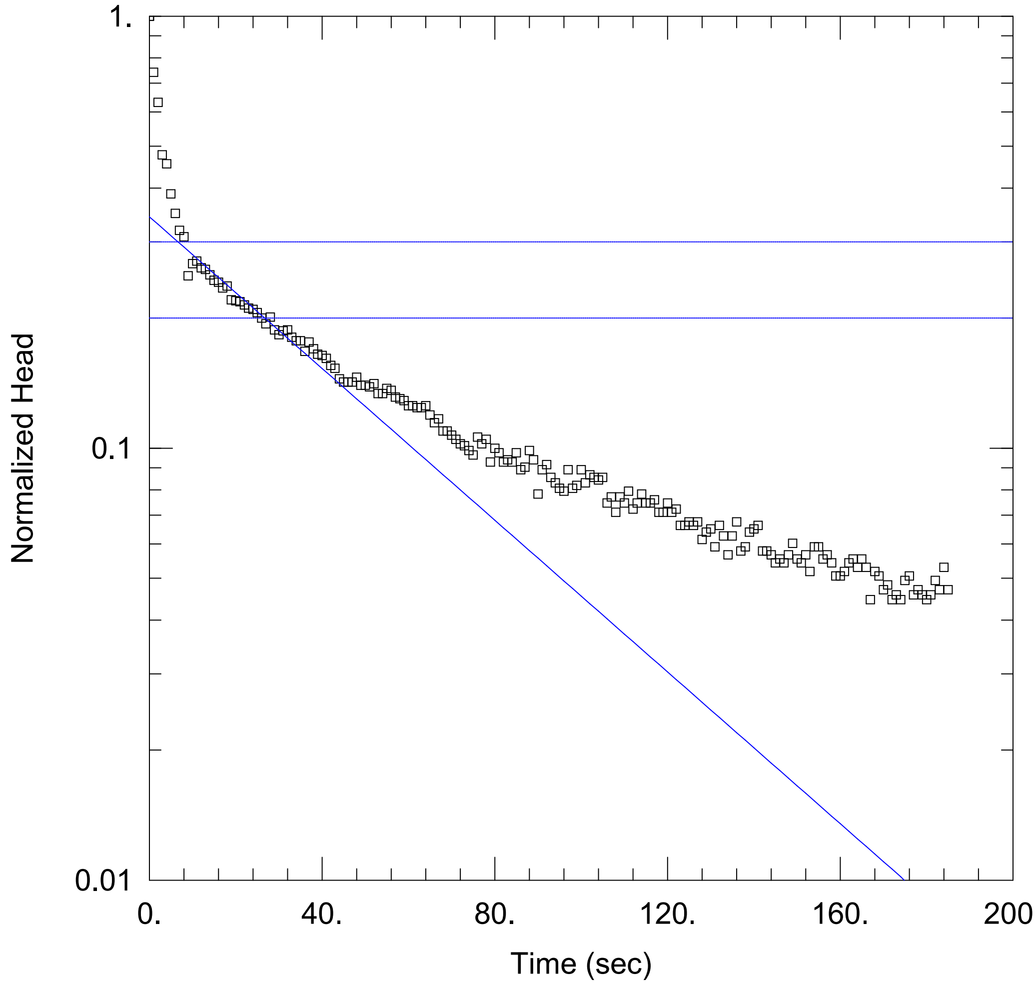
Static Water Column Height: 13.75 ft
Screen Length: 12.65 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.005423 cm/sec y0 = 0.4029 ft


Auburn Green St - MW-02
Pressure (PSI)
Temperature (C)
Depth (ft)
12.400
12.200
12.000
11.800
11.600
11.400
11.200
11.000
10.800
10.600
14.250
14.200
14.150
14.100
14.050
14.000
5.400
5.300
5.200
5.100
5.000
4.900
4.800
4.700
4.600
FH1
Static
RH1
FH2
Static
RH2
Static
Static
10/4/2021 11:05:00 AM
10/4/2021 11:10:00 AM
10/4/2021 11:15:00 AM
10/4/2021 11:20:00 AM
10/4/2021 11:25:00 AM
10/4/2021 11:30:00 AM
10/4/2021 11:35:00 AM
10/4/2021 11:40:00 AM
10/4/2021 11:45:00 AM
10/4/2021 11:50:00 AM



WELL TEST ANALYSIS

Data Set: L:\...\MW-02FH1.aqt
Date: 09/07/22 Time: 14:16:48

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 11.55 ft Anisotropy Ratio (Kz/Kr): 1.

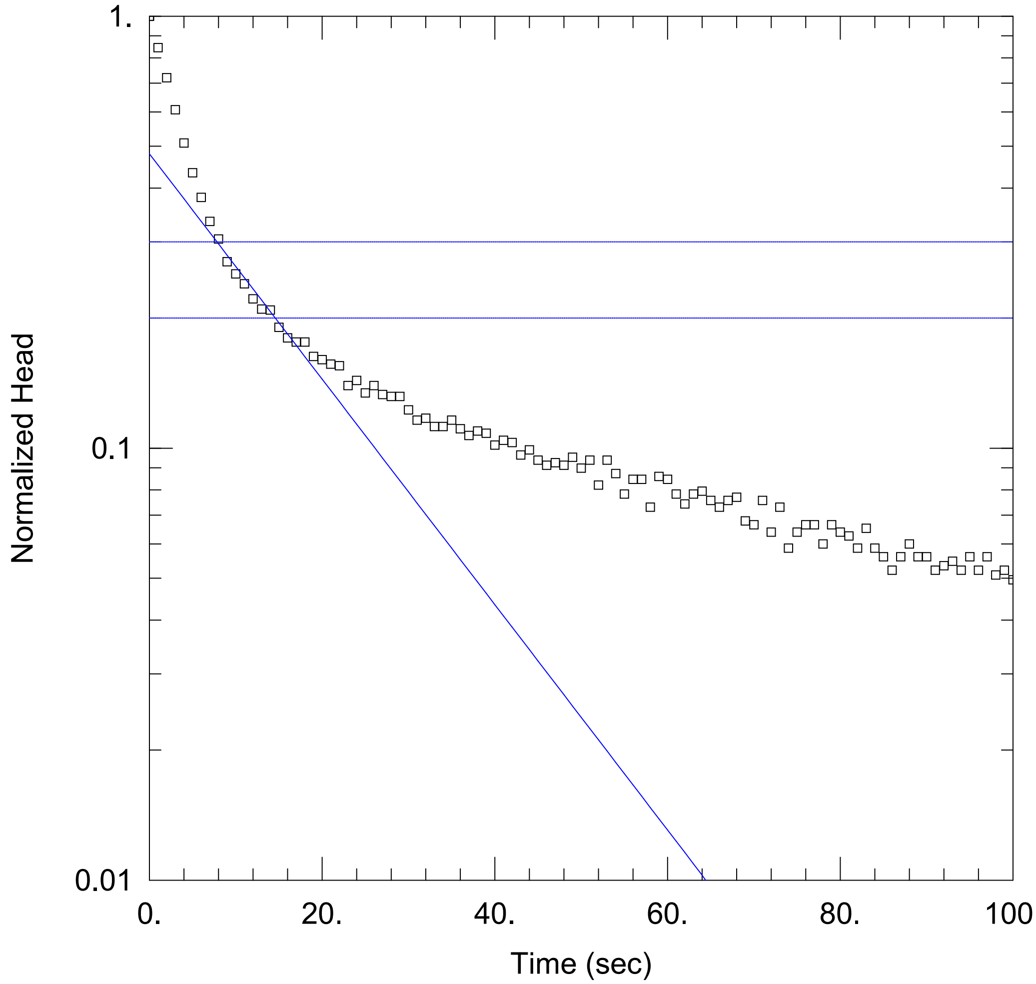
WELL DATA (MW-02)

Initial Displacement: 1. ft
Total Well Penetration Depth: 9.05 ft
Casing Radius: 0.08 ft
Static Water Column Height: 11.55 ft
Screen Length: 9.05 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002953 cm/sec y0 = 0.3432 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-02RH1.aqt
Date: 09/07/22 Time: 17:16:56

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

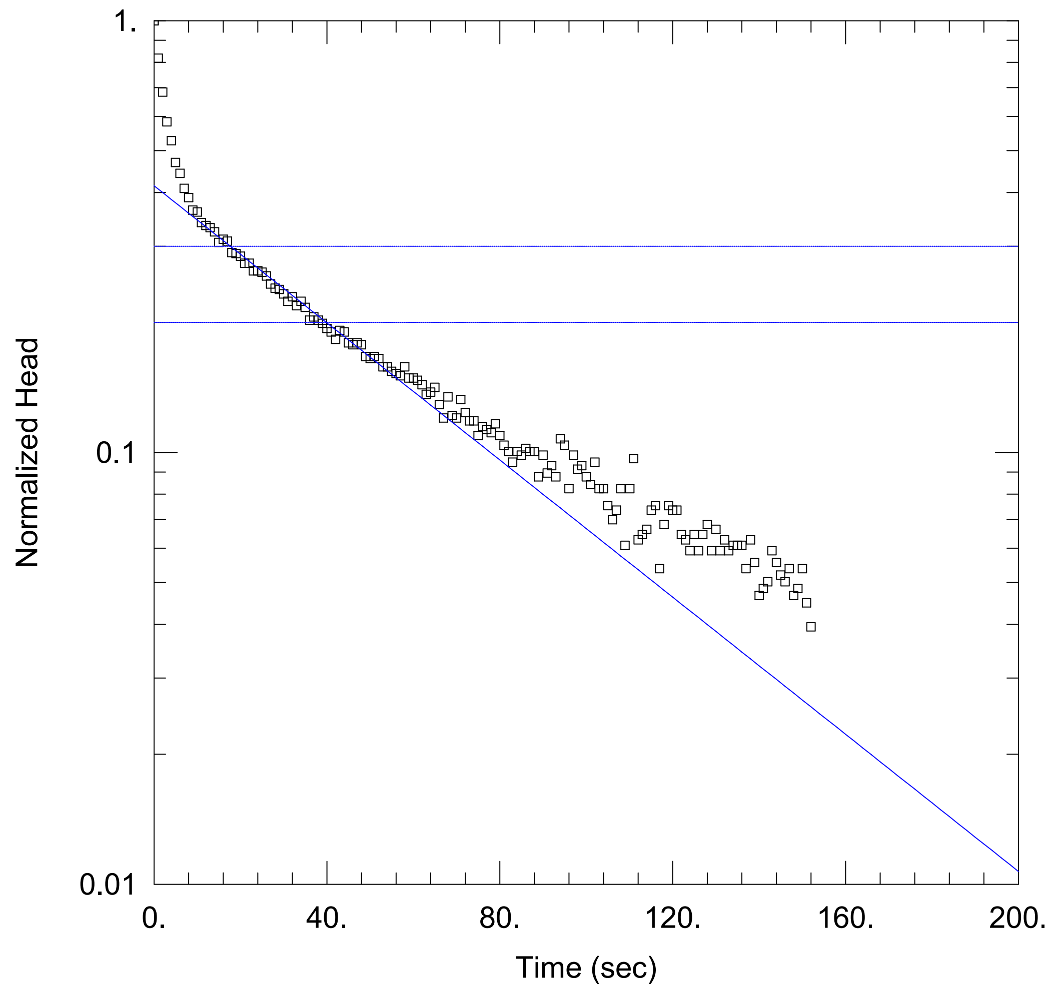
Saturated Thickness: 11.55 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-02)

Initial Displacement: 1. ft
Total Well Penetration Depth: 9.05 ft
Casing Radius: 0.08 ft
Static Water Column Height: 11.55 ft
Screen Length: 9.05 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.008775 cm/sec
y0 = 0.4802 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-02FH2.aqt
Date: 09/07/22 Time: 17:23:18

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 11.55 ft Anisotropy Ratio (Kz/Kr): 1.

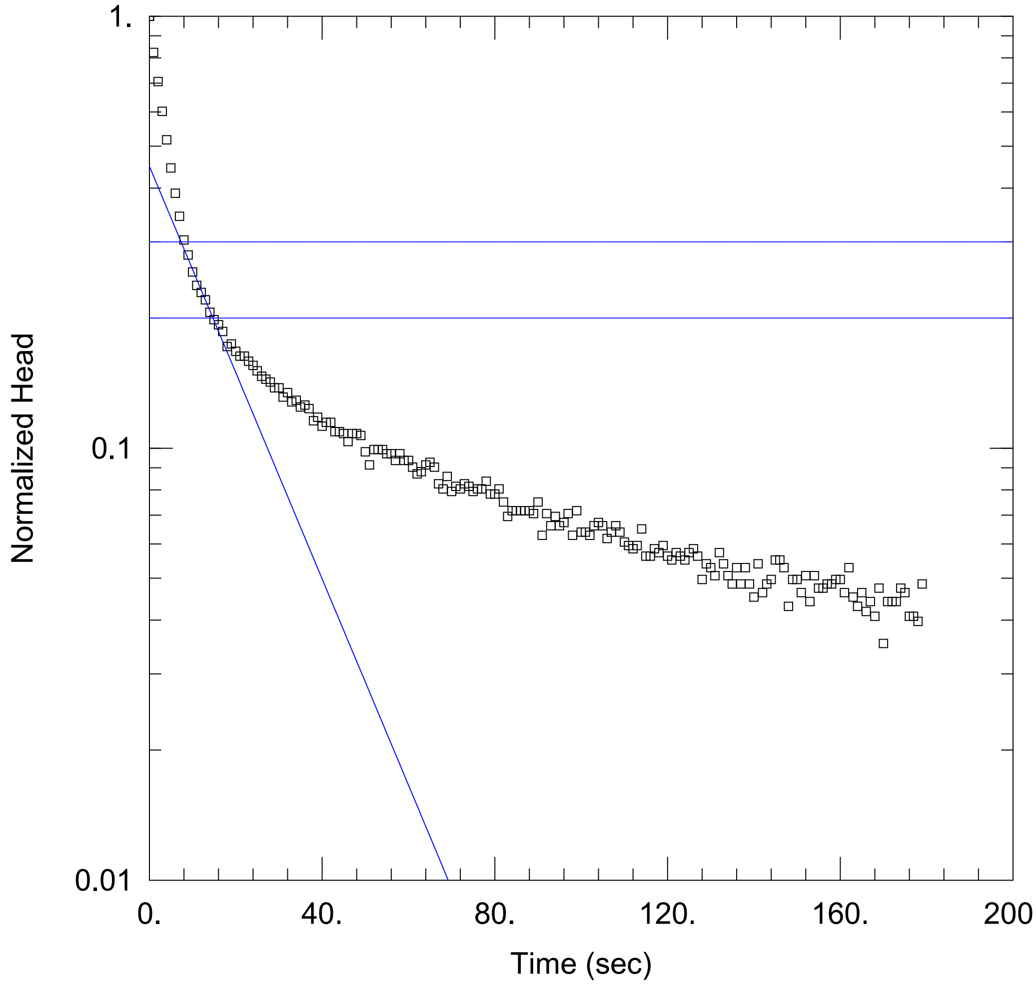
WELL DATA (MW-02)

Initial Displacement: 1. ft
Total Well Penetration Depth: 9.05 ft
Casing Radius: 0.08 ft
Static Water Column Height: 11.55 ft
Screen Length: 9.05 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.00267 cm/sec y0 = 0.4145 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-02RH2.aqt
Date: 09/07/22 Time: 17:29:02

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 11.55 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-02)

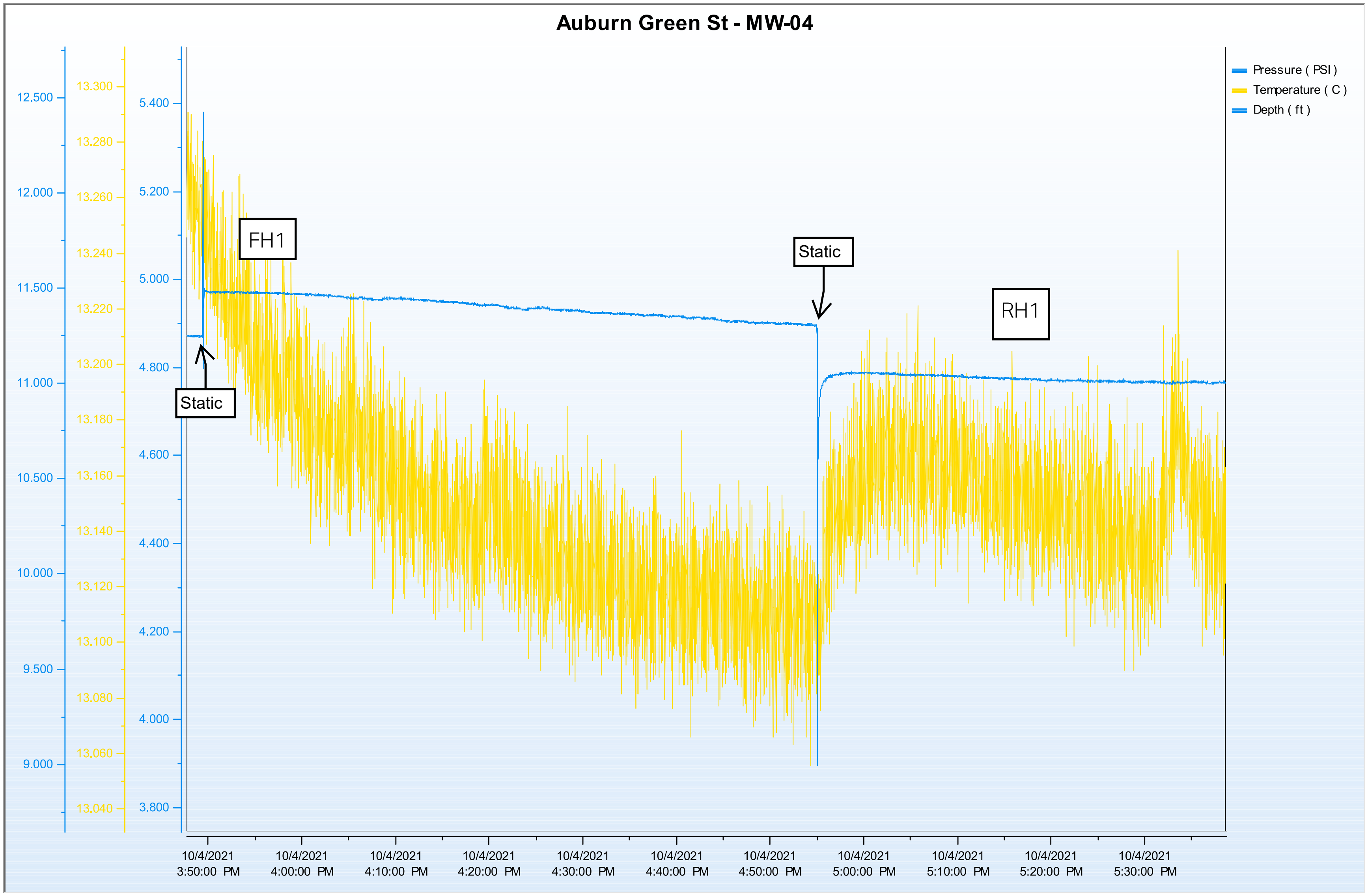
Initial Displacement: 1. ft
Total Well Penetration Depth: 9.05 ft
Casing Radius: 0.08 ft

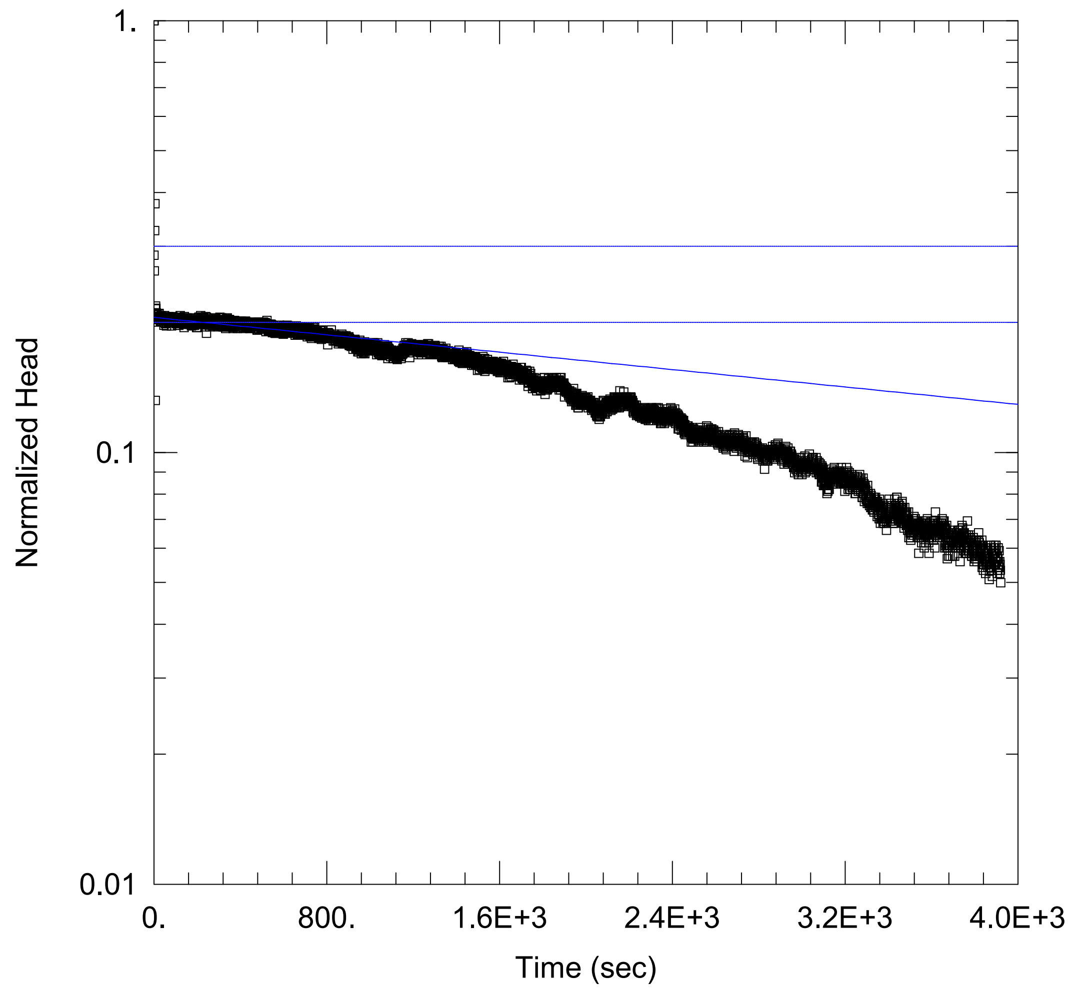
Static Water Column Height: 11.55 ft
Screen Length: 9.05 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.008029 cm/sec y0 = 0.4491 ft


Auburn Green St - MW-04
12.500
12.000
11.500
11.000
10.500
10.000
9.500
9.000
13.300
13.280
13.260
13.240
13.220
13.200
13.180
13.160
13.140
13.120
13.100
13.080
13.060
13.040
5.400
5.200
5.000
4.800
4.600
4.400
4.200
4.000
3.800
FH1
Static
Static
RH1
Pressure (PSI)
Temperature (C)
Depth (ft)
10/4/2021 3:50:00 PM
10/4/2021 4:00:00 PM
10/4/2021 4:10:00 PM
10/4/2021 4:20:00 PM
10/4/2021 4:30:00 PM
10/4/2021 4:40:00 PM
10/4/2021 4:50:00 PM
10/4/2021 5:00:00 PM
10/4/2021 5:10:00 PM
10/4/2021 5:20:00 PM
10/4/2021 5:30:00 PM



WELL TEST ANALYSIS

Data Set: L:\...\MW-04FH1.aqt
Date: 09/07/22 Time: 17:50:10

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 11.63 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-04)

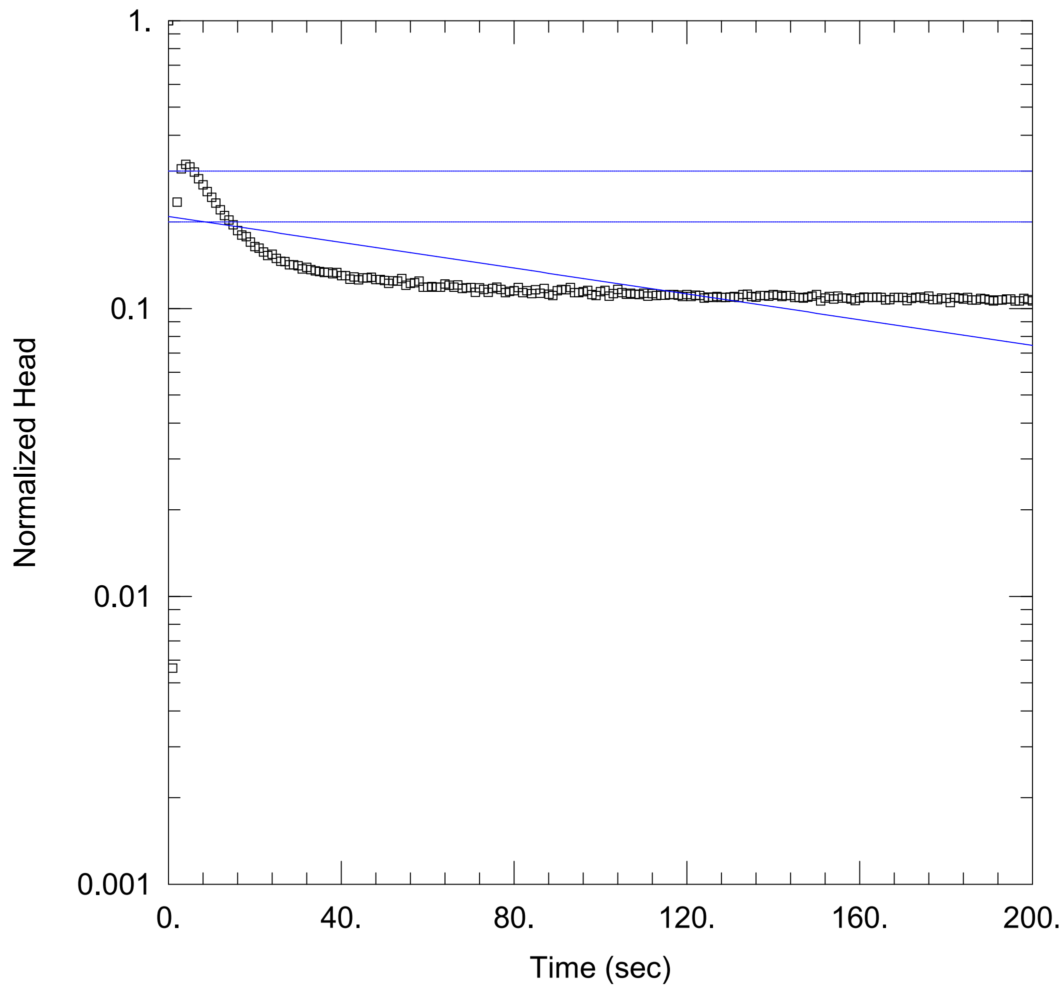
Initial Displacement: 1. ft
Total Well Penetration Depth: 10.63 ft
Casing Radius: 0.08 ft

Static Water Column Height: 11.63 ft
Screen Length: 10.63 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.577E-5 cm/sec y0 = 0.2054 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-04RH1.aqt
Date: 09/07/22
Time: 18:08:00

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 11.63 ft
Anisotropy Ratio (Kz/Kr): 1.

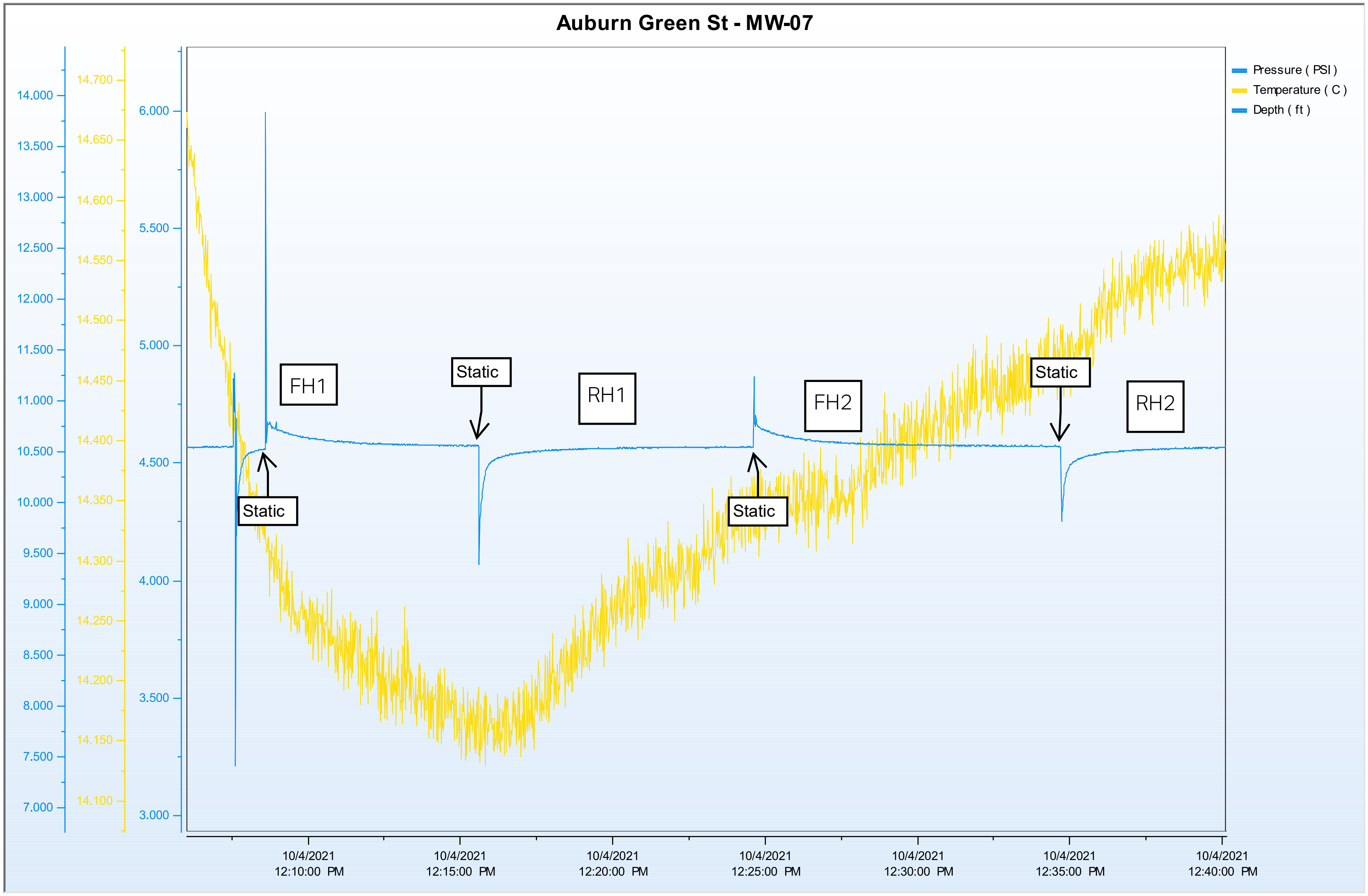
WELL DATA (MW-04)

Initial Displacement: 1. ft
Total Well Penetration Depth: 10.63 ft
Casing Radius: 0.08 ft
Static Water Column Height: 11.63 ft
Screen Length: 10.63 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

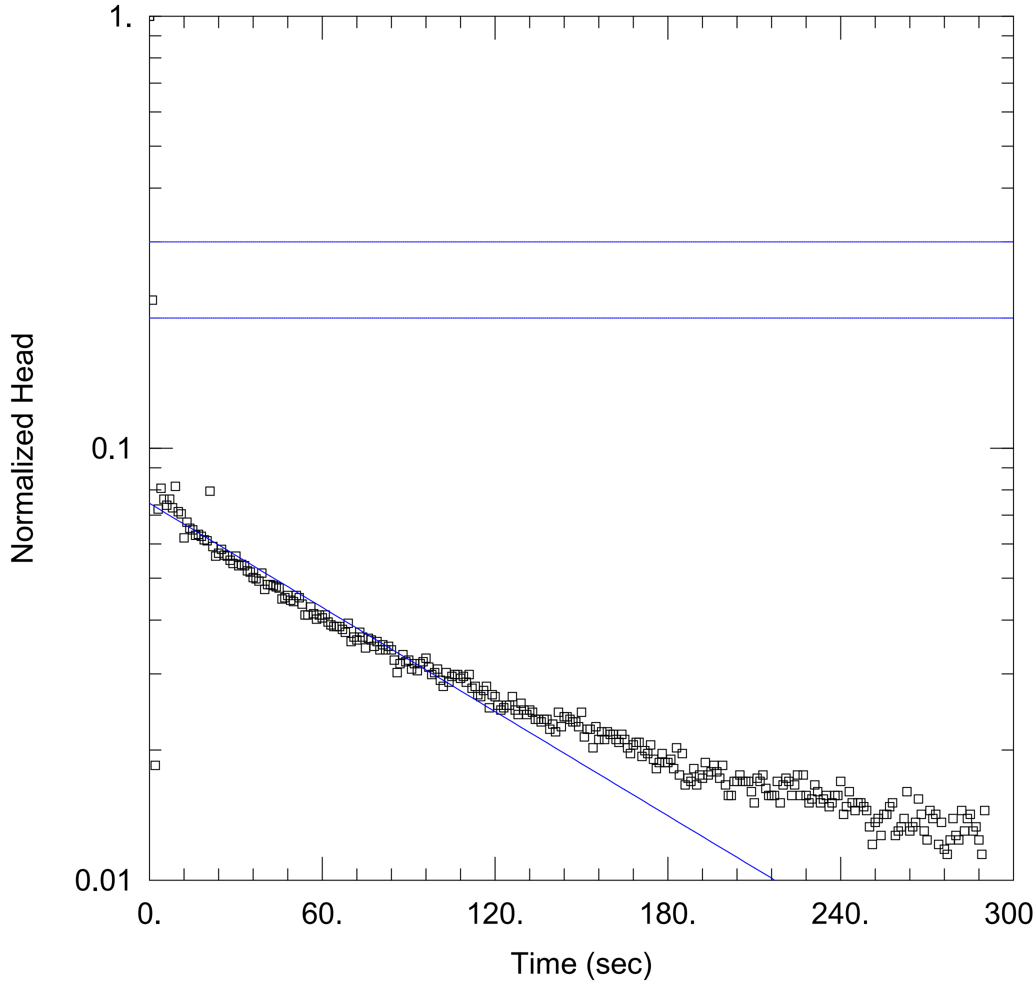
SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0007014 cm/sec
y0 = 0.2086 ft



Auburn Green St - MW-07
Pressure (PSI)
Temperature (C)
Depth (ft)
14.000
13.500
13.000
12.500
12.000
11.500
11.000
10.500
10.000
9.500
9.000
8.500
8.000
7.500
7.000
14.700
14.650
14.600
14.550
14.500
14.450
14.400
14.350
14.300
14.250
14.200
14.150
14.100
6.000
5.500
5.000
4.500
4.000
3.500
3.000
FH1
Static
RH1
FH2
Static
RH2
Static
Static
10/4/2021 12:10:00 PM
10/4/2021 12:15:00 PM
10/4/2021 12:20:00 PM
10/4/2021 12:25:00 PM
10/4/2021 12:30:00 PM
10/4/2021 12:35:00 PM
10/4/2021 12:40:00 PM



WELL TEST ANALYSIS

Data Set: L:\...\MW-07FH1.aqt
Date: 09/07/22 Time: 18:43:32

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 10.39 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-07)

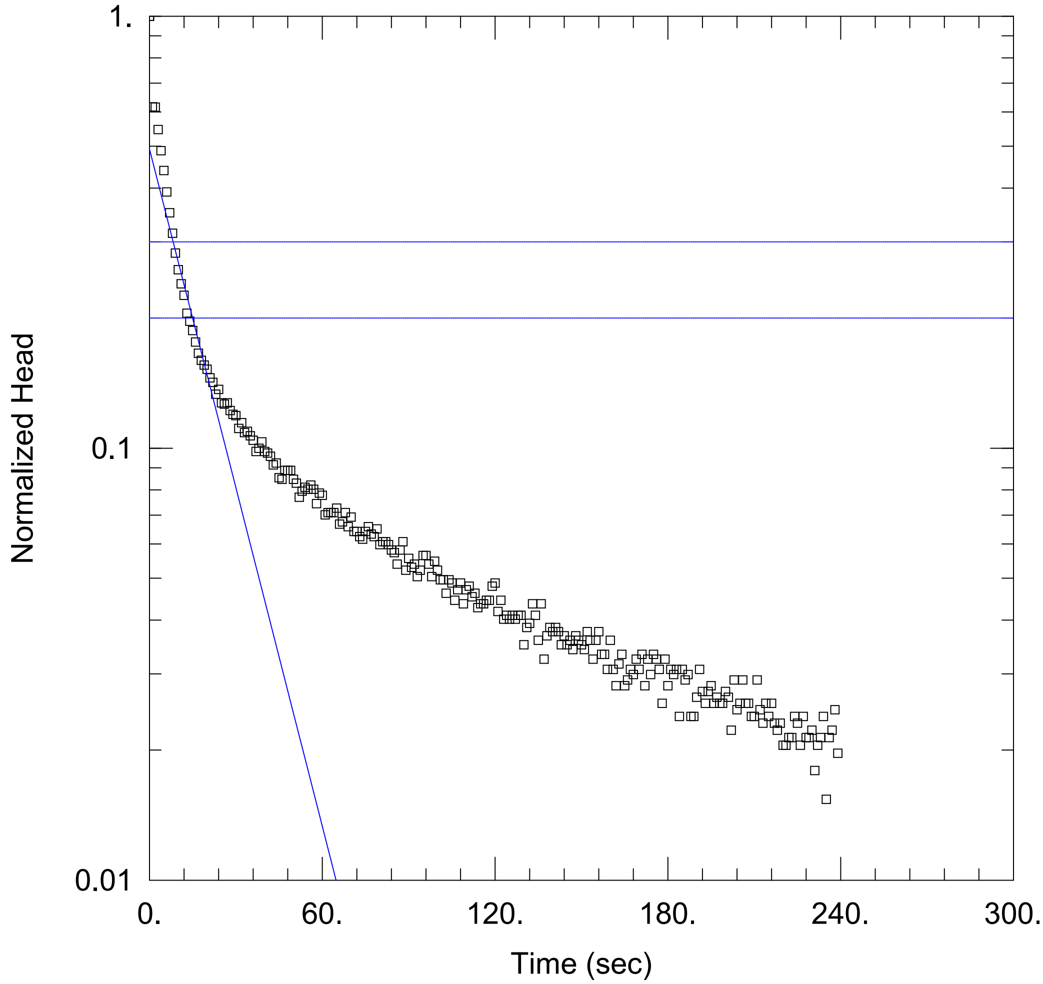
Initial Displacement: 1. ft
Total Well Penetration Depth: 8.39 ft
Casing Radius: 0.08 ft

Static Water Column Height: 10.39 ft
Screen Length: 8.39 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.001424 cm/sec y0 = 0.07451 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-07RH1.aqt
Date: 09/07/22 Time: 18:42:59

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 10.39 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-07)

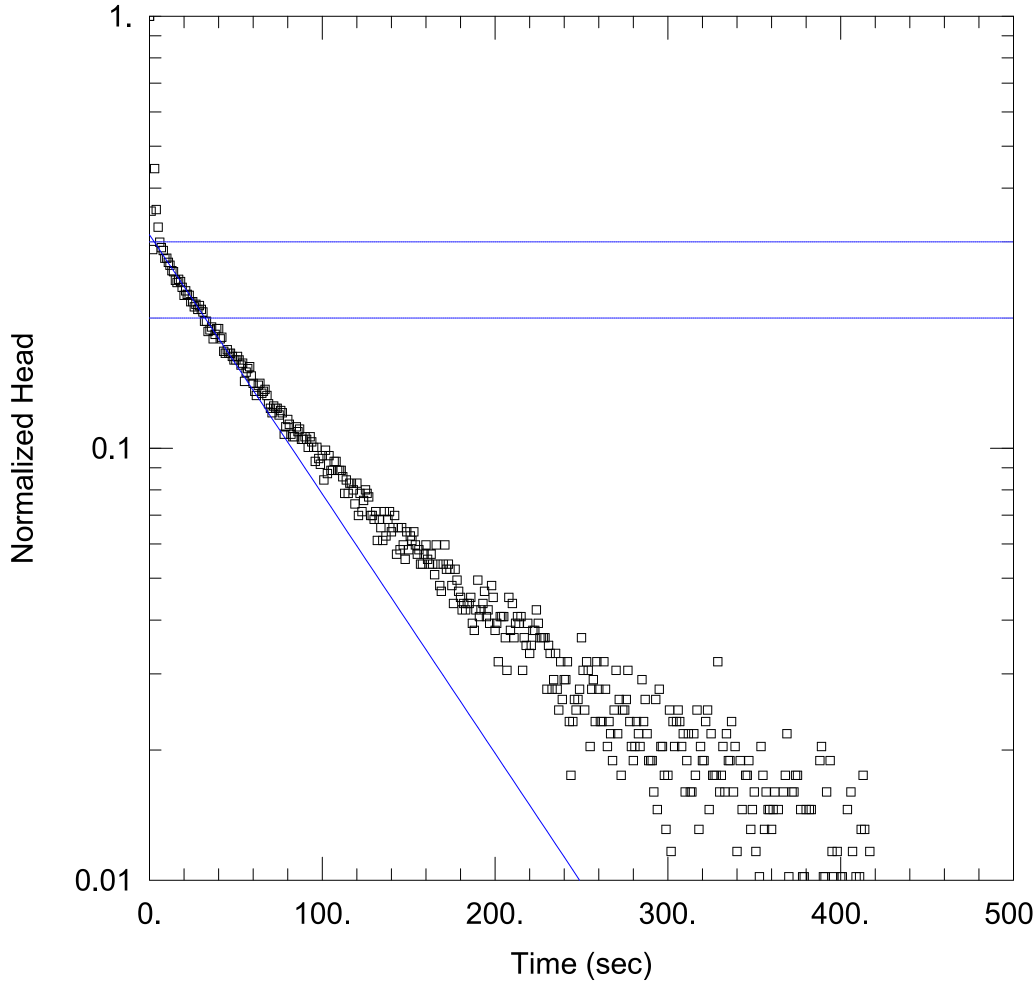
Initial Displacement: 1. ft
Total Well Penetration Depth: 8.39 ft
Casing Radius: 0.08 ft

Static Water Column Height: 10.39 ft
Screen Length: 8.39 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.009259 cm/sec y0 = 0.4919 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-07FH2.aqt
Date: 09/07/22 Time: 18:45:17

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 10.39 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-07)

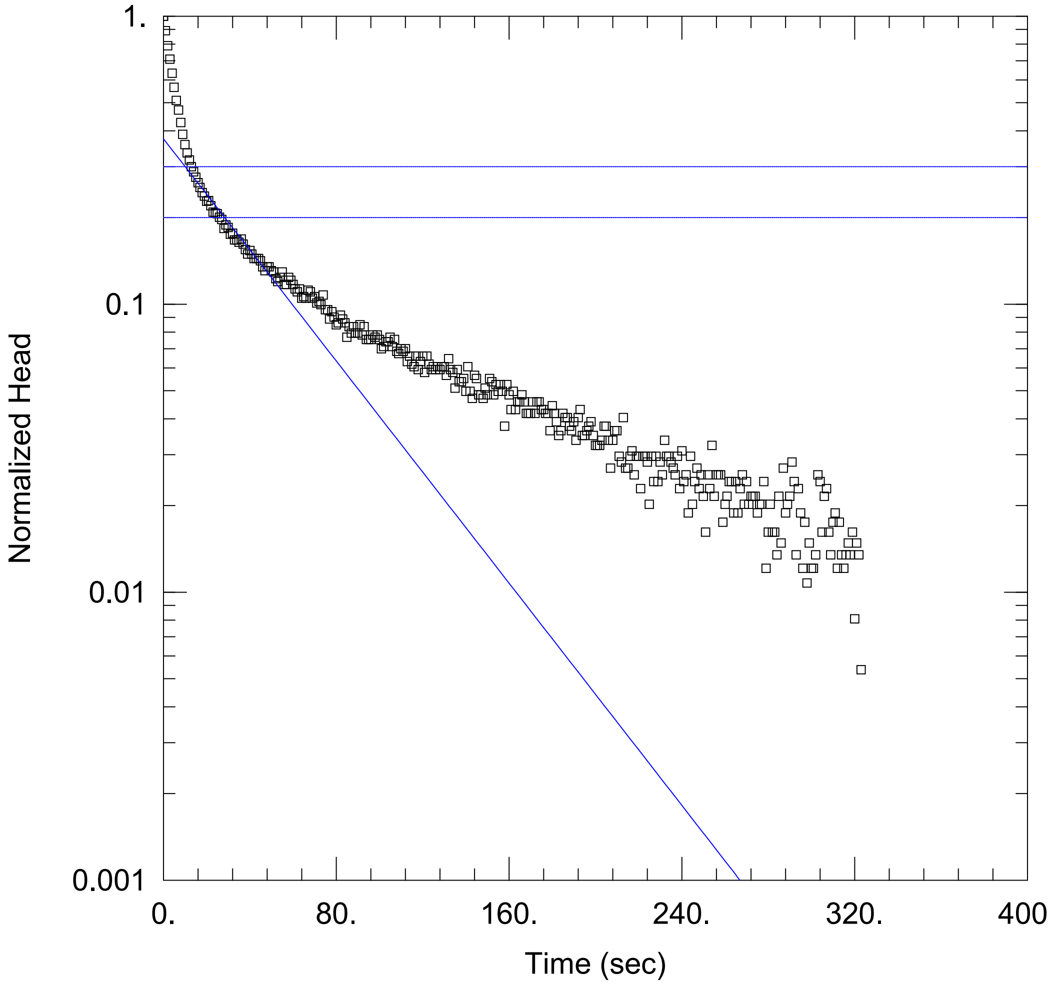
Initial Displacement: 1. ft
Total Well Penetration Depth: 8.39 ft
Casing Radius: 0.08 ft

Static Water Column Height: 10.39 ft
Screen Length: 8.39 ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002128 cm/sec y0 = 0.3118 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-07RH2.aqt
Date: 09/07/22 Time: 18:47:21

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 10.39 ft Anisotropy Ratio (Kz/Kr): 1.

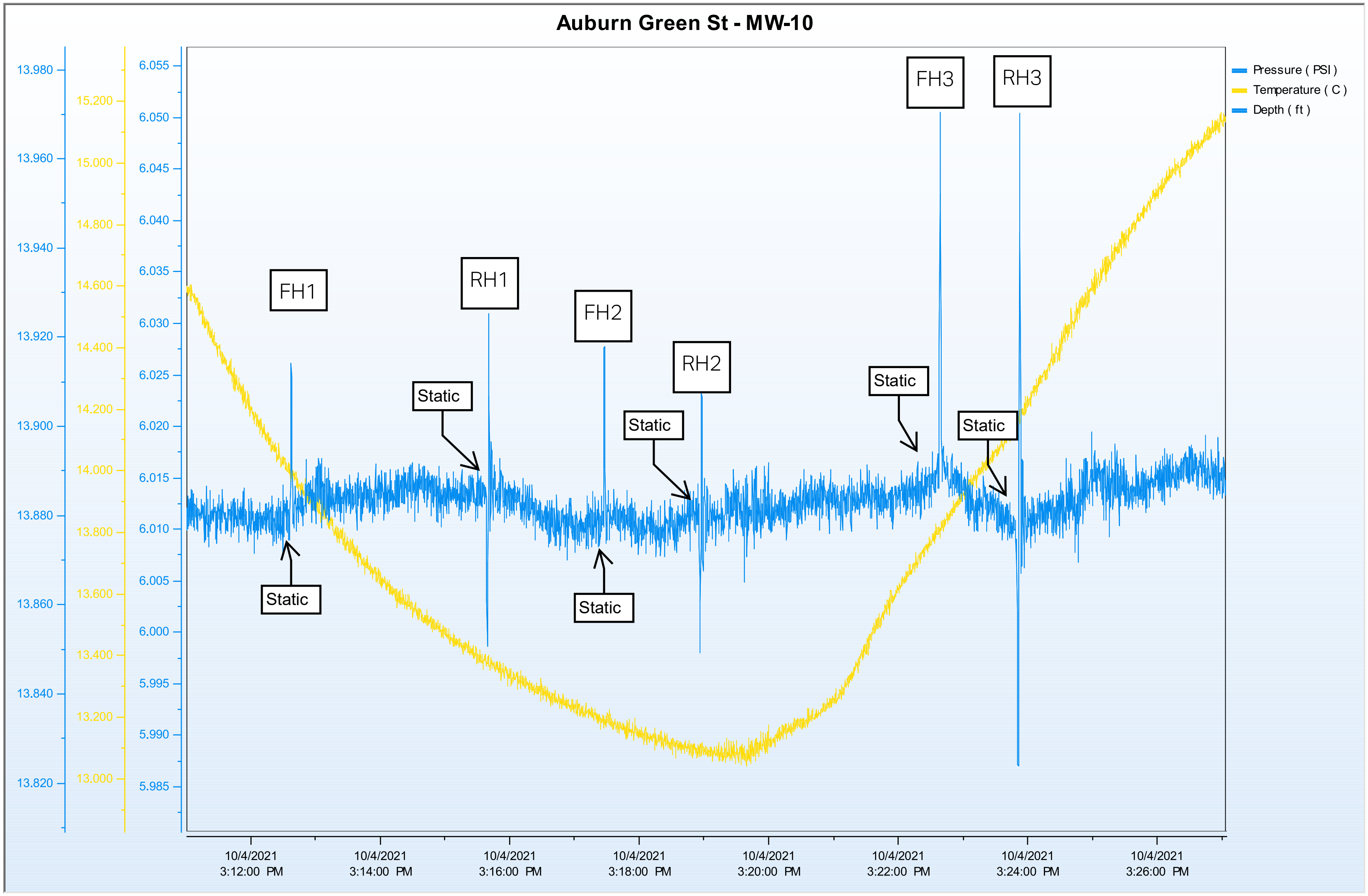
WELL DATA (MW-07)

Initial Displacement: 1. ft Static Water Column Height: 10.39 ft
Total Well Penetration Depth: 8.39 ft Screen Length: 8.39 ft
Casing Radius: 0.08 ft Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

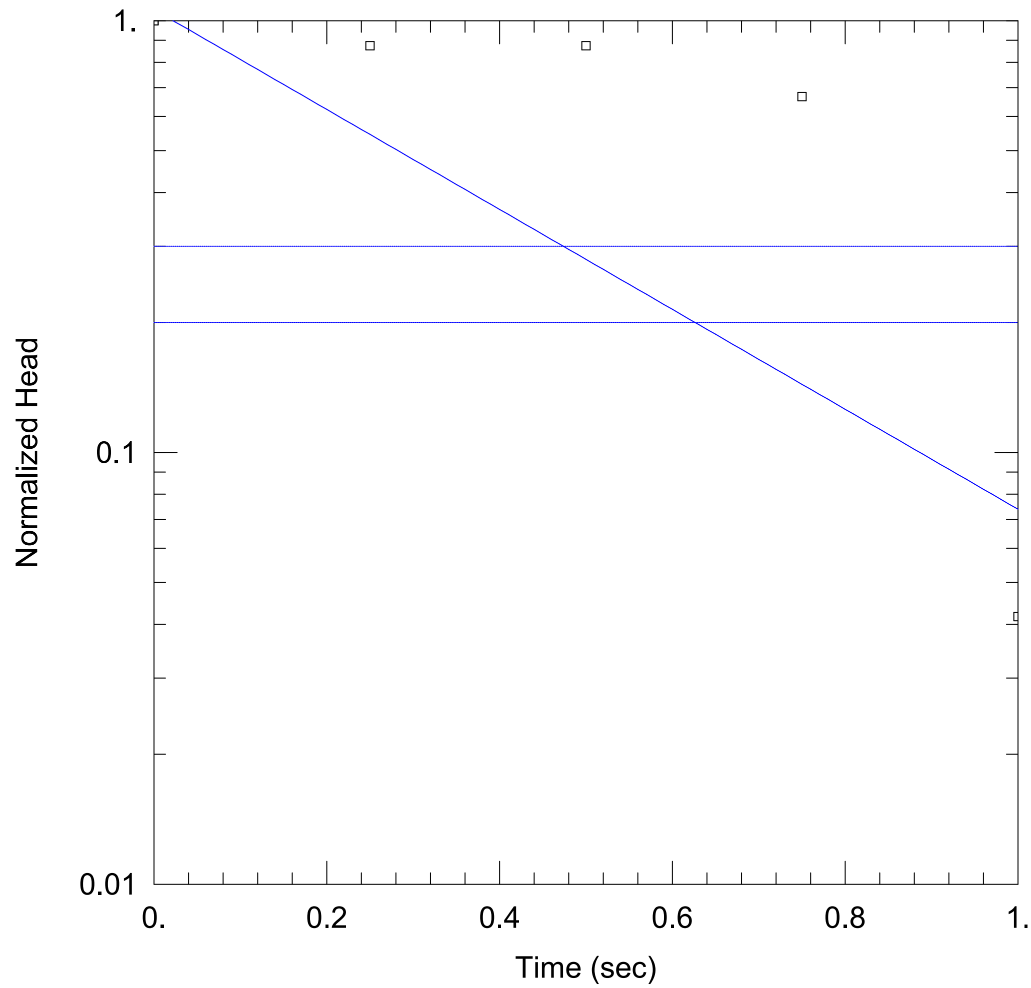
SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.003419 cm/sec y0 = 0.375 ft



Auburn Green St - MW-10
13.980
13.960
13.940
13.920
13.900
13.880
13.860
13.840
13.820
15.200
15.000
14.800
14.600
14.400
14.200
14.000
13.800
13.600
13.400
13.200
13.000
6.055
6.050
6.045
6.040
6.035
6.030
6.025
6.020
6.015
6.010
6.005
6.000
5.995
5.990
5.985
FH1
RH1
FH2
RH2
FH3
RH3
Static
Static
Static
Static
Static
Static
Pressure (PSI)
Temperature (C)
Depth (ft)
10/4/2021 3:12:00 PM
10/4/2021 3:14:00 PM
10/4/2021 3:16:00 PM
10/4/2021 3:18:00 PM
10/4/2021 3:20:00 PM
10/4/2021 3:22:00 PM
10/4/2021 3:24:00 PM
10/4/2021 3:26:00 PM



WELL TEST ANALYSIS

Data Set: L:\...\MW-10FH1.aqt
Date: 09/07/22 Time: 23:41:57

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 15.86 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-10)

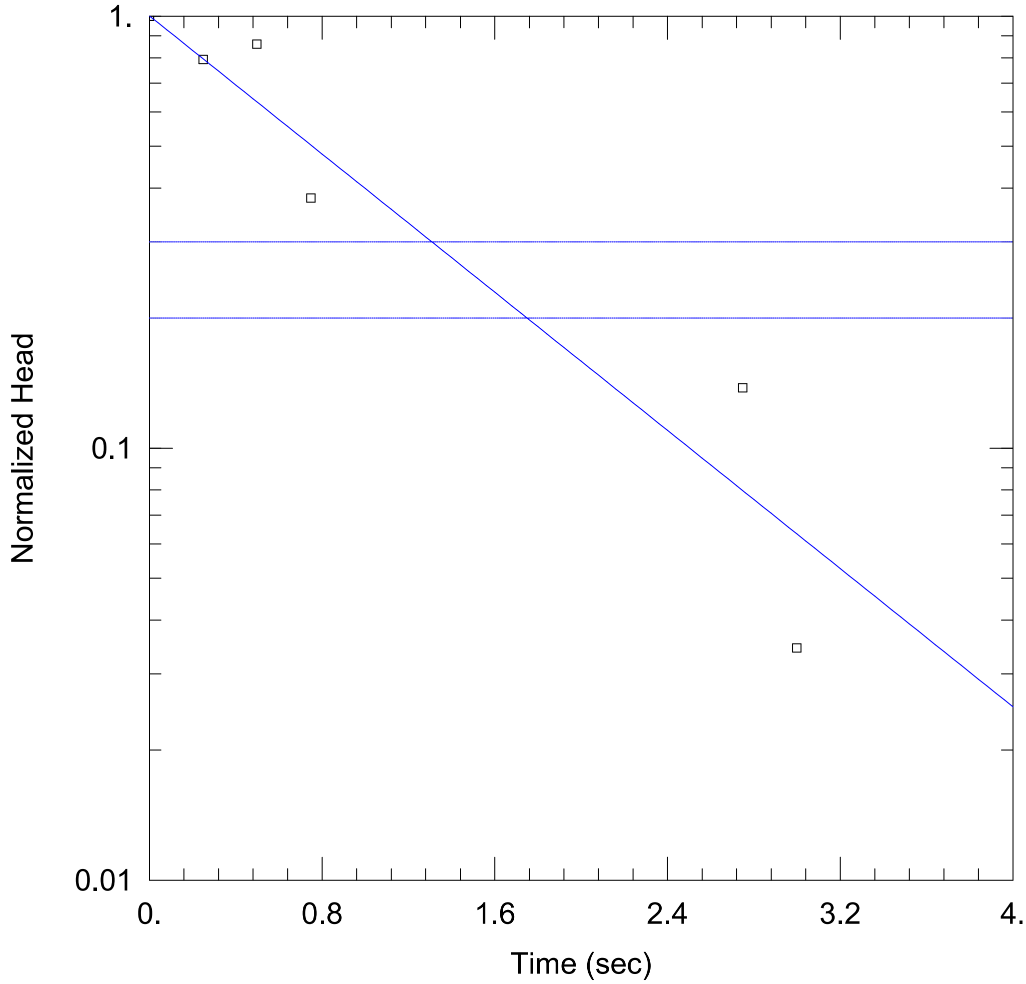
Initial Displacement: 1. ft
Total Well Penetration Depth: 13.86 ft
Casing Radius: 0.08 ft

Static Water Column Height: 15.86 ft
Screen Length: 10. ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.3947 cm/sec y0 = 1.061 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-10RH1.aqt
Date: 09/07/22 Time: 23:47:26

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 15.86 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-10)

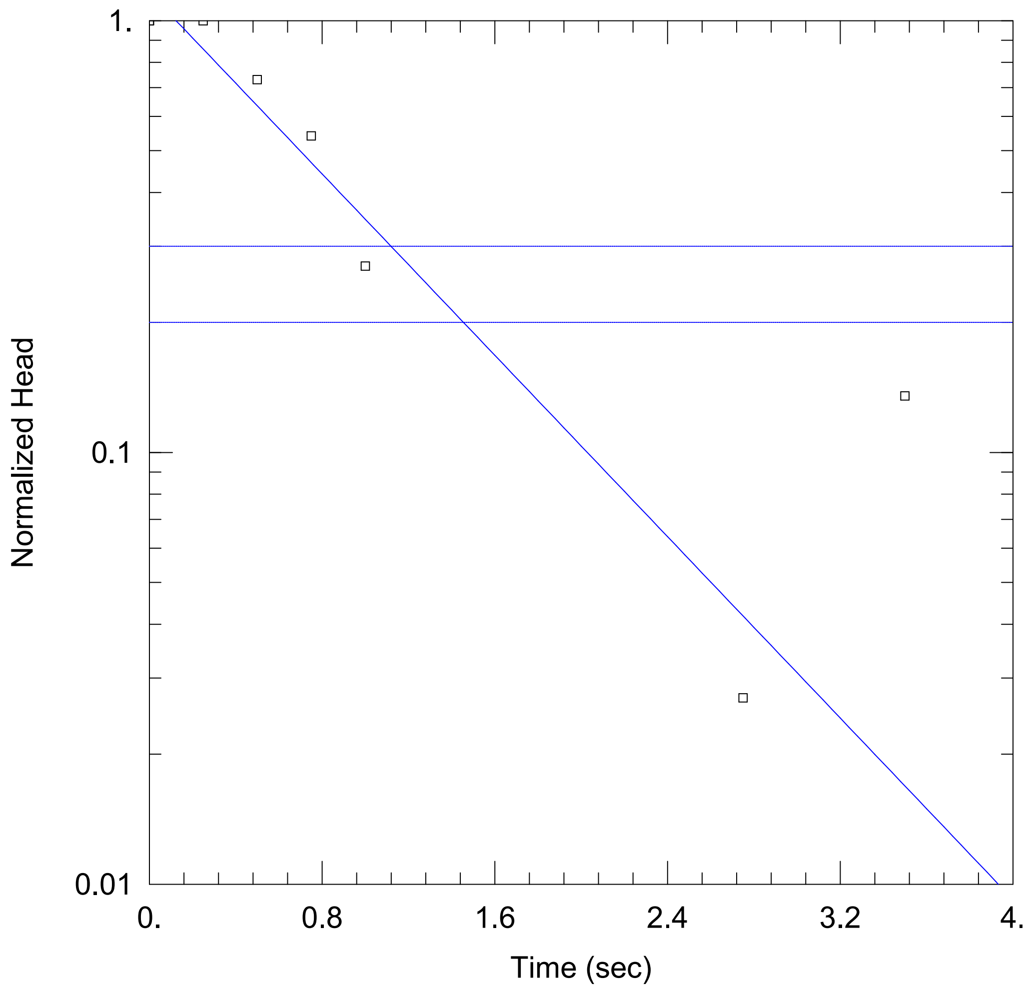
Initial Displacement: 1. ft
Total Well Penetration Depth: 13.86 ft
Casing Radius: 0.08 ft

Static Water Column Height: 15.86 ft
Screen Length: 10. ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1364 cm/sec y0 = 1.001 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-10FH2.aqt
Date: 09/07/22 Time: 23:51:55

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 15.86 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-10)

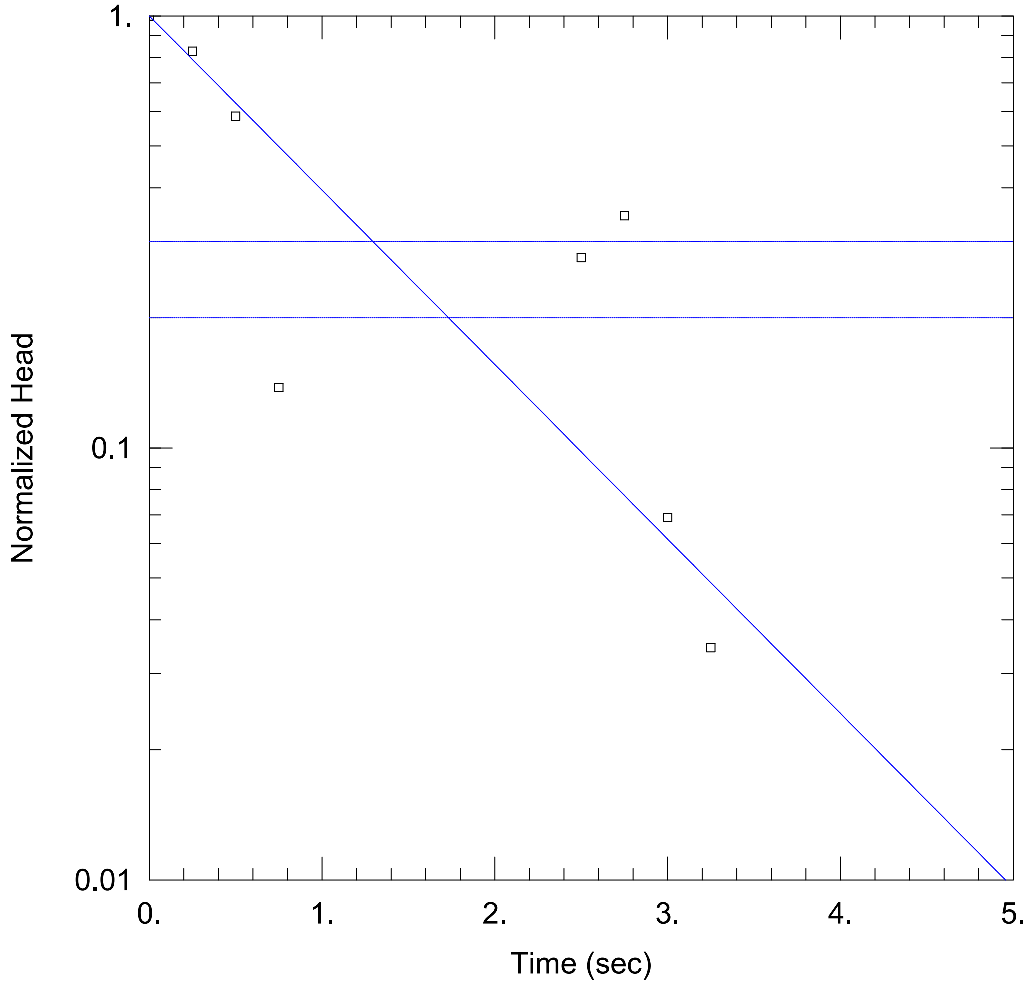
Initial Displacement: 1. ft
Total Well Penetration Depth: 13.86 ft
Casing Radius: 0.08 ft

Static Water Column Height: 15.86 ft
Screen Length: 10. ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1791 cm/sec y0 = 1.161 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-10RH2.aqt
Date: 09/07/22 Time: 23:58:22

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 15.86 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-10)

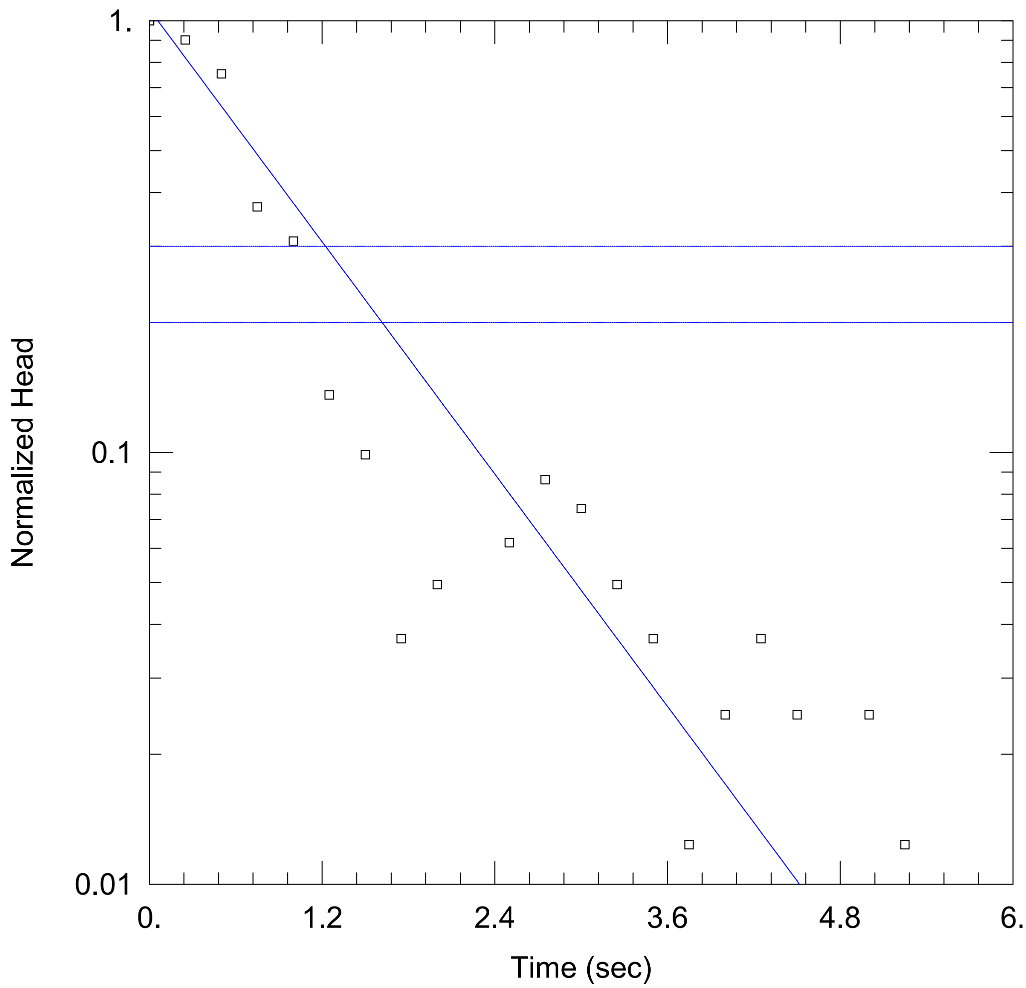
Initial Displacement: 1. ft
Total Well Penetration Depth: 13.86 ft
Casing Radius: 0.08 ft

Static Water Column Height: 15.86 ft
Screen Length: 10. ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1376 cm/sec y0 = 1. ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-10FH3.aqt
Date: 09/08/22 Time: 00:02:10

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 15.86 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-10)

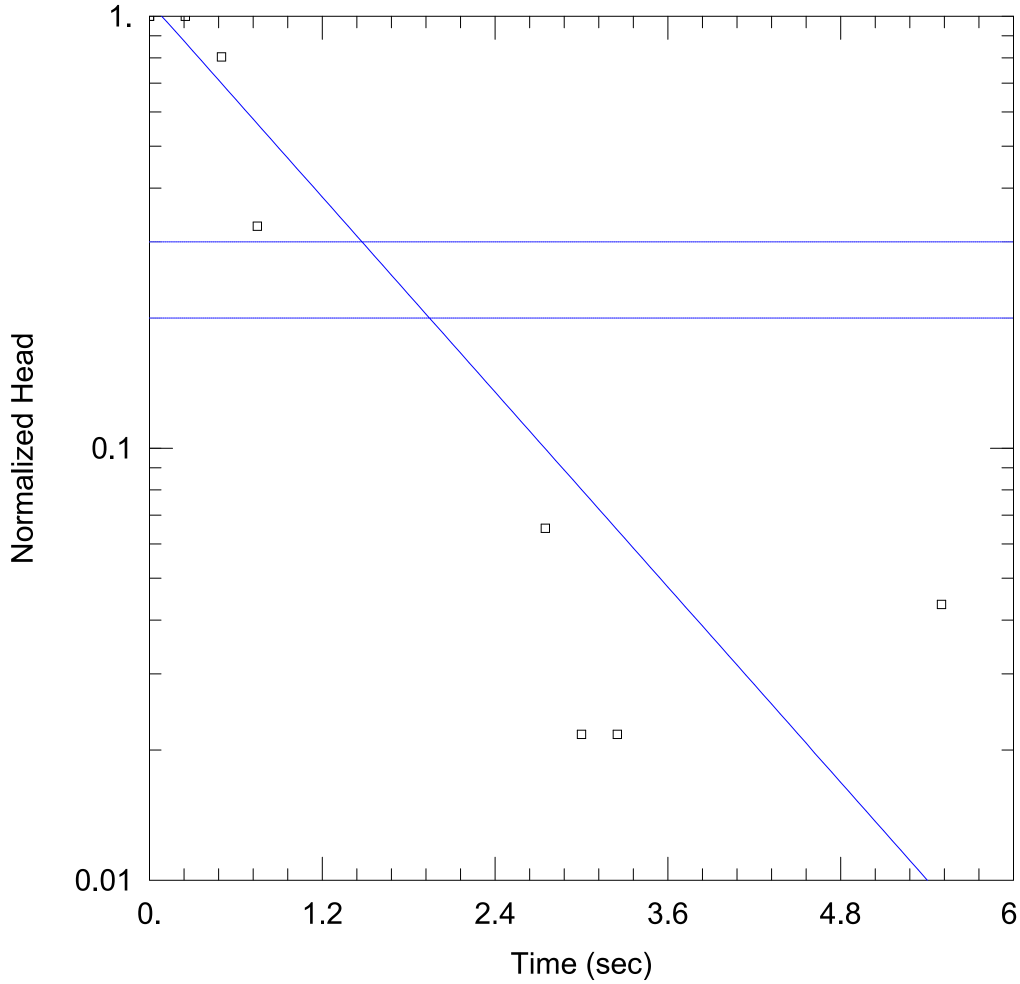
Initial Displacement: 1. ft
Total Well Penetration Depth: 13.86 ft
Casing Radius: 0.08 ft

Static Water Column Height: 15.86 ft
Screen Length: 10. ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.153 cm/sec y0 = 1.062 ft



WELL TEST ANALYSIS

Data Set: L:\...\MW-10RH3.aqt
Date: 09/08/22 Time: 00:06:20

PROJECT INFORMATION

Company: AECOM
Client: NYSEG
Location: Auburn Green Street
Test Well: MW-02
Test Date: 10/4/21

AQUIFER DATA

Saturated Thickness: 15.86 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-10)

Initial Displacement: 1. ft
Total Well Penetration Depth: 13.86 ft
Casing Radius: 0.08 ft
Static Water Column Height: 15.86 ft
Screen Length: 10. ft
Well Radius: 0.34 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.1283 cm/sec
y0 = 1.078 ft

SECTION 3:

MONITORING WELL DETAILS
AND
FIELD NOTES

AECOM

BORING LOG

Boring No.: SB01/MW- 1

PROJECT: NYSEG Auburn Green Street	Client: NYSEG		PAGE 1 OF 1
PROJECT No.: 60269784	LOCATION: North of high voltage area		DATE: 5/1/13
SURFACE ELEVATION: 666.5 ft	DATUM: NAVD88	DRILLER: EPSVT/Nothnagle	AECOM REP.: HAJ

WATER LEVELS			DRILLING AND SAMPLING				
DATE	TIME	DEPTH (ft bgs)		CASING	SAMPLER	CORE	TUBE
5/1/2013		5	TYPE		macrocore		
5/8/2013		6.45	I.D.		2 inch		
8/6/2013		5.99	WT./Fall	--	N/A		

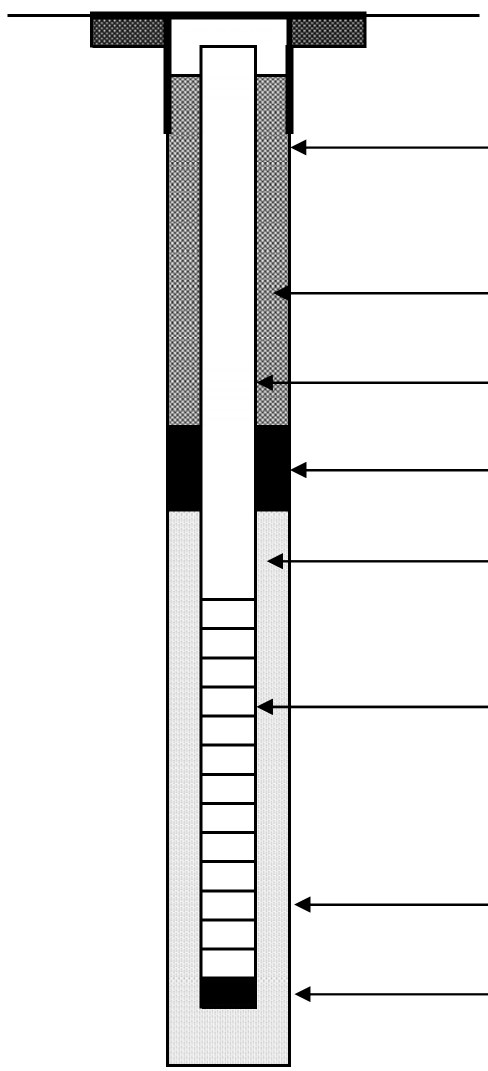
Depth (ft)	Sample Number & Time	Blows per/6"	Rec. (feet)	PID Readings (ppb)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
1 2 3 4					Precleared to 5 ft bgs - FILL: GRAVEL layer at surface followed by brown fine to medium SAND, some fine to coarse gravel, few brick fragments, loose, dry to moist.
5 6 7 8	SB01 (5-7) @ 1210	NA	2.5	1.1	Brown fine to medium silty SAND, some fine to medium angular gravel, loose, wet. Brown sandy (fine) SILT, some fine to medium angular gravel, medium-firm, wet.
9 10 11 12		NA	2.5	1.7	Brown sandy (fine) SILT, some fine to medium angular gravel, medium-firm, moist. Dark brown SILT, trace clay and fine gravel, firm, moist.
13 14 15 16		NA	3	2.1	Dark brown SILT, trace clay and fine gravel, medium-firm, wet. Brown fine to coarse angular GRAVEL, little fine to medium sand, and silt, loose, wet. Red-brown silty CLAY, very stiff, dry.
17 18 19		NA	2.5	3.3	Red-brown clayey SILT, some fine to medium rounded-subrounded gravel, very stiff, dry. Lens of rock at 19.4 ft bgs. Refusal on rock at 19.6 ft bgs.

MONITORING WELL DIAGRAM
SINGLE-CASED
FLUSH-MOUNT COMPLETION

Well No. MW-1

Project: NYSEG Auburn Green Street	Location: North of high voltage area	Page 1 of 1		
AECOM Project No.: 60269784	Subcontractor: EPSVT	Water Levels		
Surface Elevation: 666.5 Ft	Driller: Nothnagle	Date	Time	Depth
Top of PVC	Well Permit No.:	5/8/13		6.45
Casing Elevation: 666.1 Ft	AECOM Rep.: HAJ	8/6/13		5.99
Datum: NAVD 1988	Date of Completion: 5/1/13			

Locking protective flushmount with concrete pad



Ground Surface 0.0 ft

Well casing 0.0 ft bgs

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Cement-bentonite grout from N/A ft to N/A ft

Riser Pipe from 0.0 ft to 3.5 ft

Bentonite seal from 1.0 ft to 2.0 ft

Filter pack from 2.0 ft to 19.5 ft

Sand Size 0

Well screen from 3.5 ft to 18.5 ft

Diameter 2 inches
Slot size 0.01 inches
Type PVC

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Well sump from 18.5 ft to 19.5 ft

Bottom of Borehole at 19.6 ft

Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

(NOT TO SCALE)

AECOM

BORING LOG

Boring No.: SB11/MW-2

PROJECT: NYSEG Auburn Green Street			Client: NYSEG				PAGE 1 OF 1	
PROJECT No.: 60269784			LOCATION: Northeast of substation				DATE: 4/30/13	
SURFACE ELEVATION: 664.9 ft			DATUM: NAVD88		DRILLER: EPSVT/Nothnagle		AECOM REP.: HAJ	
WATER LEVELS			DRILLING AND SAMPLING					
DATE	TIME	DEPTH (ft bgs)		CASING		SAMPLER	CORE	TUBE
4/30/2013		9	TYPE			macrocore		
5/8/2013		7.86	I.D.			2 inch		
8/6/2013		7.52	WT./Fall	--		N/A		

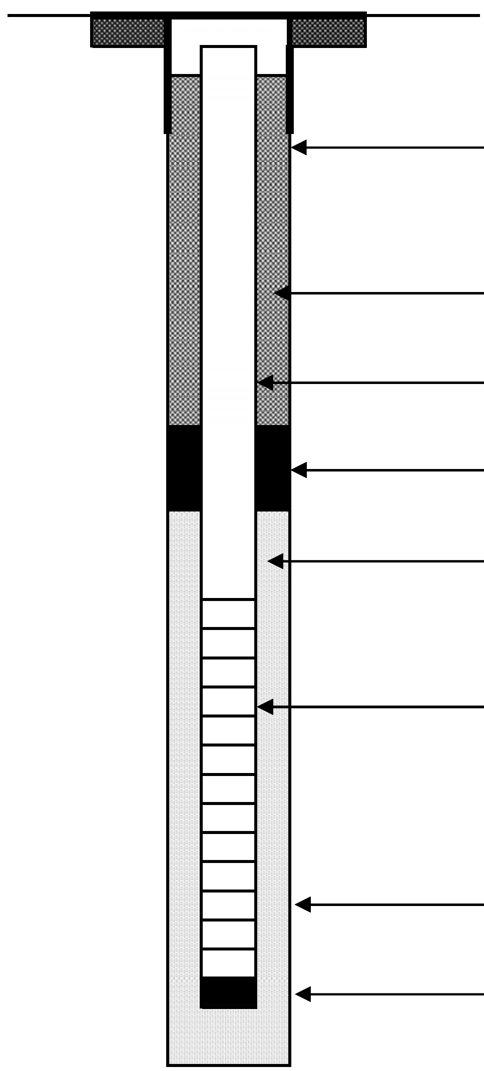
Depth (ft)	Sample Number & Time	Blows per/6"	Rec. (feet)	PID Readings (ppb)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
0–5					Precleared to 5 ft bgs - FILL: Brown fine to medium SAND, some coal fragments, little fine to coarse subangular gravel, trace silt, loose, moist.
5–9		NA	2	0.6	Brown fine to medium SAND, trace fine to medium angular gravel, trace silt, loose, moist. Brown SILT, some fine gravel, little clay, compact, moist. Dark brown fine to medium SAND, trace fine gravel, little brick fragments, loose, moist. Brown SILT, little fine to medium subrounded gravel and clay, trace fine to medium sand, compact, moist.
9–13	SB11 (9.1-13) @ 1210	NA	2	0.3	Dark brown silty fine to medium SAND, some fine gravel, little coal fragments, loose, wet. Dark red-brown silty CLAY, compact, dry.
13–17		NA	1	0.3	Red-brown silty CLAY, very stiff, dry, wet on outside of core.
17–18.5		NA	3	0.2	Red-brown sandy SILT and fine to coarse subangular GRAVEL, some shale fragments, very hard, wet. Refusal on rock at 18.5 ft bgs.

MONITORING WELL DIAGRAM
SINGLE-CASED
FLUSH-MOUNT COMPLETION

Well No. MW-2

Project: NYSEG Auburn Green Street	Location: Northeast of substation	Page 1 of 1		
AECOM Project No.: 60269784	Subcontractor: EPSVT	Water Levels		
Surface Elevation: 664.9 Ft	Driller: Nothnagle	Date	Time	Depth
Top of PVC Casing Elevation: 664.5 Ft	Well Permit No.:	5/8/13		7.86
	AECOM Rep.: HAJ	8/6/13		7.52
Datum: NAVD 1988	Date of Completion: 4/30/13			

Locking protective flushmount with concrete pad



Ground Surface 0.0 ft

Well casing 0.0 ft bgs

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Cement-bentonite grout from N/A ft to N/A ft

Riser Pipe from 0.0 ft to 6.0 ft

Bentonite seal from 2.0 ft to 4.0 ft

Filter pack from 4.0 ft to 18.0 ft

Sand Size 0

Well screen from 6.0 ft to 16.0 ft

Diameter 2 inches

Slot size 0.01 inches

Type PVC

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Well sump from 16.0 ft to 18.0 ft

Bottom of Borehole at 18.5 ft

Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

(NOT TO SCALE)

BORING LOG

Boring No.: SB04/MW- 4

PROJECT: NYSEG Auburn Green Street			Client: NYSEG			PAGE 1 OF 1	
PROJECT No.: 60269784		LOCATION: North of high voltage area				DATE: 5/2/13	
SURFACE ELEVATION: 666.5 ft		DATUM: NAVD88	DRILLER: EPSVT/Nothnagle			AECOM REP.: HAJ	
WATER LEVELS			DRILLING AND SAMPLING				
DATE	TIME	DEPTH (ft bgs)		CASING	SAMPLER	CORE	TUBE
5/2/2013		9.2	TYPE		macrocore		
5/8/2013		9.7	I.D.		2 inch		
8/6/2013		9.76	WT./Fall	--	N/A		

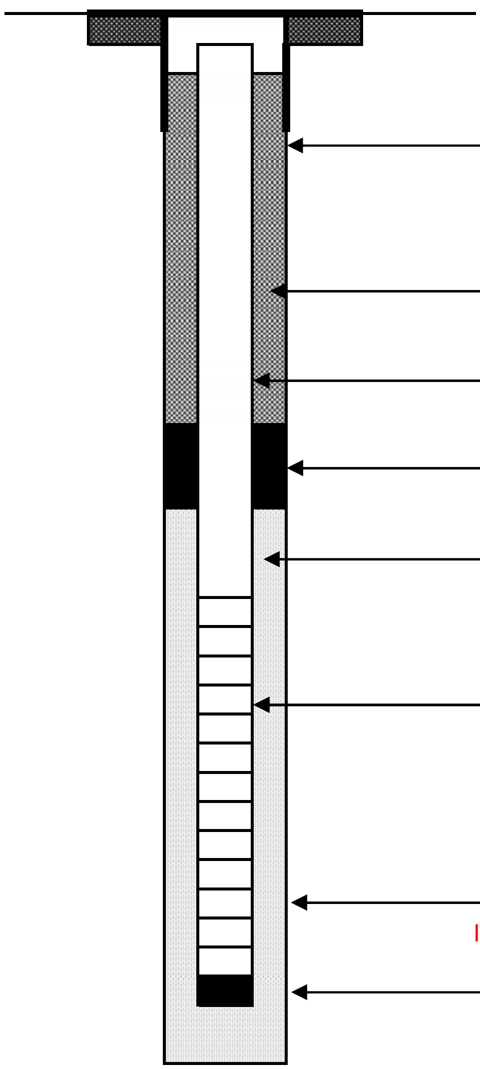
Depth (ft)	Sample Number & Time	Blows per/6"	Rec. (feet)	PID Readings (ppb)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
0-5					Precleared to 5 ft bgs - FILL: GRAVEL layer at surface followed by brown fine to medium SAND, some fine to coarse gravel, few brick fragments, loose, dry to moist.
5-9		NA	2.5	2.2	Brown silty fine to medium SAND, some fine angular gravel, moist. Brick fragments 6-6.2 ft bgs. Brown SILT, little fine gravel and fine sand, moist.
9-13	SB04 (9-11) @ 1015	NA	2.5	7.7	Brown SILT, little fine gravel and fine sand, moist. Brown silty fine to medium SAND, some fine to medium angular gravel, loose, wet. Brown sandy (fine to medium) SILT, some fine to medium angular gravel, medium-firm, wet.
13-17		NA	2.5	7.8 3.7	Brown sandy (fine to medium) SILT, some fine to medium angular gravel, medium-firm, wet. Red-brown clayey SILT, very stiff, moist to dry.
17-20	SB04 (18-20) @ 1025	NA	3.5	3.2	Red-brown clayey SILT, very stiff, moist to dry. Some fine to medium subangular gravel 19-20 ft bgs. Refusal on rock at 20 ft bgs.

MONITORING WELL DIAGRAM
SINGLE-CASED
FLUSH-MOUNT COMPLETION

Well No. MW-4

Project: NYSEG Auburn Green Street	Location: North of high voltage area	Page 1 of 1		
AECOM Project No.: 60269784	Subcontractor: EPSVT	Water Levels		
Surface Elevation: 666.5 Ft	Driller: Nothnagle	Date	Time	Depth
Top of PVC	Well Permit No.:	5/8/13		9.70
Casing Elevation: 666.2 Ft	AECOM Rep.: HAJ	8/6/13		9.76
Datum: NAVD 1988	Date of Completion: 5/2/13			

Locking protective flushmount with concrete pad



Ground Surface 0.0 ft

Well casing 0.0 ft bgs

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Cement-bentonite grout from N/A ft to N/A ft

Riser Pipe from 0.0 ft to 4.0 ft

Bentonite seal from 1.0 ft to 2.0 ft

Filter pack from 2.0 ft to 20.0 ft

Sand Size 0

Well screen from 4.0 ft to 19.0 ft

Diameter 2 inches

Slot size 0.01 inches

Type PVC

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Well sump from 19.0 ft to 20.0 ft

Bottom of Borehole at 20.0 ft

Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

(NOT TO SCALE)

BORING LOG

Boring No.: MW-7

PROJECT: NYSEG Auburn Green Street			Client: NYSEG			PAGE 1 OF 1	
PROJECT No.: 60269784		LOCATION: North of Substation				DATE: 4/15/14	
SURFACE ELEVATION: 665.5 ft		DATUM: NAVD88	DRILLER: EPSVT/Nothnagle			AECOM REP.: ELL	
WATER LEVELS			DRILLING AND SAMPLING				
DATE	TIME	DEPTH (ft bgs)		CASING	SAMPLER	CORE	TUBE
4/15/2014		11	TYPE		macrocore		
4/16/2014		7.2	I.D.		2 inch		
5/12/2014		7.62	WT./Fall	--	N/A		

Depth (ft)	Sample Number & Time	Blows per/6"	Rec. (feet)	PID Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
0–5				0.0 0.0 0.0 0.0 0.0	Precleared to 5 ft bgs - FILL: 0-1 ft: Brown SILT, little fine to medium sand, little fine to coarse gravel, no plasticity, loose, dry; 1-2 ft: Brown SIILT, some fine to coarse gravel, little fine to medium sand, no plasticity, loose, dry 2-5 ft: Same As Above Brick fragments trace brick/slag
5–9		NA	1.9	0.0 0.0	(0-11 in. of recovery): FILL -Brown SILT, some fine to coarse sand, little fine to coarse gravel, brick fragments, little plasticity, loose, moist. (11-23 in. of recovery): Brown SILTy, some fine to medium sand, little fine to medium gravel, moist compact, little plasticity.
9–13	MW-7 (9-11) @ 1340	NA	2.2	0.0 0.2	(0-13 in. of recovery): Same As Above, little plasticity, dry, compact (13-26 in of recovery): Medium to coarse GRAVEL, some silt, little fine to coarse sand, loose, wet. Estimate water table at 11 ft bsg.
13–17		NA	1.9	0.2 1.7	(0-6 in. of recovery): Same As Above, loose, wet. (6-23 in. of recovery): NATIVE Red-Brown SILT, little clay, little, plasticity, compact, dry.
17–18	MW-7 (17-18) @ 1415	NA	1.1	40.1	NATIVE Red-Brown SILT, little fine to medium gravel, no plasticity compact, dry.
					Bottom of Boring at 18' bsg.

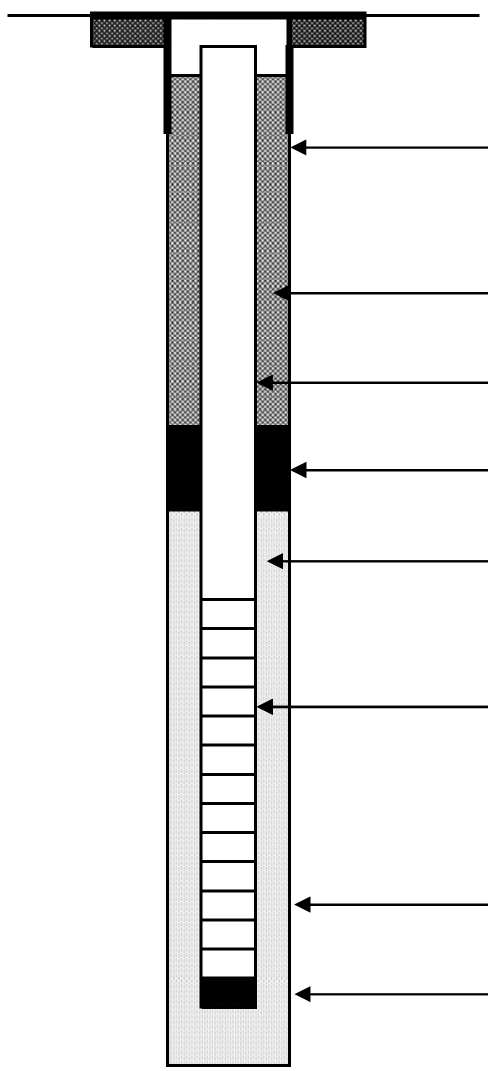
AECOM

MONITORING WELL DIAGRAM
SINGLE-CASED
FLUSH-MOUNT COMPLETION

Well No. MW-7

Project: NYSEG Auburn Green Street	Location: Northof substation	Page 1 of 1		
AECOM Project No.: 60269784	Subcontractor: EPSVT	Water Levels		
Surface Elevation: 665.5 Ft	Driller: Nothnagle	Date	Time	Depth
Top of PVC Casing Elevation: 665.0 Ft	Well Permit No.:	4/16/14		7.20
	AECOM Rep.: ELL	5/12/14		7.62
Datum: NAVD 1988	Date of Completion: 4/15/14			

Locking protective flushmount with concrete pad



Ground Surface 0.0 ft

Well casing 0.0 ft bgs

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Cement-bentonite grout from N/A ft to N/A ft

Riser Pipe from 0.0 ft to 6.0 ft

Bentonite seal from 2.0 ft to 4.0 ft

Filter pack from 4.0 ft to 18.0 ft

Sand Size 0

Well screen from 6.0 ft to 16.0 ft

Diameter 2 inches

Slot size 0.02 inches

Type PVC

Borehole diameter ~~4.25~~ inches

Installed with 4.25-inch ID Augers, therefore 8.25-inch hole- 10/7/22 RJM

Well sump from 16.0 ft to 18.0 ft

Bottom of Borehole at 18.0 ft

Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

(NOT TO SCALE)

AECOM

TEST BORING LOG

BORING NO. : MW-10	
PROJECT/PROJECT LOCATION: NYSEG Auburn Site	SHEET: 1 OF 1
CLIENT: NYSEG	JOB NO. : 60652550
BORING CONTRACTOR: Matrix	NORTHING: XXXX EASTING: XXXX
GROUNDWATER: 6.5 ft bgs	GROUND ELEVATION: XXXX
	DATE STARTED: 8/30/2021
	DATE FINISHED: 8/30/2021
	DRILLER: Pat Bliek
	GEOLOGIST: K. McGovern
	REVIEWED BY: J. Kaczor

DATE	TIME	LEVEL	TYPE		CAS.	SAMPLER	CORE	TUBE
				TYPE		Macrocore		
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		20	Gray		GRAVEL SUBBASE		0.0	Dry, No Odor, No Staining
					Red and Dark Gray		FILL: Gravel and Brick fragments, some to little coarse-fine Sand and Silt			
-5		2		20					0.0	Wet
-10		3		26					0.0	
-15		4		28			Trace coarse to fine Sand, no Silt		0.0	
-20		5		10					0.0	
							Refusal @ 21' bgs			
-25										

COMMENTS:
Boring advanced by Geoprobe® Model 6620DT

BORING NO. : MW-10

DRILLING SUMMARY

Geologist:
Kevin J. McGovern

Drilling Company:
Matrix

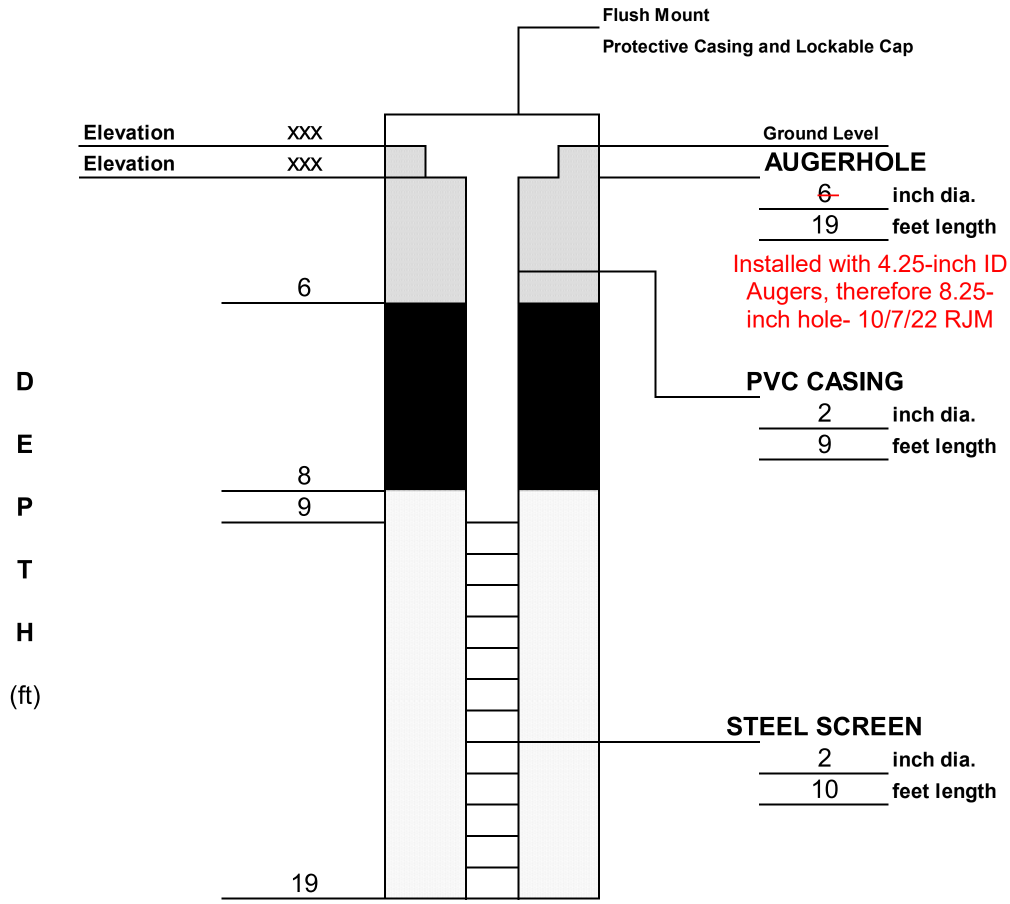
Driller:
Pat Bliek

Rig Make/Model:
Geoprobe® 6620DT

Date:
8/30/2021

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log for lithologic description.



WELL DESIGN

CASING MATERIAL		SCREEN MATERIAL		FILTER MATERIAL			
Surface:	Steel grade box	**Type:**	2" SCH 40 PVC	**Type:**	#00N Sand	**Setting:**	8' - 19'
				SEAL MATERIAL			
Monitor:	2" SCH 40 PVC	**Slot Size:**	.010"	**Type:**	Bentoinie Chips	**Setting:**	6' - 8'

COMMENTS:

LEGEND

Bagged Gravel (Quikrete #1151)

Bentonite Seal

Silica Sandpack

Client: NYSEG	**Location: Auburn Site**	**Project No.: 60652550**
AECOM	**MONITORING WELL CONSTRUCTION DETAILS**	**Well Number: MW-10**

Location AUBURN-GREEN STREET Date 10/4/2021

Project / Client AUBURN GREEN STREET - SLUG TESTS
NYSEG

0930 - R. MURPHY ARRIVES ONSITE. EMILY AU ALSO ONSITE
FOR GROUNDWATER SAMPLING.
WEATHER: 62°F, Light Rain
SETUP FOR SLUG TESTS.
1040 @ MW-02, DTW - 6.55, DTB - 18.30
WILL USE 2' Log x 1.5" PVC Slug.
1103 - START TEST - Slug in
1114 - static, pull slug @ 6.58
1126 - Slug in
1139 - Slug out static @ 6.55
1153 - stop test @ DTW @ 6.58
1202 . MW-07, DTW - 7.11, DTB 17.75
1208 - Slug (2' x 1.5") in,
- ignore noise, slug hit Datalogger cable on
way in, switch to 2' x 1.25" PVC slug.
1217, DTW - 7.10, pull slug
1227, DTW - 7.11, slug in.
1236 DTW - 7.11', slug out.
1242 - DTW - 7.11, stop test, mobe to MW-01
1255 - MW-01, DTW - 5.45, DTB - 18.74
1304 - Slug in (2' x 1.25")
13.12 - DTW - 5.45, Pull slug out
1354 STATIC @ 5.53. Slug IN
1432 DTW - 5.53 - Slug out

Location AUBURN-GREEN STREET Date 10/4/2021

Project / Client AUBURN GREEN STREET - SLUG TESTS
NYSEG

1456 - DTW - 5.55 STOP TEST.
1508 - MOBE TO MW-10
DTW - 4.84, DTB - 18.80'
Set log to 0.25 second intervals
Use slug (2' x 1.25")
1515 - SLUG IN
1518 - Slug out
1519 - Slug in
1521 - Slug out
1525 - Slug in (4' x 1")
1526 - Slug out.
1532 MOBE TO MW-~~04~~
DTW - 8.07, DTB - 19.49
1539 - LEVEL @ 8.02 after inserting datalogger
1548 - DTW @ 8.03, START TEST
1551 - SLUG IN (2' x 1.25")
1602 - DTW - 7.80'
1622 DTW - 7.85'
1634 DTW 7.89
1643 DTW 7.92
1655 DTW 7.96, Consider Done, Pull slug.
1714 DTW - 8.22, 1730 DTW = 8.23
1739 - DTW = 8.26 - STOP TEST
1815 - CLEAN UP - DEPART SITE.

SECTION 4:

REFERENCES

The Bouwer and Rice Slug Test — An Update[a]

by Herman Bouwer[b]

ABSTRACT

The Bouwer and Rice slug test was developed to measure aquifer hydraulic conductivity around boreholes (production, monitoring, or test wells). The wells can be partially penetrating and partially screened, perforated, or otherwise open. The slug test can be based on quickly withdrawing a volume of water from the well and measuring the subsequent rate of rise of the water level in the well, or by adding a slug of water and measuring the subsequent rate of fall of the water level in the well. While originally developed for unconfined aquifers, the method can also be used for confined or stratified aquifers if the top of the screen or perforated section is some distance below the upper confining layer. Anomalies ("double straight line effect") sometimes observed in the measured rate of rise of the water level in the well are attributed to drainage of a gravel pack or developed zone around the well following lowering of the water level. The effect of this drainage can be eliminated by ignoring the early data points and using the second straight line portion in the data plot for calculation of hydraulic conductivity. The method is applicable to any diameter and depth of the borehole, provided that the dimensions of the system are covered by the ranges for which the geometry factor R_e has been worked out. The smaller the diameter of the hole, however, the more vulnerable the results will be to aquifer heterogeneities and to inaccuracies in estimating effective well diameters. Computer programs for rapid processing of the field data have been developed.

[a]Contribution of the U.S. Department of Agriculture, Agricultural Research Service.

[b]Laboratory Director, U.S. Water Conservation Laboratory, Phoenix, Arizona 85040.

Received December 1986, revised August 1988, accepted September 1988.

Discussion open until November 1, 1989.

INTRODUCTION

The slug test developed by Bouwer and Rice (1976) permits the measurement of saturated hydraulic conductivity (K) of aquifer materials with a single well. The method consists of quickly lowering or raising the water level in a well or borehole from equilibrium and measuring its subsequent rate of rise or fall, respectively. The method was designed to measure K of the aquifer around the screen or otherwise open portion of the well for fully or partially penetrating wells in unconfined aquifers. Because of its simplicity, the Bouwer and Rice slug test has become a frequently used tool in ground-water investigations. This paper addresses some of the experiences obtained with the method, including the validity of falling level tests, use of the method in confined aquifers, effect of draining gravel packs on the rise of the water level, effect of hole diameter, and computer processing of field data.

METHODOLOGY

Geometry and symbols of a slug-tested well are shown in Figure 1. The rate of flow of ground water into the well when the water level in the well is a distance y lower than the static ground-water table around the well is calculated with the Thiem equation as

$$Q = 2\pi K L_e \frac{y}{\ln(R_e/r_w)} \qquad (1)$$

where Q = volume rate of flow into well; K = hydraulic conductivity of aquifer around well; L_e = length of screened, perforated, or otherwise open section of well; y = vertical difference between water level inside well and static water table outside

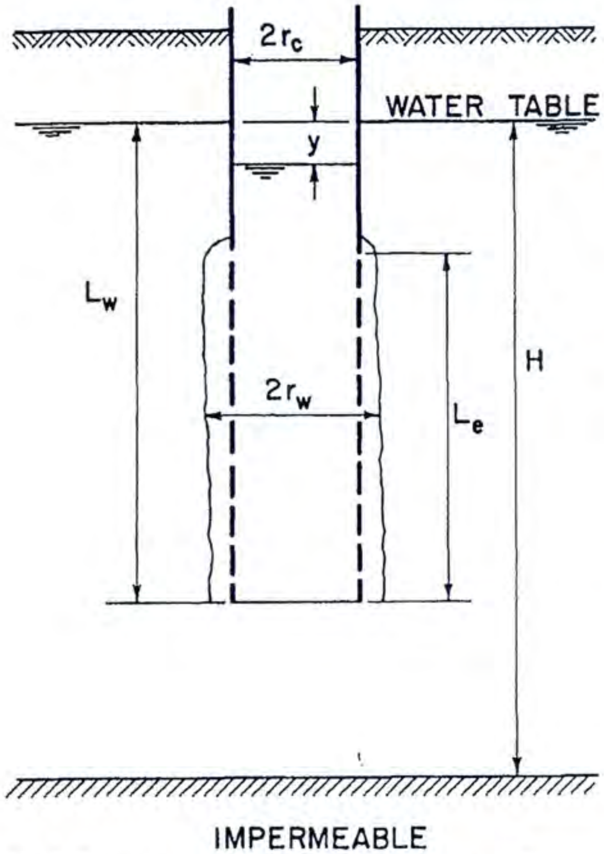


Fig. 1. Geometry and symbols for slug test on partially penetrating, partially screened well in unconfined aquifer with gravel pack and/or developed zone around screen.

well; R_e = effective radial distance over which y is dissipated; and r_w = radial distance of undisturbed portion of aquifer from centerline.

Values of R_e were determined with an electrical resistance network analog for different values of r_w, L_e, L_w, and H (see Figure 1 for meaning of geometry symbols). The value of r_w is the radius of the screened or open section of the well plus the thickness of a sand or gravel pack and/or of the developed zone around the well. Thus, r_w is the radial distance from the center of the well to normal K of the aquifer. Because the thickness of the developed zone is almost never known, the tendency is to ignore it and take only gravel or sand packs into account.

The rate of rise dy/dt of the water level in the well after the water level has been quickly lowered some distance is

$$\frac{dy}{dt} = -\frac{Q}{\pi r_c^2} \tag{2}$$

where r_c is the radius of the casing or other section of the well where the rise of the water level is measured. If the water level rises in the screened or open section of the well with a gravel pack around it, the thickness and porosity of the gravel envelope should be taken into account when calculating the equivalent value of r_c for the rising water level. This calculation is based on the total free-water surface area in the well and sand or gravel pack, calculated as $\pi r_c^2 + \pi(r_w^2 - r_c^2)n$, where n is the porosity, and $r_w - r_c$ is the thickness of the envelope. The equivalent radius of a circle giving this total area is then calculated as $[(1-n)r_c^2 + nr_w^2]^{1/2}$. For example, if the radius of the screen or perforated casing is 20 cm and there is 8 cm gravel pack with a porosity of 30 percent, r_c should be taken as 25.9 cm, while r_w is 28 cm.

Solving equation (2) for Q, equating the resulting expression to equation (1), integrating, and solving for K yields

$$K = \frac{r_c^2 \ln(R_e/r_w)}{2L_e}\frac{1}{t}\ln\frac{y_0}{y_t} \tag{3}$$

where y_0 = y at time zero; and y_t = y at time t.

The results of the analog analyses to evaluate R_e for various system geometries were expressed in terms of the dimensionless ratio $\ln(R_e/r_w)$. The data could be fitted into two equations, one for the case where $L_w < H$, and one where $L_w = H$. The resulting equations were, respectively,

$$\ln\frac{R_e}{r_w} = \left[\frac{1.1}{\ln(L_w/r_w)} + \frac{A + B\ln[(H - L_w)/r_w]}{L_e/r_w}\right]^{-1} \tag{4}$$

and $$\ln\frac{R_e}{r_w} = \left[\frac{1.1}{\ln(L_w/r_w)} + \frac{C}{L_e/r_w}\right]^{-1} \tag{5}$$

where A, B, and C are dimensionless numbers plotted in Figure 2 as a function of L_e/r_w.

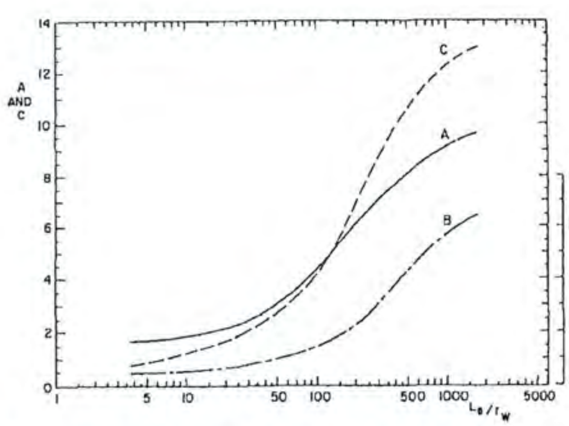


Fig. 2. Dimensionless parameters A, B, and C as a function of L_e/r_w for calculation of $\ln(R_e/r_w)$.

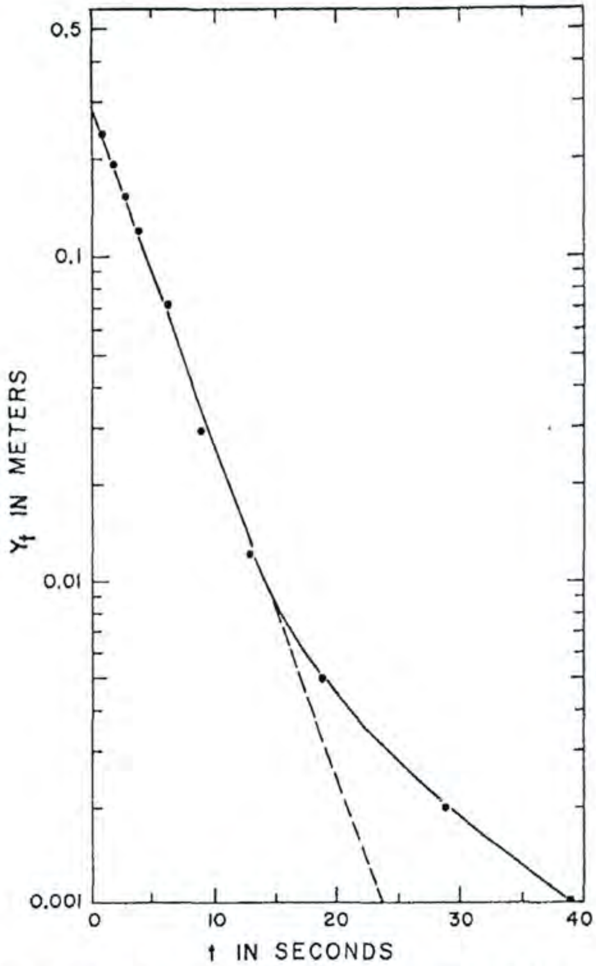


Fig. 3. Graph of log y_t versus t for slug test on well in Salt River Bed, 27th Avenue, Phoenix, Arizona.

Because y and t are the only variables in equation (3), a plot of ln y_t versus t must show a straight line. Thus, instead of calculating K on the basis of two measurements of y and t (y_0 at t = 0 and y_t at t), a number of y and t measurements can be taken and $[\ln(y_0/y_t)]/t$ determined as the slope of the best-fitting line through the y versus t points on semilogarithmic paper (Figure 3). The straight line through the data points can also be used to select two values of y, namely, y_0 and y_t, along with the time interval t between them for substitution into equation (3). Because drawdown of the ground-water table around the well becomes increasingly significant as the test progresses, the points as in Figure 3 begin to deviate from the straight line for large t and small y. Thus, only the straight line portion of the data points should be used to evaluate $[\ln(y_0/y_t)]/t$ for calculation of K with equation (3).

The slug test can be used on production wells, test wells, observation wells, and monitoring wells. Objectives for the measurements include characterization of aquifer hydraulic conductivity for modeling, ground-water recharge studies, and ground-water pollution studies. The method is particularly useful in ground-water contamination studies because the slug test can be carried out on the same wells used for ground-water quality monitoring. Also, combining the resulting values of hydraulic conductivity with the porosity of the aquifer and slopes of the ground-water table or piezometric surface permits the prediction of pore-water velocities and, hence, the rate of movement of pollution plumes and transport of contaminants. The slug test can also be useful in determining vertical distribution of hydraulic conductivities in an aquifer system and other spatial variability of hydraulic conductivity in studies of macrodispersion and movement of contaminants.

Over the years, a number of questions and comments about the slug test have been received. These questions and comments are addressed in the following sections.

DOUBLE STRAIGHT LINE EFFECT

Users of the slug test have observed that when plotting log y_t versus t as in Figure 3, they sometimes get a double straight line as shown schematically in Figure 4. The first part (AB) is straight and steep, whereas the next part (BC) is straight and less steep. Then, at point C, the points begin their expected deviation from the straight line as

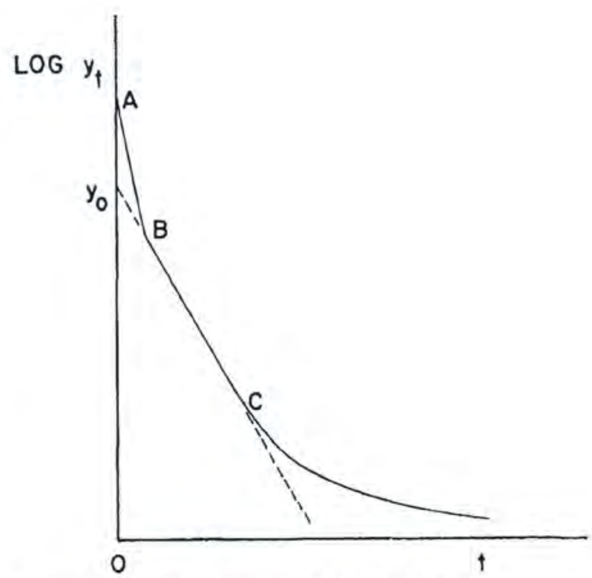


Fig. 4. Schematic of double straight line effect.

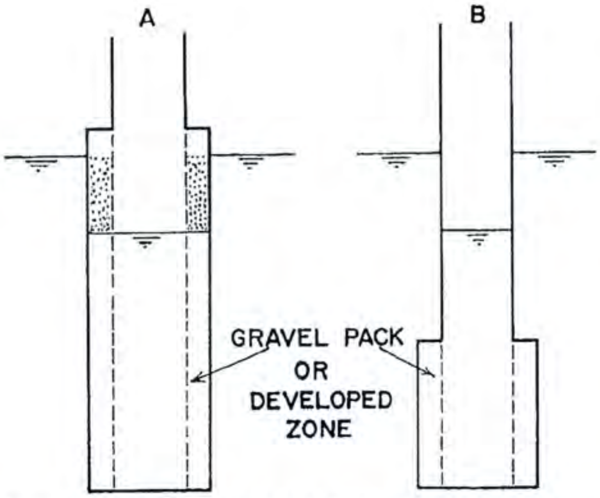


Fig. 5. Slug test for borehole with ground-water level below (A), and above (B) top of screen or perforated section.

the drawdown around the hole becomes significant relative to y_t. The first straight line portion in Figure 4 is probably due to a highly permeable zone around the well (gravel pack or developed zone), which quickly sends water into the well immediately after the water level in the well has been lowered (Figure 5A). Then, when the water level in the permeable zone around the well has drained to the water level in the well itself, the flow into the well slows down and the points begin to form a second, less steep, straight line (BC in Figure 4). This second straight line is more indicative of the flow from the undisturbed aquifer into the well. Hence, segment BC should be used in calculating K of the aquifer with equation (3). In the original 1976 article, gravel envelopes or developed zones were assumed to drain at the same rate as the water level in the borehole when it is lowered for the slug test, i.e., essentially instantaneously. However, some gravel packs or developed zones apparently are not permeable enough to give such instantaneous drainage.

If the ground-water table is above the screened or open section of the borehole, and the water level in the hole is not lowered so far that it drops below the top of the open section (Figure 5B), the gravel envelope or developed zone around the open section cannot drain. The inflow into the hole then is immediately controlled by the aquifer, and the double straight line effect should not occur. If it still occurs, it could indicate leakage around the casing or grouting above the gravel pack.

Where the double straight line is due to a gravel pack around the well, the effective well radius r_w should be taken as the radial distance from the center of the well to the outer surface of the gravel pack. Where the double straight line is due to a naturally developed zone around the well, r_w is harder to evaluate and an "intelligent" estimate must be made. It may also be possible to estimate r_w from the value of y at point B in Figure 4. Considering the volume of water in the well between y_A and y_B in Figure 4 to be due to the drainage of the gravel pack or developed zone, and knowing or estimating the drainable porosity of the gravel pack or developed zone, the radial extent of this zone can be calculated for evaluation of r_w. Capillary fringe effects do not have to be considered, since the capillary fringe was also present in the pack or in the developed zone before the water level was lowered. Because the rising water level in the hole during the slug test will also fill up the drained pore space of the gravel pack or developed zone, the value of r_c in the equation for calculation of K should be adjusted to take this effect into account, as discussed earlier in this article.

Conceivably, a well could have a gravel pack surrounded by a less permeable developed zone before the original aquifer material is reached. This could lead to a triple straight line effect, with an intermediate straight line portion at point B, or a curved transition zone at B if the hydraulic conductivity of the developed zone gradually decreases until K of the original aquifer material is reached. By the same token, portion AB in Figure 4 could also be curved if the hydraulic conductivity of the gravel pack or developed zone immediately around the well decreases with radial distance from the well.

FALLING WATER LEVEL TEST

The slug test was developed for a rising water level in the borehole, as obtained by quick removal of a certain volume or slug of water. This can be achieved by bailing, (quick) pumping, or by immersing a section of pipe filled with sand or other ballast and closed with caps on both ends, or other submersible object, in the borehole, letting the water level in the borehole return to equilibrium, and quickly removing the submerged object. The question is often raised: can the method also be used when a volume of water is quickly added to the hole and the subsequent rate of fall of the water level in the hole is measured for calculation of K? The answer is yes, provided that the equilibrium water level is above the screened or open section of the borehole (Figures 1 and 5B). In this

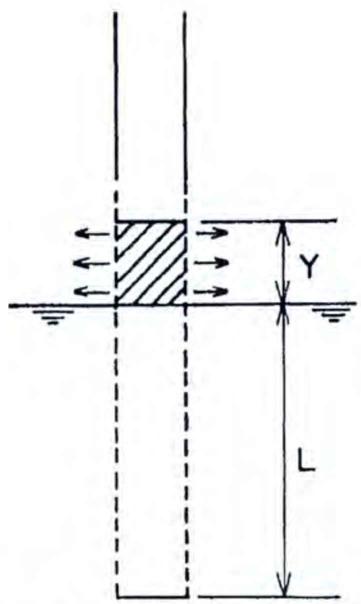


Fig. 6. Schematic of addition of water (hatched section) to borehole with equilibrium water level below top of screen or perforated section, with outflow of water into vadose zone (horizontal arrows).

case, the outflow from the well due to the falling water level occurs only through the screened or open section of the well, and the flow system in the aquifer is a true reverse of the flow system for the rising water level after a slug of water has been removed (ignoring, of course, eventual rises and drawdowns of the ground-water table immediately around the borehole if the aquifer is unconfined). Thus, equations (3), (4), and (5) are also applicable to the addition of a slug of water and measuring the subsequent rate of fall of the water level in the borehole for calculation of K of the aquifer around the hole.

If the equilibrium water level in the borehole is below the top of the screen or open section (Figure 6), and water is added (hatched section in Figure 6), the subsequent flow of water into the aquifer due to the falling water level not only takes place through the screen or perforations below the original water table, but also through the vadose zone above the original water table (arrows in Figure 6). This increases the rate of fall of the water level in the borehole beyond that caused by inflow into the aquifer and leads to an overestimation of K. The greater the ratio of y/L (Figure 6) in this case, the more the slug test will overestimate K if the measurement is based on adding water to the hole and measuring the subsequent rate of fall of the water level.

APPLICATION OF SLUG TEST TO CONFINED AQUIFERS

Theoretically, the slug test (Bouwer and Rice, 1976) applies to aquifers where the upper boundary is a plane source (rising water-level test) or sink (falling water-level test), as in an unconfined aquifer. However, because most of the head difference y between the static water table and the water level in the well is dissipated in the vicinity of the well around the screen or perforated section, the method should also be applicable to situations where the upper boundary of the aquifer is an impermeable or semipermeable plane, i.e., an impermeable or semipermeable upper confining layer. Thus the slug test should also give reasonable values for K in confined, semiconfined, or stratified aquifers. Theoretically, the larger the distance between the top of the screened or open section of the well and the upper confining layer (like $L_w - L_c$ in Figure 1), the more accurate the resulting values of K will be. In actuality, however, source boundaries of ground water flowing into the well in response to lowering the water level are hard to define because of elastic deformation of aquifer material and confining and interbedded fine-textured layers, and because of leakage through semiconfining layers.

EFFECT OF WELL DIAMETER

Theoretically, the Bouwer and Rice slug test applies to any diameter of the borehole. Practically, the hole dimensions should be selected so that the geometry parameters are covered by Figure 2. The larger r_w and L_e (Figure 1), the larger the portion of the aquifer on which K is determined. For layered aquifers, smaller values of L_e may sometimes be preferable because they give more resolution and more information about the vertical distribution of K when the slug test is carried out at different depths. Very small hole diameters (for example 2 in. or 5 cm) should still give accurate values for K, but the values apply to only a small region around the well and, hence, are more sensitive to spatial variability. Also, inaccuracies in the estimates of the thickness of gravel envelopes and developed zones have a greater effect on the calculated values of K where r_c is small than where r_c is large.

PROCESSING OF y VERSUS t MEASUREMENTS

To calculate $1/t \ln(y_0/y_t)$ for the appropriate straight line portion of curves as in Figure 3 or 4, two values of y on the straight line and their corresponding values of t are read from the graph. The natural logarithm of the ratio y_0/y_t is then taken and divided by the difference between the two values of t. For example, Figure 3 shows that at y is 0.28 m and 0.001 m, t is 0 and 24 seconds, respectively. This yields $1/t \ln(y_0/y_t) = 1/24 \ln(0.28/0.001) = 0.23$ m/sec. If $1/t \ln(y_0/y_t)$ is calculated from the slope of the curve, the number of log cycles on the vertical scale between the two points is divided by the time increment and multiplied by 2.3 to convert to natural logarithm. For example, Figure 3 shows that the straight line from $y_0 = 0.28$ m to $y_t = 0.001$ m covers 2.4 log cycles. The time increment between the two points is again 24 seconds, yielding $1/t \ln(y_0/y_t) = 2.3 \times 2.4/24 = 0.23$ m/sec, which is the same as calculated earlier. Because of different coordinate scales in plots of log y versus t, the value of $1/t \ln(y_0/y_t)$ cannot be taken as the actual slope of the straight line portion!

ESTIMATING RATE OF RISE OR FALL OF WATER LEVEL IN WELL

If the water level in a slug-tested well rises or falls at a relatively slow rate, simple water-level measuring devices and a stop watch may be all that is needed to do the test. Fast-moving water levels, however, require the use of a pressure transducer and a fast-acting x-y plotter. To get some idea about the rate of water-level movement that can be expected in a slug-tested well and what equipment to use, equation (3) can be solved for t and $\ln(y_0/y_t)$ can be taken as ln 10 to calculate the time $t_{90\%}$ required for the water level in the well to rise or fall 90% of the initial lowering or raising, respectively, of the water level in the well. This yields the equation

$$t_{90\%} = 1.15 \frac{r_c^2}{KL_e} \ln \frac{R_e}{r_w} \qquad (6)$$

where K must be taken as the estimated or expected value of K of the aquifer. Equation (6) yields values of t that are 22 times greater than the t values calculated by the $t_{90\%}$ equation in the original article (Bouwer and Rice, 1976), where $\ln(y_0/y_t)$ was erroneously taken as ln 0.9, thus yielding the time required for only 10% of the water-level rise or fall to occur.

COMPUTER PROGRAMS

Where the Bouwer and Rice slug test is routinely used, time for calculating K with equation (3) is saved by developing a computer program in which values of L_e/r_w are stored for direct calculation of $\ln(R_e/r_w)$ and K from the field data. Such programs have been developed by several users (see, for example, Pandit and Miner, 1986; and Kemblowski and Klein, 1988). Also, a number of users have designed forms for easy and systematic recording of field data.

REFERENCES

Bouwer, H. and R. C. Rice. 1976. A slug test for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells. Water Resources Research. v. 12, pp. 423-428.

Kemblowski, M. W. and C. L. Klein. 1988. An automated numerical evaluation of slug test data. Ground Water. v. 26, pp. 435-438.

Pandit, N. S. and R. F. Miner. 1986. Interpretation of slug test data. Ground Water. v. 24, pp. 743-749.

* * * * *

Herman Bouwer received B.S. and M.S. degrees in 1949 and 1952 in Drainage, Reclamation, and Irrigation from the National Agricultural University at Wageningen, The Netherlands, and a Ph.D. degree in 1955 in Soil and Water Management from Cornell University, New York. He was associated with the Agricultural Engineering Department of Auburn University, Alabama, from 1955 to 1959, before joining the U.S. Water Conservation Laboratory in Phoenix, Arizona, where he became Director in 1972. In 1970, he also was appointed Adjunct Professor at Arizona State University in Tempe where he taught Ground-Water Hydrology in the Geology and Civil Engineering Departments. He is also an Adjunct Professor at the University of Arizona in Tucson.

Attachment 3

AECOM

Data Usability Report

NYSEG/Auburn Green Street Former MPG Site
Eurofins Environmental Laboratory Data,
November 2022 - FINAL

NYSEG

Project number: 60652550

November 11, 2022

Delivering a better world

Quality information

Prepared by	Verified by
Ann Marie Kropovitch, Chemist	Peter R. Fairbanks, Senior Chemist

Prepared for:

NYSEG
Binghamton, NY

Prepared by:

AECOM
Amherst, NY

Table of Contents

Executive Summary

Overview

Data validation was performed by Ann Marie Kropovitch of AECOM-Amherst on data packages from Eurofins - Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298 for the analysis of groundwater and soil samples collected on September 28, 2021 thru October 4, 2022 at the NYSEG/Auburn Green Street Former Manufactured Gas Plant (MGP) site. The soil samples were analyzed for total arsenic only, the groundwater samples were analyzed for the remaining parameters.

The following analytical methods were requested on the chain-of-custody (CoC) records.

- Volatile Organic Compounds by USEPA SW-846 Method 8260C
- Semivolatile Organic Compounds by USEPA SW-846 Method 8270D
- Metals (Dissolved Iron, Total Arsenic) SW-846 Method 6010C
- Total Cyanide by USEPA SW-846 Method 9012B
- Sulfate by USEPA Method 300.0
- Nitrate by calculation by Standard Methods for the examination of Water and Wastewater Method 4500.

The data were evaluated for conformance to method specifications and qualifiers were applied using the USEPA Region 2 standard operating procedures (SOPs) and the validation criteria set forth in the following USEPA guidance documents as they apply to the analytical procedures.

- USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA-540-R-2017-002, November 2020;
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-540-R-2017-001, November 2020.
- Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B & 8260C, SOP HW-24, Revision 4, October 2014;
- Validating Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8270D, SOP HW-22, Revision 5, December 2010;
- ICP-AES Data Validation, SOP HW-3a, Revision 1, September 2016; and
- Mercury and Cyanide Data Validation, SOP HW-3c, Revision 1, September 2016.

Field duplicate relative percent difference (RPD) review and applicable control limits were taken from the USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, December 1996 and USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses, June 1988.

The samples were processed, and the results were reported under sample delivery groups (SDG) 480-190294-1, 480-190335-1, 480-190335-2, 480-190421-1, 480-190421-2, 480-200734-1, and 480-202303-1. Table 1 provides a sample submittal list with the field IDs cross-referenced with the laboratory IDs.

Table 1 Sample Submittals – NYSEG/Auburn Green Street Former MGP Soil

Field ID	Laboratory ID	QC	Matrix	Date Sampled
SS-13-0-6	480-190294-1	MS/MSD	Soil	09/28/21 09:00
SS-13-6-12	480-190294-2		Soil	09/28/21 09:15

Field ID	Laboratory ID	QC	Matrix	Date Sampled
FD-20210928	480-190294-3	Field duplicate	Soil	09/28/21 00:00
EB-20210928	480-190294-4	Equipment Blank	Water	09/28/21 08:50
MW-1	480-190335-1		Water	09/30/21 15:47
MW-6	480-190335-2		Water	09/30/21 11:05
Duplicate	480-190335-3	Field duplicate	Water	09/30/21 00:00
MW-3	480-190335-4	MS/MSD	Water	09/30/21 12:11
MW-4	480-190335-5		Water	09/30/21 14:40
MW-5	480-190335-6		Water	09/30/21 16:51
Trip Blank	480-190335-7	Trip Blank	Water	09/30/21 00:00
MW-2	480-190421-1		Water	10/04/21 10:00
MW-7	480-190421-2		Water	10/04/21 11:15
MW-8	480-190421-3		Water	10/04/21 13:00
MW-9	480-190421-4		Water	10/04/21 16:55
MW-10	480-190421-5		Water	10/04/21 14:40
Rinse Blank	480-190421-6	Rinse Blank	Water	10/04/21 07:20
TB-100421	480-190421-7	Trip Blank	Water	10/04/21 00:00
MW-1	480-200734-1		Water	08/16/22 08:50
MW-2	480-200734-2		Water	08/16/22 10:00
MW-3	480-200734-3	MS/MSD	Water	08/16/22 12:15
MW-4	480-200734-4		Water	08/15/22 15:15
MW-5	480-200734-5		Water	08/15/22 10:55
MW-6	480-200734-6		Water	08/15/22 12:45
MW-8	480-200734-7		Water	08/16/22 11:30
MW-9	480-200734-8		Water	08/15/22 15:52
MW-10	480-200734-9		Water	08/15/22 14:00
MW-11	480-200734-10		Water	08/15/22 14:10
MW-12	480-200734-11		Water	08/16/22 10:00
Duplicate	480-200734-12	Field duplicate	Water	08/15/22 00:00
Rinse Blank	480-200734-13	Rinse Blank	Water	08/15/22 15:45
Trip Blank	480-200734-14	Trip Blank	Water	08/15/22 00:00
MW-7	480-200734-15		Water	08/16/22 09:10
MW-1	480-202303-1		Water	10/03/22 13:40
MW-2	480-202303-2		Water	10/03/22 15:39
MW-3	480-202303-3	MS/MSD	Water	10/03/22 09:34
MW-4	480-202303-4		Water	10/04/22 09:55
MW-7	480-202303-5		Water	10/04/22 08:23
MW-9	480-202303-6			10/04/22 10:48

Field ID	Laboratory ID	QC	Matrix	Date Sampled
MW-10	480-202303-7			10/03/22 11:02
MW-11	480-202303-8			10/03/22 12:10
MW-12	480-202303-9			10/03/22 14:15
Duplicate	480-202303-10	Field duplicate		10/03/22 00:00
Rinse Blank	480-202303-11	Rinse Blank		10/04/22 09:34
Trip Blank	480-202303-12	Trip Blank		10/04/22 00:00

Summary

Data quality for the organic analyses was evaluated by reviewing the following parameters: holding times, GC/MS tuning and performance standards, internal standards, initial and continuing calibrations, matrix spike/matrix spike duplicates (MS/MSD), surrogate recoveries, laboratory control standards (LCSs), laboratory blanks, laboratory and field duplicates, compound identification, and compound quantitation.

Inorganic data quality was evaluated by reviewing the following parameters: holding times, matrix spikes, initial calibrations, continuing calibration verification standard recoveries, contract required detection limit standard recoveries, laboratory control samples, ICP interference check sample recoveries, ICP serial dilution results, field and laboratory duplicates, laboratory blanks, and analyte quantitation.

All data have been determined to be useable for the purpose of assessing the presence/absence and quantitative concentrations of the compounds and analytes in the media tested (i.e., soil and groundwater) as reported by Eurofins-Buffalo. No data points were rejected. Completeness of 100% was achieved for this data set. This is within the goal of 90-100% and is acceptable.

A glossary of data qualifier definitions is included in Appendix A of this report. The data qualifier summaries are attached as Appendix B of this report.

Each noncompliance with specific data usability criteria that required data qualification is discussed below. Support documentation for data qualifications was included in Appendix C of this report.

1. Volatile Organic Compounds

Several samples were analyzed for VOCs utilizing dilutions due to high target compounds. Sample MW-11 (10/3/22) and MW-4 (10/4/22) were analyzed utilizing a 2x dilution due to the sample matrix issues. Both of these samples had low detections of VOCs. The reporting limits (RLs) for the non-detect compounds have been elevated due to the dilutions utilized in the analysis.

2. Semivolatile Organic Compounds

Several samples were analyzed for SVOCs utilizing dilutions due to high target compounds. Sample MW-11 (10/3/22) and MW-4 (10/4/22) were analyzed utilizing a 10x and 5X dilution, respectively, due to the sample matrix issues. Sample MW-4 had a low detection for SVOCs, sample MW-11 was non-detect. The RLs for the non-detect compounds have been elevated due to the dilutions utilized in the analysis.

3. Metals

Arsenic was detected in the method blank associated with the soil samples at a concentration below the RL. Since the results for As were greater than the RL in the samples, the ‘B’ qualifier applied by the laboratory has been removed.

Dissolved Iron (Fe) was detected in the metals method blanks and/or rinse blank at a concentration below the RL. Those associated samples that had concentrations of dissolved Fe greater than the RL had the ‘B’ qualifier applied by the lab removed. The results for dissolved Fe in the following samples have been qualified ‘U’ at the RL: MW-2 (10/4/21), MW-2 (8/16/22), and MW-5 (8/15/22).

The percent recovery (%R) of dissolved Fe in the matrix spike performed on sample MW-3 (8/16/22) was below the lower QC limit. The detected result for Fe in this sample has been qualified ‘J’.

4. Wet Chemistry

The matrix spike/matrix spike duplicate performed on sample MW-3 (8/16/22) exhibited recoveries above the QC limit for cyanide (CN). The detected result for Cn in this sample was qualified ‘J’.

The matrix spike performed on sample MW-7 (8/16/22) exhibited a %R above the QC limit for CN. The detected result for Cn in this sample was qualified ‘J’.

The Rinse Blank (10/4/22) was detected for CN below the RL, The detected results for CN in associated samples MW-3 (10/3/22), MW-11 (10/3/22),and MW-12 (10/3/22) have been qualified ‘U’ at the RL.

Several samples were analyzed at dilutions due to the presence of elevated levels of target analytes.

5. Field Duplicate Precision

Field duplicate samples were collected at SS-13-6-12, MW-6 (9/30/21), MW-6 (8/15/22), and MW-10 (10/3/22). Field duplicate results were evaluated using the following criteria.

Organics: The RPD must be ≤ 30% for results greater than or equal to two times the reporting detection limit. If one of the results is non-detect or less than two times the reporting limit, and the duplicate is greater than two times the reporting detection limit, the difference between the parent and field duplicate results must be less than or equal to two times the reporting limit.

Inorganics: The RPD must be ≤ 30%, for results greater than or equal to five times the reporting limit. For results less than five times the reporting limit, the difference between the parent and field duplicate results must be less than or equal to two times the reporting limit.

Action applies only to the affected analyte in the duplicate sample pair.

Field sampling/laboratory precision and sample homogeneity were acceptable; no data qualification was required.

6. Notes

Matrix spike and matrix spike duplicates and laboratory duplicates that were performed on non-project samples were not evaluated because matrix similarity to project samples could not be assumed.

Positive results less than the reporting limit (RL), but greater than the method detection limit (MDL) were qualified “J,” as estimated concentrations, due to increased uncertainty near the detection limit. These “J” qualifiers were maintained in the data validation. Sample results reported between the MDL and RL are usable as estimated values with an unknown directional bias.

Sample Custody: Sample identifications, sample dates, and sample times on the chain of custody matched those found in the laboratory data package. The chain-of-custody was signed and dated, and proper chain of command was followed from field to laboratory.

Some metals samples were received unpreserved and were properly preserved at the laboratory upon receipt.

Appendix A Glossary of Data Qualifier Codes

U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.
J+	The result is an estimated quantity but may be biased high.
J-	The result is an estimated quantity but may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to meet quality control criteria. The presence or absence of the analyte cannot be verified.
N	(Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	(Organics) The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.

Appendix B Data Qualification Summaries

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-190294-1

Client Sample ID: SS-13-0-6"

Lab Sample ID: 480-190294-1

Date Collected: 09/28/21 09:00
Date Received: 09/30/21 10:00

Matrix: Solid
Percent Solids: 70.7

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	21.2		2.7	0.54	mg/Kg	☼	10/04/21 16:28	10/05/21 21:27	1

Client Sample ID: SS-13-0-6"-12"

Lab Sample ID: 480-190294-2

Date Collected: 09/28/21 09:15
Date Received: 09/30/21 10:00

Matrix: Solid
Percent Solids: 66.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	24.1		3.1	0.62	mg/Kg	☼	10/04/21 16:28	10/05/21 21:46	1

Client Sample ID: FD-20210928

Lab Sample ID: 480-190294-3

Date Collected: 09/28/21 00:00
Date Received: 09/30/21 10:00

FD of SS-13-6-12

Matrix: Solid
Percent Solids: 73.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	27.0		2.7	0.55	mg/Kg	☼	10/04/21 16:28	10/05/21 21:50	1

Client Sample ID: EB-20210928

Lab Sample ID: 480-190294-4

Date Collected: 09/28/21 08:50
Date Received: 09/30/21 10:00

Matrix: Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		10/01/21 09:30	10/02/21 01:39	1

Client Sample Results

Client: AECOM
Job ID: 480-190335-1
Project/Site: NYSEG Auburn Green Street

Client Sample ID: MW-1
Lab Sample ID: 480-190335-1
Date Collected: 09/30/21 15:47
Matrix: Water
Date Received: 10/01/21 10:20

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	ND		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 18:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**39.3**		4.0	0.70	mg/L			10/06/21 01:41	2
Cyanide, Total	**0.0073**	**J**	0.010	0.0050	mg/L		10/05/21 12:26	10/05/21 14:15	1
Nitrate as N	**2.6**		0.050	0.020	mg/L			10/01/21 18:42	1

Client Sample ID: MW-6
Lab Sample ID: 480-190335-2
Date Collected: 09/30/21 11:05
Matrix: Water
Date Received: 10/01/21 10:20

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/21 03:42	1
Benzene	ND		1.0	0.41	ug/L			10/08/21 03:42	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/21 03:42	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/08/21 03:42	1
o-Xylene	ND		1.0	0.76	ug/L			10/08/21 03:42	1
Styrene	ND		1.0	0.73	ug/L			10/08/21 03:42	1
Toluene	ND		1.0	0.51	ug/L			10/08/21 03:42	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/21 03:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*		*10/08/21 03:42*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*10/08/21 03:42*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 123*		*10/08/21 03:42*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/08/21 03:42*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/01/21 14:09	10/06/21 01:53	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/01/21 14:09	10/06/21 01:53	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 01:53	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/01/21 14:09	10/06/21 01:53	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/01/21 14:09	10/06/21 01:53	1
Chrysene	ND		5.0	0.33	ug/L		10/01/21 14:09	10/06/21 01:53	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/01/21 14:09	10/06/21 01:53	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 01:53	1
Naphthalene	ND		5.0	0.76	ug/L		10/01/21 14:09	10/06/21 01:53	1
Phenol	ND		5.0	0.39	ug/L		10/01/21 14:09	10/06/21 01:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*57*		*48 - 120*	*10/01/21 14:09*	*10/06/21 01:53*	*1*
Nitrobenzene-d5 (Surr)	*61*		*46 - 120*	*10/01/21 14:09*	*10/06/21 01:53*	*1*
p-Terphenyl-d14 (Surr)	*75*		*60 - 148*	*10/01/21 14:09*	*10/06/21 01:53*	*1*
2,4,6-Tribromophenol (Surr)	*72*		*41 - 120*	*10/01/21 14:09*	*10/06/21 01:53*	*1*
2-Fluorophenol (Surr)	*38*		*35 - 120*	*10/01/21 14:09*	*10/06/21 01:53*	*1*
Phenol-d5 (Surr)	*30*		*22 - 120*	*10/01/21 14:09*	*10/06/21 01:53*	*1*

Client Sample ID: MW-6
Lab Sample ID: 480-190335-2

Date Collected: 09/30/21 11:05
Matrix: Water
Date Received: 10/01/21 10:20

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.99		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 18:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	26.4		10.0	1.7	mg/L			10/06/21 02:00	5
Cyanide, Total	0.0063	J	0.010	0.0050	mg/L		10/05/21 12:26	10/05/21 14:16	1
Nitrate as N	ND		0.050	0.020	mg/L			10/01/21 18:45	1

Client Sample ID: DUPLICATE
Lab Sample ID: 480-190335-3

Date Collected: 09/30/21 00:00
FD of MW-6
Matrix: Water
Date Received: 10/01/21 10:20

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/21 04:05	1
Benzene	ND		1.0	0.41	ug/L			10/08/21 04:05	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/21 04:05	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/08/21 04:05	1
o-Xylene	ND		1.0	0.76	ug/L			10/08/21 04:05	1
Styrene	ND		1.0	0.73	ug/L			10/08/21 04:05	1
Toluene	ND		1.0	0.51	ug/L			10/08/21 04:05	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/21 04:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*		*10/08/21 04:05*	*1*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*10/08/21 04:05*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*10/08/21 04:05*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*10/08/21 04:05*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/01/21 14:09	10/06/21 16:27	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/01/21 14:09	10/06/21 16:27	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 16:27	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/01/21 14:09	10/06/21 16:27	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/01/21 14:09	10/06/21 16:27	1
Chrysene	ND		5.0	0.33	ug/L		10/01/21 14:09	10/06/21 16:27	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/01/21 14:09	10/06/21 16:27	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 16:27	1
Naphthalene	ND		5.0	0.76	ug/L		10/01/21 14:09	10/06/21 16:27	1
Phenol	ND		5.0	0.39	ug/L		10/01/21 14:09	10/06/21 16:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*67*		*48 - 120*	*10/01/21 14:09*	*10/06/21 16:27*	*1*
Nitrobenzene-d5 (Surr)	*72*		*46 - 120*	*10/01/21 14:09*	*10/06/21 16:27*	*1*
p-Terphenyl-d14 (Surr)	*83*		*60 - 148*	*10/01/21 14:09*	*10/06/21 16:27*	*1*
2,4,6-Tribromophenol (Surr)	*89*		*41 - 120*	*10/01/21 14:09*	*10/06/21 16:27*	*1*
2-Fluorophenol (Surr)	*47*		*35 - 120*	*10/01/21 14:09*	*10/06/21 16:27*	*1*
Phenol-d5 (Surr)	*36*		*22 - 120*	*10/01/21 14:09*	*10/06/21 16:27*	*1*

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-190335-1

Client Sample ID: DUPLICATE

FD of MW-6

Date Collected: 09/30/21 00:00
Date Received: 10/01/21 10:20

Lab Sample ID: 480-190335-3
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.97		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 18:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	26.2		10.0	1.7	mg/L			10/06/21 02:18	5
Cyanide, Total	0.0057	J	0.010	0.0050	mg/L		10/05/21 12:26	10/05/21 14:18	1
Nitrate as N	ND		0.050	0.020	mg/L			10/01/21 18:46	1

Client Sample ID: MW-3

Date Collected: 09/30/21 12:11
Date Received: 10/01/21 10:20

Lab Sample ID: 480-190335-4
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/21 04:28	1
Benzene	ND		1.0	0.41	ug/L			10/08/21 04:28	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/21 04:28	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/08/21 04:28	1
o-Xylene	ND		1.0	0.76	ug/L			10/08/21 04:28	1
Styrene	ND		1.0	0.73	ug/L			10/08/21 04:28	1
Toluene	ND		1.0	0.51	ug/L			10/08/21 04:28	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/21 04:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*10/08/21 04:28*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*10/08/21 04:28*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*10/08/21 04:28*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/08/21 04:28*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		25	2.0	ug/L		10/01/21 14:09	10/05/21 19:21	1
Benzo[a]anthracene	ND		25	1.8	ug/L		10/01/21 14:09	10/05/21 19:21	1
Benzo[a]pyrene	ND		25	2.4	ug/L		10/01/21 14:09	10/05/21 19:21	1
Benzo[b]fluoranthene	ND		25	1.7	ug/L		10/01/21 14:09	10/05/21 19:21	1
Benzo[k]fluoranthene	ND		25	3.7	ug/L		10/01/21 14:09	10/05/21 19:21	1
Chrysene	ND		25	1.7	ug/L		10/01/21 14:09	10/05/21 19:21	1
Dibenz(a,h)anthracene	ND		25	2.1	ug/L		10/01/21 14:09	10/05/21 19:21	1
Indeno[1,2,3-cd]pyrene	ND		25	2.4	ug/L		10/01/21 14:09	10/05/21 19:21	1
Naphthalene	ND		25	3.8	ug/L		10/01/21 14:09	10/05/21 19:21	1
Phenol	ND		25	2.0	ug/L		10/01/21 14:09	10/05/21 19:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*64*		*48 - 120*	*10/01/21 14:09*	*10/05/21 19:21*	*1*
Nitrobenzene-d5 (Surr)	*62*		*46 - 120*	*10/01/21 14:09*	*10/05/21 19:21*	*1*
p-Terphenyl-d14 (Surr)	*73*		*60 - 148*	*10/01/21 14:09*	*10/05/21 19:21*	*1*
2,4,6-Tribromophenol (Surr)	*69*		*41 - 120*	*10/01/21 14:09*	*10/05/21 19:21*	*1*
2-Fluorophenol (Surr)	*38*		*35 - 120*	*10/01/21 14:09*	*10/05/21 19:21*	*1*
Phenol-d5 (Surr)	*28*		*22 - 120*	*10/01/21 14:09*	*10/05/21 19:21*	*1*

Client Sample ID: MW-3 — Lab Sample ID: 480-190335-4

Date Collected: 09/30/21 12:11 — **Matrix: Water**
Date Received: 10/01/21 10:20

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	15.9		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	8.9	J	20.0	3.5	mg/L			10/05/21 22:18	10
Cyanide, Total	0.0091	J	0.010	0.0050	mg/L		10/05/21 12:26	10/05/21 14:11	1
Nitrate as N	ND		0.050	0.020	mg/L			10/01/21 18:53	1

Client Sample ID: MW-4 — Lab Sample ID: 480-190335-5

Date Collected: 09/30/21 14:40 — **Matrix: Water**
Date Received: 10/01/21 10:20

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.22		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	23.0		2.0	0.35	mg/L			10/06/21 06:01	1
Cyanide, Total	0.55		0.020	0.010	mg/L		10/05/21 12:26	10/05/21 14:42	2
Nitrate as N	ND		0.050	0.020	mg/L			10/01/21 18:47	1

Client Sample ID: MW-5 — Lab Sample ID: 480-190335-6

Date Collected: 09/30/21 16:51 — **Matrix: Water**
Date Received: 10/01/21 10:20

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/21 05:14	1
Benzene	ND		1.0	0.41	ug/L			10/08/21 05:14	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/21 05:14	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/08/21 05:14	1
o-Xylene	ND		1.0	0.76	ug/L			10/08/21 05:14	1
Styrene	ND		1.0	0.73	ug/L			10/08/21 05:14	1
Toluene	ND		1.0	0.51	ug/L			10/08/21 05:14	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/21 05:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*10/08/21 05:14*	*1*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*10/08/21 05:14*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 123*		*10/08/21 05:14*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/08/21 05:14*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/01/21 14:09	10/06/21 17:19	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/01/21 14:09	10/06/21 17:19	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 17:19	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/01/21 14:09	10/06/21 17:19	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/01/21 14:09	10/06/21 17:19	1
Chrysene	ND		5.0	0.33	ug/L		10/01/21 14:09	10/06/21 17:19	1

Client Sample ID: MW-5 Lab Sample ID: 480-190335-6

Date Collected: 09/30/21 16:51 **Matrix: Water**
Date Received: 10/01/21 10:20

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/01/21 14:09	10/06/21 17:19	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 17:19	1
Naphthalene	ND		5.0	0.76	ug/L		10/01/21 14:09	10/06/21 17:19	1
Phenol	ND		5.0	0.39	ug/L		10/01/21 14:09	10/06/21 17:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*87*		*48 - 120*	*10/01/21 14:09*	*10/06/21 17:19*	*1*
Nitrobenzene-d5 (Surr)	*89*		*46 - 120*	*10/01/21 14:09*	*10/06/21 17:19*	*1*
p-Terphenyl-d14 (Surr)	*100*		*60 - 148*	*10/01/21 14:09*	*10/06/21 17:19*	*1*
2,4,6-Tribromophenol (Surr)	*90*		*41 - 120*	*10/01/21 14:09*	*10/06/21 17:19*	*1*
2-Fluorophenol (Surr)	*59*		*35 - 120*	*10/01/21 14:09*	*10/06/21 17:19*	*1*
Phenol-d5 (Surr)	*44*		*22 - 120*	*10/01/21 14:09*	*10/06/21 17:19*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	ND		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**52.4**		10.0	1.7	mg/L			10/06/21 06:19	5
Cyanide, Total	ND		0.010	0.0050	mg/L		10/05/21 12:26	10/05/21 14:24	1
Nitrate as N	**3.5**		0.050	0.020	mg/L			10/01/21 19:18	1

Client Sample ID: TRIP BLANK Lab Sample ID: 480-190335-7

Date Collected: 09/30/21 00:00 **Matrix: Water**
Date Received: 10/01/21 10:20

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/21 05:36	1
Benzene	ND		1.0	0.41	ug/L			10/08/21 05:36	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/21 05:36	1
Styrene	ND		1.0	0.73	ug/L			10/08/21 05:36	1
Toluene	ND		1.0	0.51	ug/L			10/08/21 05:36	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/21 05:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*77 - 120*		*10/08/21 05:36*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*10/08/21 05:36*	*1*
Dibromofluoromethane (Surr)	*105*		*75 - 123*		*10/08/21 05:36*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/08/21 05:36*	*1*

Client Sample Results

Client: AECOM
Job ID: 480-190335-2
Project/Site: NYSEG Auburn Green Street

Client Sample ID: MW-1
Lab Sample ID: 480-190335-1

Date Collected: 09/30/21 15:47
Matrix: Water
Date Received: 10/01/21 10:20

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/21 03:19	1
Benzene	ND		1.0	0.41	ug/L			10/08/21 03:19	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/21 03:19	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/08/21 03:19	1
o-Xylene	ND		1.0	0.76	ug/L			10/08/21 03:19	1
Styrene	ND		1.0	0.73	ug/L			10/08/21 03:19	1
Toluene	ND		1.0	0.51	ug/L			10/08/21 03:19	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/21 03:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*77 - 120*		*10/08/21 03:19*	*1*
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*		*10/08/21 03:19*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*10/08/21 03:19*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*10/08/21 03:19*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/01/21 14:09	10/06/21 01:27	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/01/21 14:09	10/06/21 01:27	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 01:27	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/01/21 14:09	10/06/21 01:27	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/01/21 14:09	10/06/21 01:27	1
Chrysene	ND		5.0	0.33	ug/L		10/01/21 14:09	10/06/21 01:27	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/01/21 14:09	10/06/21 01:27	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 01:27	1
Naphthalene	ND		5.0	0.76	ug/L		10/01/21 14:09	10/06/21 01:27	1
Phenol	ND		5.0	0.39	ug/L		10/01/21 14:09	10/06/21 01:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*79*		*48 - 120*	*10/01/21 14:09*	*10/06/21 01:27*	*1*
Nitrobenzene-d5 (Surr)	*76*		*46 - 120*	*10/01/21 14:09*	*10/06/21 01:27*	*1*
p-Terphenyl-d14 (Surr)	*91*		*60 - 148*	*10/01/21 14:09*	*10/06/21 01:27*	*1*
2,4,6-Tribromophenol (Surr)	*89*		*41 - 120*	*10/01/21 14:09*	*10/06/21 01:27*	*1*
2-Fluorophenol (Surr)	*45*		*35 - 120*	*10/01/21 14:09*	*10/06/21 01:27*	*1*
Phenol-d5 (Surr)	*34*		*22 - 120*	*10/01/21 14:09*	*10/06/21 01:27*	*1*

Client Sample Results

Client: AECOM
Job ID: 480-190335-2
Project/Site: NYSEG Auburn Green Street

Client Sample ID: MW-4
Lab Sample ID: 480-190335-5
Date Collected: 09/30/21 14:40
Matrix: Water
Date Received: 10/01/21 10:20

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		800	240	ug/L			10/08/21 04:51	80
Benzene	**3200**		80	33	ug/L			10/08/21 04:51	80
Ethylbenzene	ND		80	59	ug/L			10/08/21 04:51	80
m-Xylene & p-Xylene	**120**	**J**	160	53	ug/L			10/08/21 04:51	80
o-Xylene	ND		80	61	ug/L			10/08/21 04:51	80
Styrene	ND		80	58	ug/L			10/08/21 04:51	80
Toluene	**150**		80	41	ug/L			10/08/21 04:51	80
Xylenes, Total	**120**	**J**	160	53	ug/L			10/08/21 04:51	80

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*77 - 120*		*10/08/21 04:51*	*80*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*10/08/21 04:51*	*80*
Dibromofluoromethane (Surr)	*97*		*75 - 123*		*10/08/21 04:51*	*80*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/08/21 04:51*	*80*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/01/21 14:09	10/06/21 16:53	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/01/21 14:09	10/06/21 16:53	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 16:53	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/01/21 14:09	10/06/21 16:53	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/01/21 14:09	10/06/21 16:53	1
Chrysene	ND		5.0	0.33	ug/L		10/01/21 14:09	10/06/21 16:53	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/01/21 14:09	10/06/21 16:53	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/01/21 14:09	10/06/21 16:53	1
Naphthalene	ND		5.0	0.76	ug/L		10/01/21 14:09	10/06/21 16:53	1
Phenol	ND		5.0	0.39	ug/L		10/01/21 14:09	10/06/21 16:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*80*		*48 - 120*	*10/01/21 14:09*	*10/06/21 16:53*	*1*
Nitrobenzene-d5 (Surr)	*83*		*46 - 120*	*10/01/21 14:09*	*10/06/21 16:53*	*1*
p-Terphenyl-d14 (Surr)	*89*		*60 - 148*	*10/01/21 14:09*	*10/06/21 16:53*	*1*
2,4,6-Tribromophenol (Surr)	*79*		*41 - 120*	*10/01/21 14:09*	*10/06/21 16:53*	*1*
2-Fluorophenol (Surr)	*53*		*35 - 120*	*10/01/21 14:09*	*10/06/21 16:53*	*1*
Phenol-d5 (Surr)	*43*		*22 - 120*	*10/01/21 14:09*	*10/06/21 16:53*	*1*

Client Sample ID: MW-2

Lab Sample ID: 480-190421-1

Date Collected: 10/04/21 10:00
Date Received: 10/05/21 08:55

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/21 14:15	10/08/21 17:46	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/21 14:15	10/08/21 17:46	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 17:46	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/21 14:15	10/08/21 17:46	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/21 14:15	10/08/21 17:46	1
Chrysene	ND		5.0	0.33	ug/L		10/06/21 14:15	10/08/21 17:46	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/21 14:15	10/08/21 17:46	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 17:46	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/21 14:15	10/08/21 17:46	1
Phenol	ND		5.0	0.39	ug/L		10/06/21 14:15	10/08/21 17:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*104*		*48 - 120*	*10/06/21 14:15*	*10/08/21 17:46*	*1*
Nitrobenzene-d5 (Surr)	*103*		*46 - 120*	*10/06/21 14:15*	*10/08/21 17:46*	*1*
p-Terphenyl-d14 (Surr)	*103*		*60 - 148*	*10/06/21 14:15*	*10/08/21 17:46*	*1*
2,4,6-Tribromophenol (Surr)	*114*		*41 - 120*	*10/06/21 14:15*	*10/08/21 17:46*	*1*
2-Fluorophenol (Surr)	*68*		*35 - 120*	*10/06/21 14:15*	*10/08/21 17:46*	*1*
Phenol-d5 (Surr)	*52*		*22 - 120*	*10/06/21 14:15*	*10/08/21 17:46*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.050**	**U**	0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**32.1**		10.0	1.7	mg/L			10/07/21 23:49	5
Cyanide, Total	**0.053**		0.010	0.0050	mg/L		10/08/21 10:26	10/08/21 12:27	1
Nitrate as N	**1.7**		0.050	0.020	mg/L			10/05/21 19:11	1

Client Sample ID: MW-7

Lab Sample ID: 480-190421-2

Date Collected: 10/04/21 11:15
Date Received: 10/05/21 08:55

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/21 14:15	10/08/21 18:12	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/21 14:15	10/08/21 18:12	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 18:12	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/21 14:15	10/08/21 18:12	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/21 14:15	10/08/21 18:12	1
Chrysene	ND		5.0	0.33	ug/L		10/06/21 14:15	10/08/21 18:12	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/21 14:15	10/08/21 18:12	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 18:12	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/21 14:15	10/08/21 18:12	1
Phenol	ND		5.0	0.39	ug/L		10/06/21 14:15	10/08/21 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*107*		*48 - 120*	*10/06/21 14:15*	*10/08/21 18:12*	*1*
Nitrobenzene-d5 (Surr)	*105*		*46 - 120*	*10/06/21 14:15*	*10/08/21 18:12*	*1*
p-Terphenyl-d14 (Surr)	*101*		*60 - 148*	*10/06/21 14:15*	*10/08/21 18:12*	*1*
2,4,6-Tribromophenol (Surr)	*115*		*41 - 120*	*10/06/21 14:15*	*10/08/21 18:12*	*1*

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-190421-1

Client Sample ID: MW-7

Date Collected: 10/04/21 11:15
Date Received: 10/05/21 08:55

Lab Sample ID: 480-190421-2
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*70*		*35 - 120*	*10/06/21 14:15*	*10/08/21 18:12*	*1*
Phenol-d5 (Surr)	*54*		*22 - 120*	*10/06/21 14:15*	*10/08/21 18:12*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**10**		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**6.2**	**J**	10.0	1.7	mg/L			10/08/21 00:08	5
Cyanide, Total	**0.0088**	**J**	0.010	0.0050	mg/L		10/08/21 10:26	10/08/21 12:29	1
Nitrate as N	ND		0.050	0.020	mg/L			10/05/21 19:12	1

Client Sample ID: MW-8

Date Collected: 10/04/21 13:00
Date Received: 10/05/21 08:55

Lab Sample ID: 480-190421-3
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/21 14:15	10/08/21 17:20	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/21 14:15	10/08/21 17:20	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 17:20	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/21 14:15	10/08/21 17:20	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/21 14:15	10/08/21 17:20	1
Chrysene	ND		5.0	0.33	ug/L		10/06/21 14:15	10/08/21 17:20	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/21 14:15	10/08/21 17:20	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 17:20	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/21 14:15	10/08/21 17:20	1
Phenol	ND		5.0	0.39	ug/L		10/06/21 14:15	10/08/21 17:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*100*		*48 - 120*	*10/06/21 14:15*	*10/08/21 17:20*	*1*
Nitrobenzene-d5 (Surr)	*97*		*46 - 120*	*10/06/21 14:15*	*10/08/21 17:20*	*1*
p-Terphenyl-d14 (Surr)	*98*		*60 - 148*	*10/06/21 14:15*	*10/08/21 17:20*	*1*
2,4,6-Tribromophenol (Surr)	*104*		*41 - 120*	*10/06/21 14:15*	*10/08/21 17:20*	*1*
2-Fluorophenol (Surr)	*67*		*35 - 120*	*10/06/21 14:15*	*10/08/21 17:20*	*1*
Phenol-d5 (Surr)	*51*		*22 - 120*	*10/06/21 14:15*	*10/08/21 17:20*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**14.5**		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**19.5**	**J**	20.0	3.5	mg/L			10/08/21 00:26	10
Cyanide, Total	**0.0054**	**J**	0.010	0.0050	mg/L		10/08/21 10:26	10/08/21 12:30	1
Nitrate as N	**0.37**		0.050	0.020	mg/L			10/05/21 19:23	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-190421-1

Client Sample ID: MW-9

Lab Sample ID: 480-190421-4

Date Collected: 10/04/21 16:55
Date Received: 10/05/21 08:55

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.92		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	20.6		10.0	1.7	mg/L			10/08/21 00:45	5
Cyanide, Total	0.088		0.010	0.0050	mg/L		10/08/21 10:26	10/08/21 12:32	1
Nitrate as N	0.036	J	0.050	0.020	mg/L			10/05/21 19:24	1

Client Sample ID: MW-10

Lab Sample ID: 480-190421-5

Date Collected: 10/04/21 14:40
Date Received: 10/05/21 08:55

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.11		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	23.2		2.0	0.35	mg/L			10/08/21 01:03	1
Cyanide, Total	0.28		0.010	0.0050	mg/L		10/08/21 10:26	10/08/21 12:33	1
Nitrate as N	0.029	J	0.050	0.020	mg/L			10/05/21 19:26	1

Client Sample ID: RISE BLANK

RINSE BLANK

Lab Sample ID: 480-190421-6

Date Collected: 10/04/21 17:20
Date Received: 10/05/21 08:55

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/21 14:15	10/08/21 18:38	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/21 14:15	10/08/21 18:38	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 18:38	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/21 14:15	10/08/21 18:38	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/21 14:15	10/08/21 18:38	1
Chrysene	ND		5.0	0.33	ug/L		10/06/21 14:15	10/08/21 18:38	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/21 14:15	10/08/21 18:38	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 18:38	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/21 14:15	10/08/21 18:38	1
Phenol	ND		5.0	0.39	ug/L		10/06/21 14:15	10/08/21 18:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*100*		*48 - 120*	*10/06/21 14:15*	*10/08/21 18:38*	*1*
Nitrobenzene-d5 (Surr)	*93*		*46 - 120*	*10/06/21 14:15*	*10/08/21 18:38*	*1*
p-Terphenyl-d14 (Surr)	*111*		*60 - 148*	*10/06/21 14:15*	*10/08/21 18:38*	*1*
2,4,6-Tribromophenol (Surr)	*107*		*41 - 120*	*10/06/21 14:15*	*10/08/21 18:38*	*1*
2-Fluorophenol (Surr)	*62*		*35 - 120*	*10/06/21 14:15*	*10/08/21 18:38*	*1*
Phenol-d5 (Surr)	*47*		*22 - 120*	*10/06/21 14:15*	*10/08/21 18:38*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	ND		0.050	0.019	mg/L		10/08/21 09:22	10/08/21 19:59	1

Client Sample ID: RISE BLANK RINSE BLANK
Lab Sample ID: 480-190421-6
Date Collected: 10/04/21 17:20
Matrix: Water
Date Received: 10/05/21 08:55

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0	0.35	mg/L			10/08/21 01:22	1
Cyanide, Total	ND		0.010	0.0050	mg/L		10/08/21 10:26	10/08/21 12:34	1
Nitrate as N	ND		0.050	0.020	mg/L			10/05/21 19:27	1

Client Sample ID: MW-2

Lab Sample ID: 480-190421-1

Date Collected: 10/04/21 10:00

Matrix: Water

Date Received: 10/05/21 08:55

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/21 17:19	1
Benzene	ND		1.0	0.41	ug/L			10/07/21 17:19	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/21 17:19	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/07/21 17:19	1
o-Xylene	ND		1.0	0.76	ug/L			10/07/21 17:19	1
Styrene	ND		1.0	0.73	ug/L			10/07/21 17:19	1
Toluene	ND		1.0	0.51	ug/L			10/07/21 17:19	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/21 17:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*77 - 120*		*10/07/21 17:19*	*1*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*10/07/21 17:19*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 123*		*10/07/21 17:19*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/07/21 17:19*	*1*

Client Sample ID: MW-7

Lab Sample ID: 480-190421-2

Date Collected: 10/04/21 11:15

Matrix: Water

Date Received: 10/05/21 08:55

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/21 17:42	1
Benzene	ND		1.0	0.41	ug/L			10/07/21 17:42	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/21 17:42	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/07/21 17:42	1
o-Xylene	ND		1.0	0.76	ug/L			10/07/21 17:42	1
Styrene	ND		1.0	0.73	ug/L			10/07/21 17:42	1
Toluene	ND		1.0	0.51	ug/L			10/07/21 17:42	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/21 17:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*77 - 120*		*10/07/21 17:42*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*10/07/21 17:42*	*1*
Dibromofluoromethane (Surr)	*105*		*75 - 123*		*10/07/21 17:42*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/07/21 17:42*	*1*

Client Sample ID: MW-8

Lab Sample ID: 480-190421-3

Date Collected: 10/04/21 13:00

Matrix: Water

Date Received: 10/05/21 08:55

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/21 18:05	1
Benzene	ND		1.0	0.41	ug/L			10/07/21 18:05	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/21 18:05	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/07/21 18:05	1
o-Xylene	ND		1.0	0.76	ug/L			10/07/21 18:05	1
Styrene	ND		1.0	0.73	ug/L			10/07/21 18:05	1
Toluene	ND		1.0	0.51	ug/L			10/07/21 18:05	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/21 18:05	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-190421-2

Client Sample ID: MW-8

Date Collected: 10/04/21 13:00
Date Received: 10/05/21 08:55

Lab Sample ID: 480-190421-3
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		77 - 120		10/07/21 18:05	1
4-Bromofluorobenzene (Surr)	101		73 - 120		10/07/21 18:05	1
Dibromofluoromethane (Surr)	103		75 - 123		10/07/21 18:05	1
Toluene-d8 (Surr)	100		80 - 120		10/07/21 18:05	1

Client Sample ID: MW-9

Date Collected: 10/04/21 16:55
Date Received: 10/05/21 08:55

Lab Sample ID: 480-190421-4
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		200	60	ug/L			10/07/21 18:28	20
Benzene	**1200**		20	8.2	ug/L			10/07/21 18:28	20
Ethylbenzene	ND		20	15	ug/L			10/07/21 18:28	20
m-Xylene & p-Xylene	**25**	**J**	40	13	ug/L			10/07/21 18:28	20
o-Xylene	ND		20	15	ug/L			10/07/21 18:28	20
Styrene	ND		20	15	ug/L			10/07/21 18:28	20
Toluene	**22**		20	10	ug/L			10/07/21 18:28	20
Xylenes, Total	**25**	**J**	40	13	ug/L			10/07/21 18:28	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		77 - 120		10/07/21 18:28	20
4-Bromofluorobenzene (Surr)	98		73 - 120		10/07/21 18:28	20
Dibromofluoromethane (Surr)	98		75 - 123		10/07/21 18:28	20
Toluene-d8 (Surr)	101		80 - 120		10/07/21 18:28	20

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/21 14:15	10/08/21 16:26	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/21 14:15	10/08/21 16:26	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 16:26	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/21 14:15	10/08/21 16:26	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/21 14:15	10/08/21 16:26	1
Chrysene	ND		5.0	0.33	ug/L		10/06/21 14:15	10/08/21 16:26	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/21 14:15	10/08/21 16:26	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 16:26	1
Naphthalene	**26**		5.0	0.76	ug/L		10/06/21 14:15	10/08/21 16:26	1
Phenol	**2.0**	**J**	5.0	0.39	ug/L		10/06/21 14:15	10/08/21 16:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	96		48 - 120	10/06/21 14:15	10/08/21 16:26	1
Nitrobenzene-d5 (Surr)	92		46 - 120	10/06/21 14:15	10/08/21 16:26	1
p-Terphenyl-d14 (Surr)	100		60 - 148	10/06/21 14:15	10/08/21 16:26	1
2,4,6-Tribromophenol (Surr)	106		41 - 120	10/06/21 14:15	10/08/21 16:26	1
2-Fluorophenol (Surr)	61		35 - 120	10/06/21 14:15	10/08/21 16:26	1
Phenol-d5 (Surr)	49		22 - 120	10/06/21 14:15	10/08/21 16:26	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-190421-2

Client Sample ID: MW-10

Lab Sample ID: 480-190421-5

Date Collected: 10/04/21 14:40
Date Received: 10/05/21 08:55

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/21 18:51	1
Benzene	**2.0**		1.0	0.41	ug/L			10/07/21 18:51	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/21 18:51	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/07/21 18:51	1
o-Xylene	ND		1.0	0.76	ug/L			10/07/21 18:51	1
Styrene	ND		1.0	0.73	ug/L			10/07/21 18:51	1
Toluene	ND		1.0	0.51	ug/L			10/07/21 18:51	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/21 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*10/07/21 18:51*	*1*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*10/07/21 18:51*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 123*		*10/07/21 18:51*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*10/07/21 18:51*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/21 14:15	10/08/21 16:53	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/21 14:15	10/08/21 16:53	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 16:53	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/21 14:15	10/08/21 16:53	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/21 14:15	10/08/21 16:53	1
Chrysene	ND		5.0	0.33	ug/L		10/06/21 14:15	10/08/21 16:53	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/21 14:15	10/08/21 16:53	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/21 14:15	10/08/21 16:53	1
Naphthalene	**5.8**		5.0	0.76	ug/L		10/06/21 14:15	10/08/21 16:53	1
Phenol	ND		5.0	0.39	ug/L		10/06/21 14:15	10/08/21 16:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*90*		*48 - 120*	*10/06/21 14:15*	*10/08/21 16:53*	*1*
Nitrobenzene-d5 (Surr)	*91*		*46 - 120*	*10/06/21 14:15*	*10/08/21 16:53*	*1*
p-Terphenyl-d14 (Surr)	*85*		*60 - 148*	*10/06/21 14:15*	*10/08/21 16:53*	*1*
2,4,6-Tribromophenol (Surr)	*101*		*41 - 120*	*10/06/21 14:15*	*10/08/21 16:53*	*1*
2-Fluorophenol (Surr)	*63*		*35 - 120*	*10/06/21 14:15*	*10/08/21 16:53*	*1*
Phenol-d5 (Surr)	*46*		*22 - 120*	*10/06/21 14:15*	*10/08/21 16:53*	*1*

Client Sample ID: RISE BLANK

Lab Sample ID: 480-190421-6

Date Collected: 10/04/21 17:20
Date Received: 10/05/21 08:55

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/21 19:14	1
Benzene	ND		1.0	0.41	ug/L			10/07/21 19:14	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/21 19:14	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/07/21 19:14	1
o-Xylene	ND		1.0	0.76	ug/L			10/07/21 19:14	1
Styrene	ND		1.0	0.73	ug/L			10/07/21 19:14	1
Toluene	ND		1.0	0.51	ug/L			10/07/21 19:14	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/21 19:14	1

Client Sample ID: RISE BLANK
Lab Sample ID: 480-190421-6
Date Collected: 10/04/21 17:20
Matrix: Water
Date Received: 10/05/21 08:55

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*10/07/21 19:14*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*10/07/21 19:14*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*10/07/21 19:14*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/07/21 19:14*	*1*

Client Sample ID: TB-100421
Lab Sample ID: 480-190421-7
Date Collected: 10/04/21 00:00
Matrix: Water
Date Received: 10/05/21 08:55

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/21 19:37	1
Benzene	ND		1.0	0.41	ug/L			10/07/21 19:37	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/21 19:37	1
m-Xylene & p-Xylene	ND		2.0	0.66	ug/L			10/07/21 19:37	1
o-Xylene	ND		1.0	0.76	ug/L			10/07/21 19:37	1
Styrene	ND		1.0	0.73	ug/L			10/07/21 19:37	1
Toluene	ND		1.0	0.51	ug/L			10/07/21 19:37	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/21 19:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*10/07/21 19:37*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*10/07/21 19:37*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 123*		*10/07/21 19:37*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/07/21 19:37*	*1*

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-200734-1

Client Sample ID: MW-1

Date Collected: 08/16/22 08:50
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 02:22	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 02:22	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 02:22	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 02:22	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 02:22	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 02:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*		*08/17/22 02:22*	*1*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*08/17/22 02:22*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*08/17/22 02:22*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*08/17/22 02:22*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.4	0.43	ug/L		08/20/22 08:36	08/22/22 16:47	1
Benzo[a]anthracene	ND		5.4	0.39	ug/L		08/20/22 08:36	08/22/22 16:47	1
Benzo[a]pyrene	ND		5.4	0.51	ug/L		08/20/22 08:36	08/22/22 16:47	1
Benzo[b]fluoranthene	ND		5.4	0.37	ug/L		08/20/22 08:36	08/22/22 16:47	1
Benzo[k]fluoranthene	ND		5.4	0.79	ug/L		08/20/22 08:36	08/22/22 16:47	1
Chrysene	ND		5.4	0.36	ug/L		08/20/22 08:36	08/22/22 16:47	1
Dibenz(a,h)anthracene	ND		5.4	0.46	ug/L		08/20/22 08:36	08/22/22 16:47	1
Indeno[1,2,3-cd]pyrene	ND		5.4	0.51	ug/L		08/20/22 08:36	08/22/22 16:47	1
Naphthalene	ND		5.4	0.83	ug/L		08/20/22 08:36	08/22/22 16:47	1
Phenol	ND		5.4	0.42	ug/L		08/20/22 08:36	08/22/22 16:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*79*		*41 - 120*	*08/20/22 08:36*	*08/22/22 16:47*	*1*
2-Fluorobiphenyl (Surr)	*83*		*48 - 120*	*08/20/22 08:36*	*08/22/22 16:47*	*1*
2-Fluorophenol (Surr)	*56*		*35 - 120*	*08/20/22 08:36*	*08/22/22 16:47*	*1*
Nitrobenzene-d5 (Surr)	*72*		*46 - 120*	*08/20/22 08:36*	*08/22/22 16:47*	*1*
Phenol-d5 (Surr)	*43*		*22 - 120*	*08/20/22 08:36*	*08/22/22 16:47*	*1*
p-Terphenyl-d14 (Surr)	*87*		*60 - 148*	*08/20/22 08:36*	*08/22/22 16:47*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	ND		0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**15.5**		10.0	1.7	mg/L			08/24/22 18:30	5
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 17:09	1
Cyanide, Total	**0.0051**	**J**	0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 14:58	1
Nitrate as N	**0.15**		0.050	0.020	mg/L			08/16/22 16:13	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-200734-1

Client Sample ID: MW-2

Date Collected: 08/16/22 10:00
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-2

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 02:44	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 02:44	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 02:44	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 02:44	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 02:44	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 02:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*77 - 120*		*08/17/22 02:44*	*1*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*08/17/22 02:44*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*08/17/22 02:44*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*08/17/22 02:44*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		08/20/22 08:36	08/22/22 17:15	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		08/20/22 08:36	08/22/22 17:15	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		08/20/22 08:36	08/22/22 17:15	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		08/20/22 08:36	08/22/22 17:15	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		08/20/22 08:36	08/22/22 17:15	1
Chrysene	ND		5.0	0.33	ug/L		08/20/22 08:36	08/22/22 17:15	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		08/20/22 08:36	08/22/22 17:15	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		08/20/22 08:36	08/22/22 17:15	1
Naphthalene	ND		5.0	0.76	ug/L		08/20/22 08:36	08/22/22 17:15	1
Phenol	ND		5.0	0.39	ug/L		08/20/22 08:36	08/22/22 17:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*77*		*41 - 120*	*08/20/22 08:36*	*08/22/22 17:15*	*1*
2-Fluorobiphenyl (Surr)	*62*		*48 - 120*	*08/20/22 08:36*	*08/22/22 17:15*	*1*
2-Fluorophenol (Surr)	*39*		*35 - 120*	*08/20/22 08:36*	*08/22/22 17:15*	*1*
Nitrobenzene-d5 (Surr)	*55*		*46 - 120*	*08/20/22 08:36*	*08/22/22 17:15*	*1*
Phenol-d5 (Surr)	*32*		*22 - 120*	*08/20/22 08:36*	*08/22/22 17:15*	*1*
p-Terphenyl-d14 (Surr)	*71*		*60 - 148*	*08/20/22 08:36*	*08/22/22 17:15*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.050**	**U**	0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**31.6**		4.0	0.70	mg/L			08/24/22 18:44	2
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 17:11	1
Cyanide, Total	**0.11**		0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 15:00	1
Nitrate as N	**1.5**		0.050	0.020	mg/L			08/16/22 16:14	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-200734-1

Client Sample ID: MW-3

Date Collected: 08/15/22 12:15
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-3

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 03:06	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 03:06	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 03:06	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 03:06	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 03:06	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 03:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*08/17/22 03:06*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*08/17/22 03:06*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*08/17/22 03:06*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*08/17/22 03:06*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		08/20/22 08:36	08/22/22 16:19	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		08/20/22 08:36	08/22/22 16:19	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 16:19	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		08/20/22 08:36	08/22/22 16:19	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		08/20/22 08:36	08/22/22 16:19	1
Chrysene	ND		5.2	0.34	ug/L		08/20/22 08:36	08/22/22 16:19	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		08/20/22 08:36	08/22/22 16:19	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 16:19	1
Naphthalene	ND		5.2	0.79	ug/L		08/20/22 08:36	08/22/22 16:19	1
Phenol	ND		5.2	0.41	ug/L		08/20/22 08:36	08/22/22 16:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*96*		*41 - 120*	*08/20/22 08:36*	*08/22/22 16:19*	*1*
2-Fluorobiphenyl (Surr)	*91*		*48 - 120*	*08/20/22 08:36*	*08/22/22 16:19*	*1*
2-Fluorophenol (Surr)	*67*		*35 - 120*	*08/20/22 08:36*	*08/22/22 16:19*	*1*
Nitrobenzene-d5 (Surr)	*81*		*46 - 120*	*08/20/22 08:36*	*08/22/22 16:19*	*1*
Phenol-d5 (Surr)	*51*		*22 - 120*	*08/20/22 08:36*	*08/22/22 16:19*	*1*
p-Terphenyl-d14 (Surr)	*91*		*60 - 148*	*08/20/22 08:36*	*08/22/22 16:19*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**16.5**	**J**	0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**13.4**	**J**	20.0	3.5	mg/L			08/24/22 14:01	10
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 17:19	1
Cyanide, Total	**0.012**	**J**	0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 14:51	1
Nitrate as N	ND		0.050	0.020	mg/L			08/16/22 16:16	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-200734-1

Client Sample ID: MW-4

Date Collected: 08/15/22 15:15
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-4

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		400	120	ug/L			08/17/22 14:38	40
Benzene	**1200**		40	16	ug/L			08/17/22 14:38	40
Ethylbenzene	ND		40	30	ug/L			08/17/22 14:38	40
Styrene	**29**	**J**	40	29	ug/L			08/17/22 14:38	40
Toluene	**270**		40	20	ug/L			08/17/22 14:38	40
Xylenes, Total	**150**		80	26	ug/L			08/17/22 14:38	40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*08/17/22 14:38*	*40*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*08/17/22 14:38*	*40*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*08/17/22 14:38*	*40*
Toluene-d8 (Surr)	*99*		*80 - 120*		*08/17/22 14:38*	*40*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		25	2.0	ug/L		08/20/22 08:36	08/22/22 17:43	5
Benzo[a]anthracene	ND		25	1.8	ug/L		08/20/22 08:36	08/22/22 17:43	5
Benzo[a]pyrene	ND		25	2.4	ug/L		08/20/22 08:36	08/22/22 17:43	5
Benzo[b]fluoranthene	ND		25	1.7	ug/L		08/20/22 08:36	08/22/22 17:43	5
Benzo[k]fluoranthene	ND		25	3.7	ug/L		08/20/22 08:36	08/22/22 17:43	5
Chrysene	ND		25	1.7	ug/L		08/20/22 08:36	08/22/22 17:43	5
Dibenz(a,h)anthracene	ND		25	2.1	ug/L		08/20/22 08:36	08/22/22 17:43	5
Indeno[1,2,3-cd]pyrene	ND		25	2.4	ug/L		08/20/22 08:36	08/22/22 17:43	5
Naphthalene	**95**		25	3.8	ug/L		08/20/22 08:36	08/22/22 17:43	5
Phenol	**2.6**	**J**	25	2.0	ug/L		08/20/22 08:36	08/22/22 17:43	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*90*		*41 - 120*	*08/20/22 08:36*	*08/22/22 17:43*	*5*
2-Fluorobiphenyl (Surr)	*82*		*48 - 120*	*08/20/22 08:36*	*08/22/22 17:43*	*5*
2-Fluorophenol (Surr)	*54*		*35 - 120*	*08/20/22 08:36*	*08/22/22 17:43*	*5*
Nitrobenzene-d5 (Surr)	*71*		*46 - 120*	*08/20/22 08:36*	*08/22/22 17:43*	*5*
Phenol-d5 (Surr)	*40*		*22 - 120*	*08/20/22 08:36*	*08/22/22 17:43*	*5*
p-Terphenyl-d14 (Surr)	*94*		*60 - 148*	*08/20/22 08:36*	*08/22/22 17:43*	*5*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.21**		0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**36.0**		2.0	0.35	mg/L			08/24/22 18:58	1
Nitrite as N	**0.046**	**J**	0.050	0.020	mg/L			08/16/22 17:12	1
Cyanide, Total	**0.76**		0.050	0.025	mg/L		08/17/22 14:14	08/17/22 15:15	5
Nitrate as N	**0.37**		0.050	0.020	mg/L			08/16/22 16:20	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-200734-1

Client Sample ID: MW-5

Date Collected: 08/15/22 10:55
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-5

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 03:51	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 03:51	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 03:51	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 03:51	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 03:51	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 03:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*08/17/22 03:51*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*08/17/22 03:51*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*08/17/22 03:51*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*08/17/22 03:51*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		08/20/22 08:36	08/22/22 18:10	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		08/20/22 08:36	08/22/22 18:10	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 18:10	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		08/20/22 08:36	08/22/22 18:10	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		08/20/22 08:36	08/22/22 18:10	1
Chrysene	ND		5.2	0.34	ug/L		08/20/22 08:36	08/22/22 18:10	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		08/20/22 08:36	08/22/22 18:10	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 18:10	1
Naphthalene	ND		5.2	0.79	ug/L		08/20/22 08:36	08/22/22 18:10	1
Phenol	ND		5.2	0.41	ug/L		08/20/22 08:36	08/22/22 18:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*85*		*41 - 120*	*08/20/22 08:36*	*08/22/22 18:10*	*1*
2-Fluorobiphenyl (Surr)	*82*		*48 - 120*	*08/20/22 08:36*	*08/22/22 18:10*	*1*
2-Fluorophenol (Surr)	*57*		*35 - 120*	*08/20/22 08:36*	*08/22/22 18:10*	*1*
Nitrobenzene-d5 (Surr)	*72*		*46 - 120*	*08/20/22 08:36*	*08/22/22 18:10*	*1*
Phenol-d5 (Surr)	*44*		*22 - 120*	*08/20/22 08:36*	*08/22/22 18:10*	*1*
p-Terphenyl-d14 (Surr)	*93*		*60 - 148*	*08/20/22 08:36*	*08/22/22 18:10*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.050**	**U**	0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**81.2**		10.0	1.7	mg/L			08/24/22 19:12	5
Nitrite as N	**0.042**	**J**	0.050	0.020	mg/L			08/16/22 17:13	1
Cyanide, Total	ND		0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 15:05	1
Nitrate as N	**1.4**		0.050	0.020	mg/L			08/16/22 16:21	1

Client Sample ID: MW-6
Lab Sample ID: 480-200734-6

Date Collected: 08/15/22 12:45
Matrix: Water
Date Received: 08/16/22 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 04:13	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 04:13	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 04:13	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 04:13	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 04:13	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 04:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*77 - 120*		*08/17/22 04:13*	*1*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*08/17/22 04:13*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*08/17/22 04:13*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*08/17/22 04:13*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		08/20/22 08:36	08/22/22 18:38	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		08/20/22 08:36	08/22/22 18:38	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		08/20/22 08:36	08/22/22 18:38	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		08/20/22 08:36	08/22/22 18:38	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		08/20/22 08:36	08/22/22 18:38	1
Chrysene	ND		5.0	0.33	ug/L		08/20/22 08:36	08/22/22 18:38	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		08/20/22 08:36	08/22/22 18:38	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		08/20/22 08:36	08/22/22 18:38	1
Naphthalene	ND		5.0	0.76	ug/L		08/20/22 08:36	08/22/22 18:38	1
Phenol	ND		5.0	0.39	ug/L		08/20/22 08:36	08/22/22 18:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*82*		*41 - 120*	*08/20/22 08:36*	*08/22/22 18:38*	*1*
2-Fluorobiphenyl (Surr)	*78*		*48 - 120*	*08/20/22 08:36*	*08/22/22 18:38*	*1*
2-Fluorophenol (Surr)	*51*		*35 - 120*	*08/20/22 08:36*	*08/22/22 18:38*	*1*
Nitrobenzene-d5 (Surr)	*67*		*46 - 120*	*08/20/22 08:36*	*08/22/22 18:38*	*1*
Phenol-d5 (Surr)	*39*		*22 - 120*	*08/20/22 08:36*	*08/22/22 18:38*	*1*
p-Terphenyl-d14 (Surr)	*86*		*60 - 148*	*08/20/22 08:36*	*08/22/22 18:38*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.35**		0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**28.0**		10.0	1.7	mg/L			08/24/22 19:26	5
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 17:15	1
Cyanide, Total	ND		0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 15:07	1
Nitrate as N	**0.065**		0.050	0.020	mg/L			08/16/22 16:25	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-200734-1

Client Sample ID: MW-8
Date Collected: 08/16/22 11:30
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-7
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 04:36	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 04:36	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 04:36	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 04:36	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 04:36	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 04:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*77 - 120*		*08/17/22 04:36*	*1*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*08/17/22 04:36*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*08/17/22 04:36*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*08/17/22 04:36*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.4	0.43	ug/L		08/20/22 08:36	08/22/22 19:05	1
Benzo[a]anthracene	ND		5.4	0.39	ug/L		08/20/22 08:36	08/22/22 19:05	1
Benzo[a]pyrene	ND		5.4	0.51	ug/L		08/20/22 08:36	08/22/22 19:05	1
Benzo[b]fluoranthene	ND		5.4	0.37	ug/L		08/20/22 08:36	08/22/22 19:05	1
Benzo[k]fluoranthene	ND		5.4	0.79	ug/L		08/20/22 08:36	08/22/22 19:05	1
Chrysene	ND		5.4	0.36	ug/L		08/20/22 08:36	08/22/22 19:05	1
Dibenz(a,h)anthracene	ND		5.4	0.46	ug/L		08/20/22 08:36	08/22/22 19:05	1
Indeno[1,2,3-cd]pyrene	ND		5.4	0.51	ug/L		08/20/22 08:36	08/22/22 19:05	1
Naphthalene	ND		5.4	0.83	ug/L		08/20/22 08:36	08/22/22 19:05	1
Phenol	ND		5.4	0.42	ug/L		08/20/22 08:36	08/22/22 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*82*		*41 - 120*	*08/20/22 08:36*	*08/22/22 19:05*	*1*
2-Fluorobiphenyl (Surr)	*66*		*48 - 120*	*08/20/22 08:36*	*08/22/22 19:05*	*1*
2-Fluorophenol (Surr)	*46*		*35 - 120*	*08/20/22 08:36*	*08/22/22 19:05*	*1*
Nitrobenzene-d5 (Surr)	*57*		*46 - 120*	*08/20/22 08:36*	*08/22/22 19:05*	*1*
Phenol-d5 (Surr)	*37*		*22 - 120*	*08/20/22 08:36*	*08/22/22 19:05*	*1*
p-Terphenyl-d14 (Surr)	*88*		*60 - 148*	*08/20/22 08:36*	*08/22/22 19:05*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**18.2**		0.050	0.019	mg/L		08/18/22 09:46	08/22/22 20:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**15.2**	**J**	20.0	3.5	mg/L			08/24/22 21:05	10
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 16:28	1
Cyanide, Total	ND		0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 15:08	1
Nitrate as N	**0.027**	**J**	0.050	0.020	mg/L			08/16/22 16:28	1

Client Sample Results

Client Sample ID: MW-9
Lab Sample ID: 480-200734-8

Date Collected: 08/15/22 15:52
Matrix: Water
Date Received: 08/16/22 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		80	24	ug/L			08/17/22 15:01	8
Benzene	**190**		8.0	3.3	ug/L			08/17/22 15:01	8
Ethylbenzene	ND		8.0	5.9	ug/L			08/17/22 15:01	8
Styrene	ND		8.0	5.8	ug/L			08/17/22 15:01	8
Toluene	ND		8.0	4.1	ug/L			08/17/22 15:01	8
Xylenes, Total	ND		16	5.3	ug/L			08/17/22 15:01	8

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*		*08/17/22 15:01*	*8*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*08/17/22 15:01*	*8*
Dibromofluoromethane (Surr)	*106*		*75 - 123*		*08/17/22 15:01*	*8*
Toluene-d8 (Surr)	*100*		*80 - 120*		*08/17/22 15:01*	*8*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.7	0.45	ug/L		08/20/22 08:36	08/22/22 19:32	1
Benzo[a]anthracene	ND		5.7	0.41	ug/L		08/20/22 08:36	08/22/22 19:32	1
Benzo[a]pyrene	ND		5.7	0.53	ug/L		08/20/22 08:36	08/22/22 19:32	1
Benzo[b]fluoranthene	ND		5.7	0.39	ug/L		08/20/22 08:36	08/22/22 19:32	1
Benzo[k]fluoranthene	ND		5.7	0.83	ug/L		08/20/22 08:36	08/22/22 19:32	1
Chrysene	ND		5.7	0.38	ug/L		08/20/22 08:36	08/22/22 19:32	1
Dibenz(a,h)anthracene	ND		5.7	0.48	ug/L		08/20/22 08:36	08/22/22 19:32	1
Indeno[1,2,3-cd]pyrene	ND		5.7	0.53	ug/L		08/20/22 08:36	08/22/22 19:32	1
Naphthalene	**1.0**	**J**	5.7	0.86	ug/L		08/20/22 08:36	08/22/22 19:32	1
Phenol	**2.8**	**J**	5.7	0.44	ug/L		08/20/22 08:36	08/22/22 19:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*76*		*41 - 120*	*08/20/22 08:36*	*08/22/22 19:32*	*1*
2-Fluorobiphenyl (Surr)	*69*		*48 - 120*	*08/20/22 08:36*	*08/22/22 19:32*	*1*
2-Fluorophenol (Surr)	*44*		*35 - 120*	*08/20/22 08:36*	*08/22/22 19:32*	*1*
Nitrobenzene-d5 (Surr)	*60*		*46 - 120*	*08/20/22 08:36*	*08/22/22 19:32*	*1*
Phenol-d5 (Surr)	*38*		*22 - 120*	*08/20/22 08:36*	*08/22/22 19:32*	*1*
p-Terphenyl-d14 (Surr)	*71*		*60 - 148*	*08/20/22 08:36*	*08/22/22 19:32*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**5.8**		0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**6.5**	**J**	20.0	3.5	mg/L			08/24/22 21:19	10
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 17:23	1
Cyanide, Total	**0.017**		0.010	0.0050	mg/L		08/17/22 14:14	08/17/22 15:10	1
Nitrate as N	**0.11**		0.050	0.020	mg/L			08/16/22 16:31	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-200734-1

Client Sample ID: MW-10

Date Collected: 08/15/22 14:00
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-9

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 05:20	1
Benzene	**1.6**		1.0	0.41	ug/L			08/17/22 05:20	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 05:20	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 05:20	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 05:20	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 05:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*77 - 120*		*08/17/22 05:20*	*1*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*08/17/22 05:20*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*08/17/22 05:20*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*08/17/22 05:20*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		08/20/22 08:36	08/22/22 20:00	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		08/20/22 08:36	08/22/22 20:00	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 20:00	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		08/20/22 08:36	08/22/22 20:00	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		08/20/22 08:36	08/22/22 20:00	1
Chrysene	ND		5.2	0.34	ug/L		08/20/22 08:36	08/22/22 20:00	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		08/20/22 08:36	08/22/22 20:00	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 20:00	1
Naphthalene	ND		5.2	0.79	ug/L		08/20/22 08:36	08/22/22 20:00	1
Phenol	ND		5.2	0.41	ug/L		08/20/22 08:36	08/22/22 20:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*79*		*41 - 120*	*08/20/22 08:36*	*08/22/22 20:00*	*1*
2-Fluorobiphenyl (Surr)	*60*		*48 - 120*	*08/20/22 08:36*	*08/22/22 20:00*	*1*
2-Fluorophenol (Surr)	*37*		*35 - 120*	*08/20/22 08:36*	*08/22/22 20:00*	*1*
Nitrobenzene-d5 (Surr)	*52*		*46 - 120*	*08/20/22 08:36*	*08/22/22 20:00*	*1*
Phenol-d5 (Surr)	*32*		*22 - 120*	*08/20/22 08:36*	*08/22/22 20:00*	*1*
p-Terphenyl-d14 (Surr)	*71*		*60 - 148*	*08/20/22 08:36*	*08/22/22 20:00*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.085**		0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**18.8**		2.0	0.35	mg/L			08/24/22 21:33	1
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 16:32	1
Cyanide, Total	**0.19**		0.010	0.0050	mg/L		08/23/22 12:18	08/23/22 14:08	1
Nitrate as N	ND		0.050	0.020	mg/L			08/16/22 16:32	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-200734-1

Client Sample ID: MW-11
Date Collected: 08/15/22 14:00
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-10
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20	6.0	ug/L			08/19/22 15:00	2
Benzene	**3.2**		2.0	0.82	ug/L			08/19/22 15:00	2
Ethylbenzene	ND		2.0	1.5	ug/L			08/19/22 15:00	2
Styrene	ND		2.0	1.5	ug/L			08/19/22 15:00	2
Toluene	ND		2.0	1.0	ug/L			08/19/22 15:00	2
Xylenes, Total	ND		4.0	1.3	ug/L			08/19/22 15:00	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*77 - 120*		*08/19/22 15:00*	*2*
4-Bromofluorobenzene (Surr)	*93*		*73 - 120*		*08/19/22 15:00*	*2*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*08/19/22 15:00*	*2*
Toluene-d8 (Surr)	*100*		*80 - 120*		*08/19/22 15:00*	*2*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	**7.8**	**J**	52	4.2	ug/L		08/20/22 08:36	08/22/22 20:28	10
Benzo[a]anthracene	ND		52	3.8	ug/L		08/20/22 08:36	08/22/22 20:28	10
Benzo[a]pyrene	ND		52	4.9	ug/L		08/20/22 08:36	08/22/22 20:28	10
Benzo[b]fluoranthene	ND		52	3.5	ug/L		08/20/22 08:36	08/22/22 20:28	10
Benzo[k]fluoranthene	ND		52	7.6	ug/L		08/20/22 08:36	08/22/22 20:28	10
Chrysene	ND		52	3.4	ug/L		08/20/22 08:36	08/22/22 20:28	10
Dibenz(a,h)anthracene	ND		52	4.4	ug/L		08/20/22 08:36	08/22/22 20:28	10
Indeno[1,2,3-cd]pyrene	ND		52	4.9	ug/L		08/20/22 08:36	08/22/22 20:28	10
Naphthalene	**210**		52	7.9	ug/L		08/20/22 08:36	08/22/22 20:28	10
Phenol	ND		52	4.1	ug/L		08/20/22 08:36	08/22/22 20:28	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*82*		*41 - 120*	*08/20/22 08:36*	*08/22/22 20:28*	*10*
2-Fluorobiphenyl (Surr)	*85*		*48 - 120*	*08/20/22 08:36*	*08/22/22 20:28*	*10*
2-Fluorophenol (Surr)	*47*		*35 - 120*	*08/20/22 08:36*	*08/22/22 20:28*	*10*
Nitrobenzene-d5 (Surr)	*67*		*46 - 120*	*08/20/22 08:36*	*08/22/22 20:28*	*10*
Phenol-d5 (Surr)	*46*		*22 - 120*	*08/20/22 08:36*	*08/22/22 20:28*	*10*
p-Terphenyl-d14 (Surr)	*68*		*60 - 148*	*08/20/22 08:36*	*08/22/22 20:28*	*10*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.14**		0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**25.8**		2.0	0.35	mg/L			08/24/22 21:48	1
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 16:33	1
Cyanide, Total	**0.31**		0.010	0.0050	mg/L		08/23/22 12:18	08/23/22 14:10	1
Nitrate as N	ND		0.050	0.020	mg/L			08/16/22 16:33	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-200734-1

Client Sample ID: MW-12
Date Collected: 08/16/22 10:00
Date Received: 08/16/22 13:30

Lab Sample ID: 480-200734-11
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/19/22 15:27	1
Benzene	**25**		1.0	0.41	ug/L			08/19/22 15:27	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/19/22 15:27	1
Styrene	ND		1.0	0.73	ug/L			08/19/22 15:27	1
Toluene	ND		1.0	0.51	ug/L			08/19/22 15:27	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/19/22 15:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*77 - 120*		*08/19/22 15:27*	*1*
4-Bromofluorobenzene (Surr)	*93*		*73 - 120*		*08/19/22 15:27*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*08/19/22 15:27*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*08/19/22 15:27*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		08/20/22 08:36	08/22/22 20:56	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		08/20/22 08:36	08/22/22 20:56	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 20:56	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		08/20/22 08:36	08/22/22 20:56	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		08/20/22 08:36	08/22/22 20:56	1
Chrysene	ND		5.2	0.34	ug/L		08/20/22 08:36	08/22/22 20:56	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		08/20/22 08:36	08/22/22 20:56	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 20:56	1
Naphthalene	ND		5.2	0.79	ug/L		08/20/22 08:36	08/22/22 20:56	1
Phenol	**0.74**	**J**	5.2	0.41	ug/L		08/20/22 08:36	08/22/22 20:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*88*		*41 - 120*	*08/20/22 08:36*	*08/22/22 20:56*	*1*
2-Fluorobiphenyl (Surr)	*75*		*48 - 120*	*08/20/22 08:36*	*08/22/22 20:56*	*1*
2-Fluorophenol (Surr)	*49*		*35 - 120*	*08/20/22 08:36*	*08/22/22 20:56*	*1*
Nitrobenzene-d5 (Surr)	*65*		*46 - 120*	*08/20/22 08:36*	*08/22/22 20:56*	*1*
Phenol-d5 (Surr)	*41*		*22 - 120*	*08/20/22 08:36*	*08/22/22 20:56*	*1*
p-Terphenyl-d14 (Surr)	*80*		*60 - 148*	*08/20/22 08:36*	*08/22/22 20:56*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**6.5**		0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**22.6**		10.0	1.7	mg/L			08/24/22 22:02	5
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 16:35	1
Cyanide, Total	**0.0070**	**J**	0.010	0.0050	mg/L		08/24/22 13:02	08/24/22 14:12	1
Nitrate as N	ND		0.050	0.020	mg/L			08/16/22 16:35	1

Client: AECOM   Job ID: 480-200734-1
Project/Site: NYSEG Auburn Green Street

Client Sample ID: DUPLICATE   FD of MW-6   Lab Sample ID: 480-200734-12

Date Collected: 08/15/22 00:00   **Matrix: Water**
Date Received: 08/16/22 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/19/22 15:51	1
Benzene	ND		1.0	0.41	ug/L			08/19/22 15:51	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/19/22 15:51	1
Styrene	ND		1.0	0.73	ug/L			08/19/22 15:51	1
Toluene	ND		1.0	0.51	ug/L			08/19/22 15:51	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/19/22 15:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*77 - 120*		*08/19/22 15:51*	*1*
4-Bromofluorobenzene (Surr)	*91*		*73 - 120*		*08/19/22 15:51*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*08/19/22 15:51*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*08/19/22 15:51*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		08/20/22 08:36	08/22/22 21:24	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		08/20/22 08:36	08/22/22 21:24	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 21:24	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		08/20/22 08:36	08/22/22 21:24	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		08/20/22 08:36	08/22/22 21:24	1
Chrysene	ND		5.2	0.34	ug/L		08/20/22 08:36	08/22/22 21:24	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		08/20/22 08:36	08/22/22 21:24	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 21:24	1
Naphthalene	ND		5.2	0.79	ug/L		08/20/22 08:36	08/22/22 21:24	1
Phenol	ND		5.2	0.41	ug/L		08/20/22 08:36	08/22/22 21:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*71*		*41 - 120*	*08/20/22 08:36*	*08/22/22 21:24*	*1*
2-Fluorobiphenyl (Surr)	*65*		*48 - 120*	*08/20/22 08:36*	*08/22/22 21:24*	*1*
2-Fluorophenol (Surr)	*43*		*35 - 120*	*08/20/22 08:36*	*08/22/22 21:24*	*1*
Nitrobenzene-d5 (Surr)	*56*		*46 - 120*	*08/20/22 08:36*	*08/22/22 21:24*	*1*
Phenol-d5 (Surr)	*35*		*22 - 120*	*08/20/22 08:36*	*08/22/22 21:24*	*1*
p-Terphenyl-d14 (Surr)	*77*		*60 - 148*	*08/20/22 08:36*	*08/22/22 21:24*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.34**		0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**27.9**		10.0	1.7	mg/L			08/24/22 22:16	5
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 17:24	1
Cyanide, Total	ND		0.010	0.0050	mg/L		08/24/22 13:02	08/24/22 14:13	1
Nitrate as N	**0.076**		0.050	0.020	mg/L			08/16/22 16:36	1

Client Sample Results

Client Sample ID: RINSE BLANK
Lab Sample ID: 480-200734-13

Date Collected: 08/15/22 15:45
Date Received: 08/16/22 13:30
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 05:43	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 05:43	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 05:43	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 05:43	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 05:43	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 05:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*		*08/17/22 05:43*	*1*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*08/17/22 05:43*	*1*
Dibromofluoromethane (Surr)	*99*		*75 - 123*		*08/17/22 05:43*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*08/17/22 05:43*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		08/20/22 08:36	08/22/22 21:51	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		08/20/22 08:36	08/22/22 21:51	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 21:51	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		08/20/22 08:36	08/22/22 21:51	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		08/20/22 08:36	08/22/22 21:51	1
Chrysene	ND		5.2	0.34	ug/L		08/20/22 08:36	08/22/22 21:51	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		08/20/22 08:36	08/22/22 21:51	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		08/20/22 08:36	08/22/22 21:51	1
Naphthalene	ND		5.2	0.79	ug/L		08/20/22 08:36	08/22/22 21:51	1
Phenol	ND		5.2	0.41	ug/L		08/20/22 08:36	08/22/22 21:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*68*		*41 - 120*	*08/20/22 08:36*	*08/22/22 21:51*	*1*
2-Fluorobiphenyl (Surr)	*66*		*48 - 120*	*08/20/22 08:36*	*08/22/22 21:51*	*1*
2-Fluorophenol (Surr)	*43*		*35 - 120*	*08/20/22 08:36*	*08/22/22 21:51*	*1*
Nitrobenzene-d5 (Surr)	*57*		*46 - 120*	*08/20/22 08:36*	*08/22/22 21:51*	*1*
Phenol-d5 (Surr)	*36*		*22 - 120*	*08/20/22 08:36*	*08/22/22 21:51*	*1*
p-Terphenyl-d14 (Surr)	*98*		*60 - 148*	*08/20/22 08:36*	*08/22/22 21:51*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.037**	**J**	0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0	0.35	mg/L			08/24/22 22:30	1
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 16:38	1
Cyanide, Total	ND		0.010	0.0050	mg/L		08/24/22 13:02	08/24/22 14:15	1
Nitrate as N	ND		0.050	0.020	mg/L			08/16/22 16:38	1

Client Sample ID: TRIP BLANK
Lab Sample ID: 480-200734-14
Date Collected: 08/15/22 00:00
Matrix: Water
Date Received: 08/16/22 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 06:05	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 06:05	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 06:05	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 06:05	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 06:05	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 06:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*77 - 120*		*08/17/22 06:05*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*08/17/22 06:05*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*08/17/22 06:05*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*08/17/22 06:05*	*1*

Client Sample ID: MW-7
Lab Sample ID: 480-200734-15
Date Collected: 08/16/22 09:10
Matrix: Water
Date Received: 08/16/22 13:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			08/17/22 06:28	1
Benzene	ND		1.0	0.41	ug/L			08/17/22 06:28	1
Ethylbenzene	ND		1.0	0.74	ug/L			08/17/22 06:28	1
Styrene	ND		1.0	0.73	ug/L			08/17/22 06:28	1
Toluene	ND		1.0	0.51	ug/L			08/17/22 06:28	1
Xylenes, Total	ND		2.0	0.66	ug/L			08/17/22 06:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*		*08/17/22 06:28*	*1*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*08/17/22 06:28*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*08/17/22 06:28*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*08/17/22 06:28*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		08/20/22 08:36	08/22/22 22:18	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		08/20/22 08:36	08/22/22 22:18	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		08/20/22 08:36	08/22/22 22:18	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		08/20/22 08:36	08/22/22 22:18	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		08/20/22 08:36	08/22/22 22:18	1
Chrysene	ND		5.0	0.33	ug/L		08/20/22 08:36	08/22/22 22:18	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		08/20/22 08:36	08/22/22 22:18	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		08/20/22 08:36	08/22/22 22:18	1
Naphthalene	ND		5.0	0.76	ug/L		08/20/22 08:36	08/22/22 22:18	1
Phenol	ND		5.0	0.39	ug/L		08/20/22 08:36	08/22/22 22:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*91*		*41 - 120*	*08/20/22 08:36*	*08/22/22 22:18*	*1*
2-Fluorobiphenyl (Surr)	*87*		*48 - 120*	*08/20/22 08:36*	*08/22/22 22:18*	*1*
2-Fluorophenol (Surr)	*59*		*35 - 120*	*08/20/22 08:36*	*08/22/22 22:18*	*1*
Nitrobenzene-d5 (Surr)	*76*		*46 - 120*	*08/20/22 08:36*	*08/22/22 22:18*	*1*
Phenol-d5 (Surr)	*45*		*22 - 120*	*08/20/22 08:36*	*08/22/22 22:18*	*1*

Client Sample ID: MW-7

Lab Sample ID: 480-200734-15

Date Collected: 08/16/22 09:10
Date Received: 08/16/22 13:30
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
p-Terphenyl-d14 (Surr)	74		60 - 148	08/20/22 08:36	08/22/22 22:18	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	8.0		0.050	0.019	mg/L		08/18/22 09:47	08/23/22 20:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	14.7		10.0	1.7	mg/L			08/24/22 22:44	5
Nitrite as N	ND		0.050	0.020	mg/L			08/16/22 16:44	1
Cyanide, Total	0.0062	J	0.010	0.0050	mg/L		08/24/22 13:02	08/24/22 14:16	1
Nitrate as N	0.040	J	0.050	0.020	mg/L			08/16/22 16:44	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-202303-1

Client Sample ID: MW-1

Lab Sample ID: 480-202303-1

Date Collected: 10/03/22 13:40
Date Received: 10/04/22 14:10

Matrix: Water

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/22 14:43	1
Benzene	ND		1.0	0.41	ug/L			10/08/22 14:43	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/22 14:43	1
Styrene	ND		1.0	0.73	ug/L			10/08/22 14:43	1
Toluene	ND		1.0	0.51	ug/L			10/08/22 14:43	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/22 14:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*10/08/22 14:43*	*1*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*10/08/22 14:43*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 123*		*10/08/22 14:43*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/08/22 14:43*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		10/06/22 08:28	10/07/22 14:31	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		10/06/22 08:28	10/07/22 14:31	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 14:31	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		10/06/22 08:28	10/07/22 14:31	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		10/06/22 08:28	10/07/22 14:31	1
Chrysene	ND		5.2	0.34	ug/L		10/06/22 08:28	10/07/22 14:31	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		10/06/22 08:28	10/07/22 14:31	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 14:31	1
Naphthalene	ND		5.2	0.79	ug/L		10/06/22 08:28	10/07/22 14:31	1
Phenol	ND		5.2	0.41	ug/L		10/06/22 08:28	10/07/22 14:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*73*		*41 - 120*	*10/06/22 08:28*	*10/07/22 14:31*	*1*
2-Fluorobiphenyl	*97*		*48 - 120*	*10/06/22 08:28*	*10/07/22 14:31*	*1*
2-Fluorophenol (Surr)	*72*		*35 - 120*	*10/06/22 08:28*	*10/07/22 14:31*	*1*
Nitrobenzene-d5 (Surr)	*86*		*46 - 120*	*10/06/22 08:28*	*10/07/22 14:31*	*1*
Phenol-d5 (Surr)	*56*		*22 - 120*	*10/06/22 08:28*	*10/07/22 14:31*	*1*
p-Terphenyl-d14 (Surr)	*87*		*60 - 148*	*10/06/22 08:28*	*10/07/22 14:31*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.32**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 01:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**17.9**		10.0	1.7	mg/L			10/07/22 06:20	5
Cyanide, Total (SW846 9012B)	ND		0.010	0.0041	mg/L			10/05/22 20:31	1
Nitrate as N (SM Nitrate by calc)	**0.24**		0.050	0.020	mg/L			10/04/22 21:34	1

Client Sample ID: MW-2

Lab Sample ID: 480-202303-2

Date Collected: 10/03/22 15:39
Date Received: 10/04/22 14:10

Matrix: Water

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/22 15:06	1

Client Sample ID: MW-2

Lab Sample ID: 480-202303-2

Date Collected: 10/03/22 15:39
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.53	J	1.0	0.41	ug/L			10/08/22 15:06	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/22 15:06	1
Styrene	ND		1.0	0.73	ug/L			10/08/22 15:06	1
Toluene	ND		1.0	0.51	ug/L			10/08/22 15:06	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/22 15:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*10/08/22 15:06*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*10/08/22 15:06*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*10/08/22 15:06*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*10/08/22 15:06*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/22 08:28	10/07/22 14:59	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/22 08:28	10/07/22 14:59	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 14:59	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/22 08:28	10/07/22 14:59	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/22 08:28	10/07/22 14:59	1
Chrysene	ND		5.0	0.33	ug/L		10/06/22 08:28	10/07/22 14:59	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/22 08:28	10/07/22 14:59	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 14:59	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/22 08:28	10/07/22 14:59	1
Phenol	ND		5.0	0.39	ug/L		10/06/22 08:28	10/07/22 14:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*71*		*41 - 120*	*10/06/22 08:28*	*10/07/22 14:59*	*1*
2-Fluorobiphenyl	*81*		*48 - 120*	*10/06/22 08:28*	*10/07/22 14:59*	*1*
2-Fluorophenol (Surr)	*57*		*35 - 120*	*10/06/22 08:28*	*10/07/22 14:59*	*1*
Nitrobenzene-d5 (Surr)	*70*		*46 - 120*	*10/06/22 08:28*	*10/07/22 14:59*	*1*
Phenol-d5 (Surr)	*45*		*22 - 120*	*10/06/22 08:28*	*10/07/22 14:59*	*1*
p-Terphenyl-d14 (Surr)	*80*		*60 - 148*	*10/06/22 08:28*	*10/07/22 14:59*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.068		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 01:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	30.3		10.0	1.7	mg/L			10/07/22 06:40	5
Cyanide, Total (SW846 9012B)	0.046		0.010	0.0041	mg/L			10/09/22 14:09	1
Nitrate as N (SM Nitrate by calc)	0.68		0.050	0.020	mg/L			10/04/22 21:35	1

Client Sample ID: MW-3

Lab Sample ID: 480-202303-3

Date Collected: 10/03/22 09:34
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/22 15:27	1
Benzene	ND		1.0	0.41	ug/L			10/08/22 15:27	1

Client Sample ID: MW-3
Lab Sample ID: 480-202303-3

Date Collected: 10/03/22 09:34
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/22 15:27	1
Styrene	ND		1.0	0.73	ug/L			10/08/22 15:27	1
Toluene	ND		1.0	0.51	ug/L			10/08/22 15:27	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/22 15:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*		*10/08/22 15:27*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*10/08/22 15:27*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*10/08/22 15:27*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/08/22 15:27*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		10/06/22 08:28	10/07/22 13:35	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		10/06/22 08:28	10/07/22 13:35	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 13:35	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		10/06/22 08:28	10/07/22 13:35	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		10/06/22 08:28	10/07/22 13:35	1
Chrysene	ND		5.2	0.34	ug/L		10/06/22 08:28	10/07/22 13:35	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		10/06/22 08:28	10/07/22 13:35	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 13:35	1
Naphthalene	ND		5.2	0.79	ug/L		10/06/22 08:28	10/07/22 13:35	1
Phenol	ND		5.2	0.41	ug/L		10/06/22 08:28	10/07/22 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*58*		*41 - 120*	*10/06/22 08:28*	*10/07/22 13:35*	*1*
2-Fluorobiphenyl	*78*		*48 - 120*	*10/06/22 08:28*	*10/07/22 13:35*	*1*
2-Fluorophenol (Surr)	*53*		*35 - 120*	*10/06/22 08:28*	*10/07/22 13:35*	*1*
Nitrobenzene-d5 (Surr)	*65*		*46 - 120*	*10/06/22 08:28*	*10/07/22 13:35*	*1*
Phenol-d5 (Surr)	*44*		*22 - 120*	*10/06/22 08:28*	*10/07/22 13:35*	*1*
p-Terphenyl-d14 (Surr)	*71*		*60 - 148*	*10/06/22 08:28*	*10/07/22 13:35*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**15.3**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 01:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**9.3**	**J**	20.0	3.5	mg/L			10/07/22 02:25	10
Cyanide, Total (SW846 9012B)	**0.010**	**U**	0.010	0.0041	mg/L			10/09/22 13:56	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:46	1

Client Sample ID: MW-4
Lab Sample ID: 480-202303-4

Date Collected: 10/04/22 09:55
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**17**	**J**	20	6.0	ug/L			10/10/22 01:16	2
Benzene	**88**		2.0	0.82	ug/L			10/10/22 01:16	2
Ethylbenzene	**2.0**		2.0	1.5	ug/L			10/10/22 01:16	2

Client Sample ID: MW-4 — Lab Sample ID: 480-202303-4

Date Collected: 10/04/22 09:55 — **Matrix: Water**
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	ND		2.0	1.5	ug/L			10/10/22 01:16	2
Toluene	**12**		2.0	1.0	ug/L			10/10/22 01:16	2
Xylenes, Total	**9.2**		4.0	1.3	ug/L			10/10/22 01:16	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*10/10/22 01:16*	*2*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*10/10/22 01:16*	*2*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*10/10/22 01:16*	*2*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/10/22 01:16*	*2*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		25	2.0	ug/L		10/06/22 08:28	10/07/22 15:26	5
Benzo[a]anthracene	ND		25	1.8	ug/L		10/06/22 08:28	10/07/22 15:26	5
Benzo[a]pyrene	ND		25	2.4	ug/L		10/06/22 08:28	10/07/22 15:26	5
Benzo[b]fluoranthene	ND		25	1.7	ug/L		10/06/22 08:28	10/07/22 15:26	5
Benzo[k]fluoranthene	ND		25	3.7	ug/L		10/06/22 08:28	10/07/22 15:26	5
Chrysene	ND		25	1.7	ug/L		10/06/22 08:28	10/07/22 15:26	5
Dibenz(a,h)anthracene	ND		25	2.1	ug/L		10/06/22 08:28	10/07/22 15:26	5
Indeno[1,2,3-cd]pyrene	ND		25	2.4	ug/L		10/06/22 08:28	10/07/22 15:26	5
Naphthalene	ND		25	3.8	ug/L		10/06/22 08:28	10/07/22 15:26	5
Phenol	**4.7**	**J**	25	2.0	ug/L		10/06/22 08:28	10/07/22 15:26	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*74*		*41 - 120*	*10/06/22 08:28*	*10/07/22 15:26*	*5*
2-Fluorobiphenyl	*94*		*48 - 120*	*10/06/22 08:28*	*10/07/22 15:26*	*5*
2-Fluorophenol (Surr)	*55*		*35 - 120*	*10/06/22 08:28*	*10/07/22 15:26*	*5*
Nitrobenzene-d5 (Surr)	*79*		*46 - 120*	*10/06/22 08:28*	*10/07/22 15:26*	*5*
Phenol-d5 (Surr)	*42*		*22 - 120*	*10/06/22 08:28*	*10/07/22 15:26*	*5*
p-Terphenyl-d14 (Surr)	*87*		*60 - 148*	*10/06/22 08:28*	*10/07/22 15:26*	*5*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.45**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**56.8**		10.0	1.7	mg/L			10/07/22 22:40	5
Cyanide, Total (SW846 9012B)	**0.36**		0.010	0.0041	mg/L			10/09/22 14:12	1
Nitrate as N (SM Nitrate by calc)	**0.086**		0.050	0.020	mg/L			10/04/22 21:37	1

Client Sample ID: MW-7 — Lab Sample ID: 480-202303-5

Date Collected: 10/04/22 08:23 — **Matrix: Water**
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/22 18:55	1
Benzene	ND		1.0	0.41	ug/L			10/07/22 18:55	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/22 18:55	1
Styrene	ND		1.0	0.73	ug/L			10/07/22 18:55	1

Client Sample ID: MW-7
Lab Sample ID: 480-202303-5
Date Collected: 10/04/22 08:23
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0	0.51	ug/L			10/07/22 18:55	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/22 18:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*77 - 120*		*10/07/22 18:55*	*1*
4-Bromofluorobenzene (Surr)	*91*		*73 - 120*		*10/07/22 18:55*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 123*		*10/07/22 18:55*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*10/07/22 18:55*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		10/06/22 08:28	10/07/22 15:54	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		10/06/22 08:28	10/07/22 15:54	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 15:54	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		10/06/22 08:28	10/07/22 15:54	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		10/06/22 08:28	10/07/22 15:54	1
Chrysene	ND		5.2	0.34	ug/L		10/06/22 08:28	10/07/22 15:54	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		10/06/22 08:28	10/07/22 15:54	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 15:54	1
Naphthalene	ND		5.2	0.79	ug/L		10/06/22 08:28	10/07/22 15:54	1
Phenol	ND		5.2	0.41	ug/L		10/06/22 08:28	10/07/22 15:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*84*		*41 - 120*	*10/06/22 08:28*	*10/07/22 15:54*	*1*
2-Fluorobiphenyl	*102*		*48 - 120*	*10/06/22 08:28*	*10/07/22 15:54*	*1*
2-Fluorophenol (Surr)	*72*		*35 - 120*	*10/06/22 08:28*	*10/07/22 15:54*	*1*
Nitrobenzene-d5 (Surr)	*88*		*46 - 120*	*10/06/22 08:28*	*10/07/22 15:54*	*1*
Phenol-d5 (Surr)	*57*		*22 - 120*	*10/06/22 08:28*	*10/07/22 15:54*	*1*
p-Terphenyl-d14 (Surr)	*101*		*60 - 148*	*10/06/22 08:28*	*10/07/22 15:54*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**9.7**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**10.8**		10.0	1.7	mg/L			10/07/22 22:59	5
Cyanide, Total (SW846 9012B)	ND		0.010	0.0041	mg/L			10/05/22 20:38	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:38	1

Client Sample ID: MW-9
Lab Sample ID: 480-202303-6
Date Collected: 10/04/22 10:48
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**7.7**	**J**	10	3.0	ug/L			10/10/22 01:38	1
Benzene	**6.1**		1.0	0.41	ug/L			10/10/22 01:38	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/10/22 01:38	1
Styrene	ND		1.0	0.73	ug/L			10/10/22 01:38	1
Toluene	**0.70**	**J**	1.0	0.51	ug/L			10/10/22 01:38	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-202303-1

Client Sample ID: MW-9

Lab Sample ID: 480-202303-6

Date Collected: 10/04/22 10:48
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		2.0	0.66	ug/L			10/10/22 01:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*10/10/22 01:38*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*10/10/22 01:38*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*10/10/22 01:38*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/10/22 01:38*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/22 08:28	10/07/22 16:22	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/22 08:28	10/07/22 16:22	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 16:22	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/22 08:28	10/07/22 16:22	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/22 08:28	10/07/22 16:22	1
Chrysene	ND		5.0	0.33	ug/L		10/06/22 08:28	10/07/22 16:22	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/22 08:28	10/07/22 16:22	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 16:22	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/22 08:28	10/07/22 16:22	1
Phenol	**0.74**	**J**	5.0	0.39	ug/L		10/06/22 08:28	10/07/22 16:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*72*		*41 - 120*	*10/06/22 08:28*	*10/07/22 16:22*	*1*
2-Fluorobiphenyl	*88*		*48 - 120*	*10/06/22 08:28*	*10/07/22 16:22*	*1*
2-Fluorophenol (Surr)	*57*		*35 - 120*	*10/06/22 08:28*	*10/07/22 16:22*	*1*
Nitrobenzene-d5 (Surr)	*74*		*46 - 120*	*10/06/22 08:28*	*10/07/22 16:22*	*1*
Phenol-d5 (Surr)	*44*		*22 - 120*	*10/06/22 08:28*	*10/07/22 16:22*	*1*
p-Terphenyl-d14 (Surr)	*79*		*60 - 148*	*10/06/22 08:28*	*10/07/22 16:22*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	ND		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**239**		20.0	3.5	mg/L			10/07/22 23:19	10
Cyanide, Total (SW846 9012B)	**0.023**		0.010	0.0041	mg/L			10/09/22 14:14	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:39	1

Client Sample ID: MW-10

Lab Sample ID: 480-202303-7

Date Collected: 10/03/22 11:02
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/22 15:49	1
Benzene	ND		1.0	0.41	ug/L			10/08/22 15:49	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/22 15:49	1
Styrene	ND		1.0	0.73	ug/L			10/08/22 15:49	1
Toluene	ND		1.0	0.51	ug/L			10/08/22 15:49	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/22 15:49	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-202303-1

Client Sample ID: MW-10

Date Collected: 10/03/22 11:02
Date Received: 10/04/22 14:10

Lab Sample ID: 480-202303-7
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		77 - 120		10/08/22 15:49	1
4-Bromofluorobenzene (Surr)	103		73 - 120		10/08/22 15:49	1
Dibromofluoromethane (Surr)	101		75 - 123		10/08/22 15:49	1
Toluene-d8 (Surr)	102		80 - 120		10/08/22 15:49	1

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.7	0.45	ug/L		10/06/22 08:28	10/07/22 16:50	1
Benzo[a]anthracene	ND		5.7	0.41	ug/L		10/06/22 08:28	10/07/22 16:50	1
Benzo[a]pyrene	ND		5.7	0.53	ug/L		10/06/22 08:28	10/07/22 16:50	1
Benzo[b]fluoranthene	ND		5.7	0.39	ug/L		10/06/22 08:28	10/07/22 16:50	1
Benzo[k]fluoranthene	ND		5.7	0.83	ug/L		10/06/22 08:28	10/07/22 16:50	1
Chrysene	ND		5.7	0.38	ug/L		10/06/22 08:28	10/07/22 16:50	1
Dibenz(a,h)anthracene	ND		5.7	0.48	ug/L		10/06/22 08:28	10/07/22 16:50	1
Indeno[1,2,3-cd]pyrene	ND		5.7	0.53	ug/L		10/06/22 08:28	10/07/22 16:50	1
Naphthalene	ND		5.7	0.86	ug/L		10/06/22 08:28	10/07/22 16:50	1
Phenol	ND		5.7	0.44	ug/L		10/06/22 08:28	10/07/22 16:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	77		41 - 120	10/06/22 08:28	10/07/22 16:50	1
2-Fluorobiphenyl	81		48 - 120	10/06/22 08:28	10/07/22 16:50	1
2-Fluorophenol (Surr)	60		35 - 120	10/06/22 08:28	10/07/22 16:50	1
Nitrobenzene-d5 (Surr)	70		46 - 120	10/06/22 08:28	10/07/22 16:50	1
Phenol-d5 (Surr)	50		22 - 120	10/06/22 08:28	10/07/22 16:50	1
p-Terphenyl-d14 (Surr)	84		60 - 148	10/06/22 08:28	10/07/22 16:50	1

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.067**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**21.1**		2.0	0.35	mg/L			10/07/22 23:38	1
Cyanide, Total (SW846 9012B)	**0.15**		0.010	0.0041	mg/L			10/09/22 14:29	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:50	1

Client Sample ID: MW-11

Date Collected: 10/03/22 12:10
Date Received: 10/04/22 14:10

Lab Sample ID: 480-202303-8
Matrix: Water

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20	6.0	ug/L			10/08/22 16:11	2
Benzene	**1.9**	**J**	2.0	0.82	ug/L			10/08/22 16:11	2
Ethylbenzene	ND		2.0	1.5	ug/L			10/08/22 16:11	2
Styrene	ND		2.0	1.5	ug/L			10/08/22 16:11	2
Toluene	ND		2.0	1.0	ug/L			10/08/22 16:11	2
Xylenes, Total	ND		4.0	1.3	ug/L			10/08/22 16:11	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		77 - 120		10/08/22 16:11	2
4-Bromofluorobenzene (Surr)	101		73 - 120		10/08/22 16:11	2

Client Sample ID: MW-11
Lab Sample ID: 480-202303-8
Date Collected: 10/03/22 12:10
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*10/08/22 16:11*	*2*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/08/22 16:11*	*2*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		52	4.2	ug/L		10/06/22 08:28	10/07/22 17:19	10
Benzo[a]anthracene	ND		52	3.8	ug/L		10/06/22 08:28	10/07/22 17:19	10
Benzo[a]pyrene	ND		52	4.9	ug/L		10/06/22 08:28	10/07/22 17:19	10
Benzo[b]fluoranthene	ND		52	3.5	ug/L		10/06/22 08:28	10/07/22 17:19	10
Benzo[k]fluoranthene	ND		52	7.6	ug/L		10/06/22 08:28	10/07/22 17:19	10
Chrysene	ND		52	3.4	ug/L		10/06/22 08:28	10/07/22 17:19	10
Dibenz(a,h)anthracene	ND		52	4.4	ug/L		10/06/22 08:28	10/07/22 17:19	10
Indeno[1,2,3-cd]pyrene	ND		52	4.9	ug/L		10/06/22 08:28	10/07/22 17:19	10
Naphthalene	ND		52	7.9	ug/L		10/06/22 08:28	10/07/22 17:19	10
Phenol	ND		52	4.1	ug/L		10/06/22 08:28	10/07/22 17:19	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	*63*		*41 - 120*	*10/06/22 08:28*	*10/07/22 17:19*	*10*
2-Fluorobiphenyl	*77*		*48 - 120*	*10/06/22 08:28*	*10/07/22 17:19*	*10*
2-Fluorophenol (Surr)	*40*		*35 - 120*	*10/06/22 08:28*	*10/07/22 17:19*	*10*
Nitrobenzene-d5 (Surr)	*61*		*46 - 120*	*10/06/22 08:28*	*10/07/22 17:19*	*10*
Phenol-d5 (Surr)	*27*		*22 - 120*	*10/06/22 08:28*	*10/07/22 17:19*	*10*
p-Terphenyl-d14 (Surr)	*65*		*60 - 148*	*10/06/22 08:28*	*10/07/22 17:19*	*10*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.13**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**17.3**		2.0	0.35	mg/L			10/08/22 01:36	1
Cyanide, Total (SW846 9012B)	**0.010**	**U**	0.010	0.0041	mg/L			10/05/22 21:12	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:52	1

Client Sample ID: MW-12
Lab Sample ID: 480-202303-9
Date Collected: 10/03/22 14:50
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/22 16:33	1
Benzene	**7.3**		1.0	0.41	ug/L			10/08/22 16:33	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/22 16:33	1
Styrene	ND		1.0	0.73	ug/L			10/08/22 16:33	1
Toluene	ND		1.0	0.51	ug/L			10/08/22 16:33	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/22 16:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*10/08/22 16:33*	*1*
4-Bromofluorobenzene (Surr)	*104*		*73 - 120*		*10/08/22 16:33*	*1*
Dibromofluoromethane (Surr)	*99*		*75 - 123*		*10/08/22 16:33*	*1*

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-202303-1

Client Sample ID: MW-12

Lab Sample ID: 480-202303-9

Date Collected: 10/03/22 14:50
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/08/22 16:33*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/22 08:28	10/07/22 17:46	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/22 08:28	10/07/22 17:46	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 17:46	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/22 08:28	10/07/22 17:46	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/22 08:28	10/07/22 17:46	1
Chrysene	ND		5.0	0.33	ug/L		10/06/22 08:28	10/07/22 17:46	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/22 08:28	10/07/22 17:46	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 17:46	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/22 08:28	10/07/22 17:46	1
Phenol	ND		5.0	0.39	ug/L		10/06/22 08:28	10/07/22 17:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	*78*		*41 - 120*	*10/06/22 08:28*	*10/07/22 17:46*	*1*
2-Fluorobiphenyl	*95*		*48 - 120*	*10/06/22 08:28*	*10/07/22 17:46*	*1*
2-Fluorophenol (Surr)	*65*		*35 - 120*	*10/06/22 08:28*	*10/07/22 17:46*	*1*
Nitrobenzene-d5 (Surr)	*82*		*46 - 120*	*10/06/22 08:28*	*10/07/22 17:46*	*1*
Phenol-d5 (Surr)	*50*		*22 - 120*	*10/06/22 08:28*	*10/07/22 17:46*	*1*
p-Terphenyl-d14 (Surr)	*81*		*60 - 148*	*10/06/22 08:28*	*10/07/22 17:46*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**8.8**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**19.0**		10.0	1.7	mg/L			10/08/22 01:56	5
Cyanide, Total (SW846 9012B)	**0.010**	**U**	0.010	0.0041	mg/L			10/05/22 21:14	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:53	1

Client Sample ID: DUPLICATE

FD of MW-10

Lab Sample ID: 480-202303-10

Date Collected: 10/03/22 00:00
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/08/22 16:55	1
Benzene	ND		1.0	0.41	ug/L			10/08/22 16:55	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/08/22 16:55	1
Styrene	ND		1.0	0.73	ug/L			10/08/22 16:55	1
Toluene	ND		1.0	0.51	ug/L			10/08/22 16:55	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/08/22 16:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*10/08/22 16:55*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*10/08/22 16:55*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*10/08/22 16:55*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/08/22 16:55*	*1*

Client Sample ID: DUPLICATE

FD of MW-10

Lab Sample ID: 480-202303-10

Date Collected: 10/03/22 00:00
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.2	0.42	ug/L		10/06/22 08:28	10/07/22 18:14	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		10/06/22 08:28	10/07/22 18:14	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 18:14	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		10/06/22 08:28	10/07/22 18:14	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		10/06/22 08:28	10/07/22 18:14	1
Chrysene	ND		5.2	0.34	ug/L		10/06/22 08:28	10/07/22 18:14	1
Dibenz(a,h)anthracene	ND		5.2	0.44	ug/L		10/06/22 08:28	10/07/22 18:14	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		10/06/22 08:28	10/07/22 18:14	1
Naphthalene	ND		5.2	0.79	ug/L		10/06/22 08:28	10/07/22 18:14	1
Phenol	ND		5.2	0.41	ug/L		10/06/22 08:28	10/07/22 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*85*		*41 - 120*	*10/06/22 08:28*	*10/07/22 18:14*	*1*
2-Fluorobiphenyl	*102*		*48 - 120*	*10/06/22 08:28*	*10/07/22 18:14*	*1*
2-Fluorophenol (Surr)	*72*		*35 - 120*	*10/06/22 08:28*	*10/07/22 18:14*	*1*
Nitrobenzene-d5 (Surr)	*89*		*46 - 120*	*10/06/22 08:28*	*10/07/22 18:14*	*1*
Phenol-d5 (Surr)	*59*		*22 - 120*	*10/06/22 08:28*	*10/07/22 18:14*	*1*
p-Terphenyl-d14 (Surr)	*87*		*60 - 148*	*10/06/22 08:28*	*10/07/22 18:14*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.11**		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	**21.2**		2.0	0.35	mg/L			10/08/22 02:16	1
Cyanide, Total (SW846 9012B)	**0.15**		0.010	0.0041	mg/L			10/09/22 14:33	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:55	1

Client Sample ID: RINSE BLANK

Lab Sample ID: 480-202303-11

Date Collected: 10/04/22 09:34
Matrix: Water
Date Received: 10/04/22 14:10

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/22 19:40	1
Benzene	ND		1.0	0.41	ug/L			10/07/22 19:40	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/22 19:40	1
Styrene	ND		1.0	0.73	ug/L			10/07/22 19:40	1
Toluene	ND		1.0	0.51	ug/L			10/07/22 19:40	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/22 19:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*77 - 120*		*10/07/22 19:40*	*1*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*10/07/22 19:40*	*1*
Dibromofluoromethane (Surr)	*90*		*75 - 123*		*10/07/22 19:40*	*1*
Toluene-d8 (Surr)	*86*		*80 - 120*		*10/07/22 19:40*	*1*

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		5.0	0.40	ug/L		10/06/22 08:28	10/07/22 18:41	1

Client Sample Results

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-202303-1

Client Sample ID: RINSE BLANK

Lab Sample ID: 480-202303-11

Date Collected: 10/04/22 09:34
Date Received: 10/04/22 14:10

Matrix: Water

Method: SW846 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		5.0	0.36	ug/L		10/06/22 08:28	10/07/22 18:41	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 18:41	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		10/06/22 08:28	10/07/22 18:41	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		10/06/22 08:28	10/07/22 18:41	1
Chrysene	ND		5.0	0.33	ug/L		10/06/22 08:28	10/07/22 18:41	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		10/06/22 08:28	10/07/22 18:41	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		10/06/22 08:28	10/07/22 18:41	1
Naphthalene	ND		5.0	0.76	ug/L		10/06/22 08:28	10/07/22 18:41	1
Phenol	ND		5.0	0.39	ug/L		10/06/22 08:28	10/07/22 18:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*61*		*41 - 120*	*10/06/22 08:28*	*10/07/22 18:41*	*1*
2-Fluorobiphenyl	*87*		*48 - 120*	*10/06/22 08:28*	*10/07/22 18:41*	*1*
2-Fluorophenol (Surr)	*62*		*35 - 120*	*10/06/22 08:28*	*10/07/22 18:41*	*1*
Nitrobenzene-d5 (Surr)	*78*		*46 - 120*	*10/06/22 08:28*	*10/07/22 18:41*	*1*
Phenol-d5 (Surr)	*49*		*22 - 120*	*10/06/22 08:28*	*10/07/22 18:41*	*1*
p-Terphenyl-d14 (Surr)	*105*		*60 - 148*	*10/06/22 08:28*	*10/07/22 18:41*	*1*

Method: SW846 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	ND		0.050	0.019	mg/L		10/06/22 16:20	10/08/22 02:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate (MCAWW 300.0)	ND		2.0	0.35	mg/L			10/08/22 02:35	1
Cyanide, Total (SW846 9012B)	**0.0088**	**J**	0.010	0.0041	mg/L			10/05/22 21:19	1
Nitrate as N (SM Nitrate by calc)	ND		0.050	0.020	mg/L			10/04/22 21:56	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-202303-12

Date Collected: 10/04/22 00:00
Date Received: 10/04/22 14:10

Matrix: Water

Method: SW846 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		10	3.0	ug/L			10/07/22 20:03	1
Benzene	ND		1.0	0.41	ug/L			10/07/22 20:03	1
Ethylbenzene	ND		1.0	0.74	ug/L			10/07/22 20:03	1
Styrene	ND		1.0	0.73	ug/L			10/07/22 20:03	1
Toluene	ND		1.0	0.51	ug/L			10/07/22 20:03	1
Xylenes, Total	ND		2.0	0.66	ug/L			10/07/22 20:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*77 - 120*		*10/07/22 20:03*	*1*
4-Bromofluorobenzene (Surr)	*84*		*73 - 120*		*10/07/22 20:03*	*1*
Dibromofluoromethane (Surr)	*92*		*75 - 123*		*10/07/22 20:03*	*1*
Toluene-d8 (Surr)	*90*		*80 - 120*		*10/07/22 20:03*	*1*

Appendix C Support Documentation

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone 716-691-2600 Fax 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information			
Sampler: S. Connolly	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-165719-36301 1
Client Contact: Tami Raby	Phone: (716)393-0870	E-Mail: John.Schove@Eurofinset.com	State of Origin:	Page: Page 1 of 1
Company: AECOM	PWSID:		Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:		
City: Amherst	TAT Requested (days): STD		
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No		
Phone:	PO #: Purchase Order Requested		
Email: tamara.raby@aecom.com	WO #:		
Project Name: NYSEG Auburn Green Street	Project #: 48020888		
Site:	SSOW#:		

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C - Metals - Arsenic	6010C - Metals - Arsenic	Total Number of containers	Special Instructions/Note:
				Preservation Code:			N	D		
SS-13-0-6"	9/25/21	0900	G	Solid	N	N	1			
SS-13-0-6"-MS	↓	0900	G	Solid	N	Y	1			
SS-13-6"-12"-MSD		0900	G	Solid	N	Y	1			
SS-13-6"-12"		0915	G	Solid	N	N	1			
FD-20210928	9/25/21	—	G	Solid	N	N	1			
EB-20210928	9/28/21	0850	G	Water	N	N		1		

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Other:

480-190294 Chain of Custody

Possible Hazard Identification
☑ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☑ *Disposal By Lab* ☐ *Archive For* ______ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Sam P. Connolly	Date/Time: 9/29/21 @ 1300	Company: Aecom	Received by: [signature]	Date/Time: 9/30/21 1000	Company: TAB
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: #1 2.9		

Ver: 06/08/2021

Job Narrative
480-190294-1

Comments
No additional comments.

Receipt
The samples were received on 9/30/2021 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.9º C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

3-IN
METHOD BLANK
METALS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-190294-1

SDG No.:

Concentration Units: mg/Kg Lab Sample ID: MB 480-598949/1-A

Instrument Code: ICAP1 Batch No.: 599215

CAS No.	Analyte	Concentration	C	Q	Method
7440-38-2	Arsenic	0.575	J		6010C

FORM III-IN

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Sean P. Connelly	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-165718-36300.1
Client Contact: Tami Raby	Phone: (716) 393-0870	E-Mail: John.Schove@Eurofinset.com	State of Origin:	Page: Page 1 of ~~2~~ 1
Company: AECOM	PWSID:			Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 137633 Purchase Order Requested			
Email: tamara.raby@aecom.com	WO #:			
Project Name: NYSEG Auburn Green Street	Project #: 48020888 Quote #: 48024181			
Site:	SSOW#:			

Analysis Requested

Preservation Codes: A - HCL; L - EDA; vv - pH 4-5; Z - other (specify); Other:

480-190335 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - SVOCs - PAH Semivolatiles	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron	Total Number of containers	Special Instructions/Note:
				Preservation Code:			N	N	A	B	N	N		
MW-1	9/30/21	1547	G	Water	Y	N	2	1	3	1	1	1	9	
~~MW-2~~ MW-6	9/30/21	1105	G	Water	Y	N	2	1	3	1	1	1	9	
~~MW-3~~ ~~MS/MSD~~ Duplicate	9/30/21	—	G	Water	Y	N	2	1	3	1	1	1	9	
~~MW-4~~ MW-3 MS/MSD	9/30/21	1211	G	Water	Y	Y	6	3	9	3	3	3	27	
MW-5 MW-4	9/30/21	1440	G	Water	Y	N	2	1	3	1	1	1	9	
MW-6 MW-5	9/30/21	1651	G	Water	Y	N	2	1	3	1	1	1	9	
~~MW-7~~ Trip Blank	9/30/21	—	G	Water	N	N			2				2	
~~MW-8~~				Water										
~~MW-9~~				Water										
~~MW-10~~				Water										
~~MW-11~~				Water										

Nitrate field filtered
4 Day TAT for MW-4

Site Specific VOCs:	BTEX + acetone and styrene
Site Specific SVOCs:	2-methylphenol, 2-methylnapthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz[a,h]anthracene, ideno(1,2,3-CD)pyrene, napthalene, and phenol
Metals:	Dissolved Iron Only

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ________ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:		Method of Shipment:	
Relinquished by: Sean P. Connelly	Date/Time: 10/1/21 c 1020	Company: Aecom	Received by: [illegible]	Date/Time: 10/1/21 1020	Company: TA	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:	

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.6 4.1 #1

Ver: 06/08/2021

Job Narrative
480-190335-1

Comments
No additional comments.

Receipt
The samples were received on 10/1/2021 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.6º C and 4.1º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC
Method 300.0: The following samples were diluted due to the abundance of non-target analytes: MW-1 (480-190335-1), MW-6 (480-190335-2), DUPLICATE (480-190335-3) and MW-3 (480-190335-4). Elevated reporting limits (RLs) are provided.

Method 300.0: The following sample was diluted due to the nature of the sample matrix: MW-5 (480-190335-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 3005A: The following samples for metals were received unpreserved and were preserved upon receipt to the laboratory: MW-1 (480-190335-1), MW-6 (480-190335-2), DUPLICATE (480-190335-3), MW-3 (480-190335-4), MW-3 (480-190335-4[MS]), MW-3 (480-190335-4[MSD]), MW-4 (480-190335-5) and MW-5 (480-190335-6). Regulatory documents require a 24-hour waiting period from the time of the addition of the acid preservative to the time of digestion. Preserved 10/6/21 at 1325. Second check 10/7/21 at 1630.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 3510C: Due to the matrix, the initial volume(s) used for the following samples deviated from the standard procedure: MW-3 (480-190335-4), MW-3 (480-190335-4[MS]) and MW-3 (480-190335-4[MSD]). The reporting limits (RLs) have been adjusted proportionately.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, Buffalo   Job No.: 480-190335-1

SDG No.:

Prep Method: 3005A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 480-599519/1-A	10/08/2021 09:22	599519		50	50
LCS 480-599519/2-A	10/08/2021 09:22	599519		50	50
480-190335-1	10/08/2021 09:22	599519		50	50
480-190335-2	10/08/2021 09:22	599519		50	50
480-190335-3	10/08/2021 09:22	599519		50	50
480-190335-4	10/08/2021 09:22	599519		50	50
480-190335-4 MS	10/08/2021 09:22	599519		50	50
480-190335-4 MSD	10/08/2021 09:22	599519		50	50
480-190335-5	10/08/2021 09:22	599519		50	50
480-190335-6	10/08/2021 09:22	599519		50	50

FORM XII-IN

3-IN
METHOD BLANK
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Buffalo   Job No.: 480-190335-1

SDG No.:

Concentration Units: mg/L   Lab Sample ID: MB 480-599519/1-A

Instrument Code: ICAP1   Batch No.: 599838

CAS No.	Analyte	Concentration	C	Q	Method
7439-89-6	Iron, Dissolved	0.0190	J		6010C

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Sean P. Connolly	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-165718-36300.1
Client Contact: Tami Raby	Phone: (716) 393-0870	E-Mail: John.Schove@Eurofinset.com	State of Origin:	Page: Page 1 of 2 1
Company: AECOM	PWSID:			Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			Preservation Codes: A - HCL
City: Amherst	TAT Requested (days):			480-190335 Chain of Custody
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			L - EDA; vv - pH 4-5; Z - other (specify)
Phone:	PO #: 137633 Purchase Order Requested			Other:
Email: tamara.raby@aecom.com	WO #:			
Project Name: NYSEG Auburn Green Street	Project #: 48020888 Quote: 48024181			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - SVOCs - PAH Semivolatiles	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron	Total Number of containers
			Preservation Code:				N	N	A	B	N	N	
MW-1	9/30/21	1547	G	Water	N	N	2	1	3	1	1	1	9
~~MW-2~~ MW-6	9/30/21	1105	G	Water	N	N	2	1	3	1	1	1	9
~~MW-3~~ ~~MS/MSD~~ Duplicate	9/30/21	—	G	Water	N	N	2	1	3	1	1	1	9
~~MW-4~~ MW-3 MS/MSD	9/30/21	1211	G	Water	Y	Y	6	3	9	3	3	3	27
MW-5 MW-4	9/30/21	1440	G	Water	Y	N	2	1	3	1	1	1	9
MW-6 MW-5	9/30/21	1651	G	Water	Y	N	2	1	3	1	1	1	9
~~MW-7~~ Trip Blank	9/30/21	—	G	Water	N	N			2				2
~~MW-8~~				Water									
~~MW-9~~				Water									
~~MW-10~~				Water									
~~MW-11~~				Water									

Special Instructions/Note:

Nitrate field filtered
4 Pg TAT for MW-4

Site Specific VOCs:	BTEX + acetone and styrene
Site Specific SVOCs:	2-methylphenol, 2-methylnapthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz[a,h]anthracene, ideno(1,2,3-CD)pyrene, napthalene, and phenol
Metals:	Dissolved Iron Only

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Sean P. Connolly	Date/Time: 10/1/21 C 1020	Company: Aecom	Received by: [signature]	Date/Time: 10/1/21 1020	Company: TA
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 3.6 4.1 #1		

Ver: 06/08/2021

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Case Narrative

Client: AECOM
Project/Site: NYSEG Auburn Green Street

Job ID: 480-190335-2

Job ID: 480-190335-2

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-190335-2

Comments
No additional comments.

Receipt
The samples were received on 10/1/2021 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.6º C and 4.1º C.

GC/MS VOA
Method 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-4 (480-190335-5). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Emily Au	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-165718-36300.1
Client Contact: Tami Raby	Phone: 716-531-3312	E-Mail: John.Schove@Eurofinset.com	State of Origin:	Page: Page 1 of 2
Company: AECOM	PWSID:			Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			
City: Amherst	TAT Requested (days): 2 Day for ALL VOCs + MW-9/10 SVOCs; ALL others STANDARD			
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 137633 Purchase Order Requested			
Email: tamara.raby@aecom.com	WO #:			
Project Name: NYSEG Auburn Green Street	Project #: 48020888 Quote: 48024181			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3
cahydrate
fy)

480-190421 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - SVOCs - PAH Semivolatiles	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene +ACETONE	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron (Field Filtered)	Total Number of containers	Special Instructions/Note:
				Preservation Code:			N	N	A	B	N	N		
MW-2	10/4/21	1000	G	Water	Y	N	2	1	3	1	1	1		
MW-7	10/4/21	1115	G	Water	Y	N	2	1	3	1	1	1		
MW-8	10/4/21	1300	G	Water	Y	N	2	1	3	1	1	1		
MW-9	10/4/21	1655	G	Water	Y	N	2	1	3	1	1	1		
MW-10	10/4/21	1440	G	Water	Y	N	2	1	3	1	1	1		
TB-100421	10/4/21	-	TRIP	Water	N	N	X	X	2	X	X	X		
RINSE BLANK	10/4/21	1720	G	Water	Y	N	2	1	2	1	1	1		
				Water										
				Water										
				Water										
				Water										

Site Specific VOCs:	BTEX + acetone and styrene
Site Specific SVOCs:	2-methylphenol, 2-methylnapthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz[a,h]anthracene, ideno(1,2,3-CD)pyrene, napthalene, and phenol
Metals:	Dissolved Iron Only

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months

Deliverable Requested: I, II, III, IV, Other (specify) per contract

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:		Time:		Method of Shipment:	
Relinquished by: Emily Au	Date/Time: 10/5/21 855	Company: AECOM	Received by: Cameron Lindolph	Date/Time: 10/5/21 855	Company: TA
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 3.5 #1			

Ver: 06/08/2021

Job Narrative
480-190421-1

Comments
No additional comments.

Receipt
The samples were received on 10/5/2021 8:55 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC
Method 300.0: The following samples were diluted due to the abundance of non-target analytes: MW-2 (480-190421-1), MW-7 (480-190421-2), MW-8 (480-190421-3) and MW-9 (480-190421-4). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 3005A: The following samples for metals were received unpreserved and were preserved upon receipt to the laboratory: MW-2 (480-190421-1), MW-7 (480-190421-2), MW-8 (480-190421-3), MW-9 (480-190421-4), MW-10 (480-190421-5) and RISE BLANK (480-190421-6). Regulatory documents require a 24-hour waiting period from the time of the addition of the acid preservative to the time of digestion. Preserved 10/6/21 at 1325. Second check 10/7/21 at 1630.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method 353.2: The continuing calibration verification (CCV) associated with batch 480-599163 recovered above the upper control limit for Nitrite. The samples associated with this CCV did not have any detections above the reporting limit for the affected analyte; therefore, the data have been reported. The associated samples are impacted: MW-2 (480-190421-1), MW-8 (480-190421-3) and MW-10 (480-190421-5).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-190421-1

SDG No.:

Prep Method: 3005A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 480-599519/1-A	10/08/2021 09:22	599519		50	50
LCS 480-599519/2-A	10/08/2021 09:22	599519		50	50
480-190421-1	10/08/2021 09:22	599519		50	50
480-190421-2	10/08/2021 09:22	599519		50	50
480-190421-3	10/08/2021 09:22	599519		50	50
480-190421-4	10/08/2021 09:22	599519		50	50
480-190421-5	10/08/2021 09:22	599519		50	50
480-190421-6	10/08/2021 09:22	599519		50	50

3-IN
METHOD BLANK
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-190421-1

SDG No.:

Concentration Units: mg/L Lab Sample ID: MB 480-599519/1-A

Instrument Code: ICAP1 Batch No.: 599838

CAS No.	Analyte	Concentration	C	Q	Method
7439-89-6	Iron, Dissolved	0.0190	J		6010C

FORM III-IN

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Emily Au	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-165718-36300.1
Client Contact: Tami Raby	Phone: 716-531-3312	E-Mail: John.Schove@Eurofinset.com	State of Origin:	Page: Page 1 of 2
Company: AECOM	PWSID:			Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			
City: Amherst	TAT Requested (days): 2 Day for ALL VOCs + MW-9/10 SVOCs; ALL others STANDARD			
State, Zip: NY, 14228	Compliance Project: Δ ~~Yes~~ Δ No			
Phone:	PO #: 137633 Purchase Order Requested			
Email: tamara.raby@aecom.com	WO #:			
Project Name: NYSEG Auburn Green Street	Project #: 48020888 Quote: 48024181			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3
cahydrate
fy)

480-190421 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - SVOCs - PAH Semivolatiles	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene +ACETONE	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron (Field Filtered)	Total Number of containers
				Preservation Code:			N	N	A	B	N	N	
MW-2	10/4/21	1000	G	Water	Y	N	2	1	3	1	1	1	
MW-7	10/4/21	1115	G	Water	Y	N	2	1	3	1	1	1	
MW-8	10/4/21	1300	G	Water	Y	N	2	1	3	1	1	1	
MW-9	10/4/21	1655	G	Water	Y	N	2	1	3	1	1	1	
MW-10	10/4/21	1440	G	Water	Y	N	2	1	3	1	1	1	
TB-100421	10/4/21	-	TRIP	Water	N	N	X	X	2	X	X	X	
RINSE BLANK	10/4/21	1720	G	Water	Y	N	2	1	2	1	1	1	
				Water									
				Water									
				Water									
				Water									

Special Instructions/Note:

Site Specific VOCs:	BTEX + acetone and styrene
Site Specific SVOCs:	2-methylphenol, 2-methylnapthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz[a,h]anthracene, ideno(1,2,3-CD)pyrene, napthalene, and phenol
Metals:	Dissolved Iron Only

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months

Deliverable Requested: I, II, III, IV, Other (specify) per contract

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Emily Au	Date/Time: 10/5/21 855	Company: AECOM	Received by: [signature]	Date/Time: 10/5/21 855	Company: TA
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 3.5 #1		

Ver: 06/08/2021

Job Narrative
480-190421-2

Comments
No additional comments.

Receipt
The samples were received on 10/5/2021 8:55 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

GC/MS VOA
Method 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-9 (480-190421-4). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Eurofins Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: K. McGovern / C Hoare	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-176317-36300.1
Client Contact: Tami Raby	Phone: 716-923-1101	E-Mail: John.Schove@et.eurofinsus.com	State of Origin:	Page: Page 1 of 2
Company: AECOM	PWSID:			Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 146783			
Email: tamara.raby@aecom.com	WO #: 60652550			
Project Name: NYSEG Auburn Green Street	Project #: 48020888			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
M - Hexane
N - None
O - AsNaO2
P - Na2O4S

480-200734 Chain of Custody

drate

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - SVOCs - PAH Semivolatiles	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	A	B	N	N		
MW-1	8/16/22	08:50	G	Water	Y	N	2	1	3	1	1	1	9	
MW-2	↓	10:00	↓	Water	Y	↓	2	1	3	1	1	1	1	
MW-3	8/15/22	12:15	G	Water	Y	Y	2	1	3	1	1	1	9	
MW-4		15:15		Water	Y	N	2	1	3	1	1	1		
MW-5		10:55		Water	Y		2	1	3	1	1	1		
MW-6	↓	12:45	↓	Water	Y	↓	2	1	3	1	1	1	↓	
MW-7	8/16/22	09:10		Water										
MW-8	8/15/22	11:30	G	Water	Y	N	2	1	3	1	1	1	9	
MW-9		15:50		Water	Y									
MW-10		14:00		Water	Y									
MW-11	↓	14:10	↓	Water	Y	↓	↓	↓	↓	↓	↓	↓	↓	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ________ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: [signature]	Date/Time: 8/16/22, 13:39	Company: Aecom	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by: [signature]	Date/Time: 8/16/22 1320	Company: ETB
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		

Ver: 06/08/2021

Eurofins Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: RC McGovern / C. Hon	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-176317-36300 2
Client Contact: Tami Raby	Phone: 716-923-1201	E-Mail: John.Schove@et.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: AECOM	PWSID:	**Analysis Requested**		Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 146783			
Email: tamara.raby@aecom.com	WO #: 60652550			
Project Name: NYSEG Auburn Green Street	Project #: 48020888			
Site:	SSOW#:			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - SVOCs - PAH Semivolatiles	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron	Total Number of containers	Special Instructions/Note:
				Preservation Code:			N	N	A	B	N	N		
MW-12	8/16/22	10:10	G	Water	Y	N	2	1	3	1	1	1	9	
DUPLICATE	8/15/22	—	G	Water	Y	N	2	1	3	1	1	1	9	
MW-3 MS	↓	12:15	↓	Water	Y	Y	↓	↓	↓	↓	↓	↓	9	
MW-3 MSD	↓	12:15	↓	Water	Y	Y	↓	↓	↓	↓	↓	↓	9	
				Water										
				Water										
RINSE BLANK	8/15/22	15:45	G	Water	Y	N	2	1	3	1	1	1	9	
TRIP BLANK	—	—	—	Water		N			2				2	
TRIP BLANK	—	—	—	Water		N			2				2	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: [signature]	Date/Time: 8/16/22 13:37	Company: AECOM	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by: [signature]	Date/Time: 8/16/22 1830	Company: ETA

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Job Narrative
480-200734-1

Comments
No additional comments.

Receipt
The samples were received on 8/16/2022 1:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 2.5º C, 2.7º C, 3.0º C and 3.2º C.

GC/MS VOA
Method 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-4 (480-200734-4) and MW-9 (480-200734-8). Elevated reporting limits (RLs) are provided.

Method 8260C: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: MW-11 (480-200734-10). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method 8270D: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-4 (480-200734-4) and MW-11 (480-200734-10). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
Method 300.0: The following sample was diluted due to the nature of the sample matrix: MW-2 (480-200734-2). Elevated reporting limits (RLs) are provided.

Method 300.0: The following samples were diluted due to the abundance of non-target analytes: MW-1 (480-200734-1), MW-3 (480-200734-3), MW-5 (480-200734-5), MW-6 (480-200734-6), MW-8 (480-200734-7) and MW-9 (480-200734-8). Elevated reporting limits (RLs) are provided.

Method 300.0: The following samples were reported with elevated reporting limits for all analytes: MW-12 (480-200734-11), DUPLICATE (480-200734-12) and MW-7 (480-200734-15). The sample was analyzed at a dilution based on screening results.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS - DISSOLVED

Client ID: MW-3 MS MS Lab ID: 480-200734-3 MS

Lab Name: Eurofins Buffalo Job No.: 480-200734-1

SDG No.:

Matrix: Water Concentration Units: mg/L

% Solids:

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Iron, Dissolved	23.35		16.5		10.0	68	75-125	F1	6010C

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VA - IN

5-IN
MATRIX SPIKE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: Eurofins Buffalo   Job No.: 480-200734-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 638702	Date: 08/24/2022 14:15										
300.0	480-200734-3	Sulfate	13.4	J	mg/L						
300.0	480-200734-3 MS	Sulfate	524.8		mg/L	500	102	80-120			
Batch ID: 638702	Date: 08/24/2022 22:58										
300.0	480-200734-15	Sulfate	14.7		mg/L						
300.0	480-200734-15 MS	Sulfate	272.2		mg/L	250	103	80-120			
Batch ID: 637728	Date: 08/16/2022 17:20										
353.2	480-200734-3	Nitrite as N	ND		mg/L						F1
353.2	480-200734-3 MS	Nitrite as N	1.11		mg/L	1.00	111	90-110			F1
Batch ID: 637893	Date: 08/17/2022 14:52		Prep Batch: 637871			Date: 08/17/2022 14:14					
9012B	480-200734-3	Cyanide, Total	0.012		mg/L						F1
9012B	480-200734-3 MS	Cyanide, Total	0.0212		mg/L	0.00500	182	90-110			F1
Batch ID: 638927	Date: 08/24/2022 14:21		Prep Batch: 638906			Date: 08/24/2022 13:02					
9012B	480-200734-15	Cyanide, Total	0.0062	J	mg/L						F1
9012B	480-200734-15 MS	Cyanide, Total	0.0134		mg/L	0.00500	143	90-110			F1

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

5-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: Eurofins Buffalo   Job No.: 480-200734-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 638702	Date: 08/24/2022 14:29										
300.0	480-200734-3 MSD	Sulfate	527.2		mg/L	500	103	80-120	0	15	
Batch ID: 637728	Date: 08/16/2022 17:22										
353.2	480-200734-3 MSD	Nitrite as N	1.01		mg/L	1.00	101	90-110	9	20	
Batch ID: 637893	Date: 08/17/2022 14:54		Prep Batch: 637871			Date: 08/17/2022 14:14					
9012B	480-200734-3 MSD	Cyanide, Total	0.0192		mg/L	0.00500	142	90-110	10	15	F1

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

Eurofins Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Kevin J. McGovern	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-177075-37993.1
Client Contact: Tami Raby	Phone: 716-923-1101	E-Mail: John.Schove@et.eurofinsus.com	State of Origin:	Page: Page 1 of 2
Company: AECOM	PWSID:	Analysis Requested		Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, M - Hexane, N - None, O - AsNaO2
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 146783			
Email: tamara.raby@aecom.com	WO #: 60652550			480-202303 Chain of Custody
Project Name: NYSEG Auburn Green Street	Project #: 48020888			
Site:	SSOW#:			Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - SVOCs - PAH + Phenols	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene + Acetone	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	A	B	N	N		
MW-1	10/3/22	13:40	G	Water	Y	N	2	1	3	1	1	1	9	
MW-2		15:39		Water										
MW-3		09:34		Water		Y								
MW-4	10/4/22	09:55	G	Water	Y	N	2	1	3	1	1	1	9	
MW-7		08:23		Water										
MW-9		10:48		Water										
MW-10	10/3/22	11:02	G	Water	Y	N	2	1	3	1	1	1	9	
MW-11		12:10		Water										
MW-12		14:50		Water										
DUPLICATE	10/3/22	—		Water										
MW-3 MS	10/3/22	09:34	G	Water		Y								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by: [signature]	Date/Time: 10/4/22, 1413	Company: AECOM	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 10-4-22 1410	Company: TAB

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Eurofins Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Kevin J. McGowan	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-177075-37993.2
Client Contact: Tami Raby	Phone: 716-223-1101	E-Mail: John.Schove@et.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: AECOM	PWSID:			Job #:
Address: One John James Audubon Parkway Suite 210	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 146783			
Email: tamara.raby@aecom.com	WO #: 60652550			
Project Name: NYSEG Auburn Green Street	Project #: 48020888			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - SVOCs - PAH + Phenols	300.0_28D - Sulfate	8260C - VOCs - BTEX + Styrene + Acetone	9012B - Cyanide, Total	Nitrate_Calc - Nitrate	6010C - Metals, Dissolved - Iron	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	A	B	N	N		
MW-3 MSD	10/3/22	09:34	G	Water	Y	Y	2	1	3	1	1	1	9	
RINSE BLANK	10/4/22	08:50	G	Water	Y	N	2	1	3	1	1	1	9	
TRIP BLANK	—	—	—	Water	N	N			2					
TRIP BLANK	—	—	—	Water	↓	↓			↓					

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:	

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	10/4/22, 14:13	AECOM			
			[signature]	10-4-22 1410	TAB

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Job Narrative
480-202303-1

Comments
No additional comments.

Receipt
The samples were received on 10/4/2022 2:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 2.4º C, 2.7º C and 3.1º C.

GC/MS VOA
Method 8260C: The following sample was diluted due to the abundance of non-target analytes: MW-11 (480-202303-8). Elevated reporting limits (RLs) are provided.

Method 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-4 (480-202303-4). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method 8270D: The continuing calibration verification (CCV) analyzed in batch 480-644396 was outside the method criteria for the following analyte(s): 2,4,6-Tribromophenol (Surr). A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method 8270D: The following samples were diluted due to the nature of the sample matrix: MW-4 (480-202303-4) and MW-11 (480-202303-8). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
Method 300.0: The following samples were diluted due to the abundance of non-target analytes: MW-1 (480-202303-1) and MW-2 (480-202303-2). Elevated reporting limits (RLs) are provided.

Method 300.0: The following samples were reported with elevated reporting limits for all analytes: MW-4 (480-202303-4), MW-7 (480-202303-5), MW-9 (480-202303-6) and MW-12 (480-202303-9). The sample was analyzed at a dilution based on screening results.

Method 300.0: The following sample was diluted due to the abundance of non-target analytes: MW-3 (480-202303-3). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Methods 335.4, 9012B: The continuing calibration verification (CCV) and the high laboratory control sample (HLCS) and the laboratory control sample (LCS) associated with batch 480-644220 recovered above the upper control limit for Cyanide. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Appendix B

Transportation Plan

AECOM Environment

Prepared for:
NYS Electric & Gas Company

Prepared by:
AECOM
Buffalo, NY
60652550
April 2025

Remedial Design
NYSEG – Auburn Green St. Site
Auburn, New York
100% Submittal NYSDEC Site #706009
Transportation of Solid and/or Liquid Material

Contents

1.0 Introduction

This document is for the transportation of solid or liquid non-hazardous and hazardous waste associated with the New York State Electric and Gas (NYSEG) – Auburn Green St. Manufactured Gas Plant (MGP) site in the City of Auburn, Cayuga County, New York. All transportation must be in accordance with the Order on Consent, Index Number D0-0002-9309, and subsequent Amended and Restated Order on Consent (ARMSCO) (NYSDEC, 2016) with New York State Department of Environmental Conservation (NYSDEC) Regulations, and any other applicable Federal, State, and Local Laws.

2.0 Work by Transportation Contractor

The transportation contractor shall provide all necessary supervision, training, permits, hazardous waste manifest (when required), labor, personal protective equipment (PPE), tools, equipment, consumable materials, and expendable materials, to transport solid or liquid waste to a disposal facility as detailed herein.

3.0 General Work Conditions

- The transporter shall comply with all applicable provisions of 6 New York Codes Rules and Regulations (NYCRR) Part 364 “Waste Transporters Permit”.

- The transporter shall comply with all applicable provisions of 6 NYCRR Part 372 “Hazardous Waste Manifest System and Related Standards of Generators, Transporters and Facilities.”

- The transporter shall comply with all applicable provisions of New York State Department of Transportation (NYSDOT), the New York State Department of Motor Vehicles (NYSDMV), and/or any other applicable federal, state, and local laws.

- The transporter shall comply with all applicable provisions of 29 CFR 1910.120 “Hazardous Waste Operations & Emergency Response.” under the Occupational Safety and Health Act or Administration (OSHA).

- The transporter shall develop and implement a written Health & Safety Plan for their drivers that address potential exposure to MGP site residuals.

- The transporter shall adhere to the following rules while working on a MGP site project and waste disposal facility:

  - Any truck found unacceptable by the NYSEG project coordinator or the contractor health & safety officer will be rejected. Any cost for rejected trucks shall be borne by the transporter. If the NYSDEC project oversight finds any truck unacceptable, they should bring it to the attention of the NYSEG project coordinator.

  - The truck drivers will report their arrival to the NYSEG project coordinator.

  - Truck drivers are generally restricted to their trucks and the designated waiting areas. Drivers are not permitted access to the MGP site project without express permission from the NYSEG project coordinator.

  - Truck drivers will don **HARD HATS, SAFETY GLASSES, and STEEL TOE BOOTS,** as a minimum for personal protection.

  - Transportation of materials designated as hazardous waste is not anticipated in the current remedial design. All trucks transporting non-hazardous waste will have a watertight tailgate that has a gasket between the box and tailgate or driver will apply caulking between the box and the tailgate.

  - All trucks require working audible and visual backup signals.

  - When loading or when directed by the NYSEG project coordinator, the truck engine should be shut off. Trucks may be restarted and driven away only after the “all clear” direction from the loading operator or a site representative.

- In residential or other areas where the exhaust and/or noise could be a nuisance the truck engine should be shut off.
- No truck will be loaded above the sideboards and no waste will be spilled out of the truck. Before trucks leave the loading areas the truck exterior and tires will be cleaned (by site workers) of waste.
- NYSEG remedial workers will reposition the cover bars over the waste material. **DRIVERS WILL NOT WALK OVER WASTE MATERIAL.**
- Drivers will cover loads before leaving the loading area with a solid fabric (i.e., vinyl, reinforced polyethylene) cover that covers the entire load.
- Obey traffic signs and notices (obey the posted speed limit).
- Obey rules posted on the site and/or any site-specific *Health &Safety Plan* for all project personnel.
- Report any accidents to the NYSEG project coordinator and cooperate with any subsequent accident investigation.
- No children under 18 years of age are allowed on MGP site projects.
- No passengers are allowed in the Contamination Reduction Zone (loading area).
- Slow down and be extra cautious during times of poor weather (i.e., rain, fog, snow, ice).
- Take extra care around blind corners (watch for pedestrians, park vehicles, and construction equipment).
- Eating and/or drinking are not permitted except in designated areas of the Support Zone.
- Smoking is not allowed on NYSEG Properties.
- After disposal of waste, the transporter is responsible for properly decontaminating their truck or trailer, trailer or tanker, and roll off containers.

4.0 Truck Route

The truck route for arrival and departure at the NYSEG - Auburn Green St. MGP Site will be as follows:

High Acres Landfill:

- **Arrival:** From I-90 (east); take Exit 41 toward Waterloo, Clyde; Turn right onto NY-414 (south); Turn left onto NY-318 (east); Turn left onto Auburn Road (northeast); Turn left onto State Street (north); Turn left onto Water Street (west); Turn left onto North Green Street (south); enter the Site on the right.
- **Departure from Site:** Exit the Site by turning left onto North Green Street (north); turn right onto Water Street (east); turn left on State Street (north); turn left onto US-20 West; turn right onto NY-318 (west); turn right onto NY-414 (north); proceed to I-90.

Mill Seat Landfill:

- **Arrival:** From I-90 (west); take Exit 41 toward Waterloo, Clyde; Turn right onto NY-414 (south); Turn left onto NY-318 (east); Turn left onto Auburn Road (northeast); Turn left onto State Street (north); Turn left onto Water Street (west); Turn left onto North Green Street (south); enter the Site on the right.
- **Departure from Site:** Exit the Site by turning left onto North Green Street (north); turn right onto Water Street (east); turn left on State Street (north); turn left onto US-20 West; turn right onto NY-318 (west); turn right onto NY-414 (north); proceed to I-90.

Seneca Meadows:

- **Arrival:** From NY-414 (north); Turn right onto NY-318 (east); Turn left onto Auburn Road (northeast); Turn left onto State Street (north); Turn left onto Water Street (west); Turn left onto North Green Street (south); enter the Site on the right.
- **Departure from Site:** Exit the Site by turning left onto North Green Street (north); turn right onto Water Street (east); turn left on State Street (north); turn left onto US-20 West; turn right onto NY-318 (west); turn left onto NY-414 (south).

Appendix C

Quality Assurance Project Plan

AECOM

Prepared for:
New York State Electric & Gas Corp
Binghamton, NY 13902

Prepared by:
AECOM
Buffalo, NY
Project 60652550
April 2025

Quality Assurance Project Plan

NYSEG - Auburn Green St. MGP Site
Auburn, Cayuga County, New York
NYSDEC Site # 7-06-009

Prepared for:
New York State Electric & Gas Corp
Binghamton, NY 13902

Prepared by:
AECOM
Buffalo, NY
Project 60652550
April 2025

Quality Assurance Project Plan

NYSEG - Auburn Green St. MGP Site
Auburn, Cayuga County, New York
NYSDEC Site # 7-06-009

Contents

List of Tables

1.0 Introduction

1.1 Purpose and Objectives

The purpose of this Quality Assurance Project Plan (QAPP) is to document planned sampling activities and establish the criteria for performing these activities at a predetermined quality for the work conducted by (TBD contractor/consultant), on behalf of New York State Electric and Gas (NYSEG) for the NYSEG – Auburn Green St. Manufactured Gas Plant (MGP) Site (No. 7-06-009), City of Auburn, Cayuga County, New York. The location of the project site is shown on Remedial Design Report (RD Report) **Figure 1-1**. The QAPP is intended to be a companion document to the RD Report.

Project work will be conducted in general accordance with the NYSDEC DER-10, Technical Guidance for Site Investigation and Remediation (NYSDEC, 2010a), and United States Environmental Protection Agency (USEPA) Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (USEPA, 1988).

1.2 Project Management and Organization

1.2.1 Personnel

The general responsibilities of key project personnel are listed below.

NYSEG Project Manager – John Ruspantini, will have responsibility for overall project management and coordination with the client and NYSDEC, and will coordinate the initiation and implementation of the remedial activities.

Field Team Leader – (TBD), of (TBD), will be responsible for coordinating field activities. (TBD) has experience with NYSDEC projects in NY and has been a field team leader on several sites. (TBD) has experience with soil boring and monitoring well installations, monitoring well sampling, slug testing, soil sampling, and surface water and sediment sampling.

Quality Assurance Officer (QAO) – (TBD), of (TBD), will serve as the Program QAO for work assignments issued under this contract. The QAO will be responsible for oversight of the data validation and laboratory subcontractors, as well as data usability reports. The QAO will work with the database manager to assure that electronic deliverables provided by the laboratory are accurate and are formatted consistent with (TBD contractor/consultant) and NYSDEC requirements. The Program QAO may designate another qualified individual to serve as project QA officer to oversee the data-to-day quality assurance aspects of specific work assignments.

Health & Safety (H&S) Officer – (TBD), of (TBD), will be responsible for oversight of the preparation of the project Health and Safety Plan (HASP), approving it, and tracking of its implementation.

Database Manager – (TBD), of (TBD), will serve as database manager. The database manager is responsible for verifying that laboratory deliverables meet (TBD contractor/consultant) and NYSDEC electronic deliverable specifications, and for preparing the final EQuIS deliverable for submission to NYSDEC.

Field surveying and mapping **–** (TBD), PLS of (TBD), will provide land surveying support. (TBD) is a NYS-licensed land surveyor.

Data Validation – (TBD) of TBD), a certified validator, will be assigned for data quality review and data usability summary report (DUSR).

1.2.2 Specific Tasks and Services

The following subcontractor specialists will be retained for services relating to the stated services:

Laboratory Analysis – (TBD) laboratory has been assigned for the project. (TBD) is certified for aqueous and non-aqueous matrices.

Geophysical/utility locating - TBD

Drilling and monitoring well installation - TBD.

Soil excavation - TBD

1.3 Site Description and Location

Background data on the site, including the site description and location, site history, previous investigations, and current conditions, are summarized in the in the RD Report, Section 1.

2.0 Site Sampling

Site investigation procedures are provided below.

2.1 Field Sampling Procedures

Remedial activities are detailed in the RD Report and are not repeated in this QAPP. Sampling associated with the remedial activities will include post-excavation documentation soil samples and groundwater samples.

2.2 Equipment Decontamination

To avoid cross-contamination, sampling equipment (defined as any piece of equipment which may contact a sample) will be decontaminated according to the procedures specified in the RD Report.

Field equipment rinsate blanks (see Section 3.6.1) are generated and analyzed to monitor the effectiveness of field decontamination procedures.

Cross-contamination is minimized by the use of vendor-decontaminated, dedicated, disposable equipment to the extent practical.

2.2.1 Decontamination Procedures

A decontamination pad will be constructed on the site. The pad will be sized to be large enough to handle the equipment used on site (e.g., drill rig). The pad will also be used for small equipment decontamination as well as personnel decontamination.

2.2.2 Small Equipment Decontamination

Small equipment decontamination for non-disposable equipment such as groundwater samplers, transducer probes and cables, etc., will be accomplished using the following procedures:

- Alconox (or equivalent) and potable water wash;
- Potable water rinse; and
- Distilled/deionized water rinse.

Solvents will not be used in the field decontamination procedure. Decontamination will include scrubbing/washing with a laboratory grade detergent (e.g., Alconox) to remove visible contamination, followed by potable (tap) water and analyte-free water rinses. Tap water may be used from any treated municipal water system; the use of an untreated potable water supply is not an acceptable substitute.

Equipment should be allowed to dry prior to use. Steam cleaning or high-pressure hot water cleaning may be used in the initial removal of gross, visible contamination.

Groundwater will be collected using peristaltic pumps. Dedicated Teflon sample tubing and silicone pump tubing will be used at each monitoring well.

2.2.3 Heavy Equipment Decontamination

Excavation and drilling equipment will be decontaminated before the first use during this project, between boreholes and prior to demobilization using high-pressure steam. Decontamination will be conducted at a dedicated decontamination pad constructed for the project or at an alternate location as indicated in the RD Report. Decontamination fluids will be containerized (drummed) for subsequent characterization or disposal, unless other arrangements are made on a project-specific basis and as indicated in the RD Report.

2.2.4 Personnel Decontamination

Wash buckets and potable water will be set up at the decontamination pad or alternate location as indicated in the RD Report or HASP. This includes washing hands and a boot wash. Details of the personnel decontamination procedures will be provided in the HASP.

3.0 Sample Handling

3.1 Sample Identification and Labeling

Samples will be assigned a unique identification using the sample location or other sample-specific identifier.

The general sample identification format follows.

MW = Monitoring Well

SS = Surface Soil

FB = Field (Equipment Rinsate) Blank

TB = Trip Blank

XX = Numerical sample identifier (up to five characters). This will ordinarily be the number of the monitoring well or soil boring location from which the sample was obtained.

As part of the unique identifier, the sample date will be included following any location that may have more than one sample collected. The format will be MMDDYY. For example, MW-01S that is sampled on May 30, 2024 will be MW-01S_053024.

QC field duplicate samples will be submitted blind to the laboratory; a fictitious sample ID will be created using the same system as the original by adding 50 to the original well ID (e.g., MW-51S_053024 would be a field duplicate of MW-01S_053024). The sample identifications (of the original sample and its field duplicate) will be marked in the field book and on the copy of the chain-of-custody kept by the sampler and copied to the project manager. As the field duplicates are blind to the laboratory, the NYSDEC Valid Value for a field duplicate (FD) along with the identification of the parent sample will be done by (TBD) after the EQuIS deliverable is received from the laboratory.

Affixed to each sampling container will be a non-removable label on which the following information will be recorded with permanent water-proof ink:

- Site name, location, and job number;
- Sample name;
- Date and time;
- Sampler's name;
- Preservative;
- Type of sample (e.g., water, soil, sludge, sediment, air); and,
- Requested analyses.

3.2 Sample Bottles, Preservation, and Holding Time

Table 1 identifies the sample preparation and analytical method, matrix, holding time, containers, and preservatives for the typical analyses to be performed under this contract. Sample bottle requirements, preservation, and holding times are discussed further below.

3.2.1 Sample Containers

The selection of sample containers used to collect samples is based on the criteria of sample matrix, analytical method, potential contaminants of concern, reactivity of container material with the sample, QA/QC requirements, and any regulatory protocol requirements.

Sample bottles will be provided by the analytical laboratory and will conform to the requirements of the USEPA Specifications and Guidance for Contaminant-Free Sample Containers. Aqueous samples for volatile organic compound (VOC) analysis will be collected in 40-mL vials.

3.2.2 Sample Preservation

Samples will be preserved as summarized on **Table 1**.

Chemical preservatives will be added to the sample bottles (prior to sample collection) by the analytical laboratory. The pH of samples will be spot-checked in the field and additional preservative will be added as needed. Sample preservation is checked upon sample receipt by the laboratory; this information is reported to the (TBD) QAO. If it appears that the level of chemical preservation added is not adequate, laboratory preservative preparation and addition will be modified or additional preservative will be added in the field by the sampling team.

3.2.3 Holding Times

Contractual holding times (see **Table 1**) are calculated from the validated time of sample receipt (VTSR) by the laboratory; samples will be shipped from the field to arrive at the lab no later than 48 hours from the time of sample collection. Holding time requirements will be those specified in the NYSDEC Analytical Services Protocol (ASP) 2005 with 2008 update for TO-15 analysis.

Although trip blanks are prepared in the analytical laboratory and shipped to the site prior to the collection of environmental samples, for the purposes of determining holding time conformance, trip blanks will be considered to have been generated on the same day as the environmental samples with which they are shipped and delivered. Procurement of bottles and blanks will be scheduled to prevent trip blanks from being stored for excessive periods prior to their return to the laboratory; the goal is that trip blanks should be held for no longer than one week prior to use.

3.3 Chain-of-Custody and Shipping

A chain-of-custody (COC) form will trace the path of sample containers from the project site to the laboratory. COC forms are typically provided by the analytical laboratory.

Sample bottle tracking sheets or the COC will be used to track the containers from the laboratory to the containers' destination. The project manager will notify the laboratory of upcoming field sampling events and the subsequent transfer of samples. This notification will include information concerning the number and type of samples, and the anticipated date of arrival. Insulated sample shipping containers (typically coolers) will be provided by the laboratory for shipping samples. Sample bottles within each shipping container will be individually labeled with an adhesive identification label provided by the laboratory. Project personnel receiving the sample containers from the laboratory will check each cooler for the condition and integrity of the bottles prior to field work.

Once the sample containers are filled, they will be immediately placed in the cooler with ice (in Ziploc plastic bags to prevent leaking) or synthetic ice packs to maintain the samples at 4º C. The field sampler will indicate the sample designation/location number in the space provided on the chain-of-custody form for each sample. The chain of custody forms will be signed and placed in a sealed plastic Ziploc bag in the cooler. The completed shipping container will be closed for transport with nylon strapping, or a similar shipping tape, and two paper seals will be affixed to the lid. The seals must be broken to open the cooler and will indicate tampering if the seals are broken before receipt at the laboratory. A label may be affixed identifying the cooler as containing "Environmental Samples" and the cooler will be shipped by an overnight delivery service to the laboratory. When the laboratory receives the coolers, the custody seals will be checked and lab personnel will sign the chain-of-custody form.

3.4 Laboratory Sample Receipt

Upon receipt at the laboratory, a laboratory representative inspects the samples for integrity and checks the shipment against the chain-of-custody/analytical task order form. Discrepancies are addressed at this point and documented on the chain-of-custody form and the cooler checklist. Discrepancies are reported to the Laboratory Project Manager who contacts the (TBD) Project Manager or QAO for resolution.

When the shipment and the chain-of-custody are in agreement, the custodian enters the samples into the Laboratory Information Management System and assigns each sample a unique laboratory number. This number is affixed to each sample bottle. The custodian then enters the sample and analysis information into the laboratory computer system.

3.4.1 Laboratory Sample Custody

The laboratory must satisfy the sample chain-of-custody requirements by implementing the following procedures for laboratory/sample security:

- Samples are stored in a secure area;
- Access to the laboratory is through a monitored area;
- Visitors sign a visitor's log and are escorted while in the laboratory;
- Only the designated sample custodians have keys to sample storage area(s); and
- Transfers of samples in and out of storage are documented.

3.4.2 Sample Storage, Security, and Disposal

While in the laboratory, the samples and aliquots that require storage at 4° C ± 2°C are maintained in a locked refrigerator unless they are being used for analysis. The laboratory is responsible for sample storage and security so that:

- Samples and extracts are stored for 60 days after the final analytical data report has been submitted to (TBD). The samples, extracts, and digestates are then disposed by the laboratory in accordance with laboratory SOPs and applicable regulations.
- Samples are not stored with standards or sample extracts.

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4.0 Quality Assurance Project Plan

4.1 Analytical Methods

Soil and water sample analyses for these contracts will typically utilize USEPA SW-846 methods as listed below.

Analytical and extraction/sample preparation methods typically used are shown on **Table 1** and summarized below.

Aqueous -

- VOCs - SW-846 Method 8260D
  - Site-specific parameter list: BTEX, styrene, and acetone
- SVOCs - SW-846 Method 8270D
  - Site specific parameter list: 2-methylphenol, 2-methylnapthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz[a,h]anthracene, indeno(1,2,3-CD)pyrene, naphthalene, and phenol –
- Total Cyanide – SW-846 Method 9012B
- Sulfate – USEPA Method 300.0

Surface soil –

- Arsenic – SW 846 Method 6010C

Analytical methods are presented in the NYSDEC Analytical Services Protocol (ASP), 2005 (February 2008 supplement for TO-15). It is the laboratory's responsibility to be familiar with this document and procedures and deliverables within it pertaining to New York State work. Full Category B deliverables will be required.

The analytical laboratory assigned to this project is (TBD). The proposed laboratory is certified by the NYSDOH Environmental Laboratory Approval Program (see Section 1.2). The laboratory is in good standing for the applicable parameter groups.

4.2 Quality Assurance Objectives

Data quality objectives (DQO) for measurement data in terms of sensitivity and the PARCC parameters (precision, accuracy, representativeness, comparability, and completeness) are established so that the data collected are sufficient and of adequate quality for their intended uses. Data collected and analyzed in conformance with the DQO process described in this QAPP will be used in assessing the uncertainty associated with decisions related to this site.

4.2.1 Sensitivity

Soil, water, and waste samples will be analyzed according to the USEPA SW-846 "Test Methods for Evaluating Solid Waste," November 1986, 3rd edition and subsequent updates. The method detection limit is determined in accordance with the procedure in ASP Exhibit A, section 4.9.2.12, which is consistent with the procedure in 40 CFR Part 136 Appendix B.

The reporting limit (RL) for non-detected analytes will be the lowest calibration standard associated with the analysis. Reporting limits will be equal to or lower than those presented in Exhibit C of ASP

2005 for the applicable method. Analytes detected analytes at concentrations below the RL but above the MDL will be flagged "J" (estimated) by the laboratory. Typical RLs are summarized on **Table 2**.

The reporting limits and MDLs of the assigned laboratory will be reviewed by (TBD)'s QAO for each project to verify that the laboratory sensitivity is sufficient to meet the project objectives. These will typically include meeting the applicable standards, criteria, and guidance (SCGs) including soil cleanup objectives (6 NYCRR 375-6.8), supplemental soil cleanup objectives (NYSDEC, 2010b), groundwater and surface water criteria (compiled in TOGS 1.1.1), and indoor air screening levels (NYSDOH, 2006, 2007).

4.2.2 Precision

The laboratory objective for precision is to equal or exceed the precision demonstrated for the applied analytical methods on similar samples. Precision is evaluated by the analyses of laboratory and field duplicates. Matrix spike duplicate analyses will be performed once for every 20 samples for VOCs.

Relative Percent Difference (RPD) criteria determined from laboratory performance data are used to evaluate precision between duplicates. A matrix spike duplicate will be performed once for every twenty samples for volatile organics.

Precision measures the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared to their average value. Precision is usually stated in terms of standard deviation but other estimates such as the coefficient of variation, relative standard deviation, range (maximum value minus minimum value), and relative range are common, and may be used pending review of the data.

The overall precision of measurement data is a mixture of sampling and analytical factors. Analytical precision is easier to control and quantify than sampling precision; there are more historical data related to individual method performance and the "universe" is not limited to the samples received in the laboratory. In contrast, sampling precision is unique to each site or project.

Overall system (sampling plus analytical) precision will be determined by analysis of field duplicate samples. Analytical results from laboratory duplicate samples will provide data on measurement (analytical) precision.

Precision will be determined from field duplicates, as well as laboratory matrix duplicate samples for metals analyses, and matrix spikes and matrix spike duplicates for organic analyses; it will be expressed as the relative percent difference (RPD):

$$RPD = 100 \times 2(|X_1 - X_2|) / (X_1 + X_2)$$

where:

> X_1 and X_2 are reported concentrations for each duplicate sample and subtracted differences represent absolute values.

Criteria for evaluation of laboratory duplicates are specified in the applicable methods. The objective for field duplicate precision is ≤ 50% RPD for all matrices for analytes detected at concentrations at least 2 times the reporting limit. Where one or both analytes are detected at less than 2 times the RL, the criterion is the absolute difference "D" ($X_1 - X_2$), and D should be less than the RL for the analyte.

4.2.3 Accuracy

The laboratory objective for accuracy is to equal or exceed the accuracy demonstrated for the applied analytical method on similar samples. Percent method recovery criteria and those determined from laboratory performance data, are used to evaluate accuracy in matrix (sample) spike and blank spike quality control samples. A matrix spike and blank spike or laboratory control will be performed once for every analytical batch or as specified in the method or ASP. Other method-specific laboratory QC samples (such as continuing calibration standards) may also be used in the assessment of analytical accuracy. Sample (matrix) spike recovery is calculated as:

$$\% \text{ Recovery} = 100 \times (SSR-SR)/SA$$

Where:

SSR = Spiked sample Result;

SR = Sample Result; and

SA = Spike Added.

Accuracy measures the bias in a measurement system. It is difficult to measure accuracy for the entire data collection activity. Accuracy will be assessed through use of known QC samples. Accuracy values can be presented in a variety of ways. For projects under this contract, accuracy will be normally presented as percent recovery.

Routine organic analytical protocol requires a surrogate spike in each sample. Surrogate recovery will be defined as:

$$\% \text{ Recovery} = (R/S) \times 100$$

Where:

S = surrogate spike concentration; and

R = reported surrogate compound concentration.

Recovery criteria for laboratory spikes and other laboratory QC samples through which accuracy may be evaluated are established in the applicable analytical method.

4.2.4 Representativeness

The representativeness of data is only as good as the representativeness of the samples collected. Sampling and handling procedures, and laboratory practices are designed to provide a standard set of performance-driven criteria to provide data of the same quality as other analyses of similar matrices using the same methods under similar conditions. Representativeness will be determined by a comparison of the quality controls for these samples against data from similar samples analyzed at the same time.

4.2.5 Comparability

Comparability of analytical data among laboratories becomes more accurate and reliable when all labs follow the same procedure and share information for program enhancement. Some of these procedures include:

- Instrument standards traceable to National Institute of Standards and Technology (NIST), the US Environmental Protection Agency (USEPA), or the New York State Departments of Health or Environmental Conservation;
- Using standard methodologies;
- Reporting results for similar matrices in consistent units;
- Applying appropriate levels of quality control within the context of the laboratory quality assurance program; and
- Participation in inter-laboratory studies to document laboratory performance.

By using traceable standards and standard methods, the analytical results can be compared to other labs operating similarly. The QA Program documents internal performance. Periodic laboratory proficiency studies are instituted as a means of monitoring intra-laboratory performance.

Comparability within any specific project is also assessed by comparison of the project data to data generated previously; and, if available, comparison of the data for multiple sampling events conducted for the project. Comparability (consistency) of sampling techniques is also assessed, to some extent, by analysis of field duplicates; although it should be noted that large differences between field duplicates may result from a wide variety of causes, not just inconsistent sampling.

4.2.6 Completeness

The goal of completeness is to generate the maximum amount possible of valid data for all planned samples. Completeness of 100 percent indicates that all planned samples were collected; and the resultant data were fully valid and acceptable. As completeness is a function of both field activities and laboratory activities, separate completeness goals are established for each.

The default goal for sampling completeness is 95 percent, as is calculated as:

$$\text{Sampling Completeness (\%)} = (Sc/Sp) \times 100$$

Where:

Sc = Samples collected (submitted) for analysis (documented from field records or COC); and

Sp = Samples planned (as documented in the RD REPORT or QAPP).

The default goal for analytical completeness is also set at 95 percent. Analytical completeness may be less than 100 percent either due to systemic failures that result in the rejection or loss of data for an entire sample; or compound-specific rejection (e.g., 2-hexanone) within an otherwise valid analysis.

For typical work assignments, the default overall completeness goal is 90 percent useable data. The impact of rejected or unusable data will be made on a case-by-case basis. If the goals of the project can be achieved without the missing datum or data, or if data from a different sampling event can be used to fill the data gap, no further action would be necessary. However, loss of critical data may require resampling or reanalysis.

4.3 Field Quality Assurance

Blank water generated for use during this project must be “demonstrated analyte-free.” The criteria for analyte-free water are based on the USEPA-assigned values for the Contract Required Quantitation Limits (CRQLs) for Contract Laboratory Program (CLP) analyses, or the RL for SW-846 or other methods.

However, specifically for the common laboratory contaminants (acetone and 2-butanone), the allowable limits are five times the CRQL (or RL). For methylene chloride, the limit is 2.5 times the CRQL. For common SVOC contaminants (phthalate esters such as bis(2-ethylhexyl) phthalate), the limit is 5 times the CRQL.

The analytical testing required for the water to be demonstrated as analyte-free must be performed prior to the start of sample collection; thus, blank water will be supplied by the laboratory.

Table 2 of this QAPP shows typical QA/QC samples and reporting limits. QA/QC samples are discussed below.

4.3.1 Field Equipment (Rinsate) Blanks

Equipment blanks consist of demonstrated, analyte-free water that show if sampling equipment has the potential for contaminant carryover to give a false impression of contamination in an environmental sample. When blank water is used to rinse a piece of sampling equipment (before it is used to sample), the rinsate is collected and analyzed to see if sampling could be biased by contamination from the equipment.

Rinsate blanks are not required when samples are collected directly into laboratory-provided sample containers (e.g., if specified as such in the RD Report for matrices such as surface water).

Field (Equipment Rinsate) blanks for bailers: For initial sampling, as well as at subsequent rounds of sampling when bailers are reused, at least one of the bailers used per decontamination batch, will be used to generate equipment (rinsate) blanks during groundwater sampling. Disposable bailers will be obtained from a single vendor for this project. One rinsate blank will be collected for each groundwater sampling event to verify that the vendor decontamination was adequate and that contamination has not occurred during shipment and storage.

Typically, one rinsate blank will be collected for every 20 field samples collected or one per week, whichever is more frequent, for each type of sampling equipment. The rinsate blanks will be collected from the soil and groundwater sampling equipment as noted in **Table 2**.

Equipment blanks are not collected or submitted in association with air (Summa canister) samples.

4.3.2 Field Duplicate Samples

Field duplicate samples are used to assess the variability of a matrix at a specific sampling point and to assess the reproducibility of the sampling method.

Aqueous field duplicate samples are second samples collected from the same location, at the same time, in the same manner as the first, and placed into a separate container (technically, these are co-located samples). Each duplicate sample will be analyzed for the same parameters as the original sample collected that day.

Soil duplicate samples are collected from a single location and device (e.g., hand-held trowel). Soil duplicates for arsenic will be homogenized (e.g., by mixing in a clean stainless steel bowl) prior to generating the sample and duplicate.

The default field duplicate precision (RPD) objective is ≤50% percent RPD for all matrices where the sample concentration is at least two times the reporting limit. Where the analyte is detected in both samples but the concentration is less than 2 times the reporting limit, precision is assessed by the absolute difference, which should be less than the reporting limit. The RPD is not calculable when the analyte is not detected in one or both analyses. A more detailed discussion of the calculation is provided in Section 4.2.2 (Precision), above.

Field duplicates will be collected at a frequency of one per 20 environmental samples for aqueous and non-aqueous sample. The default field duplicate frequency for air samples is 10 percent (one per 10 environmental samples).

4.3.3 Trip Blanks

The purpose of a VOC trip blank (using demonstrated analyte-free water) is to place a mechanism of control on sample bottle preparation and blank water quality, and sample handling. The trip blank travels from the lab to the site with the empty sample bottles and back from the site with the collected samples. There will be a minimum of one trip blank per shipment containing aqueous samples for VOC analysis.

Trip blanks will be collected only when aqueous volatile organics are being sampled and shipped; except that a trip blank is not required when the only aqueous samples in a shipment are QC samples (rinsate blanks).

4.3.4 Temperature Blanks

The laboratory will use either an infrared instrument to measure the temperature of liquid samples, or a temperature blank will be used to measure the temperature of liquid samples. If used, temperature blanks will be supplied by the analytical laboratory. If multiple coolers are necessary to store and transport aqueous samples, then each cooler will contain an individual temperature blank (if used).

4.4 Field Testing QC

Field testing of groundwater will be performed during purging of wells prior to sampling for laboratory samples. Field QC checks of control limits for pH, specific conductance (conductivity), and turbidity are detailed below. The calibration frequencies discussed below are the minimum. Field personnel can and should check calibration more frequently in adverse conditions, if anomalous readings are obtained, or subjective observations of instrument performance suggest the possibility of erroneous readings. Calibration logs for the instruments discussed below will be provided in the RD Report.

4.4.1 pH Meter

The pH meter is calibrated daily, using two standards bracketing the range of interest (generally 4.0 and 7.0). If the pH QC control sample (a pH buffer, which may be the same or different than those used to initially calibrate the instrument) exceeds 0.1 pH units from the true value, the source of the error will be determined and the instrument recalibrated. If a continuing calibration check with pH 7.0 buffer is off by more than 0.1 pH units, the instrument will be recalibrated. Expired buffer solutions will not be used.

Note that gel-type probes take longer to equilibrate (up to 15 minutes at near-freezing temperatures); this must be taken into account in calibrating the instrument and reading samples and standards.

4.4.2 Specific Conductivity

A vendor-provided conductivity standard will be used to check the calibration of the conductivity meter daily. Specific conductance QC samples will be on the order of 0.01 or 0.1 molar potassium chloride (KCl) solutions in accordance with manufacturer's recommendations.

4.4.3 Turbidity

The turbidity meter should be calibrated using a standard as close as possible to 50 NTU (the critical value for determining effectiveness of well development and evacuation). The turbidimeter will be checked daily. The turbidity QC sample will be a commercially prepared polymer standard (Advanced Polymer System, Inc., or similar).

4.4.4 Temperature

Temperature probes associated with instruments (such as the YSI SCT-33 conductivity and temperature meter) are not subject to field calibration, but the calibration should be checked to monitor instrument performance. It is recommended that the instrument temperature reading be checked against a NIST-traceable thermometer concurrently with checking the conductivity calibration. The instrument manual will be referenced for corrective actions if accurate readings cannot be obtained.

4.5 Laboratory Quality Assurance

4.5.1 Method Blanks

A method blank is laboratory water on which every step of the method is performed and analyzed along with the samples. Method blanks are used to assess the background variability of the method and to assess the introduction of contamination to the samples by the method, technique, or instruments as the sample is prepared and analyzed in the laboratory. Method blanks will be analyzed at a frequency of one for every twenty samples analyzed or as otherwise specified in the analytical protocol.

4.5.2 Laboratory Duplicates

Laboratory duplicates are sub-samples taken from a single aliquot of sample after the sample has been thoroughly mixed or homogenized (with the exception of volatile organics), to assess the precision or reproducibility of the analytical method on a sample of a particular matrix. Laboratory duplicates will be performed on spiked samples as a matrix spike and a matrix spike duplicate (MS/MSD) for volatile organics.

4.5.3 Spiked Samples

Two types of spiked samples will be prepared and analyzed as quality controls: matrix spikes and matrix spike duplicates (MS/MSD), which are analyzed to evaluate instrument and method performance and performance on samples of similar matrix. MS/MSD samples will be analyzed at a frequency of one (pair) for every 20 samples. In addition, matrix spike blanks (MSBs) will also be prepared and analyzed by the laboratory as required by NYSDEC ASP.

4.5.4 Laboratory Control Sample

A fortified clean matrix (laboratory control sample, or LCS) is analyzed with each analysis. In some cases a “Laboratory-Fortified Blank” (LFB) may serve as the LCS. These samples generally consist of a standard aqueous or solid matrix fortified with the analytes of interest for single-analyte methods and selected analytes for multi-analyte methods according to the appropriate analytical method. The LCS may be analyzed in duplicate for some methods (LCSD). The analyte recovery from each analysis (LCS and LCSD) is used to monitor analytical accuracy; analytical precision can be assessed from evaluation of the LCS/LCSD in the same manner as the MS/MSD.

5.0 Field Reporting Documentation

Field reporting documentation will be performed, including field logbooks and field data reporting forms. Field log books will be prepared and maintained throughout the course of the remedial activities. Only bound, weatherproof field log books will be used by personnel. The log books will be turned in for copying/filing/tracking when complete.

Each log book will be labeled on the front cover in indelible ink with the following designation: “Site Name/Project Type, NYSDEC Site No. 7-06-009, (TBD) Project Number (TBD).”

Log book entries will be recorded in indelible, waterproof ink. If errors are made in any field log book, field record (form), COC, or any other field record document, corrections will be made by crossing a single line through the error, entering the correct information, and initialing and dating the correction.

Entries will be made in the following format. Documentation and reporting of events and activities will be made in chronological order on the right page of an open log book. The left page of the log book will be used for extemporaneous reporting, such as sketches, tables, providing details or comments on events reported sequentially, or interpretations, and notes identifying use of any other field documentation such as COCs and standard forms.

Standard Forms will be adopted to facilitate the collection of consistent data (see Appendix (TBD [Contractor-dependent])). This will preclude detailed documentation of, for example, lithologic descriptions in the field log book. A reference, however, to use of each specific form must be made in the log book.

The date will be placed at the top of every page in the left-hand corner of the right page. The time of entry recordings will be in columnar form down the left-hand side of the right page. If an entry is made in a non-dedicated log book, then the date, project name, and project number will be entered left to right, respectively, along the top of the right page. Entries should be dated, and time of entry recorded. At the beginning of each day, the first two entries will be “Personnel/Contractors On Site” and “Weather.” At the end of each day's entry or particular event, if appropriate, the person entering the field notes should draw a diagonal line originating from the bottom left corner of the page to the conclusion of the entry and sign along the line indicating the conclusion of the entry or the day's activity.

Entries in field log books will be legible (printing is preferable) and will contain accurate and inclusive documentation of project activities (investigation, monitoring remediation, closure, maintenance, etc.). Information pertaining to health and safety aspects, personnel on site, visitor’s names, association, and time of arrival/departure, etc., should also be recorded. Language should be objective, factual, and free of personal feelings or other terminology that might prove inappropriate, since field records are the basis for later written reports. Once completed, these field log books become accountable documents and must be maintained as part of the project files.

Sample collection and handling activities, as well as visual observations, will be documented in the field log books. The sample collection equipment (where appropriate), field analytical equipment, and equipment used to make physical measurements will be identified in the field log books. Calculations, results, and calibration data for field sampling, field analytical, and field physical measurement equipment will also be recorded in the field log books, except where these are referenced as being recorded on approved field forms. Field analyses and measurements must be traceable to the specific piece of field equipment utilized and to the field investigator collecting the sample, making the measurement, or conducting analyses. Log books will be updated as field work progresses.

When an individual log book is full, the log book will be submitted to the (TBD) project manager for final cataloging and filing. The log books will be stored in the Project File. Copies of specific sections will be made available to personnel upon request.

All non-bound field records (e.g., drilling logs, well construction forms, sampling records, COCs, aquifer testing forms) will be completed the day the associated activity occurs. Field data collected using electronic data loggers or computer entry forms, will be downloaded as soon as practical onto CDs or uploaded to office servers. If possible, the person collecting the data will download electronic data on a daily basis. This person will be responsible for verifying that the data collected are adequately represented in electronic media and in the file. A hard copy of the data, and any graphical representation produced by logging software, will also be printed out and duplicated.

6.0 Equipment Calibration and Maintenance

Quality assurance for instrumentation and equipment used for a project is controlled by a formal calibration program, which verifies that equipment is of the proper type, range, accuracy, and precision to provide data compatible with specified requirements. Instruments and equipment that measure a quantity, or whose performance is expected at a stated level, are subject to calibration. Calibration is performed using reference standards or externally by calibration agencies or equipment manufacturers.

6.1 Standard Water and Air Quality Field Equipment

Field equipment used during the collection of environmental samples typically includes a turbidimeter (turbidity per EPA Method 180.1), pH meter (pH per EPA Method 150.1), conductivity meter (specific conductance per EPA Method 120.1), thermometer, and organic vapor analyzer. See also Section 4.4 of this QAPP for additional discussion.

The organic vapor analyzer (MultiRAE, or equivalent organic vapor analyzer) used for soil screening and health and safety air monitoring will be calibrated following the manufacturer's instructions, at the beginning of the day, whenever the instrument is shut off for more than two hours, and at the field technician's discretion.

6.2 Laboratory Equipment Calibration

Laboratory equipment will be calibrated according to the method-specific requirements of the 2005 NYSDEC ASP**,** Exhibit E, Parts II and III, and maintained following professional judgment and the manufacturer's specifications, and additional requirements as specified in the ELAP certification manual.

6.2.1 Calibration Procedure

Written procedures are used for all instruments and equipment subject to calibration. For chemical analyses typically performed for these contracts, the calibration procedures are specified in the methods as compiled in the ASP. If established procedures are not available, a procedure is developed considering the type of equipment, stability characteristics of the equipment, required accuracy, and the effect of operational error on the quantities measured.

6.2.2 Calibration Frequency

Calibration frequency is based on the type of equipment, inherent stability, manufacturer's recommendations, values provided in recognized standards, intended data use, specified analytical methods, effect of error upon the measurement process, and prior experience.

6.2.3 Calibration Reference Standards

Two types of reference standards will be used by the analytical laboratory for calibration:

Physical standards, such as weights for calibrating balances and certified thermometers for calibrating working thermometers, refrigerators and ovens, are generally used for periodic calibration.

Chemical standards, such as Standard Reference Materials (SRMs) provided by the National Institute of Standards and Technology (NIST) or USEPA, may also include vendor-certified materials traceable to NIST or USEPA SRMs. These are primarily used for operational calibration.

6.2.4 Calibration Failure

Equipment that cannot be calibrated or becomes inoperable is removed from service. Such equipment must be repaired and satisfactorily recalibrated before re-use. For laboratory equipment that fails calibration, analysis cannot proceed until appropriate corrective action is taken and the analyst achieves an acceptable calibration.

Laboratory managers are responsible for development and implementation of a contingency plan for major equipment failure. The plan includes guidelines on waiting for repairs, use of other instrumentation, subcontracting analyses, and evaluating scheduled priorities.

6.2.5 Calibration Records

Records are prepared and maintained for each piece of equipment subject to calibration. Records demonstrating accuracy of preparation, stability, and proof of continuity of reference standards are also maintained. Copies of the raw calibration data are kept with the analytical sample data.

6.3 Operational Calibration

Operational calibration is generally performed as part of the analytical procedure and refers to those operations in which instrument response (in its broadest interpretation) is related to analyte concentration. Included are the preparation of a standard response (calibration) curve and often the analysis of blanks.

Preparation of a standard calibration curve is accomplished by the analysis of calibration standards, which are prepared by adding the analyte(s) of interest to the solvent that is introduced into the instrument. The concentrations of the calibration standards are chosen to cover the working range of the instrument or method. For most methods, five calibration standards are used, with the concentration of the lowest calibration standard being the reporting or quantitation limit for that analysis. Sample measurements are made and reported within this working range; apparent concentrations which exceed the high end of the calibrated range (“E”-flagged data for organic analyses) are diluted (or a smaller sample is used) and re-analyzed. The calibration curve is prepared by plotting or performing a linear regression of the instrument responses against the analyte concentration.

7.0 Data Reduction, Validation, and Reporting

The guidance followed to perform quality data validation, and the methods and procedures outlined herein and elsewhere in the RD Report, pertain to initiating and performing data validation, as well as reviewing data validation performed by others (if applicable). An outline of the data validation process is presented here, followed by a description of data validation review summaries.

7.1 Laboratory Data Reporting and Reduction

Data reduction is the process by which raw analytical data generated from laboratory instrument systems is converted into usable concentrations. The raw data, which may take the form of area counts, instrument responses, or observations, are processed by the laboratory and converted into concentrations expressed in the parts per million (milligram per kilogram [mg/kg] or milligram per liter [mg/L]) or parts per billion (µg/kg or µg/L) range. Raw data from these systems include compound identifications, concentrations, retention times, and data system print-outs. Raw data are usually reported in graphic form, bar graph form, or tabular form. The laboratory will follow standard operating procedures consistent with the data handling requirements of the applicable methods.

The laboratory will meet the applicable documentation, data reduction, and reporting protocols as specified in the 2005 revision of the NYSDEC ASP. ASP Deliverables are either Category B (full deliverables; similar to USEPA CLP requirements) or Category A (a reduced deliverable level). For this contract, Category B deliverables are the default and will be provided for all deliverables generated under the contract unless explicitly indicated otherwise on a site-specific basis. Laboratory data reports will conform to NYSDEC Category B deliverable requirements, as specified in Exhibit B, Part II.E, Sections 2 and 3, respectively.

Copies of the laboratory's generic Quality Assurance Management Plan (QAMP, as defined in ASP 2005 Exhibit E, Part I) will be maintained at (TBD)'s principal contact office (Latham, NY for D007626). The laboratory's QAMP will indicate the standard methods and practices for obtaining and assessing data, and how data are reduced from the analytical instruments to a finished report, indicating levels of review along the way.

To meet NYSDEC electronic data deliverable (EDD) requirements, subcontract laboratories will be required to submit electronic deliverables in an EQuIS 4-file format consistent with (TBD) standards (see Attachment 1). (TBD)'s database manager will be responsible verifying that the file submitted meets these specifications including verifying that current NYSDEC Valid Values were used for sample coding; providing an Excel (or Access) file to the data validator; uploading the validated data into the database; overseeing the uploading of any other data (field data, boring log information, etc.), and submitting a final EQuIS deliverable to NYSDEC that meets NYSDEC EDD requirements.

In addition to the hard copy of the data report, the laboratory will be asked to provide the sample data in spreadsheet form (submitted electronically or on computer diskette). The data spreadsheet will be generated to the extent possible directly from the laboratory's electronic files or information management system to minimize possible transcription errors resulting from the manual transcription of data.

7.2 Data Validation

Data generated for this RI will be validated by a qualified data validator. The validator, (TBD), will follow guidelines established in the USEPA Region 2 SOPs applicable to the analytical method(s) being reviewed. These SOPs are checklists which are designed to formally and rigorously assess the quality and completeness of SW-846 and air sample TO-15 analysis data packages. The use of these USEPA SOPs will be adapted to conform to the specific requirements of the NYSDEC ASP (e.g., NYSDEC/ASP holding times; matrix spike blank requirements). Where necessary and appropriate, supplemental validation criteria may be derived from the EPA Functional Guidelines (USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA-540-R-10-011, January 2010, and the National Functional Guidelines for Organic Data Review, EPA-540-R-08-01, June 2008).

Validation reports and DUSRs will consist of text results of the review and marked up copies of Form I (results with qualifiers applied by the validator). Validation will consist of target and non-target compounds with corresponding method blank data, spike and surrogate recoveries, sample data, and a final note of validation decision or qualification, along with any pertinent footnote references. Qualifiers applied to the data will be documented in the report text. Where QC failures caused the laboratory to perform a re-analysis, the data validator will make a recommendation as to which of the two analyses should be used. Data review will also include an assessment of sensitivity (i.e., are reporting limits appropriate to determine if contaminants are present at or above action levels or other applicable threshold values).

There may be some analyses for which there is no established USEPA or NYSDEC data validation protocol. In such cases, validation will be based on the Region 2 SOPs and EPA Functional Guidelines as much as possible, as well as the laboratory's adherence to the technical requirements of the method, and the professional judgment of the validator. The degree of rigor in such validation will correspond to the nature of the data and the significance of the data and its intended use.

7.3 Data Usability

(TBD)'s QA staff will prepare a DUSR which to be provided as part of the RI Report, encompassing both quantitative and qualitative aspects, although the qualitative element is the most significant.

The quantitative aspect is a summary of the data quality as expressed by qualifiers applied to the data; the percent rejected, qualified (i.e., estimated), missing, and fully acceptable data are reported. As appropriate, this quantitative summary is broken down by matrix, laboratory, or analytical fraction or method.

The qualitative element of the data usability summary is the QA officer's translation and summary of the validation reports into a discussion useful to data users. The qualitative aspect will discuss the significance of the qualifications applied to the data, especially in terms of those most relevant to the intended use of the data. The usability report will also indicate whether there is a suspected bias (high or low) in qualified data, and will also provide a subjective overall assessment of the data quality. If similar analyses are performed by more than one method, a discussion of the extent of agreement among the various methods will be included, as well as discussion of any discrepancies among the data sets.

The QAO will also indicate if there is a technical basis for selecting one data type over another for multiple measurements which are not in agreement.

Data which has not been validated and field data used for the project will be discussed in the data usability summary, including any limitations on the use of such data.

7.4 Field Data Verification

Field personnel will record all field data in bound field logbooks and on standard forms. After checking the validity of the data in the field notes, the Project Manager or his/her designee will reduce the data to tabular form, when possible, by entering the data into data files. Where appropriate, the data files will be set up for direct input into the project database. Subjective data will be filed as hard copies for later review by the Project Manager and incorporation into technical reports, as appropriate.

Verification of field data will be performed at two different levels. The first level of data verification will be performed at the time of collection by following standard procedures and QC checks. The second level of review consists of the Project Manager, Task Manager, or other competent personnel, reviewing the data to confirm that the correct codes and units have been included. After data reduction into tables and arrays is complete, the Site Manager will review data sets for anomalous values. The Project Manager, who will review field reports for reasonableness and completeness, will validate subjective field and technical data.

8.0 Performance and System Audits

Audits are systematic checks to determine the quality of operation of some activity or function in the field or laboratory. Field audits are conducted to verify adherence to proper field and sampling procedures. Audits are of two types, as described below.

- Performance audits are independent safety and health, procedure, and/or sample checks made by a supervisor or auditor to arrive at a quantitative measure of the quality of the data produced by one section or the entire measurement process.
- System audits are onsite qualitative inspections and reviews of the QA system used by some part of or the entire measurement system. The audits are performed against the QAPP. A checklist is typically generated from the requirements and becomes the basis for the audit. The results of any deficiencies noted during the audit are summarized in an audit report.

Laboratory performance and system audits are performed by the laboratory's QA staff to assess the effectiveness of the quality system. These internal audits are performed on a routine basis. Audits are also performed by certifying agencies. Audit reports and corrective actions are available to NYSDEC for review.

8.1 Responsibility, Authority, and Timing

QA audits to be conducted for the project may include system, performance, and data audits. The Project QAO will keep a tentative schedule on record that details the number and types of audits.

8.2 Field Audits

The need for field audits will be determined on a project-specific basis as discussed in the RD REPORT. Not all the aspects listed below will be necessary or appropriate for projects for which field audits are specified.

Field performance audits, if specified, will be conducted during the project as field data are generated, reduced, and analyzed. Numerical manipulations, including manual calculations, will be documented. Records of numerical analyses will be legible, of reproduction quality, and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator.

Indicators of the level of field performance include the analytical results of the blank and replicate samples. Each blank analysis will be considered an indirect audit of the effectiveness of measures taken in the field to maintain sample integrity (e.g., field decontamination procedures).

The results of the field replicate analyses are an indirect audit of the ability of each field team to collect representative sample portions of each matrix type.

System audits of site activities will be accomplished by an inspection of all field site activities. During this audit, the auditor(s) will compare current field practices with standard procedures. The following elements will be evaluated during a field system audit:

- Field activities conducted in substantial compliance with the RD Report;
- Procedures and analyses conducted according to procedures outlined in the QAPP and Addendum;
- Sample documentation;

- Working order of instruments and equipment;
- Level of QA conducted by field personnel;
- Contingency plans in case of equipment failure or other event preventing the planned activity from proceeding;
- Decontamination procedures;
- Level of efficiency with which each team conducts planned activities at one site and proceeds to the next; and
- Sample packaging and shipment.

After completion of the audit, any deficiencies will be discussed with the field staff and corrections identified. If any of these deficiencies could affect the integrity of the samples being collected, the auditor(s) will inform the field staff and corrections will be implemented immediately. The audit will be performed by the Project QA/QC Coordinator or the Site Manager.

8.3 Laboratory Performance and System Audits

The laboratory assigned to this project will been verified to be certified by the NYSDOH Environmental Laboratory Approval Program for the matrices and analytical protocols to be used. Therefore, no project-specific audit of the laboratory(s) will be performed unless warranted by a problem(s) that cannot be resolved by any other means, or at the discretion of (TBD).

8.4 Audit Procedures

Prior to an audit, the designated lead auditor prepares an audit checklist. During an audit and upon its completion, the auditor(s) will discuss the findings with the individuals audited and discuss and agree on corrective actions to be initiated. The auditor will then prepare and submit an audit report to the manager of the audited group and the project manager.

The manager of the audited group will then prepare and submit, to the Project QAO and the Project Manager, a plan for implementing the corrective action to be taken on non-conformances indicated in the audit report, the date by which such corrective action will be completed, and actions taken to prevent reoccurrence. If the corrective action has been completed, supporting documentation should be attached to the reply. The auditor will ascertain (by re-audit or other means) if appropriate and timely corrective action has been implemented.

Records of audits will be maintained in the project files.

8.5 Audit Documentation

A checklist will be completed during each audit so that the previously defined scope of the individual audits is accomplished and that the audits follow established procedures. The checklist will detail the activities to be executed as part of the auditing plan. Audit checklists will be prepared in advance and will be available for review. Following each system, performance, and data audit, the auditor or QAO will prepare a report to document the findings of the specific audit.

9.0 Corrective Actions

If instrument performance or data fall outside acceptable limits, then corrective actions will be taken. These actions may include recalibration or standardization of instruments, acquiring new standards, replacing equipment, repairing equipment, and reanalyzing samples or redoing sections of work.

Subcontractors providing analytical services should perform their own internal laboratory audits and calibration procedures with data review conducted at a frequency so that errors and problems are detected early, thus avoiding the prospect of redoing large segments of work.

Situations related to this project requiring corrective action will be documented and made part of the project file. For each measurement system identified requiring corrective action, the responsible individual for initiating the corrective action and also the individual responsible for approving the corrective action, if necessary, will be identified.

As part of its quality management system (QMS) program, (TBD) provides relevant excerpts and conclusions from data validation reports to the analytical laboratories. The laboratories are therefore made aware of non-critical items and areas where improvement may be made in subsequent NYSDEC ASP work.

The objectives of the corrective action procedures presented below are to ensure that recognized errors in performance of sample and data acquisition lead to effective remedial measures and that those steps are documented to provide assurance that any data quality deficiencies are recognized in later interpretation and are not recurrent.

9.1 Rationale

Many times, corrective measures are undertaken in a timely and effective fashion but go undocumented. In other cases, corrective actions are of a complex nature and may require scheduled interactions between departmental groups. In either case, documentation in a formal or informal sense can reinforce the effectiveness and duration of the corrective measures taken.

9.2 Corrective Action Methods

9.2.1 Immediate Corrective Actions

Immediate corrective actions are of a minor or routine nature such as correcting malfunctioning equipment, correction of data transcription errors, and other such activities routinely made in the field, laboratory, or office by technicians, analysts, and other project staff.

9.2.2 Long-Term Corrective Actions

Long-term corrective action will be used to identify and eliminate causes of non-conformances which are of a complex nature and that are formally reported between management groups.

9.2.3 Corrective Action Steps

For long-term corrective actions, steps comprising closed-loop corrective action system are as follows:

- Define the problem;
- Assign responsibility for investigating the problem;

- Investigate and determine the cause of the problem;
- Determine a corrective action to eliminate the problem;
- Assign and accept responsibility for implementing the corrective action; and
- Verify that the corrective action has eliminated the problem.

Non-conformance events associated with analytical work are documented by the laboratories' Non-Conformance Records, which are reviewed and approved by the laboratory's Quality Assurance Manager.

9.2.4 Audit-Based Non-Conformances

Following audits, corrective action is initiated by documenting the audit finding and recommended corrective action on an Audit Finding Report.

9.3 Corrective Action Report Review and Filing

Immediate and long-term corrective actions require review to assure that, during the time of non-conformance, erroneous data were not generated or that, if possible, correct data were acquired instead. Such confirmation and review is the responsibility of the supervisor of the staff implementing the corrective action. Confirmation will be acknowledged by notation and dated signature on the affected data record or appropriate form or by memorandum to (TBD) project management.

10.0 Quality Assurance Reports to Management

Fundamental to the success of this QA/QC is the active participation of the Project Manager and the Project QA Officer. The Program QA Officer will be advised of project activities and will participate in development, review, and operation of the project. Project management will be informed of QA activities through the receipt, review, and/or approval of:

- Project-specific QA project plans;
- Corporate and project-specific QA/QC plans and procedures;
- Corrective action notices; and
- Non-conformance records.

Periodic assessment of field and laboratory QA/QC activities and data accuracy, precision, and completeness will be conducted and reported by the laboratory. Items to be included in the QA reports are the summary of results for the performance or the system audit and, where applicable:

- Assessment of adherence to work scope and schedule for the audited task;
- Assessment of the precision, accuracy, and completeness of sample batches and subsequent status of data processing and analyses;
- Significant QC problems and the status of any ongoing corrective actions;
- Changes to the RD Report; and
- Status of implementation of the RD Report.

Project status reporting will include aspects of quality control that were pertinent during the month's activities. Problems revealed during review of the month's activities will be documented and addressed. These reports will include a description of completed and on-going activities, and an indication how each task is progressing relative to the project schedule.

The project manager, through task managers, will be responsible for verifying that records and files related to the work assignment are stored appropriately and are retrievable.

The laboratory will submit any memoranda or correspondence related to quality control of this project's samples as part of its deliverables package.

11.0 References

New York State Department of Environmental Conservation (NYSDEC), 2005. *Analytical Services Protocol (ASP) Manual*. July.

NYSDEC, 2008. *NYSDEC Modifications to EPA Region 9 TO-15 QA/QC Criteria provided in the July 2005 ASP*. February 2008.

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NYSDOH, 2007. Letter from Gary Litwin (Director) to Dale Desnoyers (NYSDEC DER) re: Sail Vapor/Indoor Air Matrices. (Adds additional chlorinated VOCs to the original matrices in the 2006 SVI guidance). June 25.

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USEPA, 1999. *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air – Second Edition*. USEPA Center for Environmental Research Information. EPA/625/R-96/010b. January.

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USEPA, 1988. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*. USEPA Office of Emergency and Remedial Response. OSWER Directive No. 355.3-01. October.

Tables

Table 1

Sampling Matrix / Parameters
Remedial Action
NYSEG - Auburn Green St. MGP Site
Auburn, Cayuga County, New York

	Parameters													
	Groundwater					Surface Soil	Waste Characterization (potential as may be required by disposal facility)[7]							
Location [1]	VOCs[2] (8260D)	SVOCs[3] (8270D)	Sulfate (300.0)	Total Cyanide (9012A)	Field Parameters[4]	Metals (Arsenic) (6010C)	TCLP Benzene (5035A/ 5030C/ 8260B)	Total Benzene (5030C/ 8260B)	TCLP SVOCs (1311/ 8270D)	TCLP Metals (6010C/ 7470A)	Ignitability (1030)	Corrosivity (9045)	Reactivity (Sect. 7.3)	Flashpoint[8] (1010A)
MW-1	9	9	9	9	9	[9]								
MW-2	9	9	9	9	9									
MW-3	9	9	9	9	9									
MW-4	9	9	9	9	9									
MW-5	3	3	3	3	3									
MW-6	3	3	3	3	3									
MW-7	9	9	9	9	9									
MW-8	3	3	3	3	3									
MW-9 (AIW-01)	9	9	9	9	9									
MW-10	9	9	9	9	9									
MW-11	9	9	9	9	9									
MW-12	9	9	9	9	9									
AIW-02	9	9	9	9	9									
SS-RA Documentation Samples						9								
Monitoring Subtotal	99	99	99	99	99	9								
Waste Char - Soil							TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Waste Char - Water							TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Waste Characterization Subtotal							TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
QA/QC														
Duplicate [5]	9	9	9	9		1								
Matrix Spike [5]	9	9	9	9		1								
Matrix Spike Duplicate [5]	9	9	9	9		1								
Trip Blank	9													
Rinse Blank [6]	9	9	9	9		1								
Totals	144	135	135	135	99	13	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Notes:

(1) Listed wells will be sampled once prior to RA (i.e., baseline sample) and quarterly during the post-RA monitoring period. Eight (8) quarterly sample events are assumed for wells within or downgradient of treatment area (MW-1, MW-2, MW-3, MW-4, MW-7, MW-9 through MW-12, and AIW-02); annual samples are assumed for wells upgradient of the treatment area (MW-5, MW-6, and MW-8).
(2) Benzene, toluene, ethylbenzene, xylene (BTEX), and styrene
(3) 2-methylphenol, 2-methylnapthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz[a,h]anthracene, indeno(1,2,3-CD)pyrene, naphthalene, and phenol.
(4) Field collected parameters will include dissolved oxygen, electrical conductivity, oxidation-reduction potential, pH, temperature, and turbidity.
(5) Duplicates, Matrix Spike, and Matrix Spike Duplicate samples will be collected at a rate of 1 per 20 samples per event.
(6) Rinse Blanks will be collected at a rate of 1 per sampling event.
(7) It is presumed herbicides, pesticides, and PCBs will not be required for IDW characterization based on absence in Site Characterization data.
(8) If visible floating layer, only.
(9) Shaded cells are not applicable for the location and/or analyses.

TCLP -Toxicity Characteristic Leachate Procedure
MW - monitoring well
SS - surface soil sample
QA/QC - quality assurance/quality control
VOC - volatile organic compound
SVOC - semi-volatile organic compound

Table 2

Analytical Specifications - Sample Bottle, Volume, Preservation, and Holding Time Summary
Remedial Action
NYSEG Auburn Green St. MGP Site
Auburn, Cayuga County, New York

Matrix/Analysis	Sample Prep Method (1)	Analytical Method (1)	Sample Bottles (2)				Minimum	Preservation (3)	Holding Time (4)		Comment
			Mat'l	Size	Qty	Source	Vol Rqd		Extraction	Analysis	
Aqueous Samples											
Volatile Organics	SW-846 5030C	SW-846 8260D	Glass	40 mL	3	Lab	40 mL	HCl to pH ≤ 2	NA	14 days	7 days if not preserved.
Semivolatile Organics	SW-846 3510C	SW-846 8270D	Glass	250 mL	2	Lab	250 mL	None	7 days	40 days	
Sulfate	EPA 300.0	EPA 300.0	HDPE	125 mL	1	Lab	50 mL	None	NA	28 days	
Total Cyanide	SW-846 9012A	SW-846 335.4/9012B	Plastic	500 ml	1	Lab	500 ml	NaOH to pH >12	NA	14 days	
Surface Soil Samples											
Metals (Arsenic)	SW 846 3050B/3051/3052	SW-846 6010C	Glass	8 oz.	1	Lab	10 g	None	NA	180 days	
Waste Characterization Non-Aqueous Samples (Potential as may be required by Disposal Facility)											
TCLP Benzene	SW-846 5035A	SW-846 8260C	Glass	2 oz.	1	Lab	5 g	None	NA	14 days	
TCLP SVOCS	SW-846 1311	SW-846 8270D	Glass	8 oz (5)	1	Lab	30 g	None	14 days	40 days	
TCLP Metals	SW-846 1311	SW-846 6010C/7470A							14 days	365 days	
Reactivity	NA	Section 7.3	Glass	8 oz.	1	Lab	30 g		NA	14 days	
Ignitability	NA	SW-846 1030							NA	14 days	
Corrosivity	NA	SW-846 9045							NA	14 days	
Percent Solids	NA	SM2540							NA	14 days	
Waste Characterization Aqueous Samples (Potential as may be required by Disposal Facility)											
Total Benzene	SW-846 5030C	SW-846 8260C	Glass	40 mL	3	Lab	40 mL	HCl to pH ≤ 2	NA	14 days	7 days if not preserved.
TCLP SVOCS	SW-846 1311	SW-846 8270D	Glass	250 mL	2		250 mL	None	7 days	40 days	
TCLP Metals	SW-846 1311	SW-846 6010C/7471A	Plastic	250 mL	1		250 mL		14 days	365 days	
Reactivity	NA	Section 7.3	Glass	1L	1		1L			14 days	
Ignitability/Flashpoint	NA	SW 1010A								14 days	
Corrosivity	NA	SW9045								14 days	

Notes:
(1) More recent versions of SW-846, EPA, and SM methods may be used subject to AECOM approval.
(2) Bottles typical.
(3) All samples for chemical analysis will be held at 4 degrees C in addition to any chemical preservation required.
(4) Holding time calculated from day of collection, unless noted as being from time of extraction. Laboratory holding times (ASP 2005, Exhibit I) are two days shorter to allow for field handling and shipping.
(5) A single 8-oz sample is sufficient for SVOCs and metals.
SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. USEPA SW-846. Complete through Update IV, March 2009.
EPA - Compendium of Methods for the Determination of Toxic Organics in Air, Second Edition (EPA/625/R-96/010b; 1999).
SM - Standard Methods for the Examination of Water and Wastewater. AWWA. 20th Edition, 1998.

BTEX - benzene, toluene, ethylbenzene, xylene
PAHs - polynuclear aromatic hydrocarbons
HDPE - high-density polyethylene
NA - not applicable
HCL - hydrochloric acid
HNO_3 - nitric acid
mL- milliliter
L - liter
g - gram
oz - ounce

Appendix D

Community Air Monitoring Program

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.

Appendix E

Construction Quality Assurance Plan

Environment

Prepared for:
NYS Electric & Gas Company

Prepared by:
AECOM
Buffalo, NY
60652550
April 2025

Remedial Design
NYSEG - Auburn Green St. MGP Site
Auburn, New York
100% Submittal
NYSDEC Site # 706009
Construction Quality Assurance Plan

Contents

1.0 Introduction

This Construction Quality Assurance Plan (CQAP) is designed to assure the quality of the project by monitoring, inspecting, and testing the processes and materials associated with the remediation to be completed at New York State Electric and Gas Corporation's (NYSEG's) Auburn Green St. Manufactured Gas Plant (MGP) site, City of Auburn, Cayuga County, New York. This CQAP supplements the Remedial Design.

2.0 Construction Quality Assurance Plan Objectives

The objective of this CQAP is to identify and standardize measures to provide confidence that activities in all phases of the project will be completed in accordance with the Remedial Design; applicable local, state, and federal regulations; and appropriate industry standards. The CQAP will be implemented through inspection; sampling; testing; and review of services, workmanship, and materials. Specific objectives of this plan establish protocols and procedures for the following components:

1. Responsibility and Authority - The responsibility and authority of the key personnel involved in the completion of the project.

2. Inspection and Testing Activities - Establish the observations and implement inspections and tests that will be used to ensure that the construction activities for the project meet or exceed all design criteria, (i.e., Remedial Design, and local, state, and federal regulations).

3. Sampling Strategies - Establish responsibility for sampling activities and methods including frequency and acceptance criteria for ensuring that sampling meets criteria in the Remedial Design, local, state, and federal regulations.

4. Appropriate field documents (i.e. photographic log, sampling log, and variances to the Remedial Design).

3.0 Responsibility and Authority

Responsibilities of each member of the construction project team are described below.

3.1 Contractor (To be Determined)

The contractor is responsible for coordinating field operations for the remediation*;* including coordination of subcontractors, to comply with the requirements of the Remedial Design and permitting agencies. The Contractor is responsible for completing and submitting documentation required by the *CQAP* and also has the authority to accept or reject the materials and workmanship of any subcontractors at the site.

The contractor is also responsible to ensure a functional construction quality control organization is active during the project and provide support for the construction quality control system to perform inspections, tests, and retesting in the event of failure of any item of work, including that of the subcontractors, and to assure compliance with the contract provisions. The construction quality control system includes, but is not limited to the inspections and tests required in the technical provisions of the Remedial Design and will cover all project operations.

3.2 Construction Quality Assurance Officer (John Ruspantini, NYSEG Remediation Manager)

The responsibility of the construction quality assurance officer is to perform those activities in this CQAP deemed necessary to assure the quality of construction and support quality control efforts. The construction quality assurance officer will be on site as required during construction activities. The responsibility of the construction quality assurance officer is to ensure the quality of construction meets or exceeds that defined by the Remedial Design and identified in the Quality Assurance Project Plan (QAPP). Specific responsibilities of the construction quality assurance officer include:

- Directing and supporting the construction quality control representative inspection personnel in performing observations and tests by verifying that the data are properly recorded, validated, reduced, summarized, and inspected.
- Evaluating the construction activities and the construction quality control representative’s efforts.
- Evaluating sampling activities and efforts of the sampling quality assurance officer.
- Educating construction quality control inspection personnel on construction quality control requirements and procedures.
- Scheduling and coordinating construction quality assurance inspection activities.

3.3 **Sample Quality Assurance Officer (To Be Determined)**

The sampling quality assurance officer provides the permitting agency an assurance that all sampling efforts, for both field and laboratory analysis, meet or exceed that defined by the Remedial Design and identified in the CQAP. The sampling quality assurance officer will be on site as required during the project. The sampling quality assurance officer will report directly to the construction quality assurance officer.

Specific responsibilities of the sampling quality assurance officer include:

- Confirming that the test data are properly recorded and maintained (this may involve selecting reported results and back tracking them to the original observation and test data sheets).
- Confirming that the testing equipment, personnel, and procedures do not change over time or making sure that any changes do not adversely impact the inspection process.

- Confirming that regular calibration of testing equipment occurs and is properly recorded.
- Providing the construction quality control officer with up to date sampling results.

3.4 Construction Quality Control Representative (To Be Determined)

A construction quality control representative, supplemented as necessary by additional personnel, is to be on the work site during the construction process, with complete authority to take any action necessary to ensure compliance with the Remedial Design as necessary to achieve quality in the constructed facility. The construction quality control representative will be the field engineer. Specific responsibilities of the construction quality control representative include:

- Reviewing the Remedial Design for clarity and completeness so that the construction activities can be effectively implemented.
- Observe and document contractor's construction quality for compliance with this CQAP.
- Verifying that a contractor's construction quality is in accordance with this CQAP.
- Performing on-site inspection of the work in progress to assess compliance with the Remedial Design.
- Prepare transportation manifests for the transportation of non-hazardous waste, hazardous waste, and conditionally exempt materials (i.e., soil, water, debris).
- Prepare a transportation log documenting all loads of solid or liquid waste that are transported off site. The Transportation Log will be submitted at the end of each week in electronic format to Mr. John Ruspantini, NYSEG project manager at jjruspantini@nyseg.com.
- Perform the duties of the health & safety officer.
- Reporting the results of all observations and tests as the work progresses and modify materials and work to comply with Remedial Design. This includes:
  1. Review and interpretation of all data sheets and reports.
  2. Identification of work that should be accepted, rejected, or uncovered for observation, or that may require special testing, inspection, or approval.
  3. Rejection of defective work and verification that corrective measures are implemented
  4. Make observations and records that will aid in finalization of the Final Report.
- Reporting to the construction quality assurance officer results of all inspections including work that is not of acceptable quality or that fails to meet the Remedial Design.
- Verifying that the equipment used in testing meets the test requirements and that the tests are conducted according to the proper standardized procedures.
- Verifying that materials are installed as specified, except where necessary field modifications were required.
- Serves as the overall project emergency coordinator and have ultimate authority in specifying and facilitating any contingency action during any potential emergencies when the *Contingency Plan* is implemented.

The construction quality control representative will report directly to the quality assurance officer.

3.5 Sampling Representative (To be Determined)

A sampling representative, supplemented as necessary by additional personnel, is to be on the work site at all times during the construction process. The sampling representative reports directly to the sampling quality assurance officer. Specific responsibilities of the sampling representative include:

- Set up and operation of the weather station.
- Daily recording of meteorological data.
- Daily calibration and operation of real time total volatile organic compound (VOCs), suspended particulate, and benzene monitoring equipment.

- Daily recording of real-time air quality data. Informs project coordinator and on-site New York State Department of Health (NYSDOH) representatives when concentration of air contaminants approaches or exceeds action levels specified in the Remedial Design. Submit real-time air quality data in an electronic format to Ms. Harolyn Hood, NYSDOH at Harolyn.hood@health.ny.gov, Mr. Mark Domaracki, NYSDEC at Mark.domaracki@dec.ny.gov and Mr. John Ruspantini, NYSEG project manager at jjruspantini@nyseg.com as required by the site Community Air Monitoring Plan (CAMP).
- Daily calibration and operation of the portable gas chromatograph per guidelines specified in the QAPP and Remedial Design. Compiling calibration and results data onto spreadsheets. E-mailing compiled data to sampling quality assurance officer daily.
- Collection, packaging, and shipment of soil and water samples per guidelines specified in the QAPP and Sampling Analysis Plan. Maintaining a master log of all air, water, and soil samples collected. Faxing copies of the chain-of-custody sheets to the sampling quality assurance officer daily. Tracking confirmation sample points and construction of a map depicting confirmation sample point locations.
- Consultation with sampling quality assurance officer for all technical questions, problems, considerations, or requests for supplies or equipment.
- Maintaining and organizing on-site field specialist equipment and supplies storage area.
- Performing the duties of assistant health & safety officer.

4.0 Field Quality Control Inspection, Testing, and Sampling Requirements

The definable features of work identified below are described in the Remedial Design. This section of the CQAP describes the anticipated inspection, testing, and sampling requirements of these definable feature works.

4.1 Site Preparation

Elements of the site preparation, including clearing, temporary fence installation, erosion control measures will be inspected to assure compliance with the Remedial Design. If installation is required for the work, Inspection of the siltation fence shall confirm that it's contiguous and its skirt is embedded along its length.

4.2 Equipment Set-up

All materials and equipment are designed to meet specific project needs. Each delivery of materials and/or equipment will be inspected upon arrival by the construction quality control representative and stored at the designated area of the site. Equipment will be set-up per the Remedial Design and drawings.

4.3 Staging of Materials

Material will be managed at the excavation area and directly loaded for transport when possible.

4.4 Excavation of Existing Impacted Soils

Excavation activates will comply with Occupational Safety and Health Administration's (OSHA's), "Hazardous Waste Operations and Emergency Response" (29 CFR 1910.120) and Safety and Health Regulations for Construction – Excavations (29 CFR 1926 Subpart P). Excavation activities will be conducted in accordance with the Remedial Design. Limits of the excavation will be measured by the construction quality control representative upon completion of the excavation for documentation drawings. Confirmation Sampling is covered in the QAPP.

4.5 Loading of Materials for Transportation

Materials will be loaded with an excavator into dump trailers for transportation to permitted disposal facilities. Polyethylene sheeting will be placed between the excavation and the truck to retain any material spilled. The spilled material will be added back to the excavation following completion of loading of each truck. The loading area will be visually inspected to confirm that material remains within the work area and not tracked onto truck tires.

4.6 Relocation and Restoration of Utilities

Relocation/restoration activities are not anticipated to be required for this remediation. However, if needed, relocation/restoration activities will be inspected to ensure that the relevant utility company requirements (details and specifications) have been properly addressed and coordinated. This will require extensive communication to ensure notices are given prior to the start of utility relocation and restoration activities.

4.7 Emergency Access Construction

Construction of emergency access ways is not anticipated for this remediation. However, if needed, emergency access ways will be inspected to ensure confirmation with updated contract drawings and design. Communication and notification with the local emergency responders (i.e. police, ambulance, and fire) shall be a continuing focus throughout the project phases.

4.8 Site Restoration

Site restoration will be observed by the construction quality control representative. The remedial excavations will be backfilled as specified in the Remedial Design, and the surface will match the drawings in the Remedial Design. Clean imported fill material will be brought on-site. This material will be analytically tested prior to arrival and will also be inspected upon arrival. Backfilling and compacting of the excavation will be observed and documented by the construction quality control representative. All liners will be removed and disposed. All waste containers will be removed prior to demobilization.

The finished surface will be as defined in the Remedial Design. Visual inspections will confirm that the various site restoration activities meet the relevant requirements.

5.0 Documentation and Reporting Requirements for CQAP Activities

The value of the CQAP will be assured by proper documentation techniques. The construction quality assurance plan inspection team will be guided by data sheets, schedules and checklists. The documentation of the inspection activities will facilitate and adherence to the design documents and maintain the level of reporting required by the parties involved in the project.

5.1 Daily Field Construction Report

A Daily Field Construction Report shall be prepared identifying work force and their labor hours, location, and description of work performed, lost time accidents, equipment left on the job site, equipment/materials received and if applicable, submittal status, non- compliance notices received, errors and/ omission in plans and specifications, visitors to the job site, weather conditions and temperatures, and any other pertinent information. The Daily Field Construction Report will be submitted at the end of the week in an electric format to Mr. John Ruspantini, NYSEG project manager at jjruspantini@nyseg.com.

5.2 Transportation Log

A Transportation Log will remain in the field office to record all loads of solid or liquid waste that are transported off-site. The Transportation Log will be submitted at the end of the week in an electronic format to Mr. John Ruspantini, NYSEG project manager at jjruspantini@nyseg.com.

5.3 Photographic Log

The photographic log is designed to document construction activities by still photos. The photographic log may also be used to photographically record activities recorded in a daily construction log or an as-built sketch log. The construction quality control representative will collect photographs.

5.4 Daily Field Construction Report

The construction quality control representative shall prepare a Daily Field Construction Report (DFCR) identifying work force and their labor hours, location and description of the work performed, lost time accidents, equipment left of the job site, equipment/materials received and if applicable, submittal status, non-compliance notices received, errors and/or omissions in plans and specifications, visitors to the job site, weather conditions and temperatures, and any other pertinent information.

5.5 Daily Community Air-Monitoring Report

The Daily Community Air Monitoring Report is designed to document all sampling activities and how they correspond to the Remedial Design. All observations, field and/or laboratory tests will be recorded on a daily sampling log. It is important to note recorded field observations may take the form of notes, charts, sketches, or photographs. Each Daily Community Air-Monitoring Report for the week will be summarized and submitted no later than the following Tuesday in electronic format to Ms. Harolyn Hood, NYSDOH at: Harolyn.hood@health.ny.gov, Mr. Mark Domaracki, NYSDEC at Mark.domaracki@dec.ny.gov and Mr. John Ruspantini, NYSEG project manager at jjruspantini@nyseg.com.

5.6 Master Sample Log

The daily notebook will remain in the field office to record every sample collected. The sample technician will log in all samples collected and those sent to the off-site analytical laboratory. Waybill numbers will be logged at the end of each day.

5.7 Chain-of-Custody

A Chain-of-Custody form will be document custody of all samples from the field to the laboratory.

5.8 Waybill

A waybill receipt will be obtained at the time of accepted sample shipment by Federal Express or courier and will be attached to the Master Sample Log.

5.9 NYSEG's Public Liability Accident Report, NYSEG's Report of Employee Injury, and NYSEG's Incident Report

NYSEG's Public Liability Accident Report, Report of Employee Injury, and Incident Report forms will be used to document any accident occurring on-site during the remedial project. The sheets shall be attached to the Health and Safety Plan and will be located in the field project trailer.

5.10 Variances to Remedial Design

Required changes to the Remedial Design will be processed through the use of a variance log. Approval from the NYSEG project manager is required to recommend a change to the Remedial Design. At amendment to the Remedial Design will be develop for acceptance and the approval by NYSDEC and NYSDOH.

5.11 Final Engineering Report

At the completion of the project the Project Manager/Construction Quality Assurance Officer will prepare and submit a Final Engineering Report to the NYSDEC. This report will include a summary of all of the Daily Field Construction Reports, Daily Community Air-Monitoring Report's, Photographic Log, Sampling Log, Material Disposition Log, and Variances to Remedial Design. The Final Engineering Report will be signed and certified by a professional engineer that all activities that comprised in full accordance with NYSDEC approved Remedial Design and the NYSDEC Order of Consent Index #DO-0002-9309, and subsequent Amended and Restated Order on Consent (ARMSCO) (NYSDEC, 2016).

Appendix F

Contingency Plan

AECOM Environment

Prepared for:
NYS Electric & Gas Company

Prepared by:
AECOM
Buffalo, NY
60652550
April 2025

Remedial Design
NYSEG – Auburn Green St. MGP Site
Auburn, New York
100% Submittal
NYSDEC Site # 706009
Contingency Plan

Contents

1.0 Introduction

This construction contingency plan (CCP) has been developed for personnel to follow during the performance of the remediation project at the New York State Electric & Gas Corporation (NYSEG) Auburn Green St. Site, in the City of Auburn, Cayuga County, New York. The focus of the work is to mitigate the impacts of manufactured gas plant (MGP) by-product associated with the site. The project will consist of mobilization, excavation of contaminated soils, material handling, staging, loading, restoration, equipment decontamination, and demobilization. Soils contain contaminants that may be considered non-Resource Conservation and Recovery Act (RCRA) hazardous waste. This CCP provides procedures and guidelines that will be implemented in the event of a spill, release, fire, explosion, or other emergency. The CCP includes information necessary to prevent or minimize hazards to human health and the environment.

This CCP was prepared in accordance with United State Environmental Protection Agency (USEPA) and Occupational Health and Safety Administration (OSHA) guidance documents. This CCP supplements the Health and Safety Plan (HASP) that has been prepared separately for the stated field activities. Reasonable precautions will be taken by the Contractor and its subcontractors to prevent an emergency situation. However, in the event that an emergency occurs, this CCP will be carried out immediately and will govern the procedures to be followed. Subcontractors will be provided with copies of this CCP and will be required to follow the CCP.

2.0 Known Contaminants of Concern

Based on previous site activities and the site history, the contaminants of concern are MGP related chemicals and are anticipated to be encountered. These include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) (specifically polycyclic aromatic hydrocarbons [PAHs]), and inorganic metals (specifically arsenic).

3.0 Planned Field Activities

The planned field activities include the following:

- Site preparation (installation of support facilities);
- Construction of decontamination pad;
- Construction of staging areas;
- Installation of air injection well AIW-02;
- Installation of biosparging equipment trailer;
- Shallow trenching and installation of below-grade biosparge air conveyance lines;
- Excavation and backfill surface soil remedy area;
- Material Handling activities;
- Loading of soils;
- Equipment Decontamination; and
- Demobilization.

4.0 Responsibilities and Designation of Emergency Coordinator

The emergency coordinator (EC) or EC alternate is responsible for implementing this CCP during an emergency. The EC will also act as the site health safety officer (HSO) to maintain continuity in the lines of authority during an emergency. The site HSO/EC reports to the project superintendent, who reports to the project manager on a daily basis. An alternative EC, who will act in the absence of the project HSO/EC, will be designated in case of the primary EC absence. All site employees must be familiar with the procedures in this plan and are responsible for implementing the plan should the EC or the alternate be unavailable.

At the beginning of the site activities, the EC/HSO will designate one or more employees of the project team in conjunction with any subcontractor, to serve as part of a rescue team. At a minimum, the rescue team will consist of two persons. The rescue team will communicate with the project manager on a daily basis.

The rescue team will respond to emergencies, as needed, and will be under the direction of the EC/HSO. The members of the team must be certified in cardiopulmonary resuscitation (CPR) and emergency first aid.

A list of off-site emergency personnel is provided at the back of this plan. The EC/HSO will either notify off-site personnel or designate someone to do so. The first responders consist of police, fire, ambulance, and possibly the New York State Department of Environmental Conservation (NYSDEC). They will be alerted as to the type of emergencies that may arise and the types of hazards at the site.

5.0 Communications

Communications will be by voice where possible. As a backup, visual signals will be used. Hand signals will be as follows:

Hand gripping throat:	**Can't breathe.**
Grip partner's wrist or place hands around waist:	**Leave work area immediately.**
Hand on top of head:	**Need assistance.**
Thumbs up:	**OK. I'm all right.**
Thumbs down:	**No. Negative.**

Alternatively, hand-held radios may be used, if they are available and are intrinsically safe. In an emergency, and if necessary, a compressed air horn will be used to notify all workers that an emergency situation exists. The signals shall be as follows:

One long blast:	**Evacuate the area by nearest exit.**
Two short blasts:	**Evacuate by normal exit procedures.**

The EC/HSO will notify emergency personnel or designate an alternate to do so. A portable telephone will be used for this purpose. The portable telephone will be located in the clean zone. Emergency telephone numbers are included at the back of this plan.

6.0 Evacuation

In the event that the air horn is sounded, employees will evacuate the area. Emergency evacuation routes will be designated at the site, prior to initiating field activities. As field activities progress, it will be necessary to modify the evacuation routes, in accordance with site conditions and layout. Evacuation routes must be clear of obstructions. Evacuation routes will be through the fence gate and toward the parking area, depending on the location of the site activities at the time of the emergency. Evacuation maps will be drawn on site layout maps to outline evacuation routes. These maps will be discussed with site personnel to familiarize them with site conditions.

7.0 Safe Distance and Refuge

The following minimum safe distances have been established. Depending upon the nature of the incident, the EC may increase these distances. Arrangements will be made with the local police department to evacuate nearby neighbors. Any decisions on the need for and distances of evacuation will be made in conjunction with the fire and police department and the NYSDEC:

Minor Spills:	**Not established**
Major Spills:	**Evacuate non-essential personnel to clean zone or 1,000 feet, whichever is greater**
Minor Fire:	**Evacuate non-essential personnel to clean zone**
Fire involving a container:	**Evacuate all personnel 1/2 mile in all directions**
Explosion:	**Evacuate all personnel 1/2 mile in all directions**

8.0 Emergency Response Procedures

In the event of any releases of materials the CCP shall be immediately activated. The equipment to respond to an emergency will be on site and activated already. There are additional measures to be taken in the event of an emergency. Emergency equipment that will be present is described in the sections that follow. In addition to this CCP, all responses to releases are subject to controls designated in the site HASP.

9.0 Minor Spills during Drum Handling and Removal

For purposes of the CCP, minor spills would be those that consist of 5 gallons or less. Minor spills will be remediated by removing spill debris with any underlying or surrounding contaminated soil. The spilled material will be handled as hazardous waste. If leaking, the container will be placed in an overpack drum. Additional emergency measures would not be implemented, unless needed. The contractor will have empty drums, speedi-dri, miscellaneous hand tools, fire extinguishers, absorbent pads, and booms to deal with minor spills that occur on site.

10.0 Minor Spills in the Drum Staging or Storage Areas

Minor spills onto soil will be cleaned up as discussed above. Minor spills that occur in other areas will need to be collected using absorbent material such as absorbent pads and/or speedi-dri.

11.0 Major Spills

For purposes of this CCP, a major spill is defined as those that involve greater than five (5) gallons of material. In the event of a major spill, communication and notification procedures will be implemented. The response will depend on the nature of the release. Attempts will be made to control the release by diking and draining the area. An absorbent pad, Oil Dry, or soil will be used to absorb the release. The removed material will be placed into appropriate drums and sealed to prevent hazards. Employees should note that absorbents solidify the liquid, but do not remove the fire or exposure hazards. Solvents will volatilize from the absorbent and can ignite. Therefore, a fire extinguisher will be brought to the area of the release by the emergency response team until the material is secured inside a drum. In the event that the release is of sufficient magnitude and cannot be controlled by diking, damming, absorbing, or other method, the local fire department, the NYSDEC, and National Response Center shall be notified.

The local responders would be notified through 911. The City of Auburn Fire Department would be the first responders. The City of Auburn has a Hazardous Materials Team and has capabilities of performing Level A and Level B response actions. If the incident requires Haz Mat response, 911 should be called and the appropriate emergency response personnel will be contacted.

12.0 Confined Space Emergencies

All personnel entering a confined space will have the appropriate training as required under 29 CFR 1910.146. Each employee entering a confined space will wear a safety harness equipped with a lifeline for evacuation purposes in the case of an emergency, unless the lifeline creates more of a hazard for the individual in the space. Emergency equipment such as lifelines, breathing equipment, fire extinguishers and harnesses will be ready for immediate response in case an emergency situation arises.

13.0 Fire

A fire extinguisher will be used on minor fires where a container is not involved. If the fire cannot be extinguished immediately or a container is involved, the area must be evacuated immediately and the fire department notified from a safe location. Extinguishing methods include CO_2 or dry chemical. A water spray can also be used (not a direct hose stream). Foam, water spray, or fog can be used on larger spills.

14.0 Explosion

In the event of an explosion, the area shall immediately be evacuated and the fire department notified. The cause of the explosion should be assessed and corrected prior to reentry.

15.0 Medical

Medical emergencies are addressed in the HASP. Appropriate first aid will be administered, and if necessary, the injured individual will be sent to the designated medical facility. An ambulance will be summoned, if needed. The cause of the accident will be determined and corrected, prior to continuing operations. A first aid kit will be maintained in the office trailer at all times.

When possible, injured personnel will be decontaminated or partially decontaminated in accordance with the HASP. Based upon the anticipated toxicity of the contaminants, personnel decontamination procedures may be eliminated in a life-threatening situation. Emergency medical personnel will be notified as to the lack of decontamination. Emergency medical personnel will wash with soap and potable water after handling the victim. Appropriate documentation should be completed in accordance with the HASP.

16.0 Training

All employees working on site will attend an initial 40-hour health and safety training course, annual 8-hour refresher training, and 8-hour training for managers for conducting work at hazardous waste sites. These courses satisfy the initial and follow-up training requirements of 29 CFR 1910.120 (OSHA regulation of hazardous waste site activities). Individuals working in confined spaces are all confined space entry trained with rescue and recovery training.

Prior to initiating site work, site personnel will be required to attend a training session given by the EC/HSO. This session will include, but is not limited to, the following topics:

- Site history
- Specific hazards
- Hazard recognition
- Standard operation procedures
- Decontamination (personnel and equipment)
- Emergency procedures

17.0 Severe Weather Conditions

When a hurricane, flood, freeze-up or other severe weather-related threat is detected, all site personnel will immediately be notified. Each Severe Weather Alert will require last-minute preventative measures to minimize potential damage to facilities and equipment. For example, steps such as checking drains, removing electrical material from open yards, protecting soil piles and excavations and managing sheet flow of water will have to be evaluated depending on weather conditions.

18.0 Emergency Telephone Numbers

Emergency telephone numbers and directions to the nearest medical facility are shown below and will be kept by field personnel while on-site. These telephone numbers should be posted next to the closest telephone.

Name	**Telephone Numbers**
NYSEG Site	TBD
Ambulance	911
Auburn Fire Department	911 / (315) 253-4031
Auburn Police Department	911 / (315) 253-3231
Cayuga County Sheriff	911 / (315) 253-1222
Auburn Community Hospital	(315) 255-7011
National Response Center	(800) 424-8802
New York State Department of Environmental Conservation	(800) 457-7362
Chemtrec (Emergency Technical Information)	(800) 424-9300