2018
REMEDIAL WORK PLAN

RG&E Pavilion
Former Manufactured Gas Plant – Property #1252
Pavilion, New York

NYSDEC Site # V00592-8

Index #: B8-0535-98-07

Prepared for:

RG&E

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LIST OF ACRONYMS

bgs	Below ground surface
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CAMP	Community Air Monitoring Plan
COCs	Contaminants of Concern
CPP	Citizen Participation Plan
CWG	Carbureted Water Gas
DR	Deed Restrictions
EAS	Environmental Site Assessment
GWQS	Groundwater Quality Standards
HASP	Health and Safety Plan
HSO	Health and Safety Officer
JDB&S, Inc.	J.D. Buckley and Son, Inc.
MGP	Manufactured Gas Plant
NAPL	Non-Aqueous Phase Liquid
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OU-1	Operable Unit 1
PAHs	Polynuclear Aromatic Hydrocarbons
Parsons	Parsons Engineering of New York, Inc.
PCB	Polychlorinated Biphenyls
PRR	Periodic Review Report
PSA	Preliminary Site Assessment
RAOs	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
RG&E	Rochester Gas and Electric Corporation
RI	Remedial Investigation
RIR	Remedial Investigation Report
RIWP	Remedial Investigation Work Plan

LIST OF ACRONYMS - CONTINUED

RWP	Remedial Work Plan
SCGs	Standards, Criteria and Guidance
SCOs	Soil Cleanup Objectives
SGVs	Standards and Guidance Values
SMP	Site Management Plan
SVOC	Semi-Volatile Organic Compounds
TPH	Total Petroleum Hydrocarbon
UTSs	Underground Storage Tanks
VCA	Voluntary Cleanup Agreement
VOC	Volatile Organic Compounds
WQS	Water Quality Standard

1.0 INTRODUCTION

On behalf of the Rochester Gas and Electric Corporation (RG&E), Parsons Engineering of New York, Inc. (Parsons) has prepared this Remedial Work Plan (RWP) for the Pavilion Former Manufactured Gas Plant (MGP) (Property No. 1252) Site (the Site). The Site is located at 6903 Ellicott Street Road in the Town of Pavilion, Genesee County, New York (Figure 1). The investigation of the Site is being conducted pursuant to a New York State Department of Environmental Conservation (NYSDEC) Multi-Site Voluntary Cleanup Agreement (VCA) between RG&E and the NYSDEC, Index # B8-0535-98-07, which was executed on April 10, 2003 (Amended December 23, 2014), and in accordance with applicable guidelines of the NYSDEC, the New York State Department of Health (NYSDOH), the United States Environmental Protection Agency (EPA), and the National Contingency Plan (NYSDEC, 2002).

NYSDEC approved the *Remedial Investigation Report for the RG&E Pavilion Former Manufactured Gas Plant – Property #1252* (Parsons, 2016) on June 28, 2016 and requested that this RWP be developed for the Site.

The primary objective of this RWP is to provide the basis for and describe the proposed remedial action for the Site which will address MGP-related impacts encountered during the previous investigations conducted at the Site. This RWP has been prepared in accordance with the requirements set forth in 6 NYCRR Part 375 *Environmental Remediation Programs* (6 NYCRR 375) and the NYSDEC's *Final Technical Guidance for Site Investigation and Remediation* (DER 10) (NYSDEC, 2010) and is based on the investigation results previously presented in various reports for the Site.

A description of the procedures and protocols that will be followed while conducting the proposed remedial actions are presented in this RWP. The Site is currently zoned as an industrial property. The proposed remedial actions presented herein are based on the present and anticipated future use of the Site as a commercial/industrial use property. The proposed remedial actions will provide protection to human health and the environment. This document has been organized as follows:

- Section 1 – Introduction: Includes a Site description, a description of adjoining properties, as well as the history of the Site as an MGP.
- Section 2 – Summary of Site Investigations and Exposure Assessment: Provides a summary of results from previous investigations conducted at the Site and a discussion to qualitatively assess potential exposure pathways.
- Section 3 – Remedial Goals, Standards, Criteria, and Guidance Values (SCGs), and Remedial Action Objectives (RAOs): Outlines the remedial goals, applicable SCGs used for comparison of Site data, as well as lists the RAOs for the Site.
- Section 4 – Remedial Alternative Analysis: Provides a description and evaluation of three remedial action alternatives including (1) no action, (2) targeted excavation and off-Site treatment/disposal, cover system, and Site Management Plan (SMP), and (3) excavation and off-Site treatment/disposal to pre-MGP conditions. This section also includes a comparison of the remedial alternatives.

- Section 5 – Development of the Proposed Remedial Action: Describes the elements of the proposed remedial action. This section also provides a discussion of project health and safety and a description of the institutional controls associated with the proposed remedial action.
- Section 6 – Remedial Action Implementation: Identifies key elements of implementing the proposed remedial action as well as describes the factors involved in the remedial construction, health and safety components, and quality assurance/quality control measures to be used.
- Section 7 – Schedule: Provides an anticipated schedule for the implementation of the proposed remedial action and submittal of a SMP based on task and the estimated duration for the completion of each task.
- Section 8 – References: Lists the references used to complete this report.

1.1 Site Description

The Site is located off of New York State Route 63 (also known as Ellicott Street Road) and is legally known as Part of Lot 10, Sections 2 and 3, Craigie Tract, Town of Pavilion. Access to the land-locked Site is through an easement assigned by J.D. Buckley and Son, Inc. (JDB&S, Inc.).

The Site encompasses approximately three acres and currently consists of one large stucco building, three concrete block buildings, and a metal clad building (Figure 2). The remainder of the Site consists of a storage yard and parking areas. A chain-link fence surrounds a rectangular-shaped portion of the property, enclosing the parking areas, buildings, and storage yard.

RG&E currently identifies the Site as the Pavilion Operations Center. The facility houses office space, worker training space, and vehicle and equipment storage. A portion of the Site is utilized for gas pressure regulation and odorant storage. There are no known plans to change from the current Site usage.

1.2 Adjoining Property Description

The area surrounding the Site includes both industrial and agricultural properties. Farm fields bound the property to the north and east. Railroad tracks border the Site to the west, as identified on historic documents as the Buffalo, Rochester and Pittsburgh Railway Company, and the Baltimore and Ohio Railroad. A cement/aggregate distribution facility operated by Hanson North America, Inc. is located west of the railroad tracks. An agricultural products warehouse and distribution center operated by JDB&S, Inc. is located south of the Site.

1.3 Site History

Based on the review of available historical information, prior to RG&E ownership, the Site was operated by the Pavilion Natural Gas Company as a MGP from 1927 to 1937. Site structures included a single main MGP building (currently the warehouse building) housing the water gas sets, the boiler room and the pump/compressor rooms. Other former MGP structures and equipment included a tar separator, two gas purifier tanks, three cooling coils, a 200,000 and a 1,000,000 ft^3 gas holder, a compression tank, two above ground oil storage tanks, four water gas

sets, a meter house, a rail spur, a water tower and a small building identified as a pit room directly south of the main MGP building. The approximate locations of former MGP structures are illustrated on Figure 2. Aside from the buildings and the tar separator, MGP processes were decommissioned and removed from the Site. The tar separator is a below-ground, concrete structure (poured concrete construction) that remains on the north side of the main MGP building (Figure 2). A surface watercourse traversing the Site was also shown on historic drawings.

According to historical accounts, the former MGP operations at the Site used a mixture of coke, oil, and steam to produce gas, which is consistent with a carbureted water gas (CWG) manufacturing process. The source of water to the Site is believed to be surface water pumped from nearby Oatka Creek (west of Site) through a pipeline and stored in the on-Site water tower.

After MGP Site closure in the late 1930s, the MGP processes, including above ground piping and structures for the gasholders, gas purifier tanks, and water tank, were decommissioned and removed from the Site in the 1960s. In the late 1970s to early 1980s, three approximately 500-gallon above ground storage tanks for vehicular fueling were added to the southeast portion of the Site. These tanks are no longer present on the property.

2.0 SUMMARY OF SITE INVESTIGATIONS AND EXPOSURE ASSESSMENT

A two phased preliminary Site investigation was conducted in order to characterize potential impacts resulting from former MGP operations. Geomatrix performed a Phase I Environmental Site Assessment (ESA) in November 2000 (Geomatrix, 2002). The Phase I ESA identified potential recognized environmental conditions that were are result of historical Site use consistent with an MGP. Subsequently, a Preliminary Site Assessment (PSA) was performed by Geomatrix in 2001 (Geomatrix, 2002). The PSA included the completion of several soil borings, the installation of groundwater monitoring wells, and the digging of test pits in areas of the Site where historical MGP processes were documented. An electromagnetic survey of the Site was also completed as part of the PSA, with the goal of mapping the distribution of buried metals and piping associated with the former MGP.

Based on the findings of the PSA investigation, a Remedial Investigation Work Plan (RIWP) (GEI, 2015) was developed and a Remedial Investigation (RI) was conducted at the Site to further delineate the presence and extent of impacts related to former MGP operations identified during the previous investigations. Parsons conducted field investigation activities between October and November 2015, with an additional round of groundwater sampling completed in January 2016, in accordance with procedures in the NYSDEC and NYSDOH-approved *Remedial Investigation Work Plan (RIWP)* (GEI, 2015). The RIWP included the installation of soil borings, test pits, soil vapor sample probes, and one additional monitoring well. In addition, the RIWP included the collection of surface soil, subsurface soil, soil vapor, and groundwater samples for laboratory analysis. However, soil vapor sampling was not conducted due to the shallow groundwater table elevation at the Site. In addition, surface soil sampling was not conducted due to a visual inspection of the proposed sampling area, which revealed that the area did not have a vegetative cover, but instead was covered by gravel and used as a storage area for heavy equipment. It should be noted, no exceedances of commercial SCOs were noted in this area during prior sampling events.

Sampling locations for all of the investigations discussed above are shown on Figure 2. A list of each sample submitted for laboratory analysis during field investigation activities, as well as which compounds each sample was analyzed for, is provided in Table 1. A Remedial Investigation Report (RIR) (Parsons, 2016) was submitted to NYSDEC summarizing the field investigation results, which was approved on June 28, 2016. Information gathered during all of the field investigation efforts are summarized in the following subsections.

2.1 Site Characteristics

2.1.1 Geophysical Survey

The PSA included a geophysical survey of the subsurface. This survey was performed to map the distribution of any buried conductive metal with the goal of identifying subsurface structures and piping potentially acting as source areas or preferred pathways for MGP residuals. The geophysical survey identified several subsurface anomalies which were subsequently targeted during test pit investigations.

2.1.2 Site Topography and Geology

A survey of the Site was performed in April 2014 by Labella Associates, PC from Rochester, New York. Survey data indicate that the Site has a generally flat surface topography with a gentle slope (approximately 2 feet across the Site) toward the northwest (Figure 2). The surface cover material at the Site is made up of primarily weathered asphalt and/or crushed stone.

Test pits and soil borings completed by Geomatrix during the PSA and Parsons during the RI indicate that the Site is generally underlain by a layer of fill material with a thickness of 2 to 3 feet. The fill material generally consists of gravel, sand, coal fragments, wood, ash and brick fragments. As observed in the soil borings completed to a maximum depth of 24 feet during the RI, native soils below fill primarily consist of silt and clay with poorly graded sand and some gravel.

New York State Bedrock Geology Mapping provided by the NYS Museum indicates the Site is underlain by clastic and carbonate rocks of the Hamilton Group. Bedrock was not encountered during the PSA or RI. Therefore, bedrock is present at depths greater than 20 feet in the immediate vicinity of the Site.

2.1.3 Site Surface Water Flow and Hydrogeology

Surface water in the vicinity of the main MGP building, office building and locker rooms is collected by a series of catch basins and transferred westward to an outlet in a drainage swale adjacent to the railroad property. Due to the relatively flat topography, surface water in other areas of the Site tends to collect in depressions in the weathered asphalt/crushed stone surface before infiltrating into the subsurface. Shallow drainage swales bordering the Site to the north, west, and east mitigate surface water flow onto the property from adjacent parcels during heavy precipitation events.

Saturated conditions were encountered between approximately 1 and 7 feet below ground surface (bgs) during the PSA and RI investigations. Groundwater elevations measured during the PSA and RI are generally consistent and indicate a shallow hydraulic gradient across the Site with groundwater flow in a northwesterly direction toward Oatka Creek. In addition, a localized hydraulic high appears to be present in the vicinity of MW-4. A groundwater contour map representing Site conditions is provided as Figure 3. Groundwater recharge at the Site appears to occur primarily through the crushed stone/weathered asphalt.

2.2 NATURE AND EXTENT OF IMPACTS

The following sections describe the nature and extent of impacts at the Site as a result of historic MGP activities. Identification of contaminated media is based on sample results and observations made during the PSA and RI. Laboratory analytical data results for soil and groundwater samples collected during the PSA are provided in the PSA report, which can be found as Appendix A of the RIR. Laboratory analytical data results for soil and groundwater samples collected during the RI are provided as Tables 3 through 5 of the RIR. Visual impacts and analytical sample results are summarized below, with soil sample volatile organic carbon (VOC) and semi-volatile organic carbon (SVOC) results exceeding 6 NYCRR soil cleanup criteria illustrated on Figures 4 and 5. Also included is a Site exposure assessment summary which

qualitatively considers potential exposure pathways for the various detected compounds in Site soils, groundwater, and soil vapor.

2.2.1 Former MGP Structures and Visual Impacts

During the test pit and soil boring installations, the foundations of the former gas holders were confirmed in the northern portions of the Site (TP-6, TP-10, B-1, B-2, SB-6, and SB-8). The holder foundations are concrete and located approximately 1 to 2 feet below existing grade. The location of the tar separator was identified in the TP-2 series of test pits completed along the northwestern corner of the main MGP building. At TP-15 a concrete pad was observed about 1 foot below existing grade in the location of the suspected former above ground high pressure gas storage tank. At TP-16 the top of the gas purifier was located approximately 1 foot below existing grade. Miscellaneous piping and other metal debris was encountered in several other test pits.

The location of a former surface water course described in the 2002 PSA, shown on Figure 3 of that report, was investigated on the downgradient side of the main MGP building through excavation of test pit TP-1. Soil conditions encountered in TP-1 were not indicative of a preferential pathway suggestive of contaminant migration.

Petroleum-impacted soils were identified during the PSA in the area of the tar separator (Figure 2). Soils in the immediate vicinity of the tar separator exhibited a strong hydrocarbon odor with a petroleum sheen present on groundwater in test pits TP-2, 2A and 2B and soil borings B-11 and B-12. Non-aqueous phase liquid (NAPL) was observed on soil and water present within the tar separator. In addition, the presence of NAPL was observed in TP-17 during the RI, which is adjacent to the tar separator and consistent with observations made during the PSA. Visual impacts to soil and groundwater were not observed in the adjacent soil borings associated with MW-2 and SB-10 to the west, test pit TP-3 to the east, SB-12 or SB-13 to the south-west, or SB-09 to the north-east. This suggests the impacts are limited to the soil/fill and groundwater immediately adjacent to the tar separator.

During the PSA investigation, petroleum-type odors were identified in test pits and soil borings completed in the vicinity of the former above ground storage tanks. These odors were generally limited to the unsaturated soil and fill material (B-3, B-4, B-9 and TP-11). Although odors were noted during the PSA in this area, no staining, NAPL, or sheens were documented. The area around the former above ground storage tanks was further investigated during the RI. Soil borings SB-04 and SB-05 were advanced to the east and west, respectively, and test pit TP-15 was completed north of the former above ground storage tanks during the RI. Some odors and sheens were noted in the soil boring for SB-05. However, no MGP-related compounds were detected above the Part 375 unrestricted use Soil Cleanup Objectives (SCOs) in soil samples collected from SB-04, SB-05 or TP-15.

Iron-oxide coated wood chips, potentially used as gas purifier media, were observed in several test pits excavated within the north-western portion of the Site. A sample of the wood chips was submitted for chemical analysis from test pit TP-5. As summarized on Figures 4 and 5, some VOCs and SVOCs were detected above unrestricted SCOs at this location. However, no compounds were detected above commercial SCOs. In addition, cyanide was detected below unrestricted SCOs.

2.2.2 Soil Results

Soil samples were collected from nine test pits and six soil borings during the PSA and analyzed for a combination of VOCs, SVOCs, cyanide, polynuclear aromatic hydrocarbons (PAHs), the compound group: benzene, toluene, ethylbenzene and xylene (BTEX), metals, and total petroleum hydrocarbons (TPH). During the RI, an additional three test pits and 14 soil borings were completed and sampled for analysis of VOCs, SVOCs, cyanide, and metals. All test pit samples and select soil boring samples from this group were also analyzed for pesticides, herbicides, and polychlorinated biphenyls (PCBs). Soil sample results from the PSA and RI were compared to SCOs per 6 NYCRR Part 375 (NYSDEC, 2006) for unrestricted and commercial Site use, as illustrated on Figures 4 and 5. The use of unrestricted and commercial SCOs is considered to be conservative since the Site is currently used for industrial purposes, and will be for the foreseeable future.

VOCs were detected in fifteen soil samples, of the thirty-six analyzed, exceeding unrestricted SCOs. Of those fifteen samples, seven samples reported a single compound SCO exceedance for acetone, which is a common laboratory contaminant. Excluding acetone, the only VOCs detected in Site soils above unrestricted SCOs include benzene, toluene, and xylenes. No VOCs were detected exceeding the commercial SCOs.

SVOCs were detected in seven soil samples, of the thirty-seven analyzed, exceeding unrestricted SCOs. SVOC constituents detected in Site soils above unrestricted SCOs include benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene. Only two compounds, benzo(a)pyrene and dibenz(a,h)anthracene, were detected above commercial SCOs within Site soils. Benzo(a)pyrene was detected above its commercial SCO at two locations, TP-2B and TP-10. Dibenz(a,h)anthracene was detected above its commercial SCO at one location, TP-2.

During the PSA, five soil samples were collected and analyzed for TPH in the vicinity of the former above ground oil storage tanks. Results ranged from not detected at location B-8 to 21,200 mg/kg at TP-11. Two additional soil borings (SB-04 and SB-05) and one test pit (TP-15) were completed during the RI in the same area. No MGP-related compounds were detected above unrestricted SCOs in soil samples collected from SB-04, SB-05 or TP-15. It is probable that natural attenuation of the TPH compounds occurred over the approximately 14 years between investigations resulting in very few compounds being detected during the RI.

Of the six soil samples collected during the PSA and analyzed for metals, five reported exceedances of unrestricted use SCOs. Of those, two samples also exceeded commercial use SCOs (TP-9 for arsenic, cadmium, and lead; TP-10 for arsenic). However, thirty-two soil samples were collected during the RI and analyzed for metals, of which no exceedances of unrestricted use SCOs were observed.

2.2.3 Groundwater Results

Groundwater samples were collected from four monitoring wells (MW-1 through MW-4) during the PSA, and analyzed for Stars List VOCs, SVOCs and Resource Conservation and Recovery Act (RCRA) Metals (including total cyanide). Samples from MW-1 were analyzed for additional compounds including nitrate, chlorinated herbicides, and pesticides. During the RI, an

additional monitoring well was installed (MW-05). Groundwater from all five Site monitoring wells were then sampled in November 2015 and January 2016 and analyzed for VOCs, SVOCs, pesticides, herbicides, PCBs, metals, and cyanide. Analytical groundwater sample results were compared to the Class GA groundwater quality standards and guidance values (SGVs) contained in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 (NYSDEC, 1998). These SGVs are protective of groundwater quality assuming that groundwater is used as a source of drinking water. That assumption is not applicable to the Site because groundwater is not used as a source of drinking water. Thus, the use of Class GA groundwater quality SGVs for comparison to Site groundwater is conservative.

No VOCs, SVOCs, pesticides, herbicides, or PCBs were detected in groundwater samples during the PSA or RI.

Five inorganic compounds were detected in Site groundwater samples at concentrations above their respective Class GA groundwater quality SGVs. Inorganic constituents other than cyanide are not typical indicators of past MGP activities. Sample analytical results for cyanide indicated all detected concentrations were below the Class GA groundwater quality SGVs.

2.2.4 Conclusions

Based on the results of both the PSA and RI activities, conclusions are provided below.

- Remnants of the former MGP structures are present at the Site.
- NAPL was encountered in one small area on-Site adjacent to the former tar separator. NAPL and/or Coal Tar was not observed elsewhere on the Site.
- Possible MGP-related impacts were encountered in Site soil at concentrations exceeding 6 NYCRR Part 375 unrestricted and industrial use SCOs, generally located within two relatively small areas associated with former historic features. Soil samples with concentrations exceeding commercial SCOs were found in areas immediately adjacent to the former tar separator (TP-2 and TP-2B) and 1,000,000 ft^3 gas holder (TP-9 and TP-10). The on-Site extent of MGP-related impacts in soil were effectively delineated during investigation activities.
- No VOCs or SVOCs were detected in groundwater.

2.3 Exposure Assessment Summary

Information collected during the PSA and RI has been used to qualitatively assess potential exposure pathways for the various detected compounds in Site soils, groundwater, and soil gas. The Site is located in a relatively remote area with restricted access and zoned as industrial. Most of the Site is covered by weathered asphalt/crushed stone and utilized as a parking lot.

Surface soil is not expected to be an exposure pathway at this Site. Although surface soil has not been sampled, an exposure pathway is not likely because the Site is covered by asphalt/crushed stone and buildings.

Analytical results from subsurface soil samples collected during the PSA and RI activities indicate that commercial SCOs were exceeded at four sample locations (TP-2, TP-2B, TP-9 and TP-10) in soil ranging from 1.5 to 2 feet bgs. Shallow impacted soils at the Site may be

encountered during intrusive maintenance activities (e.g., repair of underground utilities); however, it is unlikely that these materials would be encountered during day-to-day operations because the Site is covered by weathered asphalt/crushed stone.

Groundwater analytical results from Site monitoring wells indicate the presence of inorganics at concentrations above the Class GA groundwater quality SGVs. However, none of the monitoring wells exceeded SGVs for possible MGP or petroleum related VOCs or SVOCs. The SGVs used for data comparison are protective of groundwater quality assuming that groundwater is used as a drinking water source. However, groundwater is not currently used at the Site for a potable water source and future use of Site groundwater for a drinking water source is not anticipated. Accordingly, the use of Class GA groundwater quality SGVs for comparison to Site groundwater data is conservative.

Although soil vapor samples could not be collected during the RI due to the proximity of groundwater to the Site ground surface elevation, the potential for soil vapor to be an exposure pathway~~s~~ is limited. No VOCs and only two SVOCs were detected above commercial SCOs in Site soils, and no VOCs or SVOCs were detected above Class GA groundwater quality SGVs in Site groundwater. In addition, the office building, which is the building most frequently occupied, is located up-gradient from most of the former MGP structures, as well as impacts noted at the Site. The training building is located on the up-gradient edge of the 1,000,000 ft^3 gasholder. Some soil impacts were observed adjacent to this former gasholder. However, the impacts were relatively shallow (i.e., 1.5 to 2 feet bgs) and it is probable that most of the impacted soils in the area of the training building were removed to facilitate construction of the building and the associated concrete floor slab. The training building is also downgradient from the former above ground storage tanks. However, no MGP-related compounds were detected in the area above unrestricted SCOs and as previously noted, groundwater at the Site does not appear to be impacted with VOCs or SVOCs. Finally, the training building is not occupied on a regular basis and is utilized as a storage/maintenance area. Based on the lack of potential sources of contamination to soil vapor in the vicinity of the office and training buildings, as well as the minimal occupancy of the training building, it is not expected that vapor intrusion is an exposure pathway of concern.

Overall, there is no current pathway for human exposure to impacted soils, groundwater, or soil vapor at the Site during normal day-to-day operations. However, exposure may be possible during intrusive activities (e.g., repair of underground utilities or structures, potential future construction at the Site).

3.0 REMEDIAL GOALS, SCGS, AND REMEDIAL ACTION OBJECTIVES

The following sections describe the remedial goals for the Site, identify the standards, criteria, and guidance values applicable to sampled media, and outline the remedial action objectives for Site soil, groundwater, and soil vapor.

3.1 Remedial Goals

The remedial goal for the Site is to ensure that MGP-related contamination does not present a threat to human health or the environment considering the manner in which the property is used. This may include the implementation of any combination of remedial construction, institutional controls and/or engineering controls to prevent potential exposure pathways to soil, groundwater, and soil vapor from being complete.

3.2 Applicable Standards, Criteria and Guidance Values

The NYSDEC *DER-10* includes a complete list of Standards, Criteria and Guidance Values (SCGs) for application to remedial programs. The SCGs applicable for soil data include the 6 NYCRR Part 375-6 Unrestricted SCOs and Restricted SCOs for commercial use. The SCG applicable for groundwater data is the NYSDEC *Division of Water Technical and Operational Guidance Series - Water Quality Standards* (*WQS*) - *6 NYCRR 700 to 706* Class GA groundwater quality SGVs (NYSDEC, 1998). These SCGs represent available criteria and guidance used by the NYSDEC to evaluate soil and groundwater quality. The use of unrestricted and restricted SCOs for commercial use for comparison to Site soils are conservative since the Site is zoned industrial. Further, Class GA groundwater quality SGVs are protective of groundwater quality assuming that groundwater is used as a source of drinking water. That assumption is not applicable to the Site because groundwater is not used as a source of drinking water, nor will likely be used in the reasonably foreseeable future. Thus, the use of Class GA groundwater quality SGVs for comparison to Site groundwater is conservative.

3.3 Remedial Action Objectives

Remedial Action Objectives (RAOs) are medium-specific objectives which achieve protection of public health and the environment. RAOs were established based on contaminated media, identified contaminants of concern (COCs), SCGs, and results of the exposure assessment. SCGs are promulgated requirements and non-promulgated guidance which guide site activities during investigation and remediation. The standards and criteria are set forth in Federal or New York State law and they are either directly applicable or relevant and appropriate to a contaminant, remedial action, location, or other circumstance. Guidance includes non-promulgated criteria which should be considered, for investigation and/or remediation. The following generic RAOs are identified by the NYSDEC and are to be used at the Site, where applicable:

Soil

- RAOs for Public Health Protection:
  - Prevent ingestion/direct contact with contaminated soil.

- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

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

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 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.

4.0 REMEDIAL ALTERNATIVE ANALYSIS

This section describes the remedial action alternatives evaluated for the Site. Each alternative is also evaluated within the framework of the criterion included in DER-10.

4.1 Preliminary Screening of Remedial Technologies

As part of the remedial action selection process, a preliminary screening was performed to reduce the number of remedial technologies potentially applicable with respect to technical implementability. Technical implementability was determined by using the known Site conditions and investigation results to screen out technologies that cannot effectively be implemented at the Site. This screening is outlined on Table 2.

Based on the preliminary screening for remedial technologies to address MGP-related impacts at the Site, the types of remedial technologies listed below were identified as being applicable to retain for further evaluation.

- Institutional Controls
- Engineering Controls
- Excavation and Off-Site Treatment and Disposal

4.2 Development of Remedial Alternatives

In order to achieve the remedial goals and address the remedial action objectives listed in Section 3, remedial technologies retained from the preliminary screening have been combined to develop appropriate alternatives to address MGP-related impacts at the Site. The following remedial alternatives have been developed for evaluation.

- Alternative 1 – No Action
- Alternative 2 – Targeted Excavation and Off-Site Treatment/Disposal, Cover System, and Site Management Plan
- Alternative 3 – Excavation and Off-Site Treatment/Disposal to Pre-MGP conditions

In addition to these alternatives, for future intrusive construction activities, the contractor or owner will prepare a Site-specific Health and Safety Plan (HASP) that meets the requirements of DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable federal, New York State and local laws and regulations. The New York State Department of Health (NYSDOH) requires that during intrusive activities at contaminated sites, real-time monitoring for VOCs and particulates (i.e., dust) be conducted at the downwind perimeter of each designated work area. This air monitoring should be conducted during future intrusive remediation or construction excavation activities in accordance with the NYSDOH Generic Community Air Monitoring Plan (CAMP) (NYSDEC, 2010) provided as Appendix A. The purpose of the air monitoring program is to ensure that the workers, community and general public are not exposed to hazardous constituents at levels above accepted regulatory limits.

4.3 Evaluation Criteria

In accordance with 6 NYCRR 375-1.8(f) and in conjunction with the additional guidance provided in DER-10 subsection 4.2 (b) through (j), each of the remedial alternatives identified above are evaluated in this section with respect to the following nine evaluation criteria:

1. Overall protection of public health and the environment - This threshold criterion is an assessment of whether the remedial alternative meets requirements that are protective of human health and the environment, by preventing or mitigating potential risks. The overall assessment is based on a composite of factors assessed under other evaluation criteria, particularly long-term effectiveness and permanence, short-term effectiveness, and compliance with SCGs. This criterion focuses on how a specific alternative achieves protection over time and how Site risks are reduced. The analysis includes how the source of contamination is to be eliminated, reduced, or controlled through removal, treatment, containment, institutional or engineering controls.
2. Compliance with remedial goals, RAOs, and applicable SCGs - As per 6 NYCRR Part 375 and DER-10 subsection 4.2(c), this second threshold criterion conforms to officially promulgated standards and criteria that are either directly applicable, or that are not directly applicable but are relevant and appropriate, unless good cause exists why conformity should be dispensed with. Such good cause is defined in both 6 NYCRR Part 375 and DER-10. DER-10 subsection 4.2(c) specifically states that good cause exists if any of the following are present:
    - The proposed action is only part of a complete program or project that will, as a whole, conform to such standard or criterion upon completion;
    - Conformity to such standard or criterion will result in greater risk to the public health and the environment than alternatives;
    - Conformity to such standard or criterion is technically impracticable from an engineering or scientific perspective; or
    - The program or project will attain a level of performance that is equivalent to that required by the standard or criterion through the use of another method or approach.
3. Long-term effectiveness and permanence - This criterion addresses the performance of a remedial alternative in terms of its permanence and the quantity/nature of waste or residuals remaining at the Site after implementation. An evaluation is made on the extent and effectiveness of controls required to manage residuals remaining at the Site and institutional and engineering controls necessary for the remedy to remain effective. The factors that are evaluated include permanence of the remedial alternative, magnitude of the remaining risk, adequacy of controls used to manage residual contamination, and the reliability of controls used to manage residual contamination.
4. Reduction of toxicity, mobility or volume - This criterion assesses the remedial alternative's use of technologies that permanently and significantly reduce toxicity, mobility, or volume of the contamination as their principal element to the extent

possible. Preference is given to remedies that permanently or significantly reduce the toxicity, mobility, or volume of the contamination at the Site.

5. Short-term impacts and effectiveness - This criterion assesses the effects of the remedial alternative during the construction and implementation phase with respect to the effect on human health and the environment. The factors that are assessed include protection of the workers and the community at the Site and adjacent properties during the implementation of the remedial action, environmental impacts that result from the remedial action, and the time required until the RAOs are achieved.
6. Implementability - This criterion addresses the technical and administrative feasibility of implementing the remedial alternative and the availability of various services and materials required during implementation of the remedial action for the Site. The evaluation includes the feasibility of construction and operation, the reliability of the technology, the ease of undertaking additional remedial action, monitoring considerations, activities needed to coordinate with regulatory agencies, availability of adequate equipment, services and materials, off-Site treatment, impacts to nearby utilities and structures, and storage and disposal services.
7. Cost-effectiveness - As stipulated in the NYSDEC's Draft Voluntary Cleanup Program Guide (NYSDEC, 2002), it is not necessary to evaluate cost effectiveness in the remedial alternatives analysis, however qualitative comparisons between the alternative options are made in Section 4.7.7.
8. Land Use - This criterion addresses the current, intended, and reasonably anticipated future land use of the Site. 6 NYCRR 375 subchapter 1.8(f)9 requires that land use criterion is to be considered. As discussed earlier, the Site is currently used by RG&E as the Pavilion Operations Center. The facility houses office space, worker training and vehicle and equipment storage. A portion of the Site is utilized for gas pressure regulation and odorant storage. The areas surrounding the Site include both industrial and agricultural property usage. The Site is currently zoned industrial, as described in Section 1.
9. Community Acceptance - Concerns of the State and the community will be addressed separately in accordance with a Citizen Participation Plan (CPP) and requirements outlined in DER-10's citizen participation section.

4.4 Alternative 1 – No Action

Under this alternative, no action will be taken at the Site. Therefore, SVOCs exceeding commercial use SCOs would remain in soils near the former tar separator and the 1,000,000 square foot gas holder pad, as well as metals (arsenic, cadmium, and lead) near the large gas holder pad, and potentially elevated TPH in soils around the former above ground oil tanks. In addition, shallow VOC, SVOC, and metals impacts would remain in Site soils above unrestricted use SCOs throughout the northern half of the Site and in limited portions of the southern half of the Site under Alternative 1. For the purpose of alternative evaluations and to serve as a point of comparison, the establishment of institutional and engineering controls were not included in

Alternative 1. Therefore this alternative is not consistent with DER-10, as it does not include measures to address impacted media remaining on-Site.

Analytical data results from sampling in 2002, 2015, and 2016 suggest that groundwater at the Site is not impacted from historical MGP operations. No VOCs, SVOCs, pesticides, herbicides, or PCBs were detected in groundwater samples collected as part of any of the Site investigations. Although a few inorganics were detected in groundwater samples above Class GA groundwater quality SGVs, no MGP-related organic compounds were above SGVs in Site groundwater samples during any of the sampling rounds. However, potential sources of groundwater contamination will remain in isolated portions of the Site under this alternative.

Analytical data is not available for Site soil vapor. However, during the various sampling events the groundwater table elevation was observed approximately 1 to 4 feet below the ground surface on-Site. Further, on-Site buildings currently in use are located primarily up-gradient of impacted soils. These conditions make the presence of impacted soil vapors unlikely. However, potential sources of soil vapor contamination will remain in isolated portions of the Site under this alternative which could affect future building construction scenarios.

The following provides comparisons based on criteria outlined in DER-10 for assessment of this remedial alternative:

Overall protection of public health and the environment – This alternative would not remove impacted soils or include a SMP to prevent the completion of possible exposure pathways. Under current Site use and conditions, no action is anticipated to be protective of public health and the environment. However, non-routine activities (e.g., intrusive activities associated with new construction or maintenance of an underground utility or structure) or a change in Site use could create an exposure pathway and potential unacceptable risks.

Compliance with remedial goals, RAOs, and applicable SCGs – Alternative 1 is not in compliance with all remedial goals, RAOs, or applicable SCGs based on the current Site use. Constituents in soil will remain on Site above commercial use SCOs near the former tar separator and the 1,000,000 square foot gas holder pad. In addition, elevated concentrations of TPH will remain in soils near the above ground oil tanks. Although it is anticipated that the remedial goals and public health RAOs are met under this no action alternative for current Site use and conditions, the potential for future exposure will not be addressed through a SMP under Alternative 1.

Long-term effectiveness and permanence – This alternative would not mitigate risks at the Site nor provide controls to manage remaining contamination. Therefore, it would not be considered long-term effective.

Reduction of toxicity, mobility or volume – The toxicity, mobility, and volume of MGP-related contaminants at the Site would not be directly reduced under this alternative since no removal or treatment would be conducted. However, some amount of natural attenuation is anticipated as contaminants are biologically broken down, contributing to some reduction over time similar to the reduction in TPH concentrations between the PSA and RI near the former above ground oil storage tanks. Further, results of soil and groundwater samples suggest that contaminants are not migrating within the Site or moving off-Site under current conditions.

Though, under this no-action alternative, long-term monitoring to confirm contamination immobility will not be performed.

Short-term impacts and effectiveness – No action would be taken under this alternative, and therefore there would be no additional short-term risks to the community, workers, or to the environment.

Implementability – This alternative is readily implementable because no actions would be conducted at the Site.

Cost-effectiveness – There are no costs associated with Alternative 1.

Land Use – The Site is currently used by RG&E as the Pavilion Operations Center. The facility houses office space, worker training and vehicle and equipment storage. A portion of the Site is utilized for gas pressure regulation and odorant storage. Currently the Site is covered by weathered asphalt/crushed stone. Limited impacts above commercial SCOs and impacts above unrestricted SCOs would remain on-Site but would not be encountered during routine operations at the Site. However, under this alternative, no controls or restrictions would be in place to address non-routine activities.

Community Acceptance – Concerns of the State and the community will be addressed separately in accordance with a CPP and requirements outlined in DER-10's citizen participation section.

4.5 Alternative 2 – Targeted Excavation and Off-Site Treatment/Disposal, Cover System, and Site Management Plan

Under this alternative, visually impacted soil would be removed from a targeted area of the Site as shown on Figure 4. Removals would be focused on the former tar separator area located near the northwest corner of the main MGP building where visual impacts have been noted. Removals would be conducted vertically to a confining layer which is expected to be around 2 to 5 feet below existing grade. The confining layer is expected to be a non-impacted layer of fine grained material beneath the visually impacted fill that is being removed. Depth of removal was estimated based on laboratory analytical results as well as visual observations recorded during test pit and soil boring installations. The remedial excavation would address soils with visual impacts. Following excavation, a demarcation layer would be installed and the area would be backfilled with material meeting commercial SCOs. In addition to the targeted removals described above, a cover system consisting of one foot of gravel meeting commercial SCOs would be installed within the Site areas identified on Figure 4. Finished grade at the Site will approximately match existing grade upon installation of the one foot thick cover system, including removals as necessary to facilitate cover installation. Material removed to facilitate cover installation may be considered for backfill of the remedial excavation provided commercial SCOs are met. The Site cover system would address potential exposure pathways to elevated TPH concentrations near the above ground oil tanks, metals exceeding commercial use SCOs near the northern edge of the large gas holder pad (1,000,000 cubic feet) identified by TP-9 and near the south-western edge identified by TP-10, and all soils with SVOC impacts above commercial use SCOs including near the large gas holder pad.

Alternative 2 would result in a limited amount of soils remaining on-Site that contain impacts above SCOs as shown on Figure 4. However, institutional and engineering controls will be established as a part of Alternative 2 to mitigate potential risks associated with these soils, especially for non-routine intrusive activities and potential future changes in Site use. To facilitate the institutional and engineering controls, a SMP will be developed as part of this alternative. The SMP will identify the implementation procedures required for institutional and engineering controls at the Site.

The purpose of the SMP is to provide:

- A description of the institutional and engineering controls for the Site;
- The basic operation and intended role of each implemented institutional and engineering control;
- A description of the features that should be evaluated during each periodic inspection and compliance certification period;
- A description of plans and procedures to be followed for implementation of institutional and engineering controls, such as the implementation of an Excavation Plan for the safe handling of MGP-related impacted soils that may be disturbed during maintenance, redevelopment or subsurface utility repair/relocation;
- Any other provisions necessary to identify or establish methods for implementing the institutional and engineering controls required by the selected remedy, as determined by the NYSDEC;
- A description of the reporting requirements for these controls; and
- A description of the key components of the institutional and engineering controls created as to be stated in the Deed Restriction documentation.

The SMP will be developed for the boundaries of the Site shown on Figure 2. At a minimum, the SMP will include following items:

- The notification requirements for future soil disturbance activities that will encounter MGP-impacted materials, including building renovation/expansion, subsurface utility line repair/relocation, and new construction;
- Soil Excavation and Handling Plan;
- Requirements for evaluation of the need for additional investigation or further delineation based on accessibility due to new Site construction or changes in Site use; and
- Requirements for annual inspections and periodic certifications in accordance with DER-10.

In accordance with DER-10 Section 6.3 and 6 NYCRR Part 375-1.8(h)(3), a Periodic Review Report (PRR) will be submitted to the NYSDEC to document the efficacy of the institutional controls described in the SMP. An inspection checklist that will be used during the PRR is included in Appendix B. The PRR will be signed by a professional engineer or other

qualified environmental professional. If changes are noted, the PRR will include documentation explaining why the certification cannot be rendered and a statement of proposed corrective measures with a proposed schedule for implementing the corrective action.

As stated in Section 4.4, groundwater at the Site does not appear to be impacted by former MGP operations at the Site. Potential future Site groundwater quality and/or mobility concerns would be addressed by this alternative through the removal of visually impacted material. Remaining MGP related impacts, if present, would likely be addressed through natural attenuation similar to the reduction in TPH concentrations previously observed near the former above ground oil storage tanks. Further, potential risk remaining related to Site groundwater would be addressed with the implementation of the SMP.

As stated in Section 4.4, although soil vapor samples were not collected during the Site investigations, conditions on-Site such as the lack of groundwater impacts, high groundwater table elevation, and current buildings located primarily up-gradient of impacted soils make the presence of impacted soil vapors unlikely. Therefore, it is anticipated that potential Site soil vapor concerns would be addressed by this alternative through the removal of visually impacted material. Further, potential risk remaining related to Site soil vapor would be addressed with the implementation of the SMP.

The following provides comparisons based on criteria outlined in DER-10 for assessment of this remedial alternative:

Overall protection of public health and the environment – Alternative 2 is protective of human health and the environment based on the following;

- Approximately 250 cu yd of visually impacted soil will be removed from a targeted area of the Site.
- Excavations will be conducted across the main portion of the Site to facilitate installation of a cover system.
- A one foot cover system will be installed across the main portion of the Site to mitigate the potential for exposure to impacts that may remain.
- A SMP will be developed to address non-routine activities at the Site and possible future changes in Site use.
- A monitoring program will be implemented to verify remedial actions and engineering/institutional controls remain effective.

Compliance with remedial goals, RAOs, and applicable SCGs – Alternative 2 is in compliance with remedial goals and applicable SCGs based on installation of the soil cover and SMP. In addition, most of the established RAOs would be achieved by this alternative. The only RAO not directly met by this alternative would be to “restore groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable” due to the presence of metals in the groundwater. However, metals are not typically associated with MGP operations.

Long-term effectiveness and permanence – This alternative would be long-term effective and permanent. No direct exposure pathways would exist due to the presence of a cover system across the Site. In addition, the institutional controls, including the SMP, would prevent exposure to remaining contamination that may be present on-Site.

Reduction of toxicity, mobility or volume – Implementation of this remedial alternative would remove approximately 250 cu yd of impacted soil in the area depicted on Figure 4 which would reduce the volume of VOC and SVOC constituents in the subsurface on Site. Soils containing commercial use SCO exceedances of metals (arsenic, cadmium, and lead), as well as benzo(a)pyrene, will remain on Site near the large gas holder pad. In addition, potentially elevated levels of TPH in soils near the above ground oil tanks will remain on Site under this alternative. However, these areas will be maintained with the installation of a cover system, and further addressed through the implementation of the SMP. Additionally, it is expected that some degree of natural attenuation will result in a reduction of toxicity of remaining soil over time. Site contaminants do not appear to be mobile under the current Site condition and groundwater gradients indicate minimal aquifer movement.

Short-term impacts and effectiveness – The short-term risks of exposure and safety concerns associated with this alternative include the potential for dust and odor generation during implementation of the remedial action, as well as construction-related health and safety issues. Noise and truck traffic may also be a disturbance to the nearby community during remedial construction. It is estimated that 50 truckloads of material would be transported to and from the Site as a result of the visually impacted material remedial excavation. An additional estimated 790 truckloads would be required to install the Site cover, including material removal and imported backfill.

A HASP would be prepared by the selected remedial contractor to address health and safety issues, and a CAMP would be implemented during intrusive remedial activities. Odor and dust control measures would be implemented by the selected remedial contractor during the remedial action in accordance with NYSDOH guidelines.

Implementability – The implementability of this remedial alternative may have some limited challenges associated with the proximity of the excavation footprint to the on-Site warehouse building, as well as the high groundwater table elevation present at the Site. Systems and work practices would need to be developed and implemented to ensure the integrity of the adjacent building at all times during the excavation. However, these challenges are easily addressed.

Cost-effectiveness – It is not necessary to evaluate cost effectiveness in this RWP, however, a qualitative assessment and comparison is provided in Section 4.7.7.

Land Use –Remedial Alternative 2 is consistent with the current and potential future uses of the Site. Implementation of this alternative could result in some minor interruptions to current site use.

Community Acceptance - Concerns of the State and the community will be addressed separately in accordance with a CPP and requirements outlined in DER-10's citizen participation section.

4.6 Alternative 3 – Excavation and Off-Site Treatment/Disposal to Pre-MGP Conditions

Under this alternative, all impacted soil will be removed from the main site area (i.e., within the fence line). Two feet of material will be removed from the area within the fence line as shown on Figure 5. Additional remedial excavation will be focused on four targeted areas of the Site which have evidence of visually impacted soil and/or analytical results in exceedance of their respective unrestricted SCOs deeper than 2 feet. Estimated excavation areas and depths are outlined on Figure 5. All excavation areas will be backfilled with clean imported material consistent with DER-10. Under Alternative 3, the Site would be restored to pre-MGP conditions.

The following provides comparisons based on criteria outlined in DER-10 for assessment of this remedial alternative:

Overall protection of public health and the environment – This remedial alternative would be protective of human health and the environment through the removal of impacted soils to achieve unrestricted SCOs and the placement of backfill consistent with DER-10 imported fill unrestricted use requirements.

Compliance with remedial goals, RAOs, and applicable SCGs – The established remedial goals, human health and environmental protection RAOs, and all applicable SCGs would be achieved by this alternative. No MGP-impacted soils would remain on-Site.

Long-term effectiveness and permanence – This alternative would be long-term effective and permanent. No direct exposure pathways would exist.

Reduction of toxicity, mobility or volume – Implementation of this remedial alternative would remove a total of approximately 9,700 cu yd of impacted soils from the areas depicted on Figure 5, which would reduce the overall toxicity and volume of contaminants at the Site.

Short-term impacts and effectiveness – The short-term risks of exposure and safety concerns associated with this remedial alternative include elevated construction-related health and safety issues during the implementation of the remedial action. Noise and truck traffic would also be a disturbance to the nearby community during remedial construction. It is estimated that a total of 1,940 truckloads of material would be transported to and from the Site under this remedial alternative, including material removal and imported backfill.

A HASP would be prepared by the selected remedial contractor to address health and safety issues, and a CAMP would be implemented during intrusive remedial activities. Odor and dust control measures would be implemented by the selected remedial contractor during the remedial action in accordance with NYSDOH guidelines.

Implementability – This alternative requires a large volume of soil to be removed, transported off-Site for disposal, and backfilled with imported material. Additionally, this alternative would require multiple excavations of soil below the groundwater water table, which is present at shallow elevations on-Site.

This alternative would also require multiple excavation support systems to protect existing buildings on the property at all times during remedial excavations. In addition, it is not known if impacts extend under any of the existing buildings. If impacts are present below the buildings, a

significant amount of additional engineering would be required and the alternative would not be considered practicable.

Cost-effectiveness – It is not necessary to evaluate cost effectiveness in this RWP, however, a qualitative assessment and comparison is provided in Section 4.7.7.

Land Use - This remedial alternative is consistent with the current and potential future uses of the Site. However, it would result in potentially significant interruptions to current site operations due to the magnitude of the remedial effort.

Community Acceptance - Concerns of the State and the community will be addressed separately in accordance with a CPP and requirements outlined in DER-10's citizen participation section.

4.7 Comparative Analysis of Remedial Alternatives

A relative comparison of the alternatives for each of the evaluation criteria is presented below. The purpose of the analysis was to identify the advantages and disadvantages of each alternative relative to the other so that key comparisons can be made.

4.7.1 Overall Protection of Public Health and the Environment

Under current conditions there does not appear to be a complete exposure pathway for day to day activities at the Site. However, Alternative 1 would not address the potential for future risks associated with non-routine activities (e.g., intrusive activities associated with new construction or maintenance of an underground utility or structure) or a change in Site use. Alternative 2 would result in overall protection of human health and the environment through a combination of removal of visually impacted soil from a targeted area of the Site, installation of a cover system across the main portion of the Site, a SMP, and a monitoring program. Alternative 3 would result in the overall protection of human health and the environment through removal of all impacted soils on-Site, achieving unrestricted use SCOs and returning the Site to pre-MGP conditions.

4.7.2 Compliance with Remedial Goals, RAOs, and Applicable SCGs

Alternative 1 would be in compliance with remedial goals and human health RAOs under current Site use and conditions, however does not address the potential for exposure during non-routine activities at the Site, or if Site use or conditions should change in the future. Alternative 2 would be in compliance with remedial goals and human health RAOs. The only RAO not directly met by Alternative 2 would be to "restore groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable". The applicable SCGs would be addressed by the soil cover and SMP. Alternative 3 would be in compliance with remedial goals, both human health and environmental protection RAOs, and applicable SCGs.

4.7.3 Long-Term Effectiveness and Permanence

Alternative 1 would not be considered long-term effective or permanent. Alternatives 2 and 3 would be long-term effective and permanent.

4.7.4 Reduction of Toxicity, Mobility or Volume

Alternative 1 would not result in the reduction of toxicity, mobility or volume of contaminants at the Site. Alternative 2 would remove visually impacted material from a targeted area of the Site, reducing toxicity of the Site and volume of contaminants. In addition, a cover system would be installed over the main portion of the Site and both a SMP and monitoring program would be used in order to address any remaining toxicity and mobility concerns at the Site. Alternative 3 would provide the greatest reduction of toxicity, mobility and volume by removing all impacted material from the Site, returning the Site to pre-MGP conditions.

4.7.5 Short-Term Impacts and Effectiveness

There would be no additional short-term risks to the community, workers, or to the environment under Alternative 1. Similar types of short-term risks of exposure and safety concerns are associated with both Alternatives 2 and 3. These include the potential for dust and odor generation during implementation of the remedial actions, construction-related health and safety issues, and noise and truck traffic creating a disturbance to the nearby community. However, the increased amount of materials to be handled and construction duration associated with Alternative 3 poses the greatest short-term impacts.

4.7.6 Implementability

Alternative 1 is readily implementable. Alternatives 2 has some minor implementability challenges that are easily addressed. Alternative 3 has by far the most implementability concerns associated with the shallow groundwater table elevation and the need for excavation support near on-Site buildings. Additionally, if impacts are present below any of the buildings, a significant amount of additional engineering would be required for Alternative 3 and it would not be practicable. Compared to the other alternatives, Alternative 3 has the greatest implementation challenges.

4.7.7 Cost-Effectiveness

There is no cost associated with Alternative 1. Estimated costs associated with Alternative 3 would be much greater when compared to estimated costs associated with Alternative 2. The significantly higher costs for Alternative 3 would be a result of the increased disposal and imported fill volumes and required water management/treatment due to the removals below the water table.

4.7.8 Land Use

Limited impacts above commercial SCOs and impacts above unrestricted SCOs would remain on-Site under Alternative 1, but would not likely be encountered during routine operations at the Site. However, under Alternative 1, no controls or restrictions would be in place to address non-routine activities or potential change in future Site use. Remedial Alternatives 2 and 3 are consistent with the current and potential future uses of the Site. However, interruptions to current site use during remedial activities would be much greater under Alternative 3.

4.7.9 Community Acceptance

Concerns of the State and the community will be addressed separately in accordance with a CPP and requirements outlined in DER-10's citizen participation section.

4.8 Recommended Alternative

Based on the comparative evaluation provided above, Alternative 2 is recommended. Alternative 1 is not considered protective under all scenarios and was therefore not acceptable. Both Alternatives 2 and 3 are protective of human health and the environment. However, Alternative 2 will result in fewer short-term impacts, implementability concerns, and lower costs than Alternative 3.

5.0 DEVELOPMENT OF THE PROPOSED REMEDIAL ACTION

The proposed remedial action for the Site is described in detail below:

5.1 Proposed Remedial Alternative

The proposed remedial alternative is Alternative 2 which consists of the following elements and is summarized on Figure 4;

- Targeted remedial excavation of visually impacted soils within the area identified on Figure 4. Removals would be conducted vertically to a non-impacted confining layer which is expected to be around 2 to 5 feet below existing grade. Following excavation, a demarcation layer would be installed and the area would be backfilled with material meeting commercial SCOs.
- Establishment of engineering controls in the form of a cover system across the main portion of the Site, as identified on Figure 4. The cover system would consist of one foot of gravel meeting commercial SCOs. Finished grade at the Site would approximately match existing grade upon installation of the cover system, including removals as necessary to facilitate cover installation.
- Development and implementation of a SMP which will include a Soil Excavation and Handling Plan that will be implemented during future intrusive activities that may encounter impacted materials. The plan will include procedures to control Site worker exposure to impacted materials, community air monitoring, and proper soil handling/disposal procedures. Further, the SMP will outline requirements for evaluating the need for additional investigation or further delineation based on new Site construction or changes in Site use, and for annual inspections and certifications in accordance with DER-10.
- Establishment of institutional controls in the form of a deed restriction on the property; specifically Lot 10, Sections 2 and 3, Craigie Tract, Town of Pavilion. The deed restrictions will note the presence of possible contaminants and require the owner to allow compliance with conditions of the SMP. Institutional controls on the listed property will also include a prohibition of groundwater usage, and allow use of the property for commercial and industrial purposes as defined by local zoning laws.
- Annual Site inspections of areas subject to the SMP conditions or institutional controls identified on Figure 4, to document the Site usage and any change in Site features (e.g., paving, buildings). Changes to Site use and/or Site features may require re-evaluation of remedial alternatives and/or the extent of areas requiring SMPs and deed restrictions. A PRR will be submitted to the NYSDEC to document the efficacy of the institutional controls described in the SMP.
- Implementation of a groundwater monitoring program using the existing monitoring well network to verify the remedy remains effective.

5.1.1 Site Management Plan

The purpose of the SMP is to provide:

- A description of the institutional and engineering controls for the Site;
- The basic operation and intended role of each implemented institutional and engineering control;
- A description of the features that should be evaluated during each periodic inspection and compliance certification period;
- A description of plans and procedures to be followed for implementation of institutional and engineering controls, such as the implementation of an Excavation Plan for the safe handling of MGP-related impacted soils that may be disturbed during maintenance, redevelopment or subsurface utility repair/relocation;
- Any other provisions necessary to identify or establish methods for implementing the institutional and engineering controls required by the selected remedy, as determined by the NYSDEC;
- A description of the reporting requirements for these controls; and
- A description of the key components of the institutional and engineering controls created as to be stated in the Deed Restriction documentation.

The SMP will be developed for the boundaries of the Site shown on Figure 4. At a minimum, the SMP will include following items:

- The notification requirements for future soil disturbance activities that will encounter MGP-impacted materials, including building renovation/expansion, subsurface utility line repair/relocation, and new construction;
- Soil Excavation and Handling Plan;
- Requirements for evaluation of the need for additional investigation or further delineation based on accessibility due to new Site construction or changes in Site use; and
- Requirements for annual inspections and periodic certifications in accordance with DER-10.

5.1.2 Health and Safety

For future intrusive construction activities, the contractor or owner will prepare a Site-specific Health and Safety Plan (HASP) that meets the requirements of DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable federal, New York State and local laws and regulations.

The New York State Department of Health (NYSDOH) requires that during intrusion activities at contaminated sites, real-time monitoring for VOCs and particulates (i.e., dust) be conducted at the downwind perimeter of each designated work area. This air monitoring should be conducted during future intrusive remediation or construction excavation activities that may come

into contact with impacted materials in accordance with the NYSDOH Generic Community Air Monitoring Plan (CAMP) provided as Appendix A.

The purpose of the air monitoring program is to ensure that the community and general public are not exposed to hazardous constituents at levels above accepted regulatory limits. For the future remediation and construction activities, the worker protection and community air monitoring will be conducted.

5.1.3 Deed Restrictions

The deed restrictions envisioned for the affected property include the restriction of property use to a commercial or industrial purpose and groundwater use restrictions until such time that the soil and groundwater are of acceptable quality as determined by NYSDEC. The actual deed restrictions will be finalized and attached to the SMP.

5.1.4 Annual Site Inspections

In accordance with DER-10 Section 6.3, a PRR will be submitted to the NYSDEC to document the efficacy of the institutional controls. An inspection checklist that will be used during the PRR is included in Appendix B. The PRR will be signed by a professional engineer or other qualified environmental professional. If changes are noted, the PRR will include documentation explaining why the certification cannot be rendered and a statement of proposed corrective measures with a proposed schedule for implementing the corrective action.

6.0 REMEDIAL ACTION IMPLEMENTATION

RG&E will select a remediation contractor (contractor) that has the experience and capability to safely execute the remedy described in this Remedial Action Work Plan. RG&E will also hire an engineering firm (engineer) to provide on-Site field oversight during construction and document quality assurance.

The proposed remedial action consists of targeted removals and backfill, installation of a Site-wide soil cover, and other construction related tasks that are discussed below. This section provides the general guidelines for elements required by the remedial contractor, but does not dictate specific means and methods. All bidding contractors will be required to submit detailed means and methods of each element described below in a Project Execution Plan (PEP) with their bid. Other items that will be required in the PEP will include: equipment, crews, professional personal, safety, other resources planned, environmental protection measures, and quality control procedures. This PEP will be reviewed by Parsons and RG&E to ensure the remedial contractor selected is technically qualified and prepared to perform the work discussed in this document.

Remedial design drawings are presented in Appendix C and include the following:

- G-001 – Title Sheet, Drawing Index and Site Location
- G-002 – Notes and General Legend
- C-001 – Existing Conditions, Historic Structures, Utilities, and Investigation Locations
- C-002 – Site Preparation and Demolition
- C-003 – Excavation and Subgrade Plan
- C-004 – Site Cover and Restoration
- C-005 – Cross Sections
- C-006 – Details

6.1 Site Access and Security

Access to the Site will be controlled by the existing chain link fence that surrounds the Site as shown on Design Drawing C-001. It is expected that all intrusive construction activities will be conducted within this perimeter. Construction support facilities such as job trailers and storage containers (e.g., conex boxes) may be staged on the RG&E property outside the fence.

Site entrance and egress will be controlled through the existing chain link swing gate. During working hours Site access will be controlled by the contractor. When construction activities are not occurring, the gate shall be locked and closed.

6.2 Schedule and Working Hours

It is expected that the remedial construction will be conducted in 2018 and working hours will be restricted to normal working hours (i.e., no night work) due to the presence of residences local to the Site. It is expected that that working on Saturday's will be acceptable, but in general

no work will be conducted on Sunday unless needed for make-up and this will be determined on a case by case basis with RG&E.

6.3 Temporary Facilities/Utilities

Construction trailers and equipment storage (e.g., conex boxes) will be provided by the contractor, if required. The contractor will also supply a trailer for the engineer, NYSDEC, and owner's use during construction. Electricity will be drawn from existing service at the Site. It will be the responsibility of the contractor to coordinate the electricity service with RG&E.

The existing water supply service will also be utilized. It will be the responsibility of the contractor to coordinate the water service with RG&E.

6.4 Site Preparation

Site preparation activities are shown on Design Drawing C-002 in Appendix C. It is expected that Site preparation will include the following:

- Job trailer setup
- Utility services set-up
- Mobilization of construction equipment
- Installation of sediment and erosion control features
- Utility callout and third party location
- Demolition and disposal of the following Site features:
    - Pipe racks
- Clearing and grubbing, if required
- Installation of a stabilized construction entrance
- Construction of stockpile/dewatering pad (if necessary)
- Construction of a decontamination pad

All existing utilities will be surveyed prior to construction. Coordination with RG&E will be required to determine if utilities will require protection or they can be removed. Vegetation within the Site shall be removed. If clearing and grubbing is required, this material shall be removed from the Site by the contractor.

The following temporary facilities must be constructed prior to implementing any remedial construction activities; sediment and erosion control features, stabilized construction entrance and stockpile/dewatering pad.

6.5 Erosion and Sediment Control

Erosion and sediment control best management practices will be implemented at the Site and confirm with local and state standards. Temporary erosion and sediment controls will be installed before any intrusive work is conducted and shall be maintained throughout the duration of construction. If conditions change during construction, new or modified erosion and sediment controls they shall implemented to maintain best management practices. Specific required controls and best management practices are presented in the Stormwater Prevention Pollution Plan attached as Appendix D.

Temporary erosion controls, at a minimum, shall consist of a perimeter coir log as shown on Design Drawing C-002 in Appendix C.

To control stormwater runoff during construction, the following techniques will be employed:

- Runoff will be diverted around excavation areas to the extent practicable;
- Prompt placement of demarcation layer and backfill following excavations;
- Coir logs will be installed around the Site perimeter and drainage features; and
- Stockpiles can be covered with plastic sheeting.

To keep public roads free of mud and dirt from the Site, all truck and equipment traffic will pass over a stabilized construction entrance immediately adjacent to the Site to assist in removing mud and soil from tires. It will be the responsibility to the remedial contractor to ensure the stabilized construction entrance and access roads remain in good working condition to prevent off-site tracking of soil and mud. Maintenance will be performed as necessary or at the direction of the engineer or RG&E. All trucks and equipment will be inspected and cleaned as necessary prior to leaving the Site.

Dust control will be maintained by the contractor to mitigate airborne migration of dust consistent with the CAMP.

6.6 Soil Excavation and Management

This section discusses the remedial excavation (i.e., excavation of visually impacted material), subgrade excavation, soil management/stockpiling, vapor and dust control, waste characterization, and soil transportation, treatment and disposal.

6.6.1 Remedial Excavation

An area of visually impacted soils has been identified at the Site which contains petroleum-like sheens, heavy tar sheen and odors. This area has been identified on the drawings presented in Appendix C. It is expected the removal volume will be approximately 250 cy, but actually removal volumes will be based on visual conditions encountered during the excavation. The plan for material processing will be detailed in the Project Execution Plan that will be prepared by the remedial contractor and approved by the engineer. Material processing may include stockpiling and dewatering to allow for off-Site transportation and disposal, or the contractor may place remedial excavation material directly into an appropriate container to dewater and/or solidify prior to off-site transportation and disposal. Regardless of the approach, the contractor will be required to properly manage the excavated soils and associated construction water.

Removed material will require characterization prior to disposal. The material characterization shall be conducted in accordance with the requirements of the disposal facility and is further discussed below.

Excavation dewatering and excavation support are discussed in the sections below.

6.6.2 Subgrade Excavation

To facilitate installation of the one foot thick clean soil cover across the Site, while maintaining existing doorway elevations, etc., approximately one foot of material will be removed. Some of this material may be used as backfill in the remedial excavation, however, a majority of this material will be disposed of off-Site. This material is expected to be above the groundwater table and not require dewatering. Material may either be stockpiled on-Site and managed or directly loaded into haul trucks for disposal, if appropriate state, local and federal requirements are met.

Removed material will require characterization prior to disposal. The material characterization shall be in accordance with the requirements of the disposal facility and is further discussed below.

6.6.3 Remedial Excavation Support

It is not anticipated that excavation support will be required. In lieu of excavation support, the side walls of the remedial excavation will be sloped. Based on material types and visual observations during test pitting activities previously conducted at the Site; 1.5H:1.0V side slopes will be used to support the excavation. If conditions in the field differ or alternative excavation support is required, approval from the engineer will be required.

6.6.4 Soil Management/Stockpiling

As noted above, the plan for material processing will be detailed in the Project Execution Plan that will be prepared by the remedial contractor and approved by the engineer. For example, the contractor may place remedial excavation material directly into an appropriate container to dewater and/or solidify prior to off-site transportation and disposal. Another approach is to stockpile and dewater the material onsite. If the remedial contractor elects to utilize a stockpile/dewatering pad, the existing ground surface will be shaped to allow for free water draining from the soils to be collected, and the stockpile/dewatering pad will consist of the following components from the bottom up:

- Shaped subgrade
- 16 oz non-woven geotextile fabric
- 60 ml HDPE geomembrane
- 16 oz non-woven geotextile fabric
- 1 foot washed pea stone

The contractor shall never place equipment in the dewatering pad, all equipment will work from the perimeter of the pad to avoid damaging the geomembrane. The contractor shall use caution while constructing and operating the stockpile/dewatering pad to ensure that the geomembrane liner is not damaged and all water is collected.

Regardless of the approach of material processing the remedial contractor will discuss the approach, in detail, in the Project Execution Plan that will require approval by the engineer.

Soil removed as part the subgrade excavation is not expected to require material processing as it is expected to be removed above the groundwater table. Management of this material will also be detailed by the contractor in the Project Execution Plan.

6.6.5 Dust Control

Dust control will be achieved by a variety of measures. The first and most important control will be good housekeeping. Careful construction planning and Site set-up will reduce dust generation.

Outlined in the table below is a list of potential sources that could generate dust during construction, a list of potential causes, and associated control/mitigation measures. Other control and mitigation measures may be identified during construction and submitted to the engineer for approval.

Potential Sources of Dust Emission	**Potential Causes of Dust**	**Control Measures**
Paved Areas	• Suspension (by traffic movement or wind) • Traffic movement on-Site	• Apply water • Reduce traffic speed • Clean (wet sweeper or other measures)
Unpaved Areas	• Suspension (by traffic movement or wind) • Traffic movement on-Site	• Apply water • Reduce traffic speed • Re-grade or top dress with new clean material
Material Stockpiles	• Low material moisture content • Disturbing the storage stockpile • Wind erosion of the storage stockpile	• Modify size of stockpile (reduce overall height) • Apply water to stockpile • Cover stockpile (plastic sheeting, less dust generating material, spray foam)
Excavation Location	• Wind erosion of material being moved • Wind erosion of open excavation area	• Modify workflow to reduce dust generation • Limit durations excavation is left open • Apply water to excavation • Reduce speeds of excavation • Cover excavation when not active
Loading/Unloading Material	• Unloading of material from trucks • Loading of material to trucks • Wind erosion	• Apply water • Use material with lesser fine contents • Reduce speed of activities

6.6.6 Odor Control

Odor control will be achieved by a variety of measures. Outlined in the table below is a list of potential sources that could generate odor during construction, a list of potential causes, and associated control/mitigation measures. Other control and mitigation measures may be identified during construction and submitted to the engineer for approval.

Potential Sources of Odor Emission	**Potential Causes of Odor**	**Control Measures**

Excavation locations	• Odiferous material exposed	• Limit duration excavation areas remain exposed
		• Work upwind of open excavation
		• Cover excavation when not in active operation. Covering could include:
		  • Plastic sheeting
		  • Cleaner earthen material(1)
		  • Suppressant foam or spray

Material Stockpiles	• Odiferous material exposed	• Limit duration stockpile remains on-Site
		• Work upwind of open excavation
		• Cover stockpile when not in active operation. Covering could include:
		  • Plastic sheeting
		  • Cleaner earthen material(1)
		  • Suppressant foam or spray

Note:

(1) Cleaner earthen material may only be used if it does not generate additional disposal quantities, variations from this will require the engineer's approval.

6.6.7 Soil Transport, Treatment, and Disposal

Soil exhibiting visual-impacts (e.g., remedial excavation area) will be stockpiled separately, sampled, and analyzed for waste characterization. It is anticipated that remedial excavation soils will require off-Site low temperature thermal desorption (LTTD) and disposal, but final disposal determination will be based on the analytical results. Soil removed in the subgrade excavation areas will be processed separately from the remedial excavation soils. These soils will likely be acceptable to a local landfill such as Seneca Meadows following waste characterization.

6.6.8 Waste Characterization Sampling

If removed material warrants LTTD, this would likely be conducted at the ESMI facility in Fort Edward, New York. Anticipated ESMI analytical parameters consist of the following:

- TPH (GRO and DRO) using USEPA Method 8015
- Total VOCs using USEPA Method 8260C
- Total SVOCs using USEPA Method 8270D

- Total PCBs using USEPA Method 8082
- Total Metals using USEPA Method 6010B (plus mercury, antimony, beryllium, nickel, thallium, vanadium, and zinc)
- Total Cyanide using USEPA Method 9010
- Percent Sulfur using USEPA Method D129-64
- BTU using ASTM D240-87

Other facilities maybe proposed by the contractor and will require approval from the engineer. The final list of analytical parameters analyzed will be confirmed at the time of sampling and will be in conformance with the requirements of the disposal facility.

It is anticipated that materials from outside of the remedial excavation area will be non-hazardous and may be disposed in a local landfill. It is anticipated the landfill will require the following analyses at a minimum:

- TCLP VOCs using USEPA Method 8260
- TCLP SVOCs using USEPA Method 8270
- TCLP Metals using USEPA Method 6010B
- TCLP Mercury using USEPA Method 7471
- Total PCBs using USEPA Method 8080
- Total VOCs using USEPA Method 8260B
- Total SVOCs using USEPA Method 8270C

The contractor may propose facilities for approval by the engineer. The final list of analytical parameters analyzed will be confirmed at the time of sampling and will be in conformance with the requirements of the disposal facility.

6.7 Equipment Decontamination

The contractor will employ environmental remediation industry standard practices for equipment decontamination. First and foremost, means and methods will be designed to avoid or otherwise minimize the degree to which its equipment gets grossly contaminated. To the extent practicable, operators will avoid operating equipment in areas that will result in gross contamination. Light contamination will be removed by brooming. When encountered, gross contamination will be removed using low flow, high pressure water spray at the designated equipment decontamination pad. Solids generated from equipment decontamination activities will be appropriately managed and incorporated into like waste streams for off-Site transportation and disposal while liquids will require water treatment.

It will be the responsibility of the contractor to all collect debris, soil, and water generated from decontamination. As part of the Project Execution Plan the contractor will provide the detailed means and methods for this procedure including the design and layout of any planned decontamination pads.

6.8 Water Management, Dewatering and Treatment

The contractor will be required to provide water management, dewatering and water treatment in accordance with this document and a Stormwater Pollution Prevention Plan. A SWPPP has been prepared and is included in Appendix D of the RWP. The contractor may accept or modify the SWPPP and will be responsible for obtaining the general permit and implementing the SWPPP.

Water generated from or coming in contact with the remedial excavation (e.g. excavation dewatering, stockpile decant water, etc.) will require collection and off-Site disposal.

Water generated from the subgrade excavation or coming in contact with subgrade excavation soils shall be treated as stormwater and will not require off-Site disposal. Required controls are presented in the SWPPP. In the un-expected event water generated from the subgrade excavation exhibits a sheen, oil or petroleum like odor this water shall be collected and analyzed to determine the appropriate disposal.

6.9 Excavation Backfill

Excavated areas will be backfilled with imported materials. Backfill will consist of 2 inch minus crushed stone meeting NYSDOT Specifications (Item 733.0402). Material will be placed in up to 1 foot lifts and compacted. Compaction requirements shall demonstrate achieving 90% of the modified proctor on a 100 feet by 100 feet grid.

All imported backfill material will be analyzed for the following:

Geotechnical parameters consist of the following:

- Gradation using ASTM D422
- Moisture/density relationship using ASTM D698

Chemical parameters consist of the following:

- Total VOCs using USEPA Method 8260
- Total SVOCs using USEPA Method 8270
- Total PCBs using USEPA Method 8082
- Pesticides using SW-846 Method 8081
- Herbicides using SW-846 Method 8150
- Total Metals using USEPA Method 6010B
- Total Mercury using USEPA Method 7471
- Total Cyanide using USEPA Method 9012

Chemical parameters shall meet the commercial use requirements as presented in Appendix 5 - allowable constituent levels for imported fill or soil from DER-10 / Technical Guidance for Site Investigation and Remediation, May 2010.

Per DER-10, chemical testing will of imported material is not required provided it contains less than 10% by weight material which would pass through a size 80 sieve and consists of:

- gravel, rock or stone, consisting of virgin material from a permitted mine or quarry; or
- recycled concrete or brick from a DEC registered construction and demolition debris processing facility if the material conforms to the requirements of Section 304 of the New York State Department of Transportation *Standard Specifications Construction and Materials Volume 1* (2002).

6.10 Perimeter Air Monitoring

Community air monitoring will be conducted for vapor and dust. Monitoring will include one upwind station, one downwind station, and one meteorological station in accordance with the Generic CAMP attached as Appendix A. Air monitoring activities will be conducted throughout the duration of the remedial construction activities.

6.11 Permitting

The Contractor shall be responsible for obtaining any local permits (e.g., construction permits) necessary to facilitate the remedial activities at the Site.

6.12 Construction Quality Assurance/Quality Control

As described above, the contractor will be required to prepare a Project Execution Plan outlining the details of how they plan to implement each element discussed in this section for review by Parsons and RG&E. RG&E will also hire an engineering firm to provide on-Site field oversight during construction and document quality assurance. Attached as Appendix E, is a Construction Quality Assurance Plan (CQAP). The CQAP describes the responsibilities of the various parties as well as the materials, procedures, and testing related to construction, evaluation and documentation during implementation of the remedial activities.

7.0 SCHEDULE

It is anticipated that the Final RWP will be prepared after public comments are received on this RWP. It is important to note that the schedule shown below presents the duration of time to complete the described tasks and tasks are dependent upon the successful completion of an earlier task (e.g. Final RWP cannot be completed until the public comments are received).

Task	Duration
Public Comments on RWP	30 Days
Revised RWP as per the public comments	8 Weeks
Contractor Selection	Winter 2017
Remedial Construction	Spring 2018
Draft SMP	12 Weeks
NYSDEC Comments on SMP	6 Weeks
Deed Restriction(s)	TBD
Final SMP	4 Weeks

8.0 REFERENCES

GEI, 2015. Remedial Investigation Work Plan, RG&E Pavilion Former Manufactured Gas Plant Site- Property 1252 Town of Pavilion, New York. GEI Consultants, 2015.

Geomatrix, 2002. Preliminary Site Assessment Report, RG&E Property No. 1252, Pavilion, NY. May, 2002.

NYSDEC, 1998. Division of Water Technical and Operational Guidance Series – Water Quality Standards (WQS) – 6 NYCRR 700 to 706, NYSDEC, 1998.

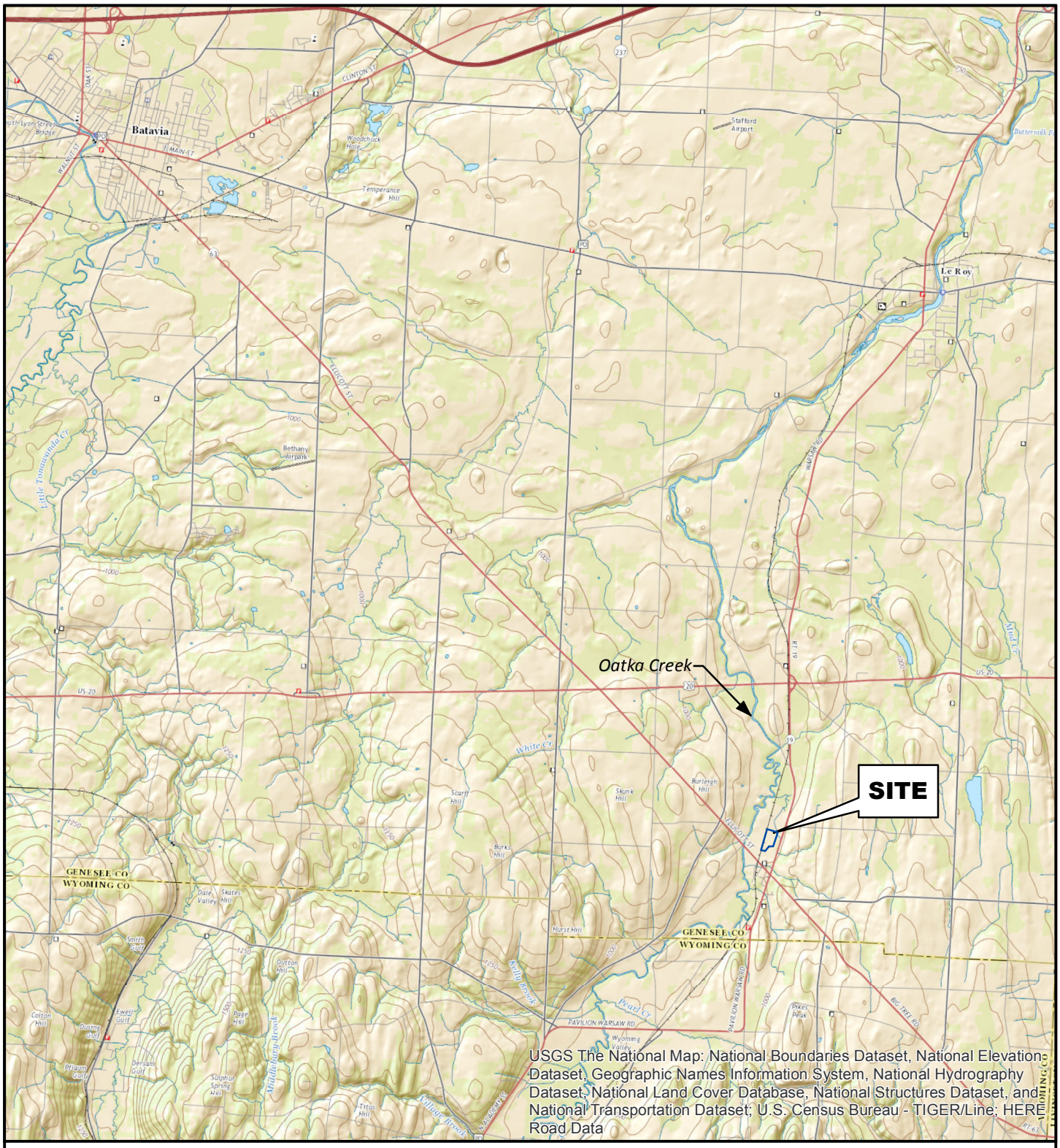
NYSDEC, 2002. NYSDEC's Draft Voluntary Cleanup Program Guide, NYSDEC, 2002.

NYSDEC, 2006. 6 New York Codes Rules and Regulations Part 375-6 Environmental Remediation Programs (6 NYCRR 375-6), NYSDEC, 2006.

NYSDEC, 2010. Technical Guidance for Site Investigation and Remediation (DER-10), NYSDEC, 2010.

Parsons, 2016. Remedial Investigation Report, RG&E Pavilion Former Manufactured Gas Plant – Property #1252, Pavilion, NY. NYSDEC Site Number V00592-8. March, 2016.

FIGURES



0 1 2 4 Miles

New York Quadrangle

Source: Map created with USA Topo Maps basemap from ARCGIS.

N

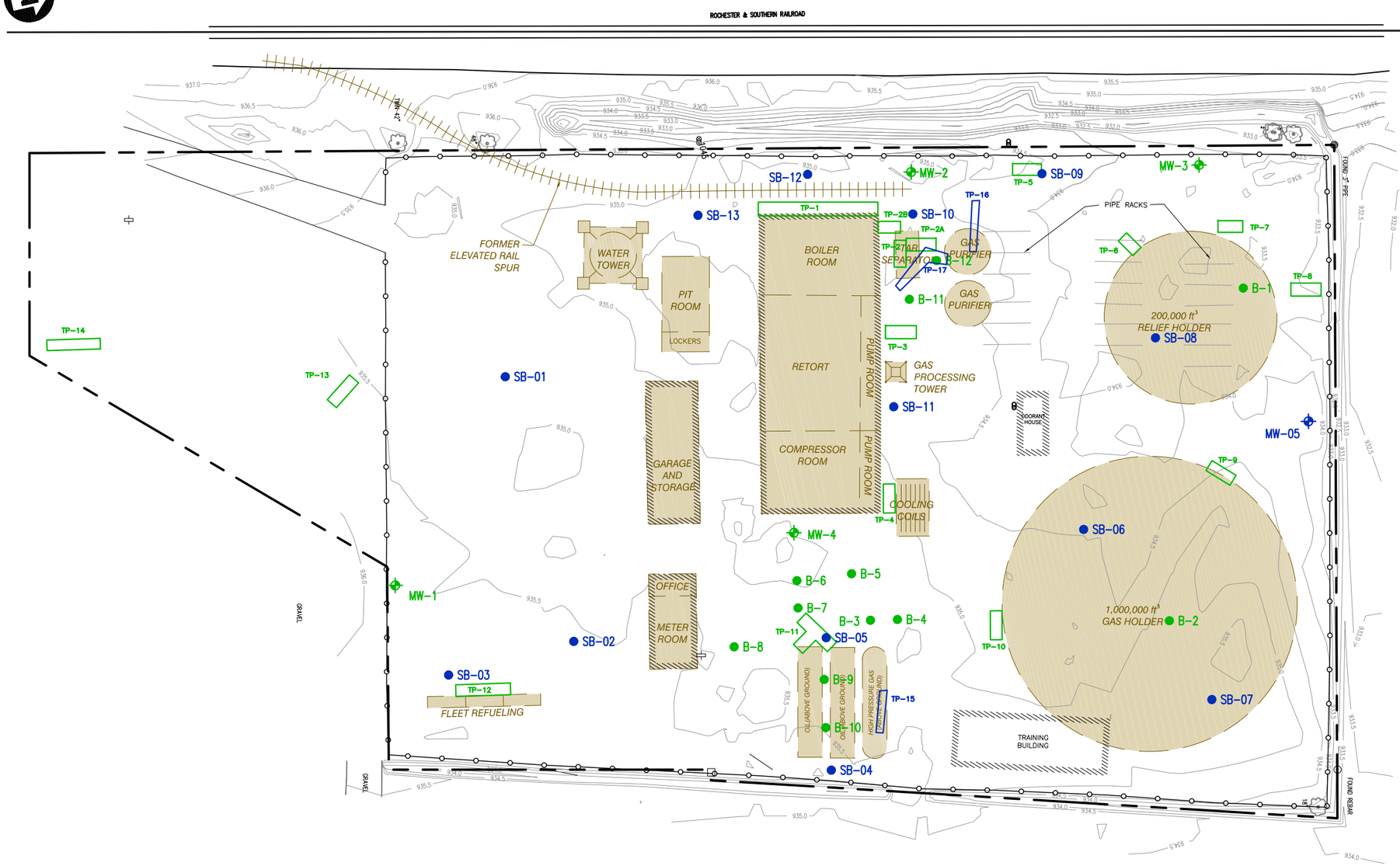
FIGURE 1

RG&E Pavilion RAWP
Pavilion Former MGP
Pavilion, New York

SITE LOCATION MAP

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

Document Path: Q:\GIS\Projects\Iberdrola\Pavilion\Pavilion_SLM-1.mxd



LEGEND:

- MONITORING WELL (2001)
- SOIL BORING (2001)
- TEST PIT (2001)
- MONITORING WELL 2015
- SOIL BORING 2015
- TEST PIT 2015
- MGP USE — HISTORIC FEATURES
- CURRENT USE — CURRENT SITE FEATURES
- PROPERTY BOUNDARY
- FENCELINE

50 25 0 50 100

SCALE: 1"=50'

NOTE:

BASE MAP FROM GEI CONSULTANTS, MARCH 2015. HISTORIC STRUCTURES AND HISTORIC SAMPLE LOCATIONS ADAPTED FROM FIGURE 4, GEI CONSULTANTS, RIWP – JULY 2015.

FIGURE 2

RG&E
PAVILION FORMER MGP
PAVILION, NY

EXISTING SITE CONDITIONS, FEATURES, AND SAMPLE LOCATIONS

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

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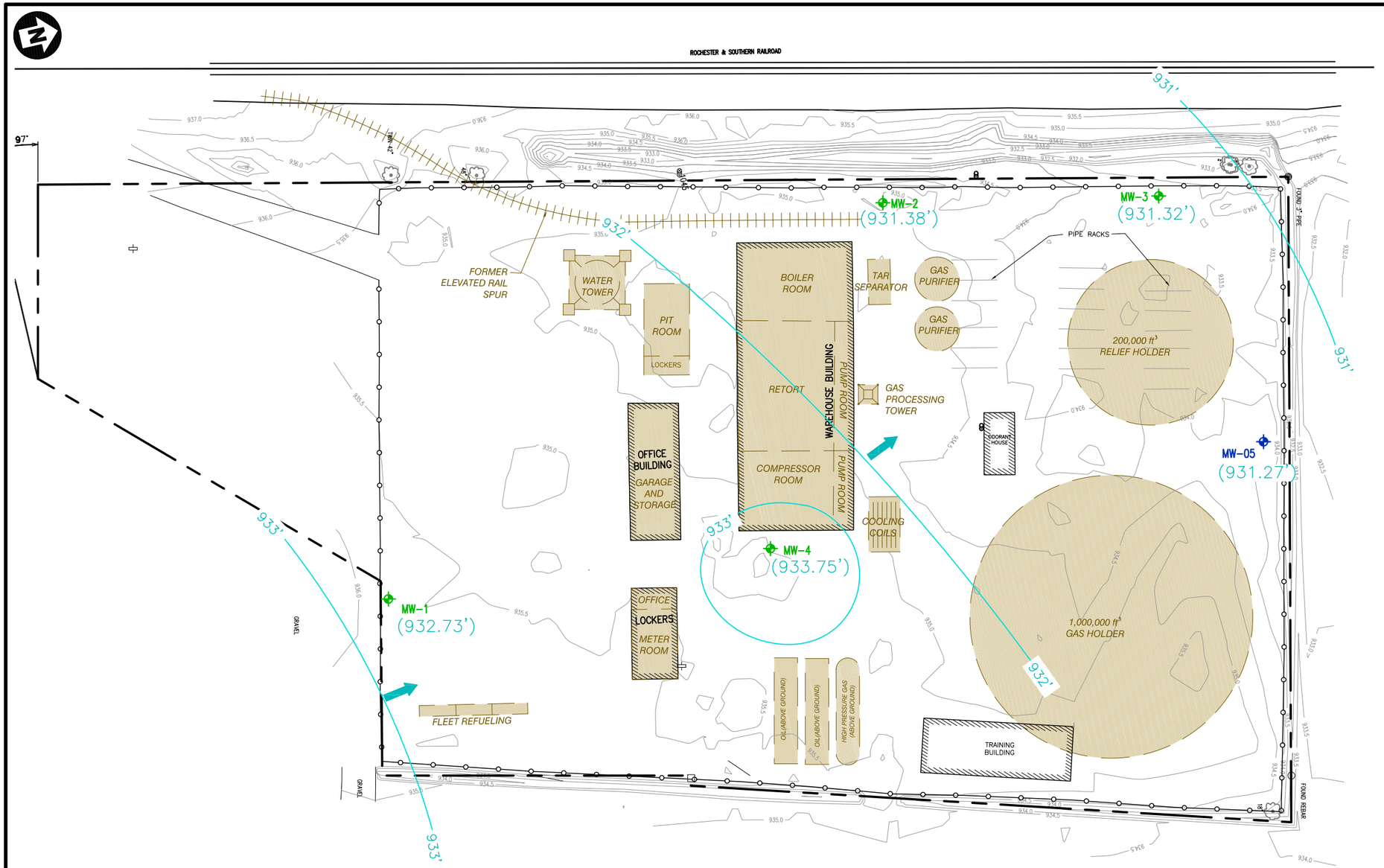

LEGEND:

- MONITORING WELL (2001)
- MONITORING WELL (2015)
- HISTORIC FEATURES
- CURRENT SITE FEATURES
- PROPERTY BOUNDARY
- FENCELINE
- (929.2') JANUARY 2016 GROUNDWATER ELEVATIONS (FT AMSL)
- INFERRED GROUNDWATER CONTOUR LINE
- INFERRED GROUNDWATER FLOW DIRECTION

50 25 0 50 100

SCALE: 1"=50'

NOTE:

BASE MAP FROM GEI CONSULTANTS, MARCH 2015. HISTORIC STRUCTURES AND HISTORIC SAMPLE LOCATIONS ADAPTED FROM FIGURE 4, GEI CONSULTANTS, RIWP – JULY 2015.

FIGURE 3

RG&E
PAVILION FORMER MGP
PAVILION, NY

GROUNDWATER CONTOUR MAP

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

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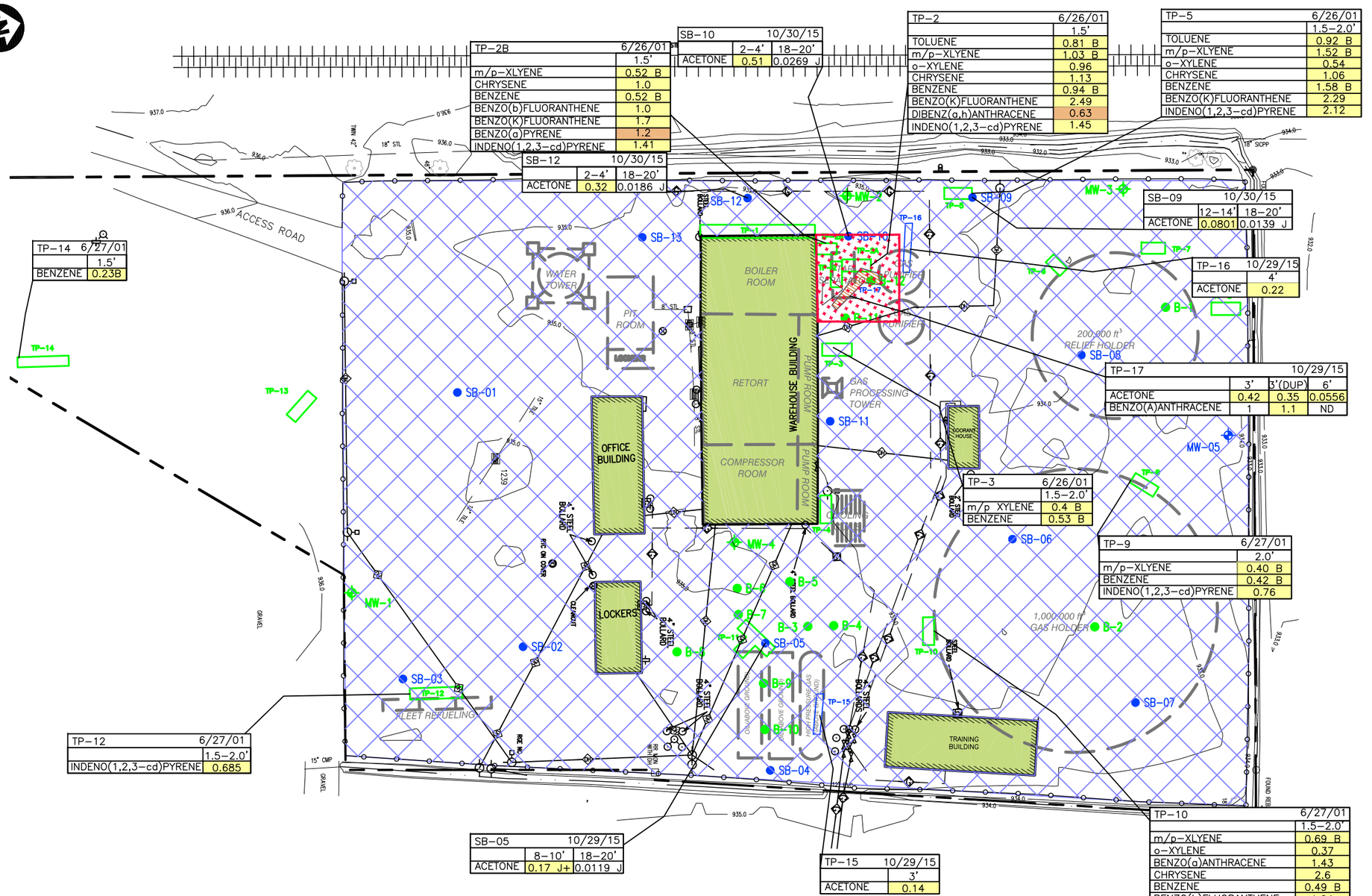

NOTE:

1. BASE MAP FROM GEI CONSULTANTS, MARCH 2015. HISTORIC STRUCTURES ADAPTED FROM FIGURE 4, GEI CONSULTANTS, RIWP – JULY 2015.
2. NAPL OBSERVED IN TP-17 NOT AT B-12.
3. UNRESTRICTED SCO EXCEEDANCES OF CADMIUM OBSERVED IN TP-3, CHROMIUM, ARSENIC, CADMIUM, LEAD, AND MERCURY OBSERVED IN TP-9, LEAD AND ARSENIC OBSERVED IN TP-10, CADMIUM AND LEAD OBSERVED IN TP-11, AND CADMIUM, COPPER, LEAD, NICKEL, AND ZINC OBSERVED IN TP-14.
4. COMMERCIAL SCO EXCEEDANCES OF ARSENIC, CADMIUM, AND LEAD OBSERVED IN TP-9, AND ARSENIC IN TP-10.

LEGEND:

- MONITORING WELL (2001)
- SOIL BORING (2001)
- TEST PIT (2001)
- MONITORING WELL 2015
- SOIL BORING 2015
- TEST PIT 2015
- HISTORIC FEATURES
- CURRENT SITE FEATURES
- PROPERTY BOUNDARY
- FENCELINE
- EXCEEDANCE OF THE 6 NYCRR PART 375 UNRESTRICTED USE SOIL CLEANUP OBJECTIVE
- EXCEEDANCE OF THE 6 NYCRR PART 375 COMMERCIAL USE SOIL CLEANUP OBJECTIVE
- NAPL OBSERVED

B –CONSTITUENT DETECTED IN LABORATORY BLANK
J –ESTIMATE
J+ –ESTIMATE, BIASED HIGH
ND –NOT DETECTED

- TARGETED REMOVAL AREA – 5 FEET
- SITE COVER – 1 FOOT

FIGURE 4

RG&E
PAVILION FORMER MGP
PAVILION, NY

ALTERNATIVE 2 AND VOC/SVOC EXCEEDANCES IN SOIL

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

FILE NAME: P:\IBERDROLA\PAVILION\10 TECHNICAL\CAD\449605-SVOC-VOC-SOIL-005.DWG
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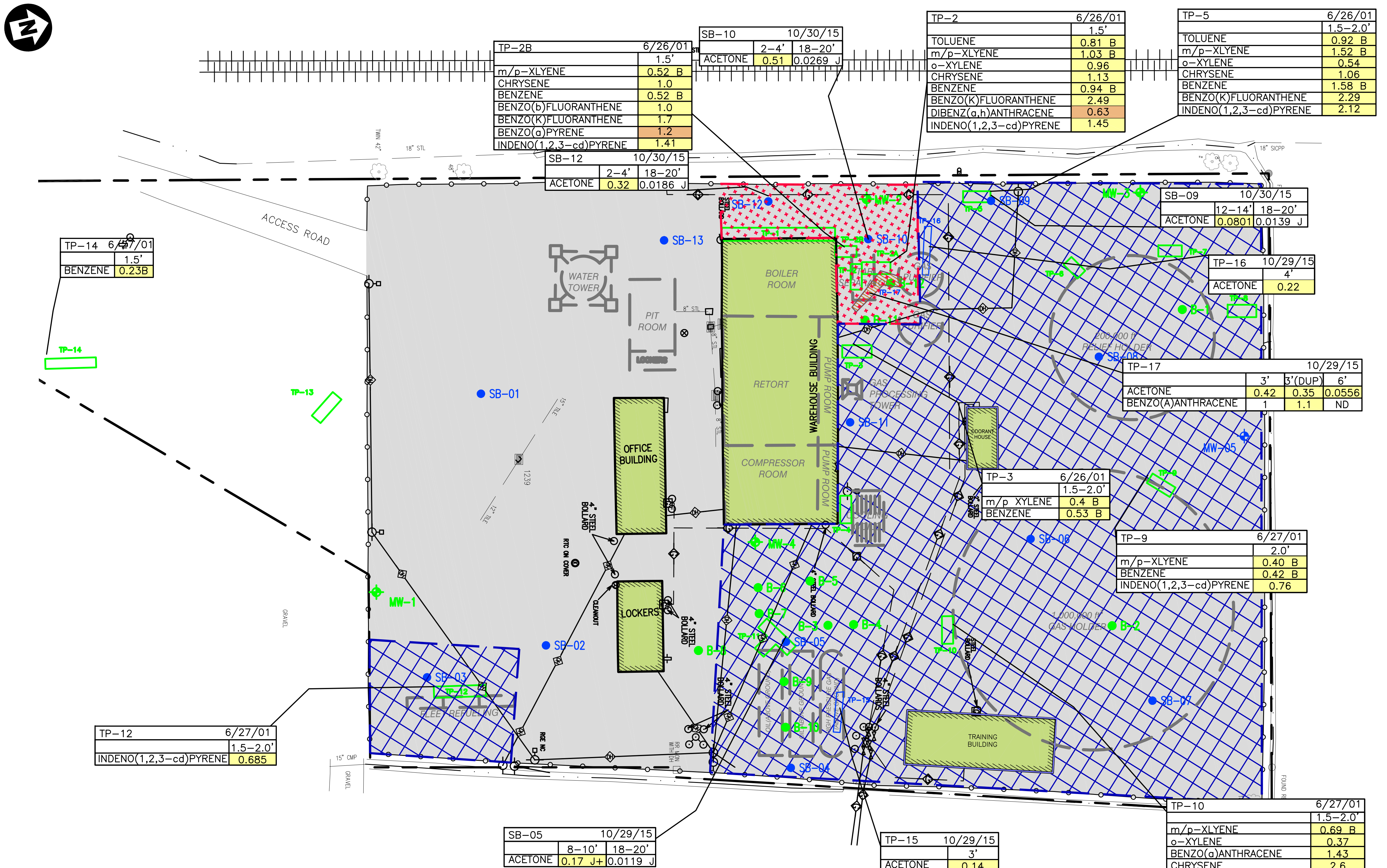

TP-2B	6/26/01
	1.5'
m/p-XLYENE	0.52 B
CHRYSENE	1.0
BENZENE	0.52 B
BENZO(b)FLUORANTHENE	1.0
BENZO(K)FLUORANTHENE	1.7
BENZO(a)PYRENE	1.2
INDENO(1,2,3-cd)PYRENE	1.41

SB-10	10/30/15	
	2-4'	18-20'
ACETONE	0.51	0.0269 J

TP-2	6/26/01
	1.5'
TOLUENE	0.81 B
m/p-XLYENE	1.03 B
o-XLYENE	0.96
CHRYSENE	1.13
BENZENE	0.94 B
BENZO(K)FLUORANTHENE	2.49
DIBENZ(a,h)ANTHRACENE	0.63
INDENO(1,2,3-cd)PYRENE	1.45

TP-5	6/26/01
	1.5-2.0'
TOLUENE	0.92 B
m/p-XLYENE	1.52 B
o-XLYENE	0.54
CHRYSENE	1.06
BENZENE	1.58 B
BENZO(K)FLUORANTHENE	2.29
INDENO(1,2,3-cd)PYRENE	2.12

SB-12	10/30/15	
	2-4'	18-20'
ACETONE	0.32	0.0186 J

TP-14	6/27/01
	1.5'
BENZENE	0.23B

SB-09	10/30/15	
	12-14'	18-20'
ACETONE	0.0801	0.0139 J

TP-16	10/29/15
	4'
ACETONE	0.22

TP-17	10/29/15		
	3'	3'(DUP)	6'
ACETONE	0.42	0.35	0.0556
BENZO(A)ANTHRACENE	1	1.1	ND

TP-3	6/26/01
	1.5-2.0'
m/p XYLENE	0.4 B
BENZENE	0.53 B

TP-9	6/27/01
	2.0'
m/p-XLYENE	0.40 B
BENZENE	0.42 B
INDENO(1,2,3-cd)PYRENE	0.76

TP-12	6/27/01
	1.5-2.0'
INDENO(1,2,3-cd)PYRENE	0.685

SB-05	10/29/15	
	8-10'	18-20'
ACETONE	0.17 J+	0.0119 J

TP-15	10/29/15
	3'
ACETONE	0.14

TP-10	6/27/01
	1.5-2.0'
m/p-XLYENE	0.69 B
o-XYLENE	0.37
BENZO(a)ANTHRACENE	1.43
CHRYSENE	2.6
BENZENE	0.49 B
BENZO(b)FLUORANTHENE	1.24
BENZO(k)FLUORANTHENE	1.44
BENZO(a)PYRENE	1.17
INDENO(1,2,3-cd)PYRENE	0.83

LEGEND:

- MONITORING WELL (2001)
- SOIL BORING (2001)
- TEST PIT (2001)
- MONITORING WELL 2015
- SOIL BORING 2015
- TEST PIT 2015
- HISTORIC FEATURES
- CURRENT SITE FEATURES
- PROPERTY BOUNDARY
- FENCELINE
- EXCEEDANCE OF THE 6 NYCRR PART 375 UNRESTRICTED USE SOIL CLEANUP OBJECTIVE
- EXCEEDANCE OF THE 6 NYCRR PART 375 COMMERCIAL USE SOIL CLEANUP OBJECTIVE
- NAPL OBSERVED

B –CONSTITUENT DETECTED IN LABORATORY BLANK
J –ESTIMATE
J+ –ESTIMATE, BIASED HIGH
ND –NOT DETECTED

- 2 FT REMOVAL AND BACKFILL

TARGETED REMOVAL AREAS

- EXCAVATE 5 FT
- EXCAVATE 3 FT

NOTE:

1. BASE MAP FROM GEI CONSULTANTS, MARCH 2015. HISTORIC STRUCTURES ADAPTED FROM FIGURE 4, GEI CONSULTANTS, RIWP – JULY 2015.
2. NAPL OBSERVED IN TP-17 NOT AT B-12.
3. UNRESTRICTED SCO EXCEEDANCES OF CADMIUM OBSERVED IN TP-3, CHROMIUM, ARSENIC, CADMIUM, LEAD, AND MERCURY OBSERVED IN TP-9, LEAD AND ARSENIC OBSERVED IN TP-10, CADMIUM AND LEAD OBSERVED IN TP-11, AND CADMIUM, COPPER, LEAD, NICKEL, AND ZINC OBSERVED IN TP-14.
4. COMMERCIAL SCO EXCEEDANCES OF ARSENIC, CADMIUM, AND LEAD OBSERVED IN TP-9, AND ARSENIC IN TP-10.

50 25 0 50 100

SCALE: 1"=50'

FIGURE 5

RG&E
PAVILION FORMER MGP
PAVILION, NY

ALTERNATIVE 3 AND VOC/SVOC EXCEEDANCES IN SOIL

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

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TABLES

Table 1
Summary of Chemical Analyses Performed
Former Manufactured Gas Plant
Pavilion, New York

				Chemical Analyses Performed										
	Location	Sample ID	Depth (ft bgs)	VOCs	SVOCS	Cyanide	PAHs	BTEX	Metals	TPH	Pesticides	Herbicides	Nitrate	PCBs
2002 -PSA Test Pit Samples	2001 Soil Samples													
	TP-1	not sampled	n/a											
	TP-2	TP-2	1.5				●	●						
	TP-2A	not sampled	n/a											
	TP-2B	TP-2B	1.5				●	●						
	TP-3	TP-3	1.5-2.0			●	●	●	●					
	TP-4	not sampled	n/a											
	TP-5	TP-5	1.5-2.0			●	●	●	●					
	TP-6	not sampled	n/a											
	TP-7	not sampled	n/a											
	TP-8	not sampled	n/a											
	TP-9	TP-9	2			●	●	●	●					
	TP-10	TP-10	1.5-2.0			●	●	●	●					
	TP-11	TP-11	1.5-2.0	●	●	●			●	●				
	TP-12	TP-12	1.5-2.0	●	●									
	TP-13	not sampled	n/a											
	TP-14	TP-14	1.5			●	●	●	●					
2002 -PSA Soil Borings	2001 Soil Samples													
	B-1	B-1		●	●	●								
	B-2	B-2		●	●	●								
	B-3	not sampled	n/a											
	B-4	B-4								●				
	B-5	not sampled	n/a											
	B-6	not sampled	n/a											
	B-7	B-7								●				
	B-8	B-8								●				
	B-9	not sampled	n/a											
	B-10	B-10			●					●				
	B-11	not sampled	n/a											
	B-12	not sampled	n/a											
2002 - PSA Groundwater Samples	2001 Groundwater Samples													
	MW-1	MW-1	n/a	●	●	●			●		●	●	●	
	MW-2	MW-2	n/a	●	●	●			●					
	MW-3	MW-3	n/a	●	●	●			●					
	MW-4	MW-4	n/a	●	●	●			●					
2015 RI Test Pit Samples	2015 Soil Samples													
	TP-15 (MS/MSD)	TP-15 (3')	3	●	●	●			●		●	●		●
	TP-16	TP-16 (4')	4	●	●	●			●		●	●		●
	TP-17 (dup)	TP-17 (3')	3	●	●	●			●		●	●		●
	TP-17	TP-17(6')	6	●	●	●			●		●	●		●

Note:
"●" Indicates that the specified chemical analysis was performed on sample, does not correlate to detections or exceedances.

Table 1
Summary of Chemical Analyses Performed
Former Manufactured Gas Plant
Pavilion, New York

				Chemical Analyses Performed										
	Location	Sample ID	Depth (ft bgs)	VOCs	SVOCS	Cyanide	PAHs	BTEX	Metals	TPH	Pesticides	Herbicides	Nitrate	PCBs
2015 RI Soil Borings	2015 Soil Samples													
	MW-05 (dup)	MW-05 (8-10')	8-10	●	●	●			●		●	●		●
	MW-05	MW-05 (16-18')	16-18	●	●	●			●					
	SB-01	SB-01 (14-16')	14-16	●	●	●			●					
	SB-01	SB-01 (18-20')	18-20	●	●	●			●					
	SB-02	SB-02 (2-4')	2-4	●	●	●			●		●	●		●
	SB-02	SB-02 (14-16')	14-16	●	●	●			●					
	SB-03	SB-03 (16-18')	16-18	●	●	●			●					
	SB-03	SB-03 (18-20')	18-20	●	●	●			●					
	SB-04	SB-04 (2-4')	2-4	●	●	●			●		●	●		●
	SB-04	SB-04 (18-20')	18-20	●	●	●			●					
	SB-05	SB-05 (8-10')	8-10	●	●	●			●		●	●		●
	SB-05	SB-05 (18-20')	18-20	●	●	●			●					
	SB-06	SB-06 (14-16')	14-16	●	●	●			●					
	SB-06	SB-06 (18-20')	18-20	●	●	●			●					
	SB-07 (MS/MSD)	SB-07 (4-6')	4-6	●	●	●			●		●	●		●
	SB-07	SB-07 (22-24')	22-24	●	●	●			●					
	SB-08	SB-08 (10-12')	10-12	●	●	●			●					
	SB-08	SB-08 (18-20')	18-20	●	●	●			●					
	SB-09	SB-09 (12-14')	12-14	●	●	●			●					
	SB-09	SB-09 (18-20')	18-20	●	●	●			●					
	SB-10	SB-10 (2-4')	2-4	●	●	●			●		●	●		●
	SB-10	SB-10 (18-20')	18-20	●	●	●			●					
	SB-11	SB-11 (4-6')	4-6	●	●	●			●		●	●		●
	SB-11	SB-11 (18-20')	18-20	●	●	●			●					
	SB-12	SB-12 (2-4')	2-4	●	●	●			●		●	●		●
	SB-12	SB-12 (18-20')	18-20	●	●	●			●					
	SB-13	SB-13 (10-12')	10-12	●	●	●			●					
	SB-13	SB-13 (18-20')	18-20	●	●	●			●					
2015 RI Groundwater Samples - Round 1	2015 Groundwater Samples - November													
	MW-01 (MS/MSD)	MW-01	n/a	●	●	●			●		●	●		●
	MW-02	MW-02	n/a	●	●	●			●		●	●		●
	MW-03	MW-03	n/a	●	●	●			●		●	●		●
	MW-04	MW-04	n/a	●	●	●			●		●	●		●
	MW-05 (dup)	MW-05	n/a	●	●	●			●		●	●		●
2016 RI Groundwater Samples - Round 2	2016 Groundwater Samples - January													
	MW-01 (MS/MSD)	MW-01	n/a	●	●	●			●		●	●		●
	MW-02	MW-02	n/a	●	●	●			●		●	●		●
	MW-03	MW-03	n/a	●	●	●			●		●	●		●
	MW-04	MW-04	n/a	●	●	●			●		●	●		●
	MW-05 (dup)	MW-05	n/a	●	●	●			●		●	●		●

Note:
"●" Indicates that the specified chemical analysis was performed on sample, does not correlate to detections or exceedances.

Table 2
Preliminary Screening of Remedial Technologies
Former Manufactured Gas Plant
Pavilion, New York

Remedial Alternative	Technology	Process	Applicability
No Action		Does not include any remedial activities or institutional controls	***Retained***
Limited Action	Institutional Controls	Site Management Plan	***Retained***
	Engineering Controls	Cover System (e.g., asphalt, gravel, clean soil cover), restricted access (e.g., fencing)	***Retained***
	Monitored Natural Attenuation	Long term sampling on Site to assess reduction in contamination as a result of natural processes.	***Not Retained*** Limited effectiveness in achieving RAOs
Containment	NAPL Barrier Wall	Lateral containment of the MGP impacts migrating offsite.	***Not Retained*** Lack of contaminant mobility
Removal	Excavation and Offsite Disposal	Removal of MGP-impacted soils for offsite treatment/disposal.	***Retained***

"Retained" indicates that the technology is technically capable of meeting the Remedial Action Objectives by itself or in combination with other technologies.

Table 2
Preliminary Screening of Remedial Technologies
Former Manufactured Gas Plant
Pavilion, New York

Remedial Alternative	Technology	Process	Applicability
In-Situ Physical/Chemical Treatment	*In Situ* Stabilization/Solidification (ISS)	Mixing contaminated soils with cementitious grout rendering contaminant constituents immobile due to the reduction in hydraulic conductivity.	***Not Retained*** Technical challenges with effectiveness of treating NAPL and soil contamination
	In situ Thermal Treatment (TSTD/ISTT)	Electro resistant heating for removal of MGP impacts	***Not Retained*** Technical challenges with effectiveness of treating NAPL and soil contamination
	In Situ Chemical Oxidation (ISCO)	Injection of strong oxidants at high concentrations to destroy organic contaminants.	***Not Retained*** Technical challenges with effectiveness of treating NAPL and soil contamination
	Surfactant Aided ISCO	Injection of surfactants to loosen the bonds of hydrocarbons and reduce the contaminant mass.	***Not Retained*** Technical challenges with effectiveness of treating NAPL and soil contamination
	Enhanced Bioremediation (EB)	Nitrate, oxygen release compound or percarbonate is injected to enhance the microbial activity. If necessary, nutrients will be injected as needed.	***Not Retained*** Technical challenges with effectiveness of treating NAPL and soil contamination
Ex-Situ Physical/Chemical Treatment	Onsite Treatment and Disposal	Removal of MGP-impacted soils for onsite treatment (low temperature thermal desorption, biological treatment, etc) and/or onsite disposal. Onsite disposal may include construction of an onsite landfill.	***Not Retained*** Technical challenges with effectiveness of treating NAPL and soil contamination

"Retained" indicates that the technology is technically capable of meeting the Remedial Action Objectives by itself or in combination with other technologies.

APPENDIX A

NYSDOH GENERIC COMMUNITY AIR MONITORING PLAN

Appendix A
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 B

INSTITUTIONAL AND ENGINEERING CONTROLS INSPECTION CHECKLIST

Institutional and Engineering Controls Inspection Form

I. Site Information

Site No. V00592-8

Site Name: Former Pavilion Manufactured Gas Plant – Property #1252

Site Address: 6903 Ellicott Street Road

City/Town: Pavilion, New York

County: Genesee

Zip Code: 14525

II. Site Conditions

- Physical characteristics of the Site
- Current Site operations - RG&E currently uses the Site as the Pavilion Operations Center. The facility houses office space, worker training space, and vehicle and equipment storage. A portion of the Site is utilized for gas pressure regulation and odorant storage.

III. Site Inspection Checklist

1. Has some of all of the Site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification?
   YES NO

   If YES, is documentation or evidence that documentation has been previously submitted included with this certification?
   YES NO

2. Have any amendments and/or additional filings been recorded that may modify or supersede the Deed Restrictions?
   YES NO

   If YES, is there documentation of evidence that documentation has been previously submitted included with this certification?
   YES NO

3. Have any federal, state, and/or local permits (e.g., building permit) been issued for or at the property since the initial/last certification?
   YES NO

   If YES, is documentation of evidence that documentation has been previously submitted included with this certification?
   YES NO

4. Has there been an actual or pending zoning or land-use change for the Restricted Area on which the Deed Restriction is filed?
   YES NO

   If YES, is documentation or evidence that documentation has been previously submitted included with this certification?
   YES NO

5. Have periodic inspections of the Site identified any excavation or other disturbance activities that have taken place within the institutional control areas or other areas subject to the Site Management Plan?
   YES NO

   If YES, is the new information or evidence that new information has been previously submitted included with this certification?
   YES NO

6. Have periodic inspections of the Site identified any disturbances, modifications, or changes in condition of the engineering controls at the Site (e.g., cover system, perimeter fence)?
   YES NO

   If YES, describe the changes and the affect (if any) they have on the protectiveness of the remedial action in place at the Site.

7. Are monitoring wells MW-01, MW-02, MW-03, MW-04, and MW-05 in good working condition?
   YES NO

   Provide the current condition of the casing, covers, locks, ground surfaces surrounding immediately surrounding the monitoring wells.

Control Certification Statement

For each Institutional or Engineering control listed above, I certify by checking "Yes" that all of the following statements are true:

(a) the Institutional Control and/or Engineering Control employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

(b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

(c) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

(d) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control.

IC/EC CERTIFICATIONS
SITE NO. V00592-8

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I _____at_____,
print name print business address

am certifying as OWNER (Owner or Remedial Party) for the Site named in the Site Information Section of this form.

_____ _____
Signature of Owner or Remedial Party Rendering Certification Date

QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SIGNATURE

I _____at_____,
print name print business address

am certifying as a Qualified Environmental Professional for the

_____

(Owner or Remedial Party) for the Site named in the Site Information Section of this form.

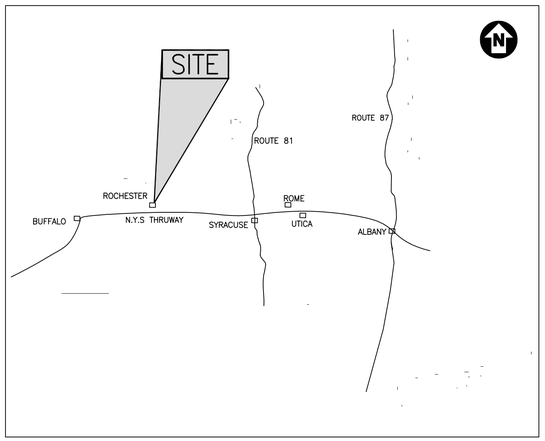
_____ _____ _____
Signature of Qualified Environmental Professional, for the Owner or Remedial Party, Rendering Certification Stamp (if Required) Date

APPENDIX C

DESIGN DRAWINGS

Rochester Gas and Electric
Former Pavilion MGP Facility
Pavilion, New York

Draft Remedial Action Work Plan



STATE VICINITY MAP

DRAWING INDEX

DRAWING No.	GENERAL
G-001	TITLE SHEET, DRAWING INDEX AND SITE LOCATION
G-002	NOTES & GENERAL LEGEND
C-001	EXISTING CONDITIONS, HISTORIC STRUCTURES, UTILITIES, AND INVESTIGATION LOCATIONS
C-002	SITE PREPARATION AND DEMOLITION
C-003	EXCAVATION AND SUBGRADE PLAN
C-004	SITE COVER AND RESTORATION
C-005	CROSS SECTIONS
C-006	DETAILS

SITE LOCATION

DRAWING IS HALF-SIZE IF PLOTTED 11x17

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
B	DRAFT FINAL	06/25/18	JR	PR	SRB
A	DRAFT FOR AGENCY REVIEW	1/11/17	JR	PR	SRB

DRAWN BY	JR	DATE	10/11/17
CHECKED BY	EMS	DATE	10/11/17
APPROVED BY	SRB	DATE	10/11/17
PROJECT MGR.	PLR	DATE	10/11/17

SEAL

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

JOB 449605

WBS 03000

PROJECT TITLE
Rochester Gas and Electric
Former Pavilion MGP Facility
Remedial Work Plan
County of Genesee
Pavilion, New York

DRAWING TITLE
TITLE SHEET,
DRAWING INDEX AND
SITE LOCATION

SCALE
NONE

DRAWING NO. G-001

REV. B

FILE NAME: P:\IBERDROLA\PAVILION\10 TECHNICAL\DESIGN\GENERAL\449605-G001.DWG
PLOT DATE: 6/25/2018 12:33 PM PLOTTED BY: RUSSO, JILL

LEGEND:

- MONITORING WELL 2001
- SOIL BORING 2001
- TEST PIT 2001
- MONITORING WELL 2015
- SOIL BORING 2015
- TEST PIT 2015
- HISTORIC FEATURES (MGP USE)
- CURRENT ABOVE GRADE SITE FEATURES (CURRENT USE)
- PROPERTY BOUNDARY
- EXISTING FENCELINE
- CONTOUR (MAJOR)
- CONTOUR (MINOR)
- LIGHT POST
- UTILITY POLE
- BOLLARD
- UTILITY MANHOLE
- FIRE HYDRANT
- WATER VALVE
- CATCH BASIN
- EXISTING TREES

GENERAL NOTES:

1. RG&E WILL HIRE A REMEDIATION CONTRACTOR THAT HAS EXPERIENCE AND CAPABILITY TO SAFELY EXECUTE THE REMEDY DESCRIBED IN THIS PACKAGE, HEREAFTER REFERRED TO AS "CONTRACTOR". RG&E WILL ALSO HIRE AN ENGINEERING FIRM TO PROVIDE ON-SITE FIELD OVERSIGHT DURING CONSTRUCTION AND DOCUMENT QUALITY ASSURANCE, HEREAFTER REFERRED TO AS "ENGINEER".
2. ACTUAL SITE FEATURES AT THE TIME OF CONSTRUCTION MAY DIFFER FROM THOSE SHOWN ON THE DESIGN DRAWINGS. THE CONTRACTOR SHALL PROMPTLY NOTIFY RG&E AND THE ENGINEER (IN WRITING) OF ANY SUCH DIFFERENCES THAT MAY AFFECT THE PERFORMANCE OF THE WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY LOCAL, STATE AND FEDERAL PERMITS REQUIRED.
4. ALL ON-SITE ACTIVITIES SHALL BE IN ACCORDANCE WITH THE ENTIRE CONTRACT DOCUMENTS PACKAGE. THESE DOCUMENTS SHALL BE THOROUGHLY REVIEWED BY THE CONTRACTOR. ANY DIFFERENCES IDENTIFIED BY THE CONTRACTOR BETWEEN THE INFORMATION PRESENTED IN THE ABOVE LISTED DOCUMENTS SHALL BE SUBMITTED TO THE ENGINEER (IN WRITING) FOR CLARIFICATION.
5. 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 THEY ARE PLACED ON; ALSO SUPPLEMENT THE GENERAL NOTE LISTED HEREIN.
6. THE CONTRACTOR SHALL CONTACT DIG SAFE FOR UTILITY MARK OUTS PRIOR TO ANY SUBSURFACE WORK.
7. CONTRACTOR SHALL IMMEDIATELY REPAIR AND RESTORE ANY IMPACTS OF THE SITE WORK TO PUBLIC ROADWAYS, AS DIRECTED BY THE ENGINEER, AT NO ADDITIONAL COST TO RG&E.
8. ALL EXISTING MONITORING WELLS SHALL BE PROTECTED THROUGHOUT CONSTRUCTION. IF DAMAGED, THEY SHALL BE REPAIRED OR REPLACED AT NOT COST TO RG&E.
9. THE CONTRACTOR SHALL UPGRADE AND MAINTAIN THE EXISTING ACCESS ROAD TO THE SITE. UPGRADE WILL CONSIST OF AN ASSHTO M288 CLASS 2 WOVEN SEPARATION GEOTEXTILE FABRIC AND 6 INCHES OF CRUSHED STONE. THE UPGRADED ROAD CONDITION SHALL BE MAINTAINED IN THIS CONDITION POST REMEDIATION. REPAIRS OR UPGRADES MAY BE DIRECTED BY THE ENGINEER OR RG&E.

SURVEY NOTES:

1. THIS SURVEY IS REFERENCED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983-2011 ADJUSTMENT (NAD83/2011) AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (WEST ZONE), AND VERTICALLY TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
2. THE REFERENCED HORIZONTAL AND VERTICAL CONTROL STATION IS A CONTINUOUSLY OPERATING REFERENCE STATION (CORS) DESIGNATED AS "BATAVIA CORS ARP" (NYBT).
3. ALL INFORMATION (E.G., BASEMAP, HISTORIC STRUCTURE LOCATIONS, RI SAMPLE LOCATIONS, ETC) SHOWN HEREON IS ADAPTED FROM THE REMEDIAL INVESTIGATION WORKPLAN PREPARED BY GEI CONSULTANTS, MARCH 2015. 2015 SAMPLE LOCATIONS WERE LOCATED IN A FIELD SURVEY COMPLETED NOVEMBER 23, 2015 BY THEW ASSOCIATES.

SURVEY STAKE-OUT AND AS BUILT DOCUMENTATION:

1. CONTRACTOR SHALL OBTAIN THE SERVICES OF A NEW YORK STATE LICENSED LAND SURVEYOR FOR THE ESTABLISHMENT OF SITE CONTROLS AND THE STAKE-OUT OF THE PROPOSED WORK AS SHOWN IN THE PROJECT PLANS.
2. SURVEYOR SHALL LOCATE IN THE FIELD (VERTICAL AND HORIZONTAL) ALL SIGNIFICANT PROJECT COMPONENTS AND MILESTONES INCLUDING, BUT NOT LIMITED TO, EXISTING UTILITIES, FINAL LIMITS IF THE EXCAVATION, AND SUBGRADE EXCAVATION, AND ANY OTHER APPURTENANT FEATURES AS DIRECTED BY THE ENGINEER.
3. SURVEYOR SHALL PREPARE AND PROVIDE STAMPED AND SIGNED HARD COPY AND PDF FINAL RECORD DRAWINGS OF THE ACTUAL WORK PERFORMED FOR EACH OF THE PROJECT COMPONENTS AND MILESTONES (E.G., EXISTING CONDITION, EXCAVATION/SUBGRADE, AND FINISHED GRADE SURFACES). THE FOLLOWING ADDITIONAL DATA SHALL ACCOMPANY THE SEALED RECORD DRAWINGS:
   - 3.1. POINT DATA (.TXT, .CSV, .XLS)
   - 3.2. AUTOCAD (.DWG) USING COORDINATE ZONE STATED IN NOTES

4. ANY SURVEY MARKERS, PRIVATE OR PUBLIC, DISTURBED BY CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THE ORIGINAL POSITION BY A NEW YORK STATE LICENSED SURVEYOR AT NO ADDITIONAL COST TO RG&E.

GROUNDWATER CONDITIONS:

1. AVAILABLE SITE INVESTIGATION INFORMATION INDICATES THAT GROUNDWATER RANGES FROM 1.0 TO 7.0 FEET BELOW GRADE, WITH GROUNDWATER FLOW TRENDING TO THE NORTHWEST.

UTILITIES NOTES:

1. EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE BASED ON THE BEST INFORMATION AVAILABLE WITHIN THE PROJECT LIMITS.
2. CONTRACTOR SHALL LOCATE AND VERIFY ALL UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF WORK. SURVEY LOCATIONS AND ELEVATIONS OF UNCOVERED UTILITIES ARE TO BE SHOWN ON RECORD DRAWINGS.
3. PROMPTLY NOTIFY RG&E IF UNMAPPED/UNKNOWN UTILITIES ARE FOUND. RELOCATE AND PROTECT ALL KNOWN AND UNKNOWN EXISTING UTILITIES, AS APPROVED BY RG&E.

SITE ACTIVITY SUPPORT:

1. CONTRACTOR SHALL PROVIDE ACCESS TO ALL MONITORING LOCATIONS INCLUDING, BUT NOT LIMITED TO, COMMUNITY AIR MONITORING AND NOISE MONITORING STATIONS.
2. CONTRACTOR SHALL PROVIDE ACCESS FOR THE OWNER, ENGINEER AND REPRESENTATIVES OF THE STATE FOR SITE INSPECTIONS OR THE COLLECTION OF SITE SAMPLES.

SUBMITTALS:

1. SUBMIT FOR APPROVAL A PROJECT EXECUTION PLAN DESCRIBING THE SPECIFIC CREWS, EQUIPMENT, AND PROCEDURES PLANNED TO EXECUTE EACH OF THE ELEMENTS OF THE WORK SCOPE PRESENTED IN SECTION 6.0 OF THE REMEDIAL ACTION WORK PLAN.

PROTECTION OF EXISTING STRUCTURE:

1. PROTECT EXISTING STRUCTURES (E.G., BUILDINGS, MONITORING WELLS, PERIMETER SITE FENCE, ETC.) FROM DAMAGE. IF DAMAGED THEY SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO RG&E.

EXCAVATION:

1. MATERIALS GENERATED FROM THE SUBGRADE EXCAVATION AND REMEDIAL EXCAVATION SHALL BE MANAGED SEPERATELY.
2. EQUIPMENT USED IN THE REMEDIAL EXCAVATION OR THAT COMES IN CONTACT WITH VISUALLY IMPACTED MGP MATERIALS SHALL BE DECONTAMINATED PRIOR TO MOVING TO ANOTHER TASK.

BACKFILL:

1. REFER TO THE CONSTRUCTION QUALITY ASSURANCE PLAN FOR SAMPLING AND QUALITY CONTROL REQUIREMENTS OF THE BACKFILL MATERIALS.
2. THE ENGINEER HAS THE RIGHT TO PERFORM QUALITY ASSURANCE TESTING AT ANY TIME. IF NON-COMPLIANT MATERIALS ARE BROUGHT TO THE SITE, THEY SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR AT NO COST TO RG&E.

WATER MANAGEMENT:

1. WATER GENERATED DURING THE PROJECT (E.G., FROM REMEDIAL EXCAVATION/MATERIAL DEWATERING, DECONTAMINATION OF EQUIPMENT, ETC.) SHALL BE COLLECTED, CONVEYED, CONTAINERIZED, AND TRANSPORTED OFF-SITE FOR DISPOSAL IN ACCORDANCE WITH THE REMEDIAL ACTION WORK PLAN. THE ENGINEER WILL COLLECT WASTE CHARACTERIZATION SAMPLES TO SATISFY THE REQUIREMENTS OF THE TREATMENT/DISPOSAL FACILITY.

WASTE MANAGEMENT:

1. THE CONTRACTOR SHALL REMOVE ABOVEGROUND AND UNDERGROUND NON-EARTHEN MATERIALS (E.G., BUSH, LOGS, TREES, STUMPS, BRICK, CONCRETE, PIPING, ETC.) AS REQUIRED TO PERFORM THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR DOWNSIZING (AS REQUIRED BY THE WASTE TRANSPORTATION AND DISPOSITION VENDORS) AND TRANSPORTING THESE MATERIALS OFFSITE TO AN APPROPRIATE, OWNER-SELECTED DISPOSAL AND/OR RECYCLING FACILITY.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOADING AND SCHEDULING OF ALL WASTE MATERIALS GENERATED DURING THE PROJECT.

SAFETY NOTES:

1. THE CONTRACTOR SHALL PROVIDE EVIDENCE OF ALL ONSITE PERSONNEL COMPLETING OSHA 40-HOUR TRAINING AND 8-HOUR REFRESHER TRAINING PRIOR TO INITIATING REMEDIAL CONSTRUCTION ACTIVITIES.
2. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING, MAINTAINING, AND SUPERVISING ALL SAFETY MEASURES AND PROGRAMS IN CONNECTION WITH THE PROJECT. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF, AND SHALL PROVIDE THE NECESSARY PRECAUTIONS TO PROTECT SITE WORKERS, ENGINEER PERSONNEL, AND SITE VISITORS.
3. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF PUBLIC BODIES HAVING JURISDICTION FOR THE SAFETY OF PERSONS OR PROPERTY OR TO PROTECT THEM FROM DAMAGE INJURY OR LOSS.
4. THE MATERIALS SUBJECT TO HANDLING AS PART OF THE PROJECT MAY CONTAIN HAZARDOUS CONSTITUENTS OR CHEMICALS AND SHOULD BE HANDLED IN ACCORDANCE WITH APPLICABLE REGULATIONS. THE CONTRACTOR SHALL DEVELOP AND IMPLEMENT APPROPRIATE HEALTH AND SAFETY MEASURES FOR ITS EMPLOYEES, SUBCONTRACTORS, AND SITE VISITORS, AND FOR THE PROTECTION OF THE ENVIRONMENT AND SURROUNDING COMMUNITY.
5. THE CONTRACTOR SHALL PREPARE A SITE SPECIFIC HEALTH AND SAFETY PLAN (HASP) IN ACCORDANCE WITH APPLICABLE OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS, THAT SHALL BE REVIEWED BY THE ENGINEER AND RG&E PRIOR TO THE START OF ANY ON-SITE WORK.
6. THE CONTRACTOR SHALL PROVIDE A LIST OF ALL CHEMICAL PRODUCTS AND A MSDS FOR ALL CHEMICAL PRODUCTS TO BE USED ON-SITE. THE LIST MUST BE APPROVED BY RG&E PRIOR TO BEING BROUGHT ON-SITE.
7. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL SAFETY PROGRAMS FOR THEIR EMPLOYEES, SUBCONTRACTORS, AND ANY OTHER PERSONS WHO MAY BE AFFECTED THEREBY.

DRAWING IS HALF-SIZE IF PLOTTED 11x17

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
B	DRAFT FINAL	06/25/18	JR	PR	SRB
A	DRAFT FOR AGENCY REVIEW	1/11/17	JR	EMS	SRB

DRAWN BY	JR	DATE	10/11/17
CHECKED BY	EMS	DATE	10/11/17
APPROVED BY	SRB	DATE	10/11/17
PROJECT MGR.	PLR	DATE	10/11/17

SEAL

PARSONS
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JOB 449605

WBS 03000

PROJECT TITLE

Rochester Gas and Electric
Former Pavilion MGP Facility
Remedial Work Plan
County of Genesee
Pavilion, New York

DRAWING TITLE

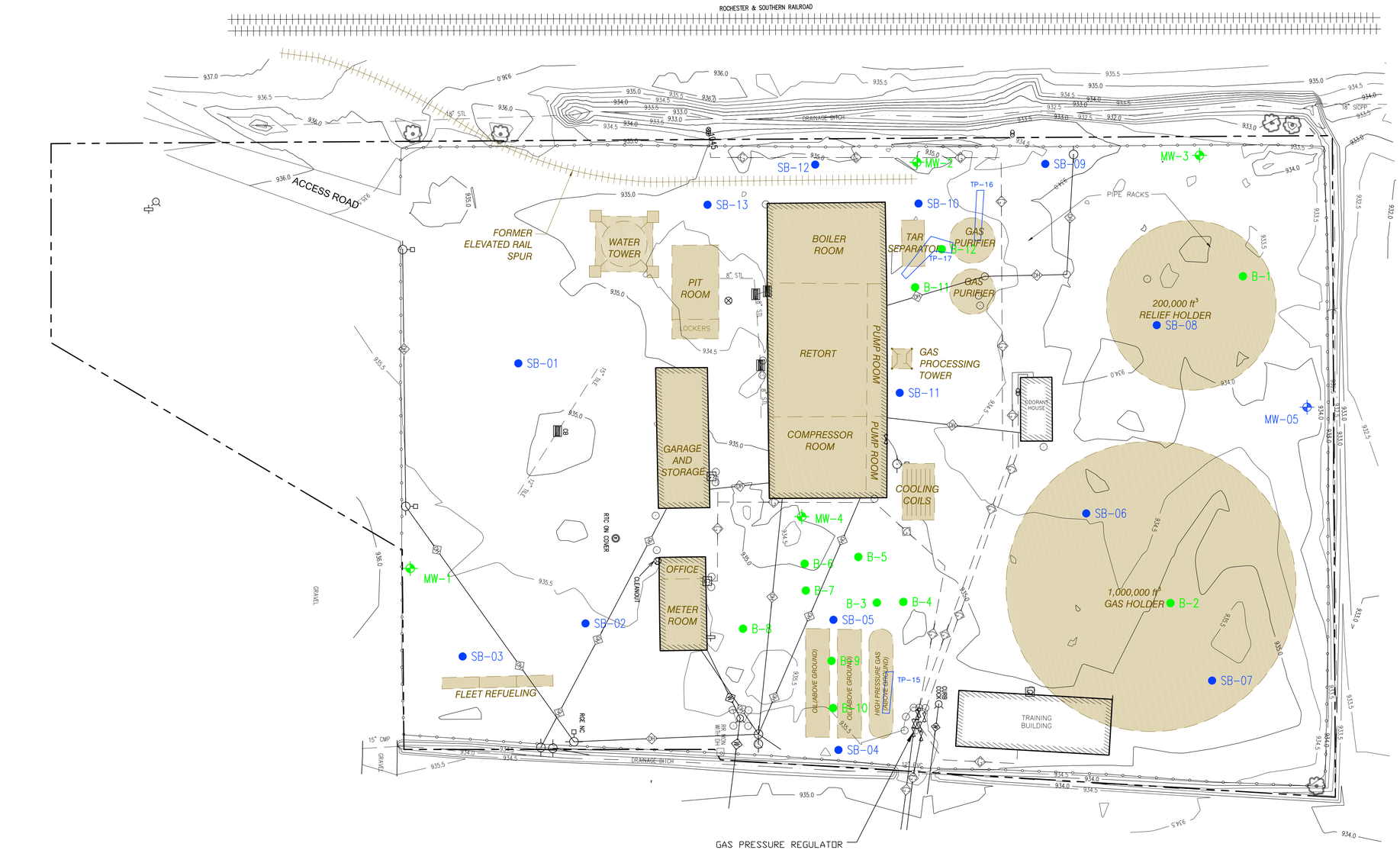
NOTES AND GENERAL LEGEND

SCALE NONE

DRAWING NO. G-002

REV. B

FILE NAME: P:\IBERDROLA\PAVILION\10 TECHNICAL\DESIGN\GENERAL\449605-G002.DWG
PLOT DATE: 6/25/2018 12:35 PM PLOTTED BY: RUSSO, JILL



LEGEND:

- MGP USE — HISTORIC FEATURES
- CURRENT USE — CURRENT ABOVEGRADE SITE FEATURES
- PROPERTY BOUNDARY
- EXISTING FENCELINE
- OVERHEAD ELECTRIC
- UNDERGROUND GAS
- UNDERGROUND WATER

NOTES:

1. UTILITIES ARE PRESENT ONSITE WHICH ARE NOT SHOWN. LOCATIONS OF SHOWN UTILITIES ARE APPROXIMATE AND SUBJECT TO VERIFICATION BY THE CONTRACTOR.
2. CONTRACTOR SHALL CONDUCT A PRE–EXCAVATION SURVEY TO MARK–OUT UNDERGROUND UTILITIES AND LIMITS OF EXCAVATION. IF UNDERGROUND UTILITIES ARE IDENTIFIED WITHIN THE LIMITS OF EXCAVATION, PROTECTION SHALL BE APPLIED PER THE RECOMMENDATION OF THE UTILITY OWNER.
3. CONTRACTOR SHALL PROVIDE SHIELDING OF OVERHEAD ELECTRICAL LINES AS NECESSARY TO PROVIDE SAFE WORKING CONDITIONS.
4. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES WHETHER SHOWN OR NOT. USE OF OPERATIONAL UTILITY LINES SHALL BE MAINTAINED AT ALL TIMES UNLESS SERVICE INTERRUPTIONS ARE EXPLICITLY ALLOWED BY THE SERVICE PROVIDER.
5. CONTRACTOR SHALL PROTECT ALL MAN–MADE FEATURES (E.G., DRAINAGE STRUCTURES, BOLLARDS, ETC.) DURING CONSTRUCTION. IF FEATURES ARE DAMAGED, THEY SHALL BE REPAIRED OR REPLACED AT NO COST TO RG&E.

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
B	DRAFT FINAL	06/25/18	JR	PR	SRB
A	DRAFT FOR AGENCY REVIEW	1/11/17	JR	PR	SRB

DRAWN BY	JR	DATE	10/11/16
CHECKED BY	EMS	DATE	10/11/16
APPROVED BY	SRB	DATE	10/11/16
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WBS 03000

PROJECT TITLE

Rochester Gas and Electric
Former Pavilion MGP Facility
Remedial Work Plan
County of Genesee
Pavilion, New York

DRAWING TITLE

EXISTING CONDITIONS, HISTORIC STRUCTURES, UTILITIES, AND INVESTIGATION LOCATIONS

SCALE AS SHOWN

DRAWING NO. C–001 REV. B

DRAWING IS HALF–SIZE IF PLOTTED 11x17

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SCALE: 1"=25'

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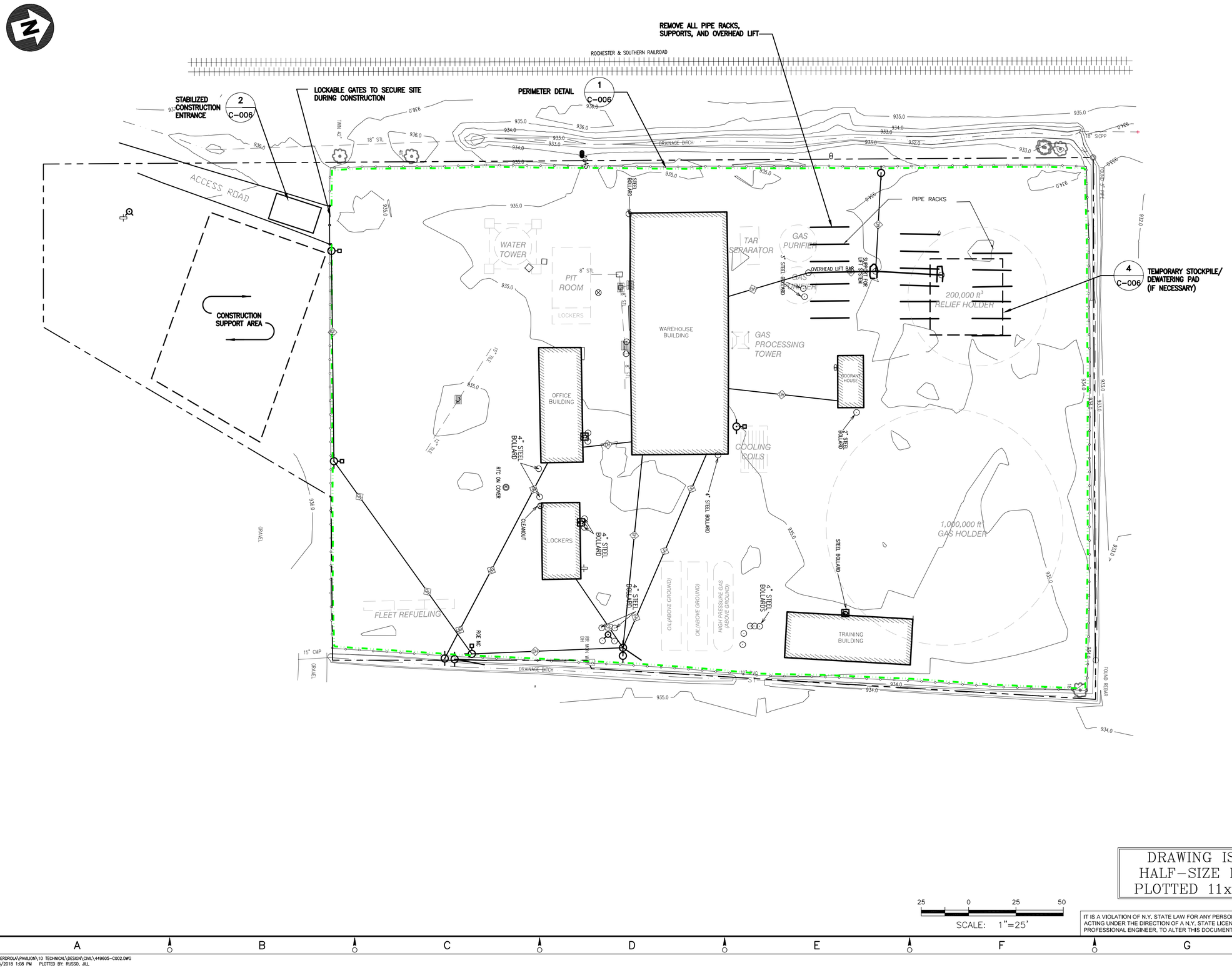

LEGEND:

- HISTORIC UNDERGROUND STRUCTURES SUSPECTED TO BE IN PLACE
- CURRENT SITE FEATURES (TO REMAIN)
- PROPERTY BOUNDARY
- EXISTING FENCELINE
- COIR LOGS

NOTES:

1. REMOVE ALL PIPE RACKS, SUPPORTS, AND THE OVERHEAD LIFT AND DISPOSE OFFSITE.
2. INSTALL COIR LOGS IMMEDIATELY INSIDE EXISTING SITE PERIMETER CHAIN LINK FENCE PER DETAIL 1 ON SHEET C-006 AND THE STORMWATER POLLUTION PREVENTION PLAN.
3. INSTALL STABILIZED CONSTRUCTION ENTRANCES ON THE ACCESS ROAD ADJACENT TO LOCKABLE SWING GATE AND ADJACENT TO THE ACCESS ROAD CONFLUENCE WITH ELLICOTT STREET PER STORMWATER POLLUTION PREVENTION PLAN.
4. CLEARING AND GRUBBING SHALL BE PERFORMED WITHIN THE SITE CHAIN LINK FENCE TO THE EXTENT NECESSARY TO PERFORM THE REMEDY. ALL REMOVED MATERIALS SHALL BE COLLECTED AND DISPOSED OF OFFSITE.
5. ALL CONSTRUCTION ACTIVITIES AND SUPPPORT FACILITIES SHALL OCCUR WITHIN THE RG&E PROPERTY BOUNDARY.
6. CONSTRUCTION SUPPORT AREA OUTSIDE FENCE AREA MAY CONTAIN JOB TRAILER AND CONEX BOXES; USE ONLY ITEMS THAT CAN BE LOCKED SINCE IT WILL BE OUTSIDE THE FENCED AREA.
7. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING AND CONTROLLING SEDIMENTATION INTO EXISTING STORMWATER CONTROL FEATURES. EXISTING STORMWATER FEATURES SHALL HAVE PERIMETERS WRAPPED WITH COIR LOGS.

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
B	DRAFT FINAL	06/25/18	JR	PR	SRB
A	DRAFT FOR AGENCY REVIEW	1/11/17	JR	PR	SRB

DRAWN BY	JR	DATE	10/11/16
CHECKED BY	EMS	DATE	10/11/16
APPROVED BY	SRB	DATE	10/11/16
PROJECT MGR.	PLR	DATE	10/11/16

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WBS

PROJECT TITLE

Rochester Gas and Electric
Former Pavilion MGP Facility
Remedial Work Plan
County of Genesee
Pavilion, New York

DRAWING TITLE

SITE PREPARATION AND DEMOLITION

SCALE: AS SHOWN

DRAWING NO. C-002

REV. B

DRAWING IS HALF-SIZE IF PLOTTED 11x17

25 0 25 50

SCALE: 1"=25'

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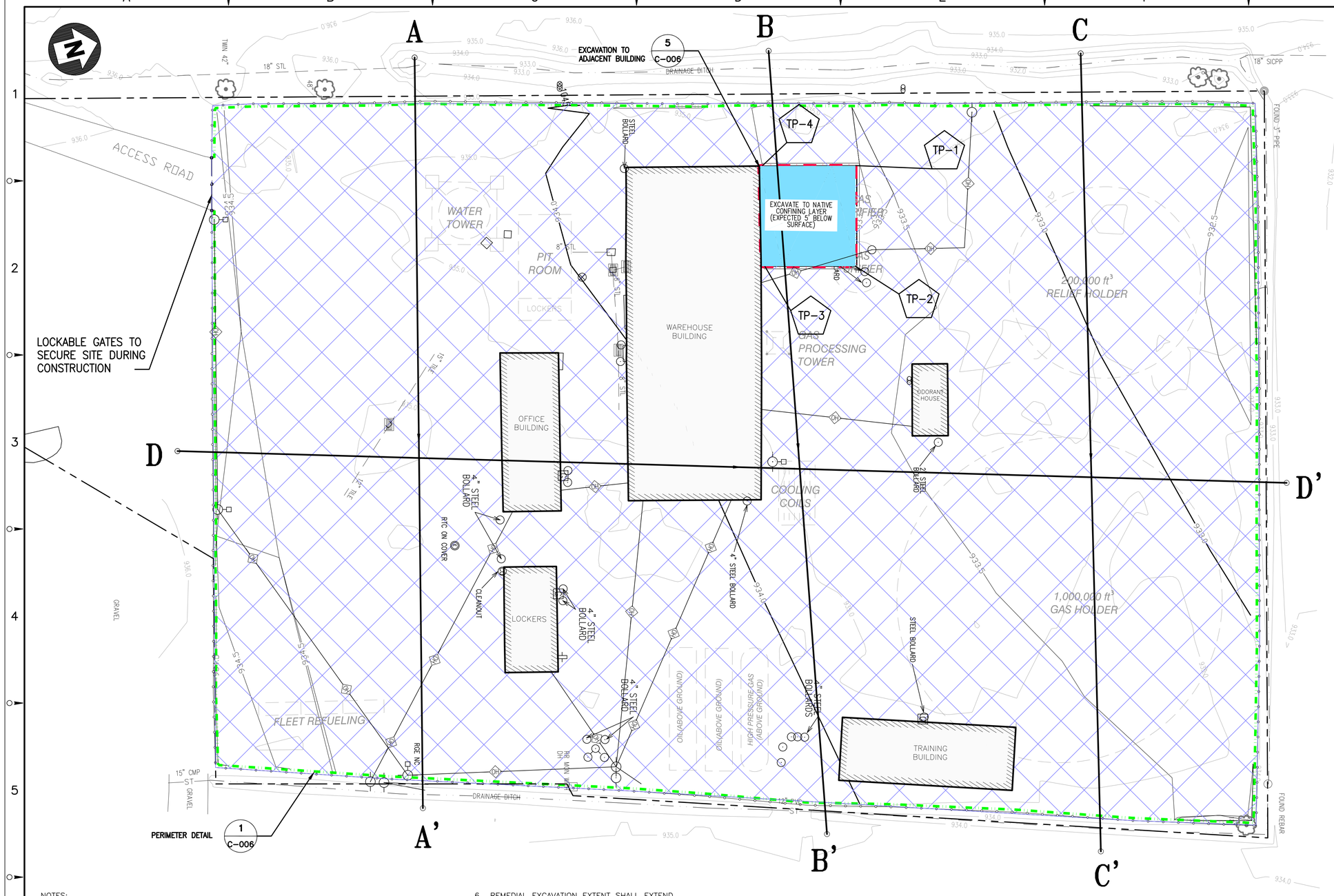

NOTES:

1. IF ENTACT CONCRETE SLABS OR FOOTINGS (E.G., GAS HOLDER BOTTOM) ARE ENCOUNTERED DURING SUBGRADE EXCAVATION, VERTICAL EXCAVATION SHALL STOP. BACKFILL THICKNESS SHALL BE ADJUSTED TO MEET FINISHED GRADE.
2. EXISTING UTILITIES, EXISTING FENCE, INCLUDING BOLLARDS PROTECTING UTILITIES, SHALL BE PROTECTED.
3. EXISTING BUILDINGS SHALL BE PROTECTED AND LEFT IN PLACE.
4. BASED ON THE GRANULAR FILL OBSERVED IN THE LOCATION OF THE REMEDIAL EXCAVATION IT IS ASSUMED EXCAVATION SIDE SLOPES OF 1.5H:1.0V WILL SUPPORT EXCAVATION. IF CONDITIONS OBSERVED IN THE FIELD DIFFER THE CONTRACTOR WILL CONSULT WITH THE ENGINEER FOR APPROVAL. CONTRACTOR WILL BE REQUIRED TO MEET LOCAL, STATE, AND FEDERAL EXCAVATION REQUIREMENTS.
5. SOILS REMOVED FROM THE REMEDIAL EXCAVATION AND SUBGRADE EXCAVATION SHALL BE STOCKPILED AND MANAGED SEPARATELY.
6. REMEDIAL EXCAVATION EXTENT SHALL EXTEND VERTICALLY THROUGH THE GRANULAR FILL TO A NATIVE CONFINING LAYER (I.E., SILTY CLAY) LATERAL EXTENT SHALL EXTEND TO THE BOUNDARY SHOWN ON THIS DRAWING. IF VISUAL NAPL ARE OBSERVED, EXCAVATION SHALL EXTEND TO REMOVE THIS MATERIAL. LATERAL EXCAVATION EXTENT SHALL NOT EXTEND BEYOND THE EXCAVATION EXTENT SHOWN ADJACENT TO THE BUILDING. ALL REMEDIAL EXCAVATION EXTENTS REQUIRE ENGINEERS APPROVAL PRIOR TO BACKFILL.
7. MAINTAIN ACCESS TO EXISTING BUILDINGS TO THE EXTENT FEASIBLE. CONTRACTOR SHALL COORDINATE WITH THE RG&E SITE REPRESENTATIVE.

LEGEND:

- HISTORIC UNDERGROUND STRUCTURES SUSPECTED IN PLACE
- CURRENT USE — CURRENT SITE FEATURES (TO REMAIN)
- PROPERTY BOUNDARY
- EXISTING FENCELINE
- COIR LOGS
- PROPOSED SUBGRADE EXCAVATION CONTOUR
- REMEDIAL EXCAVATION AREA APPROX 5' DEEP
- SUBGRADE EXCAVATION AREA APPROX 1' DEEP

REMEDIAL EXCAVATION TURNING POINTS		
	EASTING	NORTHING
TP-1	1298046.53'	1050137.81'
TP-2	1298084.06'	1050129.02'
TP-3	1298076.34'	1050095.25'
TP-4	1298038.45'	1050103.10'

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
B	DRAFT FINAL	06/25/18	JR	PR	SRB
A	DRAFT FOR AGENCY REVIEW	1/11/17	JR	PR	SRB

DRAWN BY	JR	DATE 10/11/16
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APPROVED BY	SRB	DATE 10/11/16
PROJECT MGR.	PLR	DATE 10/11/16

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WBS 03000

PROJECT TITLE

Rochester Gas and Electric
Former Pavilion MGP Facility
Remedial Work Plan
County of Genesee
Pavilion, New York

DRAWING TITLE

EXCAVATION AND SUBGRADE PLAN

SCALE: AS SHOWN

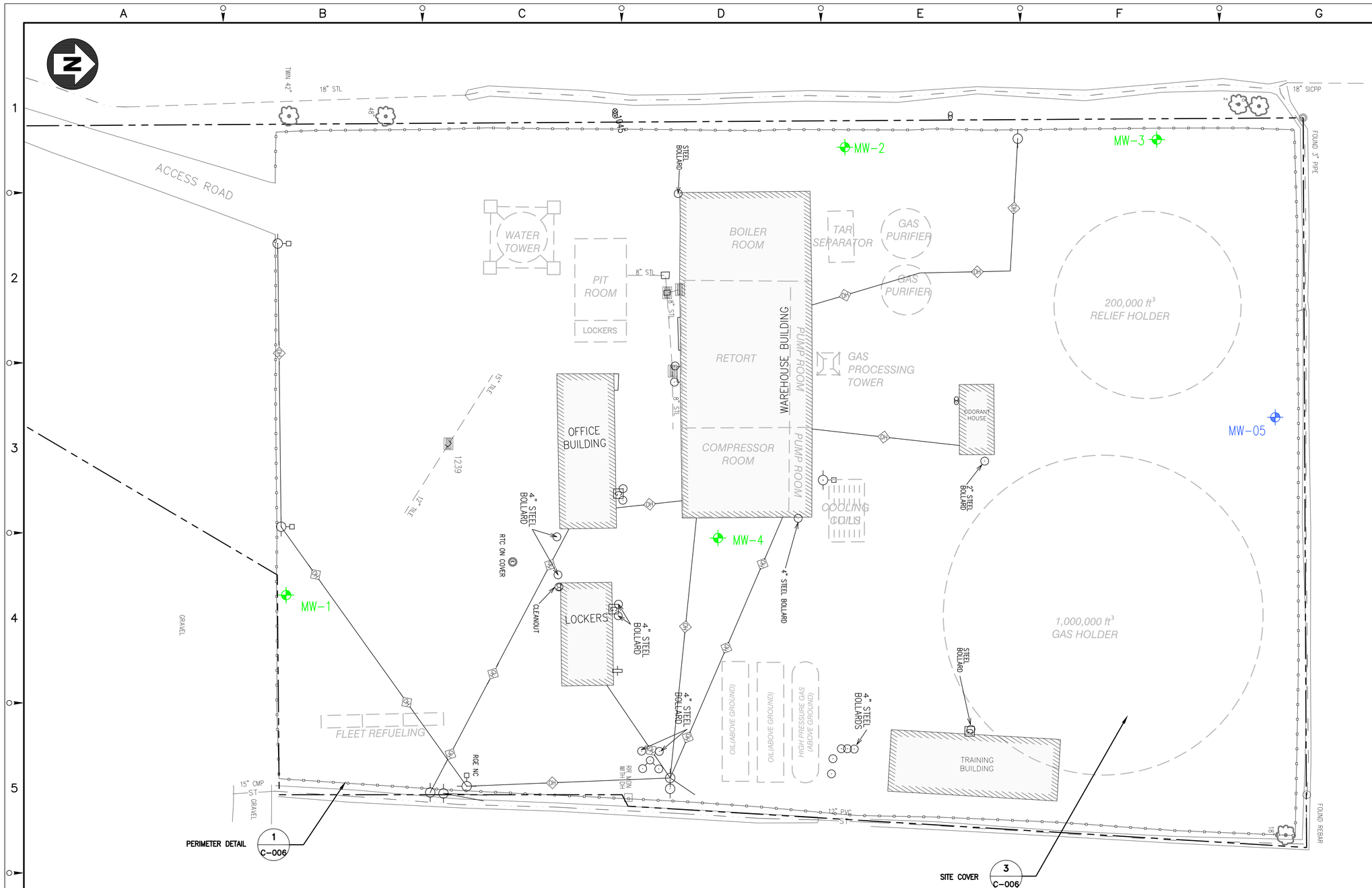
DRAWING NO. C-003

REV. B

DRAWING IS HALF-SIZE IF PLOTTED 11x17

SCALE: 1"=20'

FILE NAME: P:\IBERDROLA\PAVILION\10 TECHNICAL\DESIGN\CIVIL\449605-C003.DWG
PLOT DATE: 6/25/2018 1:11 PM PLOTTED BY: RUSSO, JILL



LEGEND:

- HISTORIC UNDERGROUND STRUCTURES SUSPECTED IN PLACE
- FINISH GRADE CONTOUR
- EXISTING FENCELINE

NOTES:

1. PRIOR TO PLACING SITE COVER, SUBGRADE SHALL BE PROOF ROLLED WITH 3 PASSES OF AT LEAST 10 TON VIBRATING ROLLER. SOFT SPOTS OBSERVED DURING PROOF ROLLING WILL BE REMOVED AND REPLACED WITH 2–INCH MINUS CRUSHED STONE AT THE DISCRETION OF THE ENGINEER.
2. REMEDIAL EXCAVATION AND SUBGRADE EXCAVATION SHALL BE BROUGHT TO FINISHED GRADE WITH COMPACTED NYSDOT APPROVED 2–INCH MINUS CRUSHED STONE.
3. CRUSHED STONE SHALL BE PLACED IN MAXIMUM LIFTS OF 12–INCHES, AND COMPACTED TO ≥ 90% OR MODIFIED PROCTOR (ASTM D1557). COMPACTION SHALL BE MEASURED ON 100 FT BY 100 FT GRID, RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
4. GRADING DETAILS AROUND EXISTING SITE FEATURES (E.G., BUILDING ENTRANCE, STORM DRAINS, ETC.) SHALL BE FIELD FIT AS REQUIRED.
5. AASHTO M288, CLASS 2 SEPARATION WOVEN GEOTEXTILE DEMARCATION LAYER PLACED 1–FOOT BELOW THE FINISHED GRADE, SHALL BE OVER LAPPED ON THE EDGE BY A MINIMUM OF 1–FOOT.

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
B	DRAFT REVIEW	06/25/18	JR	PR	SRB
A	DRAFT FOR AGENCY REVIEW	1/11/17	JR	PR	SRB

DRAWN BY	JR	DATE	10/11/16
CHECKED BY	EMS	DATE	10/11/16
APPROVED BY	SRB	DATE	10/11/16
PROJECT MGR.	PLR	DATE	10/11/16

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WBS 03000

PROJECT TITLE

Rochester Gas and Electric
Former Pavilion MGP Facility
Remedial Work Plan
County of Genesee
Pavilion, New York

DRAWING TITLE

SITE COVER AND RESTORATION

SCALE AS SHOWN

DRAWING NO. C–004

REV. B

DRAWING IS HALF–SIZE IF PLOTTED 11x17

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SCALE: 1"=20'

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PLOT DATE: 6/25/2018 1:18 PM PLOTTED BY: RUSSO, JILL

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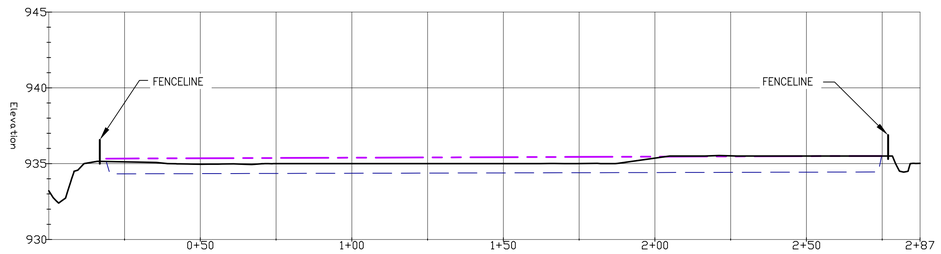
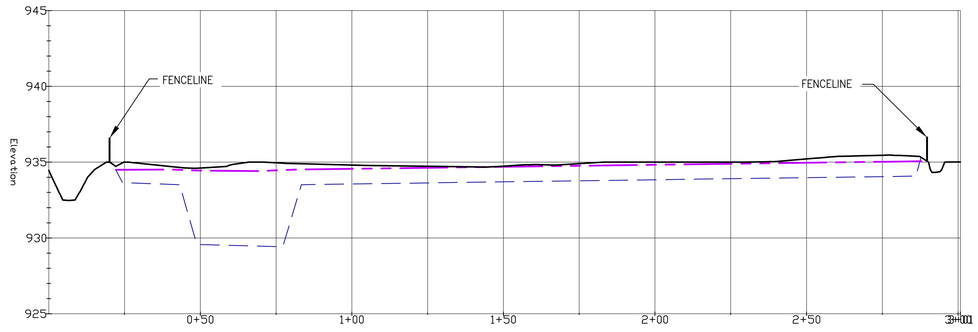


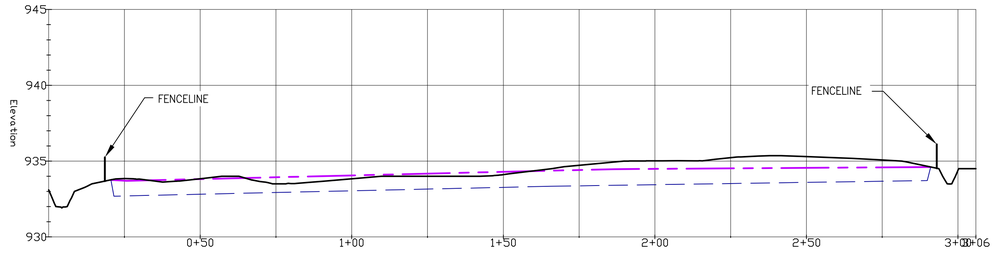
A'

B



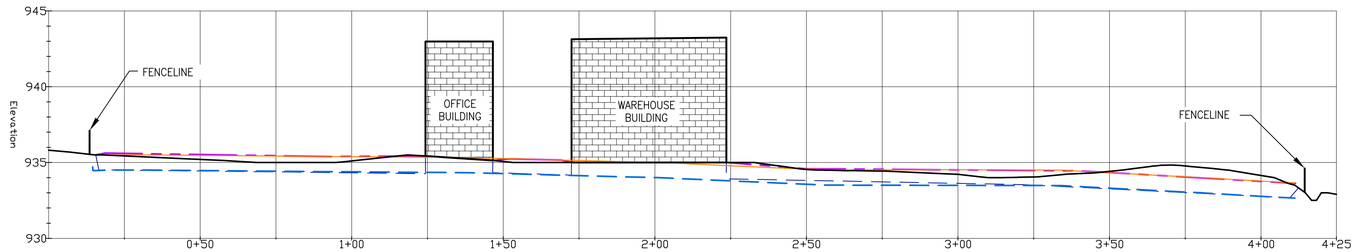
B'

C



C'

D



D'

LEGEND:
- EXISTING GRADE
- EXCAVATION GRADE
- FINISHED GRADE

5 2.5 0 5 10
SCALE: 1"=5' VERTICAL

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

DRAWING IS HALF-SIZE IF PLOTTED 11x17

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
B	FINAL DRAFT	06/25/18	JR	PR	SRB
A	DRAFT FOR AGENCY REVIEW	1/11/17	JR	PR	SRB

DRAWN BY	JR	DATE	10/11/16
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PROJECT MGR.	PLR	DATE	10/11/16

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WBS 03000

PROJECT TITLE

Rochester Gas and Electric
Former Pavilion MGP Facility
Remedial Work Plan
County of Genesee
Pavilion, New York

DRAWING TITLE

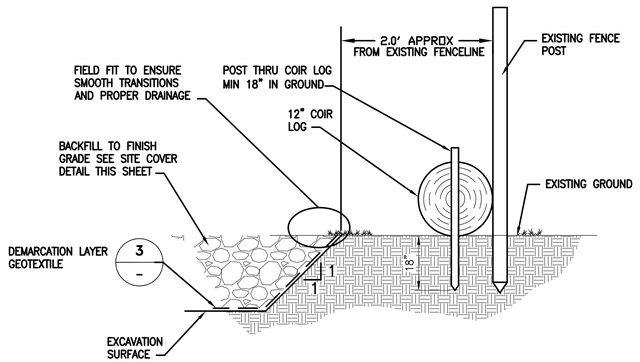
CROSS SECTIONS

SCALE NONE

DRAWING NO. C-005

REV. B

FILE NAME: P:\IBERDROLA\PAVILION\10 TECHNICAL\DESIGN\CIVIL\449605-C004-C005.DWG
PLOT DATE: 6/25/2018 1:20 PM PLOTTED BY: RUSSO, JILL

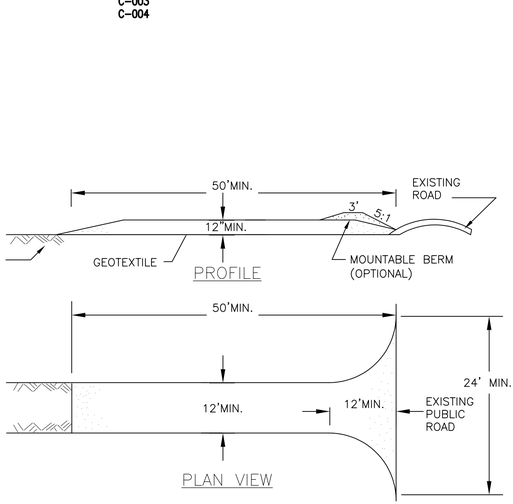


NOTES:

1. SEE STORMWATER POLLUTION PREVENTION PLAN FOR PRODUCT DETAILS.
2. INSTALL POSTS EVERY FIVE FEET.
3. END OF ADJACENT COIR LOGS SHALL BE BUTTED OR OVERLAPPED AND IN DIRECT CONTACT WITH EACH OTHER. STAKE IN PLACE TO AVOID GAPS BETWEEN LOGS.

1 PERIMETER DETAIL

C-002, C-003, C-004 — NOT TO SCALE

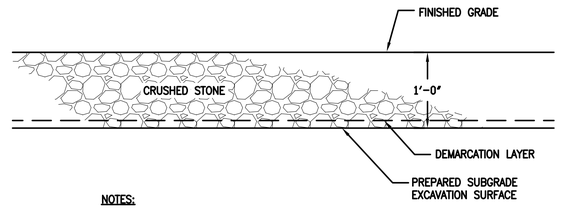


NOTES:

1. STABILIZED CONSTRUCTION ENTRANCE WILL BE INSTALLED AT THE LOCATION SHOWN ON C-002.
2. SEPARATION GEOTEXTILE (SEE NOTE 2, DETAIL 3 THIS SHEET) SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO GRAVEL PLACEMENT.
3. A MINIMUM 12 IN. OF NYSDOT CLEAN CRUSHED STONE 703.0201 SIZE 4 OR 4A SHALL BE PLACED TO THE DIMENSIONS INDICATED.
4. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC STREETS.
5. PERIODIC TOP-DRESSING WITH ADDITIONAL STONE MAY BE REQUIRED.
6. INSPECTION SHALL BE UNDERTAKEN FOLLOWING RAIN.

2 STABILIZED CONSTRUCTION ENTRANCE

C-002 — NOT TO SCALE

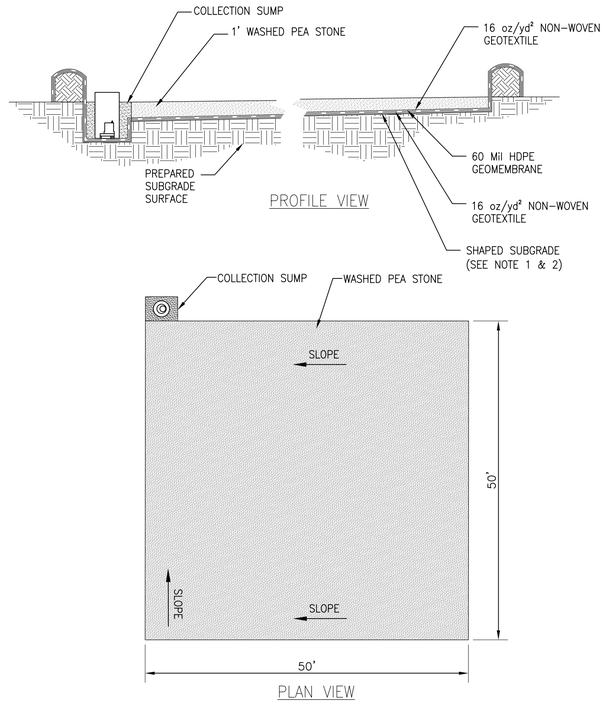


NOTES:

1. CRUSHED STONE SHALL BE NYSDOT CRUSHED STONE SUBBASE COURSE TYPE 2 (ITEM 733.0402)
2. DEMARCATIN LAYER GEOTEXTILE SHALL BE AASHTO M288 CLASS 2 WOVEN SEPARATION GEOTEXTILE.
3. SEE CONSTRUCTION QUALITY ASSURANCE PLAN FOR ADDITIONAL DETAILS AND COMPACTION REQUIREMENTS.

3 SITE COVER DETAIL

C-004 — NOT TO SCALE

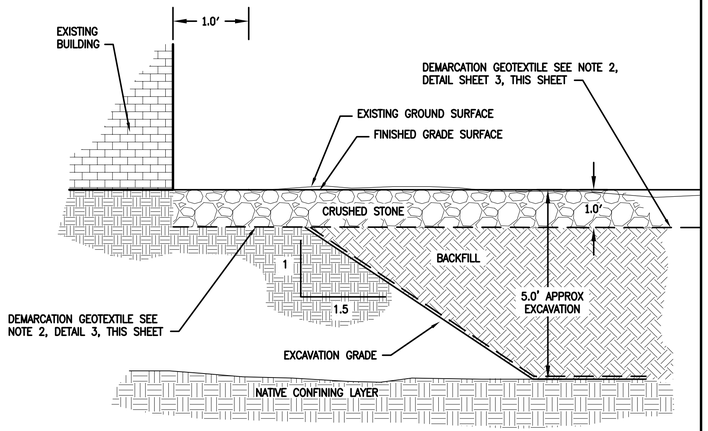


STOCKPILE/DEWATERING PAD NOTES:

1. SUBGRADE SHALL BE SHAPED TO ALLOW FOR 2 FT BERMS AROUND THE PERIMETER OF THE PAD AND TO ALLOW DRAINAGE TO THE SUMP.
2. SUBGRADE SHALL BE INSPECTED AND PROOF ROLLED, TO PROTECT THE LINER.
3. COLLECTION SUMP DESIGN WILL BE THE RESPONSIBILITY OF THE REMEDIAL CONTRACTOR, AND PRESENTED IN THE PROJECT EXECUTION PLAN.
4. ALL WATER COMING IN CONTACT WITH REMEDIAL EXCAVATION MATERIAL WILL REQUIRE COLLECTION AND ANALYSIS.
5. MAINTAIN THE STOCKPILE/DEWATERING PAD DURING CONSTRUCTION. COVER PAD SURFACE WITH POLY SHEETING WHEN NOT IN USE TO PREVENT CONTACT WITH RAINFALL. FOLLOWING COMPLETION OF REMEDIAL EXCAVATION AND OFF-SITE DISPOSAL, REMOVE THE STOCKPILE/DEWATERING PAD COMPONENTS AND RESTORE AS PER SITE RESTORATION DETAILS.

4 TEMPORARY STOCKPILE/DEWATERING PAD (IF NECESSARY)

C-002 — NOT TO SCALE



NOTES:

1. TO MAINTAIN INTEGRITY OF THE WAREHOUSE BUILDING, EXCAVATION WILL BE OFFSET 1' AND A MAXIMUM SLOPE OF 1V:1.5H WILL BE ALLOWED. EXCAVATION WILL NOT EXTEND TOWARD BUILDING EVEN IF VISUAL IMPACTS ARE NOTED. IF VISUAL IMPACTS ARE LEFT IN PLACE, A RECORD SAMPLE WILL BE COLLECTED IN ACCORDANCE WITH CONSTRUCTION QUALITY ASSURANCE PLAN.
2. DO NOT DAMAGE OR UNDERMINE BUILDING FOOTERS IF ENCOUNTERED.
3. PLACE DEMARCATION LAYER ON EXCAVATION BOTTOM AND SIDEWALLS PRIOR TO BACKFILL INSTALLATION.
4. BACKFILL PLACED GREATER THAN 1 FOOT BELOW FINISHED GRADE MAY CONSIST OF COMPACTED ONSITE REUSE MATERIAL OR CLEAN IMPORTED FILL.

5 EXCAVATION ADJACENT TO WAREHOUSE BUILDING

C-003 — NOT TO SCALE

DRAWING IS HALF-SIZE IF PLOTTED 11x17

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
B	DRAFT FINAL	06/25/18	JR	PR	SRB
A	DRAFT FOR AGENCY REVIEW	1/11/17	JR	PR	SRB

DRAWN BY	JR	DATE	10/11/16
CHECKED BY	EMS	DATE	10/11/16
APPROVED BY	SRB	DATE	10/11/16
PROJECT MGR.	PLR	DATE	10/11/16

SEAL

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

JOB 449605
WBS 03000

PROJECT TITLE
Rochester Gas and Electric
Former Pavilion MGP Facility
Remedial Work Plan
County of Genesee
Pavilion, New York

DRAWING TITLE
DETAILS

SCALE
NONE

DRAWING NO. C-006
REV. B

FILE NAME: P:\BERGROLA\PAVILION\10 TECHNICAL\DESIGN\CIVIL\449605-C006.DWG
PLOT DATE: 6/25/2018 1:22 PM PLOTTED BY: RUSSO, JILL

APPENDIX D

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

APPENDIX D

STORM WATER POLLUTION PREVENTION PLAN FOR THE FORMER MANUFACTURED GAS PLANT PROPERTY #1252

PAVILION, NEW YORK

Prepared For:

RG&E

ROCHESTER GAS AND ELECTRIC CORPORATION

Prepared By:

PARSONS

301 Plainfield Road, Suite 350, Syracuse, New York 13212

June 2018

CERTIFICATION

"I, _____ certify that I am currently a New York State Professional Engineer and that this Stormwater Pollution Prevention Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the SPDES General Permit for Stormwater Discharges from Construction Activity GP-0-10-001."

PARSONS

_____ _____

Type/Printed Name Signature

_____

Date

_____

NYS PE# Seal and Exp. Date

It is a violation of Education Law Article 145, Professional Engineering and Land Surveying, Section 7209, for any person, unless he is acting under the direction of a licensed professional engineer or land surveyor, to alter this item in anyway. If an item bearing the seal of a professional engineer or land surveyor is altered, the altering engineer or land surveyor shall affix to this item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

SECTION 1

INTRODUCTION

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Storm Water Discharges from Construction Activities that are classified as "Associated with Industrial Activity" (Permit #GP-0-10-001, Construction Stormwater General Permit) ("General Permit"). This SWPPP focuses on the protective measure that will be taken during active construction. Pre and post construction conditions are not analyzed in detail because the site is essentially being restored to the same condition. The main difference between the pre and post condition is approximately one third of the site is covered by weathered asphalt and this will be restored as a gravel surface; this will increase infiltration into the soil and decrease site run-off providing a better restored condition.

Construction Stormwater Notice of Intent has been completed and attached as Appendix 1.

1.1 BACKGROUND

The Pavilion Former Manufactured Gas Plant (MGP) (Property No. 1252) Site (the Site) is located at 6903 Ellicott Street Road in the Town of Pavilion, Genesee County, New York (Figure 1). Based on the review of available historical information, prior to RG&E ownership, the Site was operated by the Pavilion Natural Gas Company as a MGP from 1927 to 1937. Site structures included a single main MGP building (currently the warehouse building) housing the water gas sets, the boiler room and the pump/compressor rooms. Other former MGP structures and equipment included a tar separator, two gas purifier tanks, three cooling coils, a 200,000 and a 1,000,000 ft^3 gas holder, a compression tank, two above ground oil storage tanks, four water gas sets, a meter house, a rail spur, a water tower and a small building identified as a pit room directly south of the main MGP building. The approximate locations of former MGP structures are illustrated on Appendix C, Drawing C-001. Aside from the buildings and the tar separator, MGP processes were decommissioned and removed from the Site. The tar separator is a below-ground, concrete structure (poured concrete construction) that remains on the north side of the main MGP building (Drawing C-001 of Appendix C of the RWP). A surface watercourse traversing the Site was also shown on historic drawing C-001.

According to historical accounts, the former MGP operations at the Site used a mixture of coke, oil, and steam to produce gas, which is consistent with a carbureted water gas (CWG) manufacturing process. The source of water to the Site is believed to be surface water pumped from nearby Oatka Creek (west of Site) through a pipeline and stored in the on-Site water tower. MGP residual disposal practices for the Site are not documented.

After MGP Site closure in the late 1930s, the MGP processes, including above ground piping and structures for the gasholders, gas purifier tanks, and water tank, were decommissioned and

removed from the Site in the 1960s. In the late 1970s to early 1980s, three approximately 500-gallon above ground storage tanks for vehicular fueling were added to the southeast portion of the Site. These tanks are no longer present on the property.

.The Pavilion Site consists of a generally flat surface topography with a gentle slope (approximately 2 feet across the Site) toward the northwest (Refer to Drawing C-001). Off-site to the west of the site, an existing drainage ditch conveys water away from the Site (Drawing C-001), feature will be changed. The surface cover material at the Site is made up of primarily weathered asphalt and/or crushed stone.

The project consists of:

- Excavation and disposal of soils as detailed in Appendix C of the RWP Drawing C-003
- Installation of 2 – inch minus crushed stone over excavation areas as detailed in Appendix C of the RWP, Drawing C-004

The proposed remediation project at the Pavilion Former Manufactured Gas Plant will require the disturbance of approximately 3 acres of land. Since the area of proposed disturbance exceeds one acre in area, the Site remediation project meets the requirements under the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Storm Water Discharges from Construction Activities Permit #GP-0-10-001, Construction Storm Water General Permit) ("General Permit").

This SWPPP addresses issues such as erosion prevention, sedimentation control, physical site characteristics that impact design, and site management planning.

1.2 SOILS PRESENT ON SITE

Test pits and soil borings completed by Geomatrix during the PSA and Parsons during the RI indicate that the Site is generally underlain by a layer of fill material with a thickness of 2 to 3 feet. The fill material generally consists of gravel, sand, coal fragments, wood, ash and brick fragments. As observed in the soil borings completed to a maximum depth of 24 feet during the RI, native soils below fill primarily consist of silt and clay with poorly graded sand and some gravel.

Hydrologic Soil Group (HSG) as specified by the United States Department of Agriculture (USDA) for is site are RoA (Rhinebeck silt loam) and PsA (Phelps gravel loam).

1.3 CONSTRUCTION PHASING PLAN AND SEQUENCE OF OPERATIONS

The remedial construction activities are being performed pursuant to a New York State Department of Environmental Conservation (NYSDEC) selected remedy, and are anticipated to include, at a minimum, the following;

1. Mobilization
2. Site preparation
3. Installation of sediment and erosion controls

- remedial excavation of 250 cy
- subgrade excavation of 3,800 cy

5. Offsite disposal of impacted materials
6. Water handling and off-site treatment
7. Backfill installation/Restoration
8. Demobilization

Additional information regarding each of these activities in provided in the Remedial Work Plan.

SECTION 2

EROSION CONTROL MEASURES

This section discusses the components of the erosion and sediment controls to be utilized as part of remedial construction activities. Temporary erosion and sediment controls will be installed before initiating any ground intrusive activities, and additional erosion and sediment controls will be installed during construction (as needed) to achieve the storm water management objectives of this SWPPP.

2.1 PLANNED EROSION AND SEDIMENTATION CONTROL PRACTICES

- Temporary construction entrance/tracking pad and improved access road: One temporary gravel construction entrance/tracking pad will be installed to keep public roads free of mud and dirt from the Site, all truck and equipment traffic will pass over stabilized construction entrance to assist in removing mud and soil from tires. Due to the layout of the access road leading to the Site, which is approximately 750 ft long, one stabilized construction entrance immediately adjacent to the site and existing the access road will be improved and maintained, as necessary. It will be the responsibility to the remedial contractor to ensure the stabilized construction entrance and access roads remain in good working condition to prevent off-site tracking of soil and mud, maintenance will be performed as necessary or at the direction of the engineer or RG&E. All trucks and equipment will be inspected and cleaned as necessary prior to leaving the Site. During wet weather it may be necessary to wash vehicle tires at these locations or at the decontamination station, see Appendix C, Drawing C-006 Stabilized Construction Entrance Detail.
- Offsite run-on protection: currently there is a ditch around the perimeter of the site that diverts any run-on around the site, this feature will not be disturbed.
- Temporary inlet protection: Coir logs will be installed at existing inlet/catch basins. Inlet protection will be installed as per detail in Appendix 2.
- Sediment barrier: construct a coir log barrier around the site as shown on detail in Appendix 2. Place coir logs in a row with ends tightly abutting the adjacent logs or lapped. Remove logs properly dispose and replace when they have been damaged or decomposed. Remove accumulated silt and dispose when it has built up to a depth of one half the log height.
- Stabilization: contractor shall promptly place demarcation layer and backfill following excavations. Backfill excavated areas within fifteen (15) days.
- Any other erosion and sedimentation features utilized and not described herein shall be constructed and maintained per the NYSDEC guidance presented in the New York State Standards and Specifications for Erosion and Sediment Control (Bluebook).

2.2 MAINTENANCE PLAN

The inspections will be carried out by a field engineer (to be determined) who is required to have 4 hours of NYSDEC endorsed training and is under the direct supervision of the certifying engineer who is a New York State Professional Engineer.

Check all erosion and sediment control practices for stability and operation no less than once every week while work is being conducted and after any rainfall greater than ¼ inch. The remedial contractor will make any needed repairs immediately to maintain all practices as designed and installed for their appropriate phase of the project.

Remove sediment from the inlet protection device when storage capacity has been approximately 50% filled, or as directed by Rochester Gas and Electric Corporation or the Engineer.

Remove sediment from coir log barrier when up to a depth of one half the log height, repair the logs as necessary to maintain a barrier in operational condition, or as directed by Rochester Gas and Electric Corporation or the Engineer.

Temporary gravel construction entrance/tracking pad: maintain the entrance in a condition which will prevent tracking or flowing of sediment onto public right-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. Immediately remove all sediment spilled, dropped, washed or tracked onto public right-of-way. Clean vehicle wheels to remove sediment prior to entrance onto public right-of-way. When washing is required, perform on an approved sediment trapping device. Provide inspection and needed maintenance after each rain.

Inspections will be undertaken and recorded on the Construction Stormwater Compliance Inspection Report attached in Appendix 3 and within one business day of the completion of an inspection, the qualified inspector shall notify the owner or engineer and appropriate contractor or subcontractor of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The qualified inspector shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

The owner or engineer shall retain a copy of the, SWPPP, and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the site achieves final stabilization. This period may be extended by the NYSDEC, in its sole discretion, at any time upon written notification.

SECTION 3

POLLUTION PREVENTION MEASURES

3.1 DUST CONTROL PLAN

Dust control will be achieved by a variety of measures. The first and most important control will be good housekeeping. Careful construction planning and Site set-up will reduce dust generation.

Outlined in the table below is a list of potential sources that could generate dust during construction, a list of potential causes, and associated control/mitigation measures. Other control and mitigation measures may be identified during construction and submitted to the engineer for approval.

Potential Sources of Dust Emission	**Potential Causes of Dust**	**Control Measures**
Paved Areas	• Suspension (by traffic movement or wind) • Traffic movement on-Site	• Apply water • Reduce traffic speed • Clean (wet sweeper or other measures)
Unpaved Areas	• Suspension (by traffic movement or wind) • Traffic movement on-Site	• Apply water • Reduce traffic speed • Re-grade or top dress with new clean material
Material Stockpiles	• Low material moisture content • Disturbing the storage stockpile • Wind erosion of the storage stockpile	• Modify size of stockpile (reduce overall height) • Apply water to stockpile • Cover stockpile (plastic sheeting, less dust generating material, spray foam)
Excavation Location	• Wind erosion of material being moved • Wind erosion of open excavation area	• Modify workflow to reduce dust generation • Limit durations excavation is left open • Apply water to excavation • Reduce speeds of excavation • Cover excavation when not active
Loading/Unloading Material	• Unloading of material from trucks • Loading of material to trucks • Wind erosion	• Apply water • Use material with lesser fine contents • Reduce speed of activities

3.2 POLLUTION PREVENTION PLAN

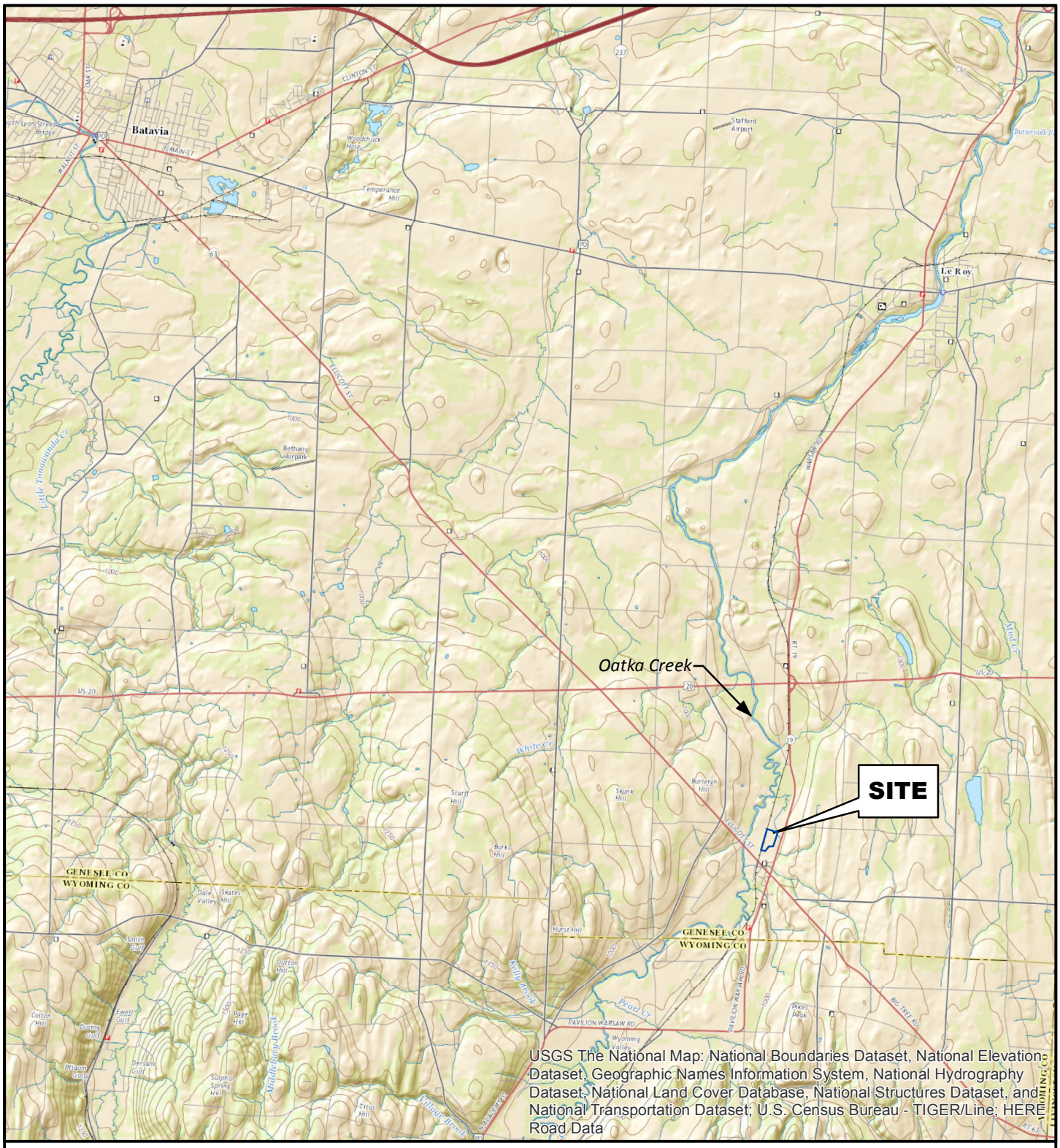
During construction there is the possibility of spills of fuel and other materials. To mitigate any impacts, a Pollution Prevention Plan will be provided by the Contractor, for review by the owner and the engineer. The plan will address measures that will be used to control liter, construction chemicals and construction debris from becoming a pollutant source in the stormwater discharges.

SECTION 4

IMPLEMENTATION OF THE SWPPP

Before construction actives commence, the contractor and sub-contractors with responsibilities for implantation of the SWPPP will review and sign the SWPPP Trained Contractor Certification, Appendix 4. The contractors and sub-contractors will be responsible for the implementation of the SWPPP have not been selected.

If any of the sub-contractors are required to take part in the implementation of SWPPP, a trained contractor will be selected, the SWPPP will be reviewed and the SWPPP Trained Contractor Certification signed.



0 1 2 4 Miles

New York Quadrangle

Source: Map created with USA Topo Maps basemap from ARCGIS.

N

FIGURE 1

RG&E Pavilion RAWP
Pavilion Former MGP
Pavilion, New York

SITE LOCATION MAP

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

Document Path: Q:\GIS\Projects\Iberdrola\Pavilion\Pavilion_SLM-1.mxd

APPENDIX 1

CONSTRUCTION STORMWATER NOTICE OF INTENT FORM

0644089821

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____
(for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-15-002

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-
RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
R G & E

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
K i e p p e r

Owner/Operator Contact Person First Name
C h r i s t o p h e r

Owner/Operator Mailing Address
1 3 0 0 S c o t t s v i l l e R o a d

City
R o c h e s t e r

State
N Y

Zip
1 4 6 2 4 -

Phone (Owner/Operator)
5 8 5 7 7 1 4 5 0 6 0

Fax (Owner/Operator)
5 8 5 7 7 1 4 9 3 3

Email (Owner/Operator)
Christopher_Keipper@rge.com

FED TAX ID
1 4 1 7 8 6 9 3 3 (not required for individuals)

Project Site Information

Project/Site Name
RGE - Pavilion

Street Address (NOT P.O. BOX)
6903 Ellicott Street

Side of Street
● **North** ○ **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Pavilion

State: NY
Zip: 14525-
County: Genesee
DEC Region: 8

Name of Nearest Cross Street
Ellicott Street RD

Distance to Nearest Cross Street (Feet)
1500

Project In Relation to Cross Street
● **North** ○ **South** ○ **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel
16-1-112

Tax Map Numbers
184000016-1-112

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting): 252895

Y Coordinates (Northing): 4775113322

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in impervious area**

● **Redevelopment with no increase in impervious area**

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use	Post-Development Future Land Use
○ FOREST	○ SINGLE FAMILY HOME
○ PASTURE/OPEN LAND	○ SINGLE FAMILY SUBDIVISION
○ CULTIVATED LAND	○ TOWN HOME RESIDENTIAL
○ SINGLE FAMILY HOME	○ MULTIFAMILY RESIDENTIAL
○ SINGLE FAMILY SUBDIVISION	○ INSTITUTIONAL/SCHOOL
○ TOWN HOME RESIDENTIAL	○ INDUSTRIAL
○ MULTIFAMILY RESIDENTIAL	● COMMERCIAL
○ INSTITUTIONAL/SCHOOL	○ MUNICIPAL
○ INDUSTRIAL	○ ROAD/HIGHWAY
● COMMERCIAL	○ RECREATIONAL/SPORTS FIELD
○ ROAD/HIGHWAY	○ BIKE PATH/TRAIL
○ RECREATIONAL/SPORTS FIELD	○ LINEAR UTILITY (water, sewer, gas, etc.)
○ BIKE PATH/TRAIL	○ PARKING LOT
○ LINEAR UTILITY	○ CLEARING/GRADING ONLY
○ PARKING LOT	○ DEMOLITION, NO REDEVELOPMENT
○ OTHER	○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
	○ OTHER

Number of Lots

***Note**: for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
3.13.1	2.92.9	.	2.92.9

5. Do you plan to disturb more than 5 acres of soil at any one time? ○ **Yes** ● **No**

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
0 %	0 %	0 %	0 %

7. Is this a phased project? ○ **Yes** ● **No**

8. Enter the planned start and end dates of the disturbance activities.

Start Date 06/01/2018 - **End Date** 09/30/2018

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

Oatka Creek

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ● Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-15-002? ○ **Yes** ● **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-15-002? ○ **Yes** ● **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ **Yes** ● **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ● **No**
If Yes, what is the acreage to be disturbed?

.

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ● **No**

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ○ Yes ○ No ● Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

Pavilion

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ Yes ○ No ● Unknown

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ Yes ● No

19. Is this property owned by a state authority, state agency, federal government or local government? ○ Yes ● No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ● Yes ○ No

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ● Yes ○ No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ○ Yes ● No
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ○ Yes ○ No

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer

Contact Name (Last, Space, First)

Mailing Address

City

State Zip -

Phone - -

Fax - -

Email

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-15-002. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name **MI**

Last Name

Signature

Date / /

25. Has a construction sequence schedule for the planned management practices been prepared? ○ Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ● Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ○ Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ○ Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ● Rock Outlet Protection
- ○ Streambank Protection

Other

Perimeter Coir Logs

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ○ **Preservation of Undisturbed Areas**
- ○ **Preservation of Buffers**
- ○ **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ○ All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

			.			
			.			**acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area(acres)
RR Techniques (Area Reduction)			
○ Conservation of Natural Areas (RR-1)	___.___	and/or	___.___
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)	___.___	and/or	___.___
○ Tree Planting/Tree Pit (RR-3)	___.___	and/or	___.___
○ Disconnection of Rooftop Runoff (RR-4)	___.___	and/or	___.___
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			___.___
○ Rain Garden (RR-6)			___.___
○ Stormwater Planter (RR-7)			___.___
○ Rain Barrel/Cistern (RR-8)			___.___
○ Porous Pavement (RR-9)			___.___
○ Green Roof (RR-10)			___.___
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			___.___
○ Infiltration Basin (I-2)			___.___
○ Dry Well (I-3)			___.___
○ Underground Infiltration System (I-4)			___.___
○ Bioretention (F-5)			___.___
○ Dry Swale (O-1)			___.___
Standard SMPs			
○ Micropool Extended Detention (P-1)			___.___
○ Wet Pond (P-2)			___.___
○ Wet Extended Detention (P-3)			___.___
○ Multiple Pond System (P-4)			___.___
○ Pocket Pond (P-5)			___.___
○ Surface Sand Filter (F-1)			___.___
○ Underground Sand Filter (F-2)			___.___
○ Perimeter Sand Filter (F-3)			___.___
○ Organic Filter (F-4)			___.___
○ Shallow Wetland (W-1)			___.___
○ Extended Detention Wetland (W-2)			___.___
○ Pond/Wetland System (W-3)			___.___
○ Pocket Wetland (W-4)			___.___
○ Wet Swale (O-2)			___.___

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area(acres)
○ **Hydrodynamic**	
○ **Wet Vault**	
○ **Media Filter**	
○ **Other**	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

. **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ○ **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

. **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

○ **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

☐☐☐.☐☐☐ **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). ☐☐☐.☐☐☐

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ○ **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

☐☐☐.☐☐☐ **acre-feet**

CPv Provided

☐☐☐.☐☐☐ **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development

☐☐☐.☐☐☐ **CFS**

Post-development

☐☐☐.☐☐☐ **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

☐☐☐.☐☐☐ **CFS**

Post-development

☐☐☐.☐☐☐ **CFS**

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ○ **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ● SPDES Multi-Sector GP NYR
- ○ Other
- ○ None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ○ **Yes** ● **No**
If Yes, Indicate Size of Impact. .

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ○ **Yes** ● **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ○ **Yes** ○ **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. NYR

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name **MI**

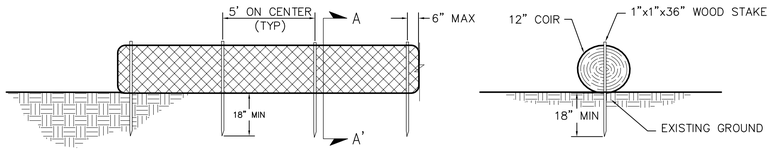
Print Last Name

Owner/Operator Signature

Date / /

APPENDIX 2

SWPPP DETAIL DRAWING



ELEVATION

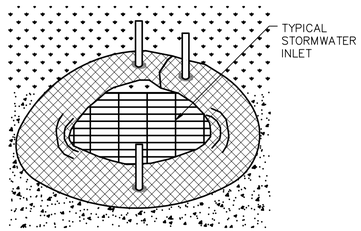
SECTION A–A'

COIR LOG NOTES:

1. ENDS OF ADJACENT COIR LOGS SHALL BE BUTTED END TO END OR OVERLAPPED BY 6" MIN. IN DIRECT CONTACT WITH EACH OTHER AND STAKED IN PLACE TO AVOID GAPS BETWEEN LOGS.
2. COIR LOGS SHALL BE MIN. 12" DIAMETER, 100% COCONUT FIBER, AND WITH A DENSITY OF 7LBS/CU FT.
3. STAKES SHALL BE 1"X1"X36" WOOD STAKE.
4. STAKES SHALL BE INSTALLED AT MINIMUM EVERY 5 FOOT AND THE ENDS OF COIR LOGS SHALL BE STAKED WITHIN 6" OF END.
5. ENGINEER MAY REQUEST ADDITIONAL STAKES TO BE ADDED TO COIR LOGS IF FURTHER ANCHORING IS DEEMED NECESSARY.

TEMPORARY COIR LOG RUN–ON PROTECTION

N.T.S.



INLET PROTECTION NOTES:

1. SEE COIR LOG NOTES FOR PRODUCT DETAILS AND INSTALLATION DETAILS.
2. ENDS OF ADJACENT COIR LOGS SHALL BE IN DIRECT CONTACT WITH EACH OTHER AND STAKED IN PLACE TO AVOID GAPS BETWEEN LOGS.
3. STAKES SHALL BE INSTALLED AT MINIMUM EVERY 5 FOOT AND THE ENDS OF COIR LOGS SHALL BE STAKED WITHIN 6" OF END.
4. ENGINEER MAY REQUEST ADDITIONAL STAKES TO BE ADDED TO COIR LOGS IF FURTHER ANCHORING IF DEEMED NECESSARY.
5. ALTERNATE COMMERCIAL INLET PROTECTION MAY BE USED IF APPROVED BY THE ENGINEER.

TEMPORARY INLET PROTECTION

N.T.S.

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING IS
HALF–SIZE IF
PLOTTED 11x17

NO.	DESCRIPTION	DATE	DRAWN	CH'D	APP'V'D
A	DRAFT FOR AGENCY REVIEW	1/11/17	JR	JC	SRB

DRAWN BY: JR	DATE: 12/14/16	SEAL	
CHECKED BY: JC	DATE: 12/14/16		
APPROVED BY: SRB	DATE: 12/14/16		
PROJECT MGR.: PLR	DATE: 12/14/16		

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

JOB: 449605
WBS: 03000

PROJECT TITLE
Rochester Gas and Electric
Former Pavilion MGP Facility
Remedial Action Work Plan
County of Genesee
Pavilion, New York

DRAWING TITLE
SWPPP
STORM WATER AND
EROSION CONTROL DETAILS

SCALE: NOT TO SCALE

DRAWING NO.: **APPENDIX 2–1**
REV.: A

FILE NAME: P:\IBERDROLA\PAVILION\10 TECHNICAL\DESIGN\SWPPP\449605-SWPPP-001.DWG
PLOT DATE: 1/11/2017 10:23 AM PLOTTED BY: NASSIMOS, JEFFREY

APPENDIX 3

CONSTRUCTION STORMWATER COMPLIANCE INSPECTION REPORT

APPENDIX 2
CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG BOOK

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR CONSTRUCTION ACTIVITIES

CONSTRUCTION SITE LOG BOOK

Table of Contents

I. **PRE-CONSTRUCTION MEETING DOCUMENTS**

Project Name _____

Permit No. _____ **Date of Authorization** _____

Name of Operator _____

Prime Contractor _____

a. **Preamble to Site Assessment and Inspections**

The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified inspector[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements. A preconstruction meeting should be held to review all of the SWPPP requirements with construction personnel.

When construction starts, site inspections shall be conducted by the qualified inspector at least every 7 calendar days. The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 Refer to "Qualified Inspector" inspection requirements in the current SPDES General Permit for Stormwater Discharges from Construction Activity for complete list of inspection requirements.
2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.
3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Pre-construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?
[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.
[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.
[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.
[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Access

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.
[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals
[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.
[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ] [ ] [ ] The plan is contained in the SWPPP on page _____
[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:

Inspection Forms will be filled out during the entire construction phase of the project.

Required Elements:

1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH

Inspector (print name)	**Date of Inspection**
Qualified Inspector (print name)	**Qualified Inspector Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Maintaining Water Quality

Yes No NA

[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions at the outfalls?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease at the outfalls?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA

[ ] [ ] [ ] Is construction site litter, debris and spoils appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA

[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

3. Stabilized Construction Access

Yes No NA

[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

Runoff Control Practices

1. Excavation Dewatering

Yes No NA

[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

Runoff Control Practices (continued)

2. Flow Spreader

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA

[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Silt Fence and Linear Barriers

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

2. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated; Filter Sock or Manufactured practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
[ ] [ ] [ ] Manufactured insert fabric is free of tears and punctures.
[ ] [ ] [ ] Filter Sock is not torn or flattened and fill material is contained within the mesh sock.

Sediment accumulation ___% of design capacity.

3. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.
[ ] [ ] [ ] Sediment trap slopes and disturbed areas are stabilized.

Sediment accumulation is ___% of design capacity.

4. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
[ ] [ ] [ ] Sediment basin dewatering pool is dewatering at appropriate rate.

Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design. All practices shall be maintained in accordance with their respective standards.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS

b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
   a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
   b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

APPENDIX 4

SWPPP TRAINED CONTRACTOR CERTIFICATION

CONTRACTOR and SUBCONTRACTOR CERTIFICATION STATEMENT

for the New York State Department of Environmental Conservation (DEC) State Pollutant Discharge Elimination System Permit for Stormwater Discharges from Construction Activity (GP-0-10-001)

As per *Part III.A.6* on page 13 of *GP-0-10-001* (effective January 29, 2010):

'Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and sub-contractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor*. The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.'

The *owner or operator* shall have each contractor and subcontractor involved in soil disturbance sign a copy of the following certification statement before they commence any *construction activity*:

_____	**NYR** _____	_____
Name of Construction Site	*DEC Permit ID*	*Municipality (MS4)*

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Responsible Corporate Officer/Partner Signature	Date
Name of above Signatory	Name of Company
Title of above Signatory	Mailing Address
Telephone of Company	City, State and Zip

Identify the specific elements of the SWPPP the contractor or subcontractor is responsible for:

***'TRAINED CONTRACTOR'* FOR THE CERTIFIED CONTRACTOR OR SUBCONTRACTOR**

_____	_____	_____
Name of Trained Employee	*Title of Trained Employee*	*NYSDEC SWT #*

A copy of this signed contractor certification statement must be maintained at the SWPPP on site

APPENDIX E

CONSTRUCTION QUALITY ASSURANCE PLAN (CQAP)

APPENDIX E

CONSTRUCTION QUALITY ASSURANCE PLAN FOR THE PAVILION FORMER MANUFACTURED GAS PLANT PROPERTY #1252

PAVILION, NEW YORK

Prepared For:

RG&E

ROCHESTER GAS AND ELECTRIC CORPORATION

Prepared By:

PARSONS

301 Plainfield Road, Suite 350, Syracuse, New York 13212

JUNE 2018

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SECTION 1

INTRODUCTION

1.1 PURPOSE

This Construction Quality Assurance Plan (CQAP) presents the procedures and protocols to determine that the construction of the Pavilion Former Manufactured Gas Plant (MGP) (the Site) Remedial Action (RA) will be executed in accordance with the Remedial Work Plan (RWP).

1.2 BACKGROUND

The RWP for the Site, investigated pursuant to the New York State Department of Environmental Conservation (NYSDEC) Multi-Site Voluntary Cleanup Agreement (VCA) between Rochester Gas and Electric Corporation (RG&E) and the NYSDEC (Index # B8-0535-98-07), to which this CQAP is an appendix, presents a description of:

- The Site (including history, location, and characteristics)
- Site investigations and exposure assessment
- Remedial Alternatives (including comparative analysis)
- The proposed Remedial Action
- Remedial Action implementation elements

1.3 PROJECT OBJECTIVES

The objectives of the Site Remedial Action are as follows:

- Remove visually impacted soils within a remedial excavation area to a confining layer which is expected to be encountered at a depth of approximately five feet below ground surface. Visual confirmation and documentation of non-impacted material will be made at excavation boundaries before a demarcation layer is placed in the excavation footprint and backfilled with imported clean gravel or on-site re-use material to one foot below existing Site grade.
- Place a one foot thick cover system across the main portion of the Site consisting of imported clean gravel material. Re-grading and removals conducted as necessary to facilitate addition of cover system.
- Protect the existing Site structures (i.e., buildings, overhead utilities, underground utilities, access roads etc.) during construction activities.
- Conduct remediation and restoration activities in such a way as to allow RG&E's day to day operations of the Site to continue without undue interruptions.
- Provide a safe work environment for the remediation workers, as well as, any RG&E personnel at and/or near the Site during construction activities.

- Conduct a Community Air Monitoring Program (CAMP) to document that odors, vapors and dust resulting from remedial construction activities do not pose an adverse risk to any RG&E personnel on-site or to nearby communities.

1.4 PLAN ORGANIZATION

Following this introduction, this CQAPP is organized into five sections and two attachments. Definitions relative to the Quality Management System are presented in Section 2. An outline of project management, including identification of the roles and responsibilities of the various members of the project team, chain of command, communication guidelines, and necessary meetings are presented in Section 3. Construction oversight tasks which will ensure the quality of the implementation of the remedial action, such as required inspections, Quality Assurance/Quality Control (QA/QC) testing, and necessary documentation are presented in Section 4. References are included in Section 5. Attachment E-1 contains the Construction Quality Assurance (CQA) Testing and Monitoring Procedures. Attachment E-2 contains the installation and inspection procedures for the geomembrane liner.

SECTION 2

DEFINITIONS AND USE OF TERMS

2.1 DEFINITIONS RELATING TO CONSTRUCTION QUALITY ASSURANCE AND CONTROL

Generally, construction quality assurance and construction quality control are defined as follows:

- Construction Quality Assurance (CQA) – The planned and systematic means and actions that provide the permitting agency and RG&E confidence that materials and/or services meet regulatory requirements and will perform satisfactorily in service.
- Construction Quality Control (CQC) – The planned system of inspections and testing taken by the Contractor to monitor and control the characteristics of an item or service in relation to regulatory requirements.

In the context of this document:

- CQA refers to means and actions employed by the Field Engineer to assess conformity of the remedy with the requirements of the drawings and work plan.
- CQC refers to those actions taken by the Contractor to determine compliance of the materials and workmanship of the remedy with the requirements of the drawings and work plan.

SECTION 3

PROJECT MANAGEMENT

3.1 ROLES AND RESPONSIBILITIES OF THE REMEDIAL ACTION TEAM

Several organizations will be directly involved in the performance and review of this project. Each organization has specific functions and responsibilities necessary to execute the project. An established chain of command is essential for communication and decision making.

Preliminary roles and responsibilities of the team members and agencies are described below and presented on the organizational chart (Figure 3.1). A project contact list is provided on Table 3.1 below.

3.1.1 NYSDEC

The NYSDEC is the lead agency for the Site. This state agency will review and approve plans, drawings, reports, and schedules submitted for the remedial action as documented in the RWP. The NYSDEC's PM shall participate in progress meetings and conduct Site inspections on an as-needed basis, and provide regulatory approval for components of the remedy. The NYSDEC's PM shall both conduct and participate in public meetings as necessary, and shall be the point of contact for public questions and concerns. Other agencies or government entities shall provide comments to the project team through NYSDEC.

3.1.2 RG&E

RG&E is ultimately responsible for the design and implementation of the Site remedy in accordance with the RWP. RG&E has designated Mr. Christopher Keipper as its PM and primary contact for this project. Mr. Keipper shall attend public meetings (as necessary) and specific construction meetings and review documents prior to submission to the NYSDEC. RG&E will procure and direct a Contractor to execute the work in accordance with the RWP prepared by Parsons.

3.1.3 Field Engineer

RG&E will hire an engineering firm to provide on-Site field oversight during construction and document quality assurance. The engineering firm will designate a Field Engineer to serve as the primary contact for this project. During the remedial efforts, the Field Engineer will be responsible for monitoring the performance of the Contractor to certify that the work is conducted in accordance with the RWP. The Field Engineer is responsible for implementing the quality assurance program and the Contractor is responsible for implementing the quality control program as defined by this CQAP and RWP. The Field Engineer and/or PM will initiate contact with RG&E and facilitate coordination on field changes, participate and document progress meetings, review and make recommendations on approval of technical submittals from the Contractor, and inspect/certify the work.

Additional roles and responsibilities of the Field Engineer and/or PM are as follows:

- Provide overall direction and management for remedial construction activities and daily operations
- Perform administrative and decision-making activities, as well as provide necessary authorizations related to the project
- Facilitate remedial action coordination between the Engineering firm and external organizations
- Communicate with the NYSDEC and other agencies on an ongoing basis regarding technical issues and project status
- Oversee the Community Air Monitoring Program (CAMP)
- Sample media to be transported off-site for waste characterization
- Establish work budgets and schedules with milestones
- Submit documentation and progress reports as required by the RWP, including maintenance of field logs and photographic documentation
- Completing the construction completion report and site management plan, per DER-10
- Completing the Final Engineering Report, per DER-10

The engineering firm will also appoint a Certifying Engineer who will be responsible for providing support to the Field Engineer and PM, as well as the final certification of remedy completion. The Certifying Engineer or his/her representatives will perform the functions listed below:

- Coordinating the sealing of individual design components by the discipline leads
- Sealing cover sheets for the drawings
- Reviewing, approving, and sealing design modifications
- Reviewing Contractor submittals and QC procedures
- Monitoring the compliance of materials
- Confirming that workmanship is in accordance with the requirements of the drawings present in the RWP
- Preparing and sealing the final Construction Certification Report for submission to NYSDEC
- Preparing and sealing the Final Engineering Report

3.1.4 Contractor

RG&E will hire a Contractor who will be responsible for completion of the remedial construction work as defined by the RWP. The Contractor and their subcontractors will adhere to this CQAP and the RWP. The Contractor will provide a full-time onsite Construction Manager who will be responsible and have authority to act for all aspects of the Contractor's work. The Site Construction Manager will be the point of contact for correspondence with the Contractor.

The Contractor will be responsible for implementing a quality control program as defined by this CQAP and the RWP. The Contractor will be responsible for material management and any necessary sampling of imported material to the Site, which will include submittals to RG&E and

the Field Engineer. The Contractor will also be responsible for implementing the Stormwater Pollution Prevention Plan (SWPPP) under the SPDES General Permit for Stormwater Discharge from Construction Activity. A SWPPP has been prepared and is included in Appendix D of the RWP. The contractor may accept or modify the SWPPP and will be responsible for obtaining the general permit and implementing the SWPPP.

The Contractor will have a Site Health and Safety Officer who will be responsible for the preparation and implementation of a site specific Contractor's Construction Health and Safety Plan (CHASP). His/her specific responsibilities will include:

- Ensuring that Site personnel possess necessary training and medical surveillance in addition to Site-specific project health and safety requirements
- Conducting daily safety meetings with onsite personnel
- Establishing work zones and relocating zones as necessary
- Determining personal protective equipment requirements for specific work tasks and ordering any additional equipment as needed based on work area monitoring data
- Monitoring the work activities performed for compliance with the CHASP and applicable regulations, and taking corrective measures as appropriate
- Performing routine safety inspections
- Reporting and investigating any accidents, incidents and near-misses

3.2 CHAIN OF COMMAND AND COMMUNICATION

The chain of command on-site will start with the engineering firm PM and/or the Field Engineer. NYSDEC-related issues or concerns will be channeled through the engineering firm PM who will then be in direct communication with Chris Keipper (RG&E PM), who will (in turn) contact the NYSDEC's PM. In order to minimize confusion and miscommunication, NYSDEC, other agencies, and the media will not communicate directly with the Field Engineer, Contractor CM, or subcontractors. The engineering firm PM may delegate communication with NYSDEC for issues regarding the design to the Certifying Engineer.

NYSDEC, RG&E, the engineering firm PM/Field Engineer, the Contractor CM, or any other project personnel may immediately stop work if a condition is observed that threatens the safety of the public and/or onsite personnel. However, if the work is being conducted safely and in accordance with the RWP, only the engineering firm PM and RG&E have the authority to stop work. NYSDEC or other agencies may communicate directly with the engineering firm PM regarding a specific issue. If it is agreed by the agencies and the engineering firm PM that work must be stopped to rectify the issue, the engineering firm PM is to communicate directly with the CM and Field Engineer.

Modifications to the remedial action, if required, must not be made without the written approval of the Certifying Engineer. The Certifying Engineer will document the design modification correspondence.

3.3 MEETINGS

3.3.1 Construction Kickoff Meeting

Following approval of the RWP and procurement of a Contractor, the engineering firm PM is to conduct a construction kickoff meeting scheduled for the Project Team. Meeting attendees shall include representatives from NYSDEC, RG&E, the engineering firm, and the Contractor. At a minimum, the meeting agenda shall include an introduction of the team members, the planned construction activities, construction means and methods, Site access and conditions, Site-specific health and safety, roles and responsibilities, and chain of command. A Site visit and/or Site walk should follow the meeting.

3.3.2 Progress Meetings

The engineering firm PM and/or the Field Engineer is to conduct progress meetings on a weekly basis to discuss the prior week's completed work and the next week's anticipated work. The RG&E representative, the engineering firm PM and/or Field Engineer, the Certifying Engineer, and the Contractor CM shall participate in weekly meetings, at a minimum. Any safety, design or construction issues will be raised and addressed during the meeting, with meeting minutes recorded. The engineering firm PM and/or the Field Engineer will arrange the details of the weekly meetings (i.e., agenda, meeting minutes, location, etc.) and prepare and distribute meeting minutes on a regular basis. If any issues are identified involving a larger audience than that which typically participates, additional representatives from NYSDEC or other agencies may be invited to participate.

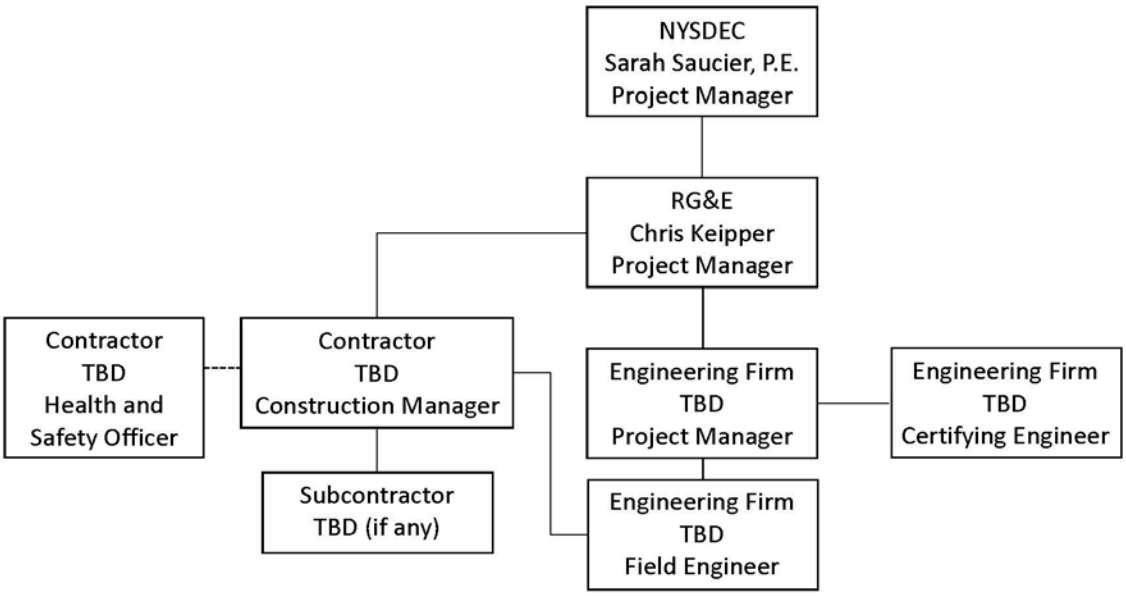
3.3.3 Construction Wrap-up Meeting

Following substantial completion of the remedy, the project team will meet to discuss the final punch list, Site operation, maintenance, monitoring, and project completion issues. The Final Engineering Report expectations will also be discussed at this construction wrap-up meeting.

Table 3.1 Project Contact List

NYSDEC	
NYSDEC-DER/Remedial Bureau C Sarah Saucier, P.E. – Project Manager 625 Broadway Street Albany, New York 12233 (P) 518-402-9662 sarah.saucier@dec.ny.gov	
RG&E	
RG&E Christopher Keipper - Project Manager 1300 Scottville Road Rochester, New York 14624 (P) 585-771-4560 (C) 585-363-3204 (E) Christopher.kiepper@rge.com	
Engineering Firm	
TBD – Project Manager	TBD – Field Engineer
TBD – Certifying Engineer	
Contractor	
TBD – Construction Manager	TBD – Health and Safety Officer

Figure 3.1
Pavilion Former MGP Remedial Action
Project Organization Chart



SECTION 4

CONSTRUCTION OVERSIGHT TASKS

4.1 INSPECTIONS

Regular Site inspections will be conducted by members of the project team to ensure compliance with the RWP and consistent quality is maintained. The Field Engineer and construction manager will conduct inspections of work areas on a daily basis. NYSDEC and the other agencies may conduct inspections during any work hour period. Inspections by the Certifying Engineer and regulatory agencies are intended to augment and not replace the Field Engineer and Contractor's inspections required by this plan and good practice.

4.1.1 Routine Work Inspections

The Certifying Engineer or designee will conduct inspections of the overall Site condition and specific work elements, including:

- Field trailer, parking lot, access roads, staging areas, and security fence/gate(s)
- Construction water and stormwater management systems
- Decontamination areas and procedures
- Soil erosion and control measures
- Excavation areas and equipment
- Management of excavated soil and integrity of dewatering pad liner, if used
- Loading and manifesting of waste disposal trucks
- Protection of existing site features
- Finished grading and Site cover layer installation
- Survey markings

The Contractor will also be required to inspect all aspects of the project on a regular basis as outlined in the Project Execution Plan to be submitted by the Contractor.

4.1.2 Pre-Final and Final Inspections

Following notification by the CM of substantial remedial construction completion, the engineering firm PM, Certifying Engineer, RG&E representative, and the NYSDEC's PM will conduct a pre-final inspection of the Site. A final written work punch list will be prepared by the engineering firm PM and reviewed by the Certifying Engineer, RG&E representative, and the NYSDEC's PM for submittal to the CM. The final punch list will enable the CM to understand the project completion expectations and schedule work activities, including demobilization, accordingly. Once punch list items have been addressed by the CM and approved by the engineering firm PM in writing, the RG&E representative and the NYSDEC's PM will conduct a final inspection. Upon written RG&E and NYSDEC approval, the remedy will be considered completed and the Contractor will demobilize from the Site. A Construction Completion Report will be prepared by the Field Engineer and/or engineering firm PM, documenting construction

field log records, photographic confirmations, and waste sampling and disposal records. This will be submitted to the NYSDEC as confirmation that the remedial action was completed.

4.2 QUALITY CONTROL AND ASSURANCE TESTING

QA/QC testing is part of ensuring that the remedial action is completed in accordance with the RWP. Both the Contractor and the Field Engineer will have testing responsibilities as defined in Appendix E-1, the Construction Quality Assurance (CQA) Testing and Monitoring Procedures document. In general these responsibilities include:

Contractor's Responsibilities:

- Sampling/testing and analysis required for the initial submittal and approval of imported soils, backfill materials, and other imported materials to be used at the Site in support of the remedial construction as well as completion of associated submittals.
- QC on-site construction material testing/sampling and analysis as well as completion of associated submittals.
- Coordination and support to facilitate QA activities by RG&E and the Certifying engineer (or PM) as needed.
- Paint filter testing of soil for disposal if required, under the direct supervision of the field engineer, and criteria must be meet at the site and the disposal facility.
- Compaction testing, under the direct supervision of the field engineer.
- Prepare a CHASP for review and approval by RG&E and the engineering firm.

Field Engineer’s Responsibilities:

- Observation of sampling/testing for placed and compacted soil materials;
- Confirm and document by visual inspection and photographs the limits of remedial excavations prior to demarcation layer placement to verify confining layer was reached in accordance with the RWP and that no visual impacts are present.
- Confirm and document by visual inspection and photographs the limits of the subgrade excavation prior to demarcation layer placement.
- Waste characterization sampling and analysis as required by the RG&E approved disposal facility and approved transporters.
- Implementation and documentation of the CAMP.

4.3 TECHNICAL SUBMITTAL REVIEW

The engineering firm PM and/or the Field Engineer is required to prepare a schedule of submittals and meet the submittal requirements as stated in the RWP. Construction submittals will be reviewed by the RG&E representative and Certifying Engineer.

4.4 DOCUMENTATION

4.4.1 Field Log Book

The Contractor CM and the Field Engineer will maintain daily field log books for the project. Construction activities will be documented with the following details at a minimum: dates, times, weather conditions, personnel onsite, equipment used, materials used, Site visitors, health and safety issues, work activities completed, delays and other construction related issues.

4.4.2 Daily Field Reports

The Field Engineer will prepare a daily field report that summarizes construction activities from the field log book. The daily field report will include details about the work completed, on-site equipment, on-site personnel including any Site visitors, weather, issues discussed and directions given to the Contractor, Site photographs, CAMP data, and sketches of work completed as necessary. The report will be submitted to the engineering firm PM and Certifying Engineer on a regular basis. Refer to Figure 4.1 for an example of the Daily Field Report.

The Field Engineer will also prepare a weekly report which will document the various aspects of the work conducted that week. This will include, but not be limited to: construction activities, QC requirements, deviations, construction schedule, budget, and any other topics related to the weekly construction activities on Site. Weekly reports will be submitted to the engineering firm PM and Certifying Engineer.

The Contractor CM will prepare daily field reports of construction activities and submit them to the engineering firm PM. Information in these daily field reports will include the Contractor's manpower and equipment on-site, work performed that day, safety issues (if any), general information on material received, and any other pertinent information. The Contractor's daily report will include discussion of any QA/QC issues or requirements, which will then be addressed during the daily meeting between the Contractor CM and the Field Engineer.

4.4.3 Photographic Documentation

The Field Engineer will be responsible for obtaining photographic documentation of the construction activities, excavation extent confirmations, materials installation methods, and the testing procedures. Photographs will serve as a pictorial record of work progress, problems, and corrective measures. Photographic reporting data sheets should be used to organize and document photographs taken during construction. Such data sheets shall be cross-referenced or appended to summary reports, monitoring logs, test data sheets, and/or problem identification and corrective measures reports as necessary.

4.4.5 Field Change Form

Changes to the remedial action as specified by the RWP will require approval by the Certifying Engineer and if deemed significant, by RG&E. Any changes that impact the scope of soil remediation activities and deviate from the approved RWP will be submitted to the NYSDEC for approval. Figure 4.2 presents an example Field Change Form that includes a description and reason for the field change, date, and appropriate signatures. Material

substitutions (i.e., "or equals") are not considered a field change and will be approved, if appropriate, by the Certifying Engineer as part of the technical submittal review process.

4.4.6 Survey

The Construction Manager will be required to use a New York State Licensed Land Surveyor. The purpose of the survey is to document that the grades in the RWP have been achieved. All required survey drawings will be submitted to the field engineer for approval. At a minimum, the following certified surveys will be required; existing conditions, post excavation/subgrade removals, and final restored surface.

To the extent practicable, following removals and prior to backfilling an area, photographic documentation and a record of visual observations will be recorded on the Field Engineer's daily field forms.

4.4.7 Construction Completion Report

A described in the RWP, a Construction Completion Report (CCR) will be prepared and submitted to NYSDEC 120 days after NYSDEC determines in writing that the remedial construction for the Site is complete and following receipt of certifications of treatment/disposal of Site material from the treatment/disposal facility. The CRR shall be prepared pursuant to DER-10 Section 5.8(b). The report will include the following:

- Site description;
- A description of field procedures and Site activities;
- All post-excavation confirmatory visual observation records;
- A photographic record of the excavations and backfilling;
- Waste characterization sample data;
- Waste transport and treatment/disposal information;
- Copies of waste manifests and bills of lading;
- Copies of material certificates of disposal; and
- Confirmation of backfill materials used.

RG&E will maintain records and documents pertaining to this remediation in a centralized location for a minimum of three years. After three years, documents may be archived for long term record-keeping (for an indefinite period of time).

FIGURE 4.1
DAILY FIELD REPORT

JOB NAME Pavilion Former MGP DATE
PROJECT Remedial Action REPORT NO.
JOB NO. SHEET Page 1 of 2
LOCATION Pavilion, NY WEATHER
CLIENT RG&E

WORK IN PROGRESS OR COMPLETE (INCLUDING SUBCONTRACTORS):

CONTRACTOR EQUIPMENT	QUANTITY	CONTRACTOR WORK FORCE	QUANTITY

CONTRACTOR WORK HOURS:

VERBAL DISCUSSIONS/INSTRUCTIONS

REQUEST FOR PROJECT ACTION

VISITORS

ACCIDENTS REPORTED TODAY
ACCIDENTS REPORTED TO DATE

FIGURE 4.1 (CONTINUED)
DAILY FIELD REPORT

JOB NAME	Pavilion Former MGP	DATE	
PROJECT	Remedial Action	REPORT NO.	
JOB NO.		SHEET	Page 2 of 2
LOCATION	Pavilion, NY	WEATHER	
CLIENT	RG&E		

COMMUNITY AIR MONITORING DATA

WORK IN PROGRESS OR COMPLETE (cont.)

Photos attached? Y☐ N☐

Number of Photos: _____ Description_____

_____

_____

FIGURE 4.2
FIELD DESIGN CHANGE FORM

PAVILION FORMER MGP
PAVILION, NEW YORK

Field Engineer: _____

FIELD DESIGN CHANGE

Project Number: Date:

Contractor:

This form shall be used for the issuance of instructions to the Contractor for a Field Design Change.

You are hereby authorized and instructed to effect the following modifications of the contract for the foregoing named project.

APPROVALS & DISTRIBUTION:

Engineer Representative

Signature: _____ Date: _____

Name (print or type): _____

Contractor Representative

Signature: _____ Date: _____

Name (print or type): _____

RG&E Representative

Signature: _____ Date: _____

Name (print or type): _____

Regulator Representative

Signature: _____ Date: _____

Name (print or type): _____

cc:

SECTION 5

REFERENCES

NYSDEC, 2010. Technical Guidance for Site Investigation and Remediation (DER-10), NYSDEC, 2010.

ATTACHMENT E-1

CONSTRUCTION QUALITY ASSURANCE (CQA) TESTING AND MONITORING PROCEDURES

SECTION 1

CONSTRUCTION QUALITY ASSURANCE (CQA) TESTING AND MONITORING PROCEDURES

1.0 INTRODUCTION

Construction Quality Assurance (CQA) testing and monitoring will be performed during implementation of the Pavilion Former MGP remedy. Criteria to be used for determination of acceptability of the various work components are identified in the RWP and this CQAP. Testing may also be performed as duplicates of Construction Quality Control (CQC) tests, or as additional samples at the Certifying Engineer's discretion.

1.1 TESTING AND MONITORING COMPONENTS

The various testing and monitoring components are as follows:

Environmental Sampling

- Waste Characterization sampling of soil removed from within the remedial excavation area and from the subgrade excavation.
- Paint filter testing of soil, if required, to ensure no free liquids are present prior to offsite disposal.
- Waste Characterization sampling of construction water.
- Borrow source testing to ensure imported soils and gravels used as remedial excavation backfill and for the Site cover system (respectively) are in compliance with NYSDEC DER-10 guidance and the RWP.

Geotechnical Testing

- Compaction testing of backfill placed in the remedial excavation area and as a Site cover system.
- Sieve analysis of imported backfill to verify it meets the requirements for the site cover.

Health and Safety Air Monitoring

- Conduct air monitoring and sampling at the work zone and at the Site perimeter to protect workers and the nearby community.

Table 1.1 presents sampling summary information including type of sampling, sampling frequency, and analytical methods. The sections below detail the sampling program for the construction period.

1.2 ENVIRONMENTAL SAMPLING

1.2.1 Waste Characterization Sampling of Soil

The Field Engineer will perform waste characterization sampling and analysis of soil removed from within the remedial excavation area and subgrade excavation as necessary to meet the RG&E approved disposal facility's acceptance criteria receiving these materials. The soil waste characterization samples will be collected in laboratory-supplied clean glass jars. Samples will be analyzed by a NYSDOH Environmental Laboratory Accreditation Program ("ELAP") certified laboratory retained by the engineering firm for analytes as required by the RG&E approved disposal facility. The engineering firm will use only RG&E approved waste transporters and RG&E approved disposal facilities for disposal of soil and any other materials removed from the Site.

1.2.2 Paint Filter Testing

The remedial contractor will conduct paint filter testing of soil as necessary determined by the selected disposal facility requirements to confirm that no free liquids exist prior to loading into disposal trucks. Paint filter testing will be conducted under the direct supervision of the field engineer, and criteria must be meet at the site and the disposal facility. Material not meeting the paint filter test will not be allowed to be shipped off-site for disposal. Excavations and excavated material will be dewatered in accordance with the RWP. Note that where inspection of materials designated for offsite disposal clearly do not contain free liquids no testing of the material will be required. RG&E or the engineering firm PM may direct the Field Engineer to perform paint filter testing at their discretion where presence of free liquids may be in question.

1.2.3 Waste Characterization Sampling of Construction Water

The Contractor will temporarily store all construction water on-site for future sampling and off-site disposal. The Field Engineer will collect waste characterization samples from the construction water in accordance with the RG&E approved disposal facility's waste characterization requirements prior to being transported off-site. The contractor will use only RG&E approved waste disposal facilities for off-site disposal of construction water. Construction water that is disposed of at a RG&E approved disposal facility must meet the acceptance criteria of that facility. Samples will be analyzed by a NYSDOH ELAP certified laboratory retained by the engineering firm. Upon receipt of analytical results, the contractor will arrange to have construction water transported off-site by RG&E approved transporters to the selected disposal facility.

1.2.4 Off-site Borrow for Backfill

The Contractor will perform backfilling and compaction after post-excavation visual confirmation is recorded and documented via photographs by the Field Engineer, and it is determined that additional excavation is not required. The Contractor will place a geotextile demarcation barrier in accordance with the RWP at the bottom and sidewalls of the excavation to

mark the extent and location of the excavation/backfill area, and to visually separate that from the native soil and existing fill.

All imported material used as backfill and for the Site cover system will be tested by the Contractor to confirm it complies with 6 NYCRR Part 375-6 Commercial Use soil cleanup objectives unless it is:

- Rock or stone, consisting of virgin material from a permitted mine or quarry; or
- Granular fill material (less than 10% passing #80 sieve) that is virgin material from a NYSDOT approved source.

Materials meeting the above bulleted criteria can be imported and used as backfill without chemical testing. All other material will be tested at the frequencies outlined in Table 1.1 and described below. Samples will be analyzed by a NYSDOH-certified ELAP-approved laboratory. The Contractor will collect grab samples for VOCs; composite samples consisting of three to five grabs will be taken for all other analytes.

The remedial excavation area and subgrade excavation area will be backfilled and compacted by the Contractor in accordance with the RWP and this CQAP, and the grade will be brought back to approximately one foot below existing Site grade. The Site cover system will then be placed by the Contractor, bringing the remedial excavation area up to approximately existing Site grade.

1.3 GEOTECHNICAL TESTING

1.3.1 Compaction Testing

The Contractor is responsible to retain an independent geotechnical testing firm to conduct testing of backfill placed in excavations. Refer to the RWP for compaction and testing requirements.

Proctor testing and grain size analysis, performed by the remedial contractor and used to develop compaction curves will be submitted to the field engineer for approval.

1.4 HEALTH AND SAFETY MONITORING

1.4.1 Community Air Monitoring Plan

The Field Engineer will implement the Community Air Monitoring Plan (CAMP) requirements as described in Appendix A of the RWP.

Air monitoring equipment that requires calibration prior to operation will be calibrated daily by the Field Engineer in accordance with the manufacturer's instructions. Instrument calibrations will be documented in the project field book.

1.4.2 Work Zone Air Monitoring

The Contractor will develop a CHASP and submit it to RG&E and the engineer for review and approval. The Contractor will be responsible for all work zone air monitoring required for

Site workers, and individuals performing sampling activities or inspections within the work zone and will be performed in accordance with the RG&E approved CHASP.

1.5 CONSTRUCTION MONITORING

1.5.1 Construction Monitoring

During construction, the Field Engineer will visually observe and document the Contractor's earthwork activities for the following:

- Excavations do not contain unsuitable materials and that surfaces are visually inspected, documented, and deemed free of visual impacts by the Field Engineer before placement of the demarcation layer and backfilled
- Fill materials have not undergone excessive particle segregation, prior to backfilling
- Action of compaction on the on the subgrade and site cover surface
- Thickness of Site cover system placement

1.5.2 Deficiencies

If a defect is discovered during construction the contractor will immediately notify the field engineer, the Certifying Engineer will determine the extent and nature of the defect. The failing area will be reworked by the Contractor. Inspection will be performed by the Field Engineer or the Certifying Engineer to verify that the deficiency has been corrected before additional work is performed by the Contractor in the area of the deficiency.

1.6 WASTE DISPOSAL CHARACTERIZATION

1.6.1 Waste Handling, Staging and Disposal

All waste will be managed in accordance with local, state and federal cleanup regulations. Waste will be segregated by matrix type (i.e., soil, concrete, asphalt), aqueous wastes or solid materials (e.g., PPE) and appropriately managed and disposed off-site. The waste will be adequately characterized to meet the requirements of the designated facility permitted to accept the waste prior to disposal.

1.6.2 Equipment Decontamination

The Contractor will decontaminate all moveable equipment, tools, and sampling equipment which have contacted the remedial excavation area or other visually impacted soil prior to leaving the decontamination zone. The Contractor will be responsible for the prevention of cross contamination of clean areas within the Site, through appropriate sequencing, the use of decontamination pads, placement of poly, or other methods as specified by the Contractor. The Contractor will construct a decontamination pad consisting of crushed stone, and an impervious liner prior to the start of work, if necessary. Alternately, a portable self-contained decontamination unit may be utilized. The Contractor will remove soil, debris, and other miscellaneous materials from the undercarriages and wheels of all construction equipment and tools used by means of a high-pressure, low volume steam cleaner, if necessary.

Physical/mechanical agitation of soil may be used to minimize wastewater generation. The Contractor will pump rinse water generated during the decontamination procedures from the decontamination pad sump for storage in temporary storage containers for off-site disposal, if the dewatering pad approach is used.

The Contractor will ensure all decontamination wastes, personal protective equipment (PPE), and polyethylene that come in contact with the remedial excavation area soil and other site soils will be disposed of appropriately.

TABLE 1.1
SAMPLING SUMMARY TABLE

Sample Description	Responsible for analysis	Sampling Frequency	Estimated # of Samples	QA/QC Samples	Parameter(s)	Analytical Method
Waste Characterization Sampling of Soil from the Remedial Excavation Area and subgrade excavation area	Engineer	Sampling frequency will be dictated by acceptance criteria of disposal facility	TBD by engineering firm and Disposal Facility	Not Required	TBD - Parameters as required by the selected disposal facility	TBD - Methods as required by the selected disposal facility
Waste Characterization Sampling of Construction Water	Engineer	Sampling frequency will be dictated by acceptance criteria of disposal facility	TBD by engineering firm and Disposal Facility	Not Required	TBD - Parameters as required by the selected disposal facility	TBD - Methods as required by the selected disposal facility
Paint Filter Testing	Contractor	Sampling frequency will be dictated by acceptance criteria of disposal facility (Exclude stockpiles that clearly do not contain free liquids.)	TBD by engineering firm and Disposal Facility	Not Required	Free liquids	EPA Method 9095B
Imported backfill	Contractor	Sampling not required for off site sources that are: • Rock or stone, consisting of virgin material from a permitted mine or quarry; or • Granular fill material (less than 10% passing #80 sieve) that is virgin material from a NYSDOT approved source. All other material sampled per DER-10	Per DER-10	Per DER-10	Per DER-10	Per DER-10
Modified Proctor	Contractor	TBD by engineering firm	TBD by engineering firm	TBD by engineering firm	N/A	ASTM D1557
Grain Size Analysis	Contractor	TBD by engineering firm	TBD by engineering firm	TBD by engineering firm	N/A	ASTM D422

SECTION 2

SAMPLING EQUIPMENT AND PROCEDURES FOR FIELD EQUIPMENT DECONTAMINATION, WASTE MANAGEMENT, AND EQUIPMENT CALIBRATION

2.1 FIELD EQUIPMENT CHECKLIST

A general list of equipment necessary for field measurement and sample collection includes:

- Appropriate sample containers;
- Chain-of-Custody (COC) seals and record forms;
- Log book and indelible ink markers;
- Phosphate-free decontamination soaps (such as Alconox), reagent-grade solvents, and deionized water to be used for decontaminating equipment between samples;
- Buckets, plastic wash basins, plastic drop cloths, and scrub brushes to be used for decontaminating equipment;
- Camera for documenting sampling procedures;
- Shipping labels and forms;
- Knife;
- Bubble wrap or other packing/shipping material for sample bottles;
- Strapping tape;
- Clear plastic tape;
- Coolers;
- Resealable plastic bags;
- Portable field instruments (photoionization detector, CAMP equipment etc.); and
- Health and safety equipment.

2.2 DECONTAMINATION

Sampling equipment decontamination will be conducted in buckets on plastic sheeting. All sampling equipment will be washed in potable water and phosphate-free detergent (e.g., Alconox) following sampling activities. The sampling equipment will then be rinsed with potable water. If disposable sampling equipment is used, decontamination will not be necessary. The disposable sampling equipment will be disposed of as used personal protective equipment (PPE).

2.3 MANAGEMENT OF WASTE

2.3.1 Decontamination Fluids

Decontamination fluids will be stored with construction water in an on-site holding tank, and subsequently disposed of as construction water. A dedicated on-site storage location will be provided for the water storage tank that is readily accessible to transport tanker trucks. Characterization sampling will be conducted by the Field Engineer and off-site transportation and disposal will be coordinated by the contractor.

2.3.2 Personal Protective Equipment

Disposable PPE (i.e., Tyvek suits, booties, latex gloves, etc.) will be placed in approved containers and staged for proper disposal by the contractor.

2.4 FIELD INSTRUMENT CALIBRATION

Field screening and sampling instruments that require calibration prior to operation will be calibrated daily by the Field Engineer in accordance with the manufacturer's instructions. Instrument calibrations will be documented in the project field book. Instrument operating manuals will be maintained on-site by the Field Engineer.

2.5 MAINTENANCE PROCEDURES

2.5.1 Non-Routine Maintenance Procedures

Field equipment will be inspected prior to initiation of fieldwork to determine whether or not it is operational. If it is not operational, it will be serviced or replaced. Batteries will be fully charged or fresh, as applicable.

2.5.2 Routine Maintenance Procedures and Schedules

Field equipment requiring preventive maintenance will be serviced in accordance with written procedures based on the manufacturer's instructions or recommendations. Maintenance will be performed in accordance with the schedule specified by the manufacturer, in order to minimize the downtime of the measurement system. Maintenance work will be performed by qualified personnel.

SECTION 3

SAMPLING EQUIPMENT AND PROCEDURES FOR FIELD MEASUREMENTS AND MONITORING

3.1 PAINT FILTER TESTING

Paint filter testing will be conducted on excavated soil, to determine the presence of free liquids prior to loading into disposal trucks. The test will be conducted at the site in accordance with EPA Method 9095B. Equipment required for the test includes a conical fine mesh paint filter (mesh #60 +/-5%), funnel, stand or tripod and container/cup. Note that soil that clearly does not contain free liquids will not be tested.

Method

- Assemble the test apparatus by placing the paint filter in the funnel and the funnel tip into the container/cup. Support the assembly as needed.
- Place approximately 100 grams of sediment/soil in the paint filter
- Allow the sample to drain into the container/cup for 5 minutes.
- If any portion of the test material collects in the container/cup within the 5-minute period, then the material is deemed to contain free liquids.

3.2 AIR MONITORING

Air monitoring for volatile organic compounds (VOCs) will be conducted as required during field activities with a RaeSystems MiniRae 2000 (or equivalent) photoionization detector (PID) equipped with a 10.6 eV lamp. The Photovac MicroTip is capable of ionizing and detecting compounds with an ionization potential of less than 10.6 eV. This accounts for roughly 54 to 73 percent of the VOCs on the NYSDEC ASP Target Compound List and for most of the VOCs detected onsite. The compounds with ionization potentials above 10.6 eV have correspondingly high allowable limits, for example 100 ppm for 1,1-DCA and 350 ppm for 1,1,1-TCA. The PID will be used to monitor for VOCs in the breathing zone, and to screen soil samples for analysis.

Method

- The PID will be calibrated at the beginning of each day of use with a standard calibration gas of a concentration within the expected range of use. The calibration gas which is most often used has an approximate concentration of 100 ppm of isobutylene.
- If abnormal or erratic readings are observed, additional calibration will be required.
- All calibration data will be recorded in field notebooks and on calibration log sheets to be maintained on-site.
- The PID will be used to monitor the breathing zone during excavation. Action levels will be specified in the Construction Health and Safety Plan (CHASP).

- The PID will also be used to screen soil samples and sample headspace.
- PID readings will be recorded in the field book.
- A battery check will be completed at the beginning and end of each working day.
- Detailed procedures for operation of the PID will be included in the CHASP or maintained with the equipment on-site.

SECTION 4

PROCEDURES FOR GEOTECHNICAL TESTING

4.1 CONSTRUCTION MATERIAL TESTING

The Contractor will be responsible for testing manufactured and/or imported materials in accordance with the RWP. Testing results must be submitted to the Field Engineer. For on-site testing of backfill material and Site cover system material, the Contractor, under direct supervision of the Field Engineer, will conduct the testing. The testing procedures will be in accordance with industry standards and in accordance with the RWP. The Certifying Engineer will review and approve the testing results in accordance with the RWP and according to the submittal protocol.

SECTION 5

SAMPLE HANDLING AND ANALYSIS

5.1 SAMPLE DESIGNATION

Each sample will be given a unique alphanumeric identifier in accordance with the classification system shown in Table 5.1. Duplicate samples will be assigned identifiers that do not allow the laboratory to distinguish them as duplicates. Each sample container will be labeled prior to packing for shipment. The sample identifier, Site name, date and time of sampling, and analytical parameters will be written on the label in waterproof ink and recorded in the field book.

5.2 SAMPLE CONTAINERIZATION, PRESERVATION AND ANALYSIS

5.2.1 Sample Container Preparation and Sample Preservation

Analytical methods for sample analyses, sample containerization, holding time requirements, and preservation requirements will be determined by the analytical laboratory selected as well as based on the requirements of waste disposal facility. Field handling and storage of collected samples will be determined based on laboratory requirements, consistent with the associated analytical methods and procedures.

5.3 CHAIN OF CUSTODY (COC)

A COC record will accompany the sample containers during shipment to the laboratory. The COC will identify each sample container and the analytical parameters assigned for each, and will list the field personnel that collected the samples, the project name and number, the name of the analytical laboratory that will receive the samples, and the method of sample shipment. If samples are split and sent to different laboratories, a copy of the COC record will be sent with each sample shipment.

Method

- The COC will be completed by field personnel as samples are collected and packed for shipment.
- Erroneous markings will be crossed-out with a single line and initialed by the author.
- Indications will be made if the sample is a matrix spike, matrix spike duplicate, or matrix duplicate.
- Trip and field blanks will be listed on separate rows.
- After the samples have been collected and sample information has been listed on the COC form, the method of shipment, the shipping cooler identification number(s), and the shipper airbill number will be entered on the COC.

- Finally, a member of the sampling team will write his/her signature, the date, and time on the first RELINQUISHED BY space. Duplicate copies of each COC must be completed.
- One copy of the COC will be retained by the sampling personnel. The other copy and the original will be sealed in a plastic bag and taped inside the lid of the shipping cooler.
- Sample shipments going to chemical analytical laboratories will be refrigerated at 4°C, typically by packing with ice, to preserve the samples during shipment.
- After the shipping cooler is closed, custody seals provided by the laboratory will be affixed to the latch and across the front and back of the cooler lid, and signed by the person relinquishing the samples to the shipper.
- The seal will be covered with clear tape, and the cooler lid will be secured by wrapping with packing tape.
- Then the cooler will be relinquished to the shipper (typically an overnight carrier depending on the associated hold times of the samples within).
- The COC seal must be broken to open the container. Breakage of the seals before receipt at the laboratory may indicate tampering. If tampering is apparent, the laboratory will contact the engineering firm PM, and the samples will not be analyzed.
- Typically, chemical analytical samples must be delivered to the laboratory within 72 hours of collection.

5.4 SAMPLE DOCUMENTATION

The Field Engineer will retain a copy of the COC upon sample shipment, and will ensure that the following information about each sample is recorded in the field book:

- Sample identifier;
- Identification of sampled media (e.g., soil, construction water, imported material);
- Physical description of sample location;
- Date and time of collection;
- Sample collection method;
- Number of sample containers;
- Analytical parameters;
- Preservatives used; and
- Shipping information:
  - Dates and method of sample shipments,
  - COC record numbers,
  - FedEx air bill numbers, if applicable and
  - Sample recipient (e.g., laboratory name).

TABLE 5.1

SAMPLE DESIGNATIONS/IDENTIFIERS

WASTE CHARACTERIZATION SAMPLES

Identifier Code	Sample Type	Sample Date	QC Identifier (if applicable)
LL	LL	NNNNNN	LL

IDENTIFIER CODE: WC – Waste Characterization Sample

SAMPLE TYPES: SW – Solid Waste

LW – Liquid Waste (construction water)

SAMPLE DATE: Date sample was collected (e.g., 010117).

QC IDENTIFIER:
FB - Field Blank
TB - Trip Blank
RB - Rinse Blank
MS - Matrix Spike
MD - Matrix Spike Duplicate
MB - Matrix Blank

IMPORTED MATERIAL SAMPLES

Identifier Code	Sample Type	Source	Sample Date	QC Identifier (if applicable)
LL	LL	(LLL)	NNNNNN	LL

IDENTIFIER CODE: IM – Imported Material

SAMPLE TYPES: SO – Soil Backfill

GR – Gravel Backfill

SOURCE: Abbreviation or some indicator of the source of imported material.

SAMPLE DATE: Date sample was collected (e.g., 010117).

QC IDENTIFIER:
FB - Field Blank
TB - Trip Blank
RB - Rinse Blank
MS - Matrix Spike
MD - Matrix Spike Duplicate
MB - Matrix Blank

SECTION 6

SAMPLING QA AUDITS

6.1 SAMPLING QA AUDITS

Sampling QA audits may be conducted by the engineering firm to verify that fieldwork is conducted in accordance with the procedures specified in this document. The QA audits will be performed by the Field Engineer or a qualified designee under the direction of the engineering firm. The designee will not have responsibility for the project work associated with the audit.

Sampling QA audits may include, but will not be limited by, review of the following items:

- Decontamination procedures;
- Sampling procedures;
- Sampling container cleanliness, size, and material;
- Sample identification (labels and COC);
- Sample handling, preservation, and shipping;
- Sample tracking;
- Maintenance and calibration of sampling equipment; and,
- Corrective action.

Serious deficiencies will be addressed using a Corrective Action Request (CAR) issued by the field engineer (example provided as Figure 6.1). The CAR identifies the out-of-compliance condition, reference documents, and recommended corrective action. The CAR will be issued to the individual(s) responsible for the noncompliance and to the engineering firm PM. The individual to whom the CAR is addressed will respond by writing a brief description of the cause and corrective action required in the appropriate area on the CAR, sign and date the response, and return the CAR to the Field Engineer.

The engineering firm PM will be responsible for ensuring that all required corrective actions identified during an audit are acted upon promptly and satisfactorily. The Field Engineer or a qualified designee will verify and document that satisfactory corrective action has been taken. All audit checklists, audit reports, audit findings, and acceptable resolutions will be approved by the Field Engineer. Then the Field Engineer will close the audit. The Field Engineer will maintain a status log for CARs, and the CARs will be retained in the project file.

6.2 RECORD MAINTENANCE

A project file will be established to retain the documents and records generated during the project. Field records will be stored in the project file when not in use. At the conclusion of the work assignment the project file will be archived.

Field records that must be retained in the project files include:

- Field books;

- COC forms;
- Site photographs; and,
- QA audit reports.

Equipment calibration and maintenance records will be retained by the Field Engineer for at least as long as the project files are retained.

FIGURE 6.1

CORRECTIVE ACTION REQUEST

Number _____ Date:_____

TO: _____

You are hereby requested to take corrective actions indicated below and as otherwise determined by you (a) to resolve the noted conditions and (b) to prevent it from recurring. Your written response is to be returned to the Project Field Engineer by _____.

Condition:

Reference Documents:

_____	_____	_____	_____	_____	_____
Originator	Date	Approval	Date	Approval	Date

Response

Cause of Condition:

Corrective Action

(A) Resolution:

(B) Prevention

(B2) Affected Documents

Signature_____ Date_____

CA Follow-up

Corrective Action verified by:_____ Date _____

APPENDIX E-2

GEOMEMBRANE INSTALLATION AND INSPECTION PROCEDURES

(REQUIRED IF DEWATERING PAD IS CONSTRUCTED)

SECTION 1

GEOMEMBRANE INSTALLATION AND INSPECTION PROCEDURES

(REQUIRED IF DEWATERING PAD IS CONSTRUCTED)

1.0 INTRODUCTION

The Field Engineer shall perform conformance and seam testing and shall monitor the installation of the geomembrane material as required by the RWP and this CQAP. The geomembrane material is to be used on-site as the liner for the dewatering pad for placement of excavation soil stockpiling, if necessary. This material will be a 60 mil high density polyethylene (HDPE) liner type material. The stockpile/dewatering pad will have approximately 50 feet x 50 feet of usable storage area for impacted remedial excavation materials.

1.1 TRANSPORTATION, HANDLING AND STORAGE

The Field Engineer shall monitor the transportation, handling, and storage of the geomembrane on-site. The Contractor CM shall designate a geomembrane storage location. It will be the responsibility of the Contractor to protect the geomembrane stored on-site from theft, vandalism, and/or damage prior to installation.

Upon delivery at the Site, the Contractor and Field Engineer shall conduct an inspection of the geomembrane for visible defects and damage. This inspection shall be conducted without unrolling the materials unless defects or damages are found or suspected. The Field Engineer shall indicate to the Construction Manager:

- rolls, or portions thereof, which should be rejected and removed from the Site because they have severe or non-repairable flaws which may compromise geomembrane quality; and

- rolls that include minor and repairable flaws that do not compromise geomembrane quality.

The Field Engineer shall also monitor that equipment used to handle the geomembrane on-site is adequate and does not pose any risk of damage to the geomembrane when used properly.

1.2 GEOMEMBRANE INSTALLATION

The geomembrane shall be a shop fabricated piece so no on-site welding is required. The contractor will be responsible for ensuring the quality and integrity of the geomembrane from the

supplier. Contractor installation procedure as well as field engineer quality assurance procedures are described below.

1.2.1 Field Panel Identification and Placement

Geomembrane placement shall not proceed at an ambient temperature below 40°F or above 104°F unless authorized by the Certifying Engineer. Geomembrane placement shall not proceed during any precipitation, in the presence of excessive moisture (e.g., fog, dew), in an area of ponded water, or in the presence of excessive winds. The Field Engineer shall monitor that the above conditions are fulfilled and that the supporting soil has not been damaged by adverse weather conditions.

The Field Engineer shall monitor geomembrane deployment for the following:

- any equipment used does not damage the geomembrane by handling, trafficking, excessive heat, leakage of hydrocarbons or other means;
- the prepared subgrade shall be free of stones, debris, or other protrusion that could puncture the geomembrane;
- the prepared surface underlying the geomembrane has not deteriorated, and is still acceptable immediately prior to geomembrane placement;
- any geosynthetic elements immediately underlying the geomembrane are clean and free of foreign objects or debris;
- all personnel working on the geomembrane do not smoke, wear damaging shoes, or engage in other activities which could damage the geomembrane;
- the method used to unroll the panels does not cause scratches or crimps in the geomembrane;
- the method used to place the panels minimizes wrinkles (especially differential wrinkles between adjacent panels);
- adequate temporary loading and/or anchoring (e.g., sand bags, tires), not likely to damage the geomembrane, has been placed to prevent uplift by wind (in case of high winds, continuous loading, e.g., by adjacent sand bags, is recommended along edges of panels to minimize risk of wind flow under the panels); and
- direct contact with the geomembrane is minimized; i.e., the geomembrane is protected

by geotextiles, extra geomembrane, or other suitable materials, in areas where traffic may be expected.

- No vehicles are permitted on directly on the geomembrane expect for small rubber-tired vehicles approved by the engineer.

- Appropriate geomembrane protection shall be used based on the guidance from the geomembrane manufacture.

1.2.2 NON-DESTRUCTIVE SEAM CONTINUITY TESTING

The remedial contractor shall non-destructively test the full length of all seams using an air channel test (ATSM- D7177), with oversight from the field engineer. The purpose of this test is to check the continuity of the seam.

For the air pressure testing, the following procedure shall utilized:

1. The equipment used shall consist of an air tank or pump capable of producing a minimum 35 psi and a sharp needle with a pressure gauge attached to insert into the air chamber.

2. Seal both ends of the seam by heating and squeezing them together. Insert the needle with the gauge into the air channel. Pressurize the air channel to 30 psi. Note the time the test starts and wait a minimum of 5 minutes to check. If the pressure has dropped less than 2 psi then the test is successful.

3. Cut the opposite seam end and listen for pressure release to verify the full seam has been tested.

4. If the test fails, follow these procedures.

    a. While the channel is under pressure walk the length of the seam and listen for the leak.

    b. While the channel is under pressure apply a soapy solution to the seam edge and look for bubbles formed from the air being released.

    c. Re-test the seam in smaller increments, if required until the leak is found.

5. Once the leak is found repair and re-test.

The date of observation, dimensions and/or descriptive location of each seam length tested, name of person performing the test, and outcome of the test shall be recorded by the Field Engineer.

1.3 DEFECTS AND REPAIRS

Defects observed by the remedial contractor or field engineer shall be repaired and require approval from the field engineer post-repair.