AECOM Environment

Prepared for:
New York State Electric and Gas Corp
18 Link Drive
P. O. Box 5224
Binghamton, NY 13902

Prepared by:
AECOM
Latham, NY
Project 60189777
August 2013

Interim Site Management Plan
Norwich Former MGP Site
Norwich, New York
NYSDEC Site # 7-09-011

FINAL

Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

Contents

List of Figures

List of Appendices

Engineering Certification

I certify that I am currently a NYS registered professional engineer and that this Interim Site Management Plan for the Former Norwich Manufactured Gas Plant Site was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the New York State Department of Environmental Conservation Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

Respectfully submitted,
AECOM Technical Services Northeast, Inc.

August 5, 2013

Scott A. Underhill — Date
Registered Professional Engineer
New York License No. 075332

1.0 Introduction

This interim Site Management Plan (SMP) has been developed for the Norwich Former Manufactured Gas Plant (MGP) Site (Site) by AECOM Technical Services, Inc. (AECOM) for New York State Electric and Gas Corporation (NYSEG). The SMP has been prepared in accordance with the Record of Decision (ROD) issued by the New York State Department of Conservation (NYSDEC) in March 2008. The NYSDEC reference number for the Site is 709011. This interim SMP covers the first portion of remedial work on the Site and off-Site area north of Front Street (Phase 1A – In Situ Stabilization/Solidification [ISS]). A final SMP will be issued upon completion of the remedial work south of Front Street.

The site is located at 24 Birdsall Street, in the City of Norwich, Chenango County, New York (Figure 1). The Site was the subject of Order on Consent Index #DO-002-9309 between NYSEG and NYSDEC. The former facility is approximately one acre in area and is bounded to the north by a plaza with retail shops, to the east by a NYSEG substation and private residences, to the south by the former Aero Products property (now owned by NYSEG), and to the west by the New York Susquehanna & Western railroad tracks. The former plant is located on Birdsall Street, in Chenango River valley, west of the Chenango River and Rt. 32, south of Rt. 23, and east of Rt. 12.

The Site previously occupied approximately one acre of land located at 24 Birdsall Street. In the years following cessation of gas production, former MGP structures were razed and subsequently NYSEG used the site for equipment storage. Presently, much of the property is paved with asphalt or covered with compacted gravel. A NYSEG electric substation exists on the eastern portion of the site.

The northern portion of the Site has been developed as a shopping plaza with retail shops. NYSEG purchased the former Aero Products facility located to the south and used the building for storage for several years. During the summer of 2006, NYSEG demolished the former Aero Products building. The off-site area that extends to the south of the former Aero Products building is comprised of mostly residential housing. Prior to the remedial construction NYSEG purchased the properties at 37 and 41 Front Street and razed the structures located on these properties to allow for the ISS of the underlying soils. The properties associated with this CCR are: the former facility; the former Aero Products property; and the residential properties located at 37 and 41 Front Street.

This interim SMP includes an Engineering Control/Institutional Control (EC/IC) Plan for Phase I remediation of the on-Site property and off-Site property north of Front Street (Phases of remediation are discussed in Sections 1.4 and 1.5). Since the remedial work on the off-Site area south of Front Street has not yet been completed, this off-Site portion is not covered under the interim SMP. A final SMP will include the area south of Front Street upon completion of the in situ chemical oxidation (ISCO) remediation.

The SMP does not supersede any federal, state, or local statutes, regulations, or ordinances pertaining to the environment, and current and future holders of interests of the Site will remain obligated to comply with the same. This SMP also outlines general soil management practices that should be followed during future construction activities at the Site.

The NYSDEC, its agents, employees, or other representatives of the government may enter and inspect the Site in a reasonable manner and at reasonable times following the access arrangements with NYSEG or their representative to assure compliance with the SMP. This SMP has been prepared

as a mechanism to assure that consistent and effective inspection, maintenance and enforcement activities are occurring and will occur in the future at the Site. The objectives listed below will be primarily achieved through the implementation of EC/ICs and groundwater monitoring, and O&M as required. Future owners of the property will be bound by the provisions of this SMP.

1.1 Purpose

The site contains contamination left after completion of the remedial action. EC/ICs have been incorporated into the Site remedy to provide proper management of residual contamination to ensure future protection of public health and the environment although the contamination from most of the soils has been stabilized. An Environmental Easement that provides an enforceable legal instrument to ensure compliance with this interim SMP and all ECs and ICs placed on the Site will be granted to the NYSDEC upon approval of this interim SMP and recorded with the Chenango County Clerk. The ICs place restrictions on Site use and mandates operation, maintenance, monitoring and reporting measures for all ECs and ICs. This interim SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the Environmental Easement for contamination that remains at the Site. This interim SMP will be revised upon completion of the ISCO treatment component and issued as the Final SMP with the approval of the NYSDEC.

The SMP provides a detailed description of all procedures required to manage remaining contamination at the Site after completion of the Remedial Action, including: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; (3) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports (PRRs); and (4) defining criteria for termination of monitoring.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems.

This plan also includes a description of PRRs for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

1.2 Site History

The Site is located at 24 Birdsall Street in the City of Norwich, Chenango County, New York, as shown on Figure 1. The Site is found in a municipal setting with both private residences and businesses located nearby. The former MGP Site occupied approximately one acre and is bordered by a shopping plaza to the north, an active NYSEG substation and residential properties to the east, Lackawanna railroad tracks to the west, and by the former Aero Products property (now owned by NYSEG) to the south. Two NYSEG owned gas transmission lines lay within the ISS area, as well as overhead electric lines.

The exact starting date of MGP operations at the Site is unknown; however, Sanborn fire insurance maps suggest that the plant operations started sometime between 1863 and 1887. By 1887 the Norwich MGP was supplying gas to the City of Norwich under the name “Norwich Light Company”. Little is known about the generation and disposal practices from this MGP, except that two tar storage vessels existed in the subsurface. In the years following the end of gas production at the Site, former MGP structures were demolished. Since then, NYSEG has used the Site for equipment storage. In the summer of 2006, NYSEG also demolished the former Aero Products building down to the concrete slab, which remains intact.

1.2.1 Previous Investigation and Remedial History

The following provides a brief chronology of the remedial history at the Site to date:

- 1990 – A Task I investigation was conducted by Engineering-Science, Inc. Seven subsurface samples were collected and analyzed by NUS Corporation, under contract to the USEPA.
- July 1992 – A Task II Investigation Report determined that benzene, ethylbenzene, toluene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) were present in On-Site subsurface soils, and that the most highly contaminated soils occurred at depths from one to six feet below ground surface downgradient of the former relief holder and distribution holder, the tar well, and former above ground oil tanks.
- March 1994 – The NYSDEC and NYSEG entered into a multi-site CO (#D0-0002-9309), which obligates NYSEG, the responsible party, to implement a full remedial program at 33 former MGP sites across the State, including the Norwich Site.
- July 1997 – A Task III Investigation was performed to assess the potential presence of surface soil, subsurface soils, and groundwater contamination on site and in backyards adjoining the Site and also to determine the location and size of the former tar well and relief holder.
- 1997 – An Interim Remedial Measure (IRM) was performed by NYSEG to remove MGP residues from source areas at the Site to achieve a site-wide cleanup goal of 0.1 parts per million (ppm) for benzene and 500 ppm for total PAHs. Approximately 11,500 tons of soil was excavated and disposed off site during the IRM. Of this material approximately 6,800 tons were considered source materials. Underground structures and piping associated with the former MGP were removed during the IRM. An air sparging and soil vapor extraction (AS/SVE) system was installed at this time to address the groundwater contamination.
- December 1999-January 2000 – The AS/SVE system started operation.
- June 2003 – The AS/SVE system was decommissioned after evaluations indicated that it was no longer effective.
- October 2006 – A RI was completed by ISH, Inc. (ISH, Inc., 2006). Numerous soil borings, piezometers, and a monitoring well were installed during the RI for analysis of soils, groundwater, and hydrogeologic conditions.
- November 2007 – A FS evaluated remedial alternatives for the Norwich Former MGP Site (Ish, 2007).
- March 2008 – The NYSDEC issued a ROD for the NYSEG Norwich Former MGP Site. The ROD presents the selected remedy for the site (NYSDEC, 2008).
- February 2009 – Remedial Design Work Plan outline the pre-design investigation activities along with the design basis for Phase 1A ISS (AECOM, 2009).
- August 2009-Present – Install NAPL recovery wells in area south of Front Street and recovery NAPL. Through May 2012 (time of this interim SMP), over 72,000 gallons of NAPL has been recovered. Monthly reports submitted to the NYSDEC during recovery periods summarize recovery efforts. In December 2011, system was winterized allowing for year-round NAPL recovery operations.
- May 2010 – Final Remedial Design Report for the ISS of Phase 1A submitted to the NYSDEC (AECOM, 2010)
- October 2010-June 2011 – Perform ISS of over 52,000 cubic yards of soil under the Phase 1A remediation. Construction certification report summarizes remedial action (AECOM, 2012).
- March 2012 - Phase I of ISCO Pre-Design Investigation Summary submitted to NYSDEC (AECOM, 2011)
- May 2011 – Results of a bench-scale ISCO treatability study submitted to the NYSDEC (AECOM, 2011).

All of the documents associated with these Investigations and Reports are available for public review at the following document repository:

New York State Department of Environmental Conservation
Central Office, 625 Broadway 11th Floor
Albany, New York 12233-7014
Attn: Mr. Anthony Karwiel
(518) 402-9662 (By appointment only)

1.3 Summary of Remedial Investigation Findings

An RI and FS were conducted at the Site prior to issuance of the ROD to evaluate the alternatives for addressing threats to public health and the environment.

1.3.1 Site Geology and Hydrology

The Site is gently sloped toward the south; however, there are some small soil stockpiles and minor surface depressions at various locations throughout the Site. Surface water at the Site is drained via the City of Norwich storm water system.

The unconsolidated materials at the Site are described as Quaternary glacial lacustrine deposits overlain by a thin layer of alluvial sediments and fill. The four distinct strata identified during previous investigations, presented here in order of increasing depth, are:

1. Imported fill at the Site is comprised of varying quantities of silt, sand, and gravel. The thickness of the fill varies from less than 1 foot thick to the south, east, and west of the Site, to over 11 feet thick within the former excavation area that extended from the former relief holder to the tar wells and gas plant building to the south.
2. Alluvial deposits of silt and sand are found beneath the imported fill materials. The alluvium varies from 1 to 8 feet thick.
3. A glacial outwash sand and gravel unit lies beneath the alluvium. This unit ranges from 7 to 15 feet in thickness.
4. Glacial lacustrine deposits of silt and clay are encountered beneath the outwash sand and gravel. The thickness of this deposit is unknown. The top of this layer is located from 8 to 25 feet below ground surface, and is generally about 22 to 24 feet below ground surface.

A shallow aquifer is present and is found in the fill, alluvium, and glacial outwash layers. Borings indicate that the aquifer is generally 10 to 15 feet in thickness, but can be thinner in locations where the silt and clay is shallow. The depth to the groundwater table ranges from 4 to 14 feet deep. The horizontal hydraulic gradient is relatively flat, and has been estimated at 0.0012 feet/feet. Slug tests estimate the hydraulic conductivity of the shallow zone to be 25.8 feet/day. The linear groundwater velocity is estimated to be 32 feet per year, using an assumed effective porosity of 0.35 for the outwash sand and gravel unit (ISH, Inc., 2007). The vertical hydraulic gradient within the aquifer is negligible.

1.3.2 Nature of Contamination

As described in the RI report, many soil, groundwater samples were collected to characterize the nature and extent of contamination. The main categories of contaminants that exceed their standards, criteria and guidance (SCGs) are volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs).

Coal tar is a reddish brown oily liquid by-product which formed as a condensate as the gas cooled and which does not readily dissolve in water. Materials such as coal tar are commonly referred to as

non-aqueous phase liquids, or NAPLs. The terms NAPL and coal tar are used interchangeably in this document. Although most coal tars are slightly more dense than water, the difference in density is slight. Consequently, this tar can either float or sink when in contact with water. Coal tar was found on-site and off-site during the remedial investigation.

Specific VOCs of concern are benzene, toluene, ethylbenzene, and xylenes (BTEX). SVOCs of concern are the PAHs. Total PAH concentrations are referred to in this document as the sum of individual PAH compounds.

Tars contain high levels of PAH compounds which exceed SCGs for BTEX by several orders of magnitude. In certain tar samples, enough benzene may be present to require the material to be managed as hazardous waste.

1.3.3 Extent of Contamination

This section describes the investigation results for all environmental media that were investigated. Chemical concentrations are reported in parts per billion (ppb) for groundwater, and ppm for waste, soil, and sediment.

Waste Materials

The RI data indicate that coal tar is the major type of waste present at the site. Tars generated at the MGP were disposed, spilled or leaked from the relief holder and/or the tar well and associated piping and possibly other structures, at various locations throughout the site that no longer exist. Tar is visible as sheen on a water surface or as NAPL in soil or water.

Visual observations of sheens or NAPL in the subsurface were generally limited to the locations of former MGP structures, locations downgradient of the structures, and the gravel and sand waterbearing interval located immediately above the silty clay confining layer. Generally, the NAPL was observed at depths ranging from 7 to 26 feet below the ground surface and was generally reddish-brown in color. The greatest NAPL impacts (in a 5 to 10 feet thick soil zone) were encountered on the former MGP site and on the former Aero Products building property (now owned by NYSEG), just south of the MGP. Lesser NAPL impacts (less than 5 feet thick) were observed further to the south consistent with southerly migration of NAPL and groundwater flow from site. The impacts were observed above the silty clay layer, which by all indications is acting as a confining layer to vertical migration at the site and surrounding area.

Surface Soil

The surface soils on-site are generally not significantly impacted by the former MGP operation. Eleven composite surface soil samples were collected from on-site (five samples) and off-site (six samples) locations during the Task II and Task III investigations. On-site, the concentrations of total BTEX ranged from non-detect to approximately 0.010 ppm, while total PAHs ranged from 30 to 230 ppm. On-site surface soils had very low levels of total cyanide, with concentrations ranging from not detected to 0.016 ppm of total cyanide.

The five off-site surface soil samples indicated no BTEX compounds or PCBs. These samples were collected mainly in residential backyards downgradient of the site. PAHs were found with concentrations ranging from approximately 4.7 to 21 ppm.

Subsurface Soil

Analytical results for subsurface and saturated zone soil samples confirmed the general understanding of the nature and extent of impacts based on the visual observation of NAPL. The

occurrence of soils exceeding the NYSDEC's recommended subsurface soil cleanup objective of 500 ppm for total SVOCs, as well as the distribution of NAPL, is consistent with the location of former subsurface structures associated with the MGP oerations and locations downgradient of the structures and of the site.

The analytical results indicate that VOCs including benzene, toluene, ethylbenzene and xylenes (BTEX) and SVOCs (specifically PAHs) are the contaminants of concern. The on-site subsurface soil contaminant concentrations for total VOCs range from 0.0021 ppm to 73 ppm, Total SVOCs range from 0.054 ppm to 3,400 ppm. This includes benzene levels as high as 5.51 ppm for the VOCs and naphthalene as high as 675 ppm for SVOCs in subsurface soils.

Evidence of coal tar NAPL, in the form of sheens and small NAPL globules, was observed in the subsurface soil across the majority of the Norwich former MGP site, as well as downgradient (south) of the site.

Groundwater

Groundwater at the site and at off-site residential properties has been impacted by NAPL and by dissolved-phase BTEX compounds and PAHs related to MGP residuals in the subsurface soil at the site. During the RI, groundwater was observed at depths ranging from 4 to 14 feet below the ground surface. The impacts are limited to the shallow groundwater found primarily above the silty clay confining layer. The silt and clay confining layer is present at depths ranging from approximately 8 to 25 feet across the study area. Observations from borings indicate that the thickness of the aquifer is generally 10-15 feet thick, but thinner in areas where the silty layer is relatively shallow. Groundwater in the area flows generally to the south, with some convergence of groundwater from the east and west immediately around the site.

Total VOC concentrations in groundwater range from non-detect to 1,600 ppb which includes individual benzene concentrations as high as 272 ppb. Total SVOC concentrations in groundwater range from non-detect to 3,400 ppb which includes naphthalene concentrations as high as 2,810 ppb.

Total cyanide groundwater concentrations were found as high as 400 ppb in the vicinity of the former MGP structures.

Surface Water

No site-related surface water contamination of concern was identified during the RI/FS.

Sediments

No site-related sediment contamination of concern was identified during the RI/FS.

Soil Gas/Sub-Slab Vapor/Air

A soil vapor intrusion investigation was performed in the residential/commercial neighborhood down gradient of the MGP site. The objective of the investigation was to determine whether actions are needed to address exposures to site-related contaminants, which may move from contaminated groundwater into the indoor air of a building through a process referred to as soil vapor intrusion.

As part of the investigation, air samples were collected from 14 properties, including 12 residences and two commercial establishments. At each location, indoor air samples were collected in the basement (except for two locations that did not have basements) and the lowest occupied floor. In addition, sub-slab vapor (air found in the pore space between soil particles) samples were collected

from beneath each building (except for four locations that had a dirt floor). The sample results indicate the presence of BTEX and other VOCs at low levels in sub-slab vapor and indoor air. These compounds are typically associated with MGP sites, but are also commonly found in products we store and use in our homes. The NYSDEC and NYSDOH reviewed the sample results for each home, in conjunction with all environmental sampling near each structure, and determined that actions to address exposures related to soil vapor intrusion are not needed at this time.

1.4 Record of Decision

Following the RI/FS, the NYSDEC issued a ROD for the Site in March 2008. Goals from the ROD for the remedial program were established through the remedy selection process stated in 6 NYCRR Part 375-1.10. At a minimum, the remedy selected eliminated or mitigated all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for this Site are to:

- remediate, to the extent practicable, areas containing source material;
- eliminate potential exposure to source material;
- control future migration of source material from on-site to off-site areas;
- eliminate potential human exposure to subsurface soil containing MGP-related contamination; and
- eliminate potential human exposure to groundwater containing MGP-related contamination.

Further, the remediation goals for the Site include attaining to the extent practicable:

- Ambient groundwater quality standards;

A listing of the cleanup objectives for soil and groundwater are presented below.

Contaminant	Soil Cleanup Objective (mg/kg)	Groundwater Cleanup Objective (ug/L)
Benzene	Not Applicable	1
Toluene	Not Applicable	5
Ethylbenzene	Not Applicable	5
Xylenes (total)	Not Applicable	5
Total BTEX	10	Not Applicable
Total PAHs	500	Varies

Based on the results of the remedial investigation and feasibility study (RI/FS) for the Norwich Former MGP site and the criteria identified for evaluation of alternatives, the NYSDEC-selected approach consists of ISS of on-Site source area and off-Site properties north of Front Street, removal of free-phase NAPL from selected off-site areas, ISCO treatment of off-site source material south of Front Street, enhanced bioremediation, development of a SMP, and ICs (Figure 2). The components of the remedy are as follows (**bold text at conclusion of each component summarizes the status of that element**):

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. Any uncertainty identified during the RI/FS will be resolved, including a more precise delineation

of the lateral and vertical extent of the proposed ISS technology. **A Pre-Design Investigation was completed and submitted as part of the Phase 1 Remedial Design Report (AECOM, May 2010).**

2. ISS of on-site soils and off-site soils on portions of two properties immediately adjacent to the former MGP. To account for the volume expansion associated with ISS, approximately 6 feet of shallow soils will be removed prior to the ISS process. Of this excavated material, any MGP waste, coal tar or contaminated soils meeting one or more of the following criteria: visible tar or oil; the presence of sheens or odors with total PAHs over 500 ppm; or total BTEX concentration above 10 ppm, will be disposed of at an off-site treatment or disposal facility. Excavated materials which are below the criteria will be stockpiled and evaluated for reuse on-site. This removal of shallow soils will also include potential underground structures and obstructions that could impede the ISS process. **This component was completed in April 2011.**
3. A soil cover will be constructed over the site and the off-site ISS treatment area. This cover will be a minimum of one foot thick on-site and two feet thick off-site, and will consist of clean soil underlain by an indicator such as orange plastic snow fence to demarcate the cover soil from soil that exceeds the criteria for clean cover soils or solidified material. Clean soil will constitute soil that meets the Division of Environmental Remediation's criteria for backfill or local site background. Excavated soil that exceeds the criteria for clean cover soils, but is not required to be disposed off-site, may be stockpiled for re-use below the demarcation layer. The top six inches of soil will be of sufficient quality to support vegetation in areas intended to be vegetated. Non-vegetated areas (buildings, roadways, parking lots, etc.) will be covered by a paving system or concrete in lieu of the soil cover. **This component (Phase 1A) was completed in May 2011.**
4. Collection of mobile NAPL at off-site areas south of Front Street. NAPL and highly contaminated groundwater will be collected from an estimated 12 collection wells, and transported to an off-site disposal facility. The primary objective of the extraction will be to remove free-phase NAPL and reduce the source material in advance of ISCO. **This component (Phase 1B) of the remedy began in August 2009 and is on-going as of July 2012**.
5. Following a period of NAPL removal acceptable to NYSDEC, the remaining off-site source material will be treated by ISCO. NAPL monitoring and, if necessary, collection, will continue during the ISCO treatment period to manage any NAPL that may be liberated by the ISCO process. **Bench-scale ISCO treatability study testing was performed in 2010; Phase I of Pre-Design Investigation for ISCO was performed in November 2011; full-scale application (Phase 2) will begin upon completion of NAPL recovery.**
6. Biodegradation of dissolved phase contaminants may be enhanced following the chemical oxidation injections. Following a sufficient period of monitoring subsequent to ISCO treatment, the need for enhanced bioremediation of any residual off-site groundwater impacts will be evaluated. **Will be evaluated upon completion of the ISCO component (Phase 3).**
7. Development of a SMP to: (a) address residual contaminated soils that may be excavated from the site during future redevelopment. The plan will require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations; (b) evaluate the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; (c) identify any use restrictions; and (d) provide for the operation and maintenance of the components of the remedy, both on-Site and off-Site. **This interim SMP is intended to cover the work completed on-Site and the portion of work completed off-Site north of Front Street (i.e., ISS component or Phase 1A).**
8. Imposition of an IC in the form of an environmental easement that will require (a) limiting the use and development of the site property to commercial use, which will also permit industrial uses; (b) compliance with the approved SMP; (c) restricting the use of groundwater as a source or potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit

to the NYSDEC a periodic certification of IC/ECs. **An environmental easement will be prepared and filed with Chenango County upon approval of this interim SMP.**

9. The property owner will provide a periodic certification of IC/ECs, prepared and submitted by a professional engineer or such other expert acceptable to the NYSDEC, until the NYSDEC notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the IC/ECs put into place are still in place and are either unchanged from the previous certification or are compliant with the NYSDEC-approved modifications; (b) allow the NYSDEC access to the site; and (c) state that nothing has occurred that will impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the SMP unless otherwise approved by the NYSDEC. **Periodic certifications will begin 18 months following the issuance of the Certificate of Completion (COC) for the Site.**

1.5 Summary of Remedial Actions

The remedy for this site is being performed in three phases: ISS (Phase 1A) followed by removal of mobile NAPL at selected off-site areas (Phase 1B); ISCO of off-site source material (Phase 2); and if necessary Enhanced Bio-Remediation for treatment of residual off-site groundwater impacts (Phase 3). The site is not broken into operable units. The information and certifications made in the ROD (NYSDEC 2008), Remedial Design Report (AECOM 2010), Pre-Design Investigation Soil Sampling & Analysis and In-Situ Solidification Treatability Study (AECOM 2009), and Construction Certification Report (CCR) of Phase 1 (Phase 1A) Remedial Action at the Site (AECOM, 2011) were relied upon to prepare this SMP.

1.5.1 Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS. A limited IRM was completed during 1997. The objective of this IRM was to remove MGP residues from source areas at the site to achieve a soil clean-up goal of 0.1 ppm for benzene and 500 ppm for total PAHs. During the IRM, approximately 11,500 tons of soil were excavated and removed from the site, of which approximately 6,800 tons were considered source material. The excavation included the former relief holder (654 tons) and the soils surrounding it (3,649 tons), the tar well (427 tons), related piping (3,412 tons), and shallow soils (3,305 tons).

During backfill of the IRM excavation, vertical air sparging (AS) wells and a horizontal soil vapor extraction (SVE) system were installed. The AS/SVE system began operating in December 1999/January 2000 and ran until shutdown in June 2003. The AS/SVE system consisted of four legs: one closest to nearby residences in constant operation and three other legs that operated in shifts of eight hours during the last six months of the operation. Based on monitoring results, a total of 586 pounds of BTEX and 761 pounds of total volatile organic compounds were removed by the system during its operation.

1.5.2 Remedial Action

Phase 1 soil remediation activities in were performed between October 2010 and June 2011 in accordance with the ROD and Remedial Design Report (AECOM 2010). The remedial action consisted of:

1. Pre-excavation below existing ground surface to accommodate the generation of spoils during the ISS processes. Of this excavated material, any MGP waste, coal tar, or contaminated soils that contained visible tar oil, sheens or odors, and/or had total PAHs over 500 ppm or total BTEX concentrations above 10 ppm were disposed of at an off-site treatment or disposal facility. Excavated materials below the criteria of 500 ppm total PAHs,

10 ppm total BTEX and free of visible tar oil, sheens or odors were transported to NYSEG's Service Center in Norwich, stockpiled, sampled and evaluated for reuse on site;
2. Decommissioning of the monitoring wells in the ISS area that extended through the bottom of the proposed ISS monolith;
3. ISS of the impacted soils by auger mixing;
4. Management, transportation, and disposal of ISS spoils to an off-site permitted facility;
5. ISS confirmation sampling to document compliance with design goals;
6. Execution of the community air monitoring program (CAMP);
7. Installation of a clean soil cover and demarcation layer in the on-site and off-site ISS areas. Restoration of preexisting grades or creation of new finish grades for surface water runoff control by backfilling with compacted gravel, topsoil or asphalt cover (where necessary); and
8. Survey of final grades of top and bottom of ISS columns and final surface grades.

The remedial action successfully solidified 52,103 cubic yards of soil. Additionally 1,733 tons of impacted material was shipped to ESMI of Fort Edward, New York for treatment by thermal desorption and 27,125 tons of soils and ISS "swell" material was disposed of at Seneca Meadows Landfill in Waterloo, New York. Approximately 3,076 yards of site reuse soils were staged at the NYSEG Service Center and transported back to the site and used as backfill; the remainder of the fill was from Burrell's Excavating, Inc of Norwich, New York.

Upon mobilization to the site an underground storage tank (UST) was discovered approximately centered in the former Aero Products property. On January 18, 2011 the UST was pumped out and fully excavated. All remaining liquids were removed from the tank via vacuum suction truck. Approximately 440 gallons of liquid was removed from the tank. The tank was removed crushed and disposed of with the Remediation Waste at Seneca Meadows Landfill. Test pitting was conducted in the remainder of the former Aero Products property at this time. NAPL was encountered in these test pits. NYSEG proposed to extend the ISS treatment area to the southern and western property boundaries of the former Aero Products property. NYSDEC subsequently approved this measure. The ISS mixing of the area was completed on March 22, 2011 and resulted in an additional 6,160 cubic yards of ISS treated volume.

1.5.3 NAPL Recovery Treatment Systems

As required in the Record of Decision (March 2008), mobile NAPL must be collected from the off-site areas south of Front Street. The objective is to remove mobile NAPL in advance of in-situ chemical oxidation (ISCO) treatment. Three NAPL recovery wells (RW-09-01 through RW-09-03) were installed in August 2009 to determine the feasibility of NAPL recovery. Between August and September 2009, 275 gallons of NAPL was manually bailed. In October 2009, four additional recovery wells (RW-09-04 through RW-09-07) were installed on the property south of Front Street, and a NAPL recovery pump test using electric Whale pumps recovered approximately 19,000 gallons of NAPL/water. The Whale pumps emulsified the NAPL resulting in a higher water content than through manually bailing.

To increase NAPL recovery, three additional recovery wells were installed at the site (RW-10-1 through RW-10-3) in April 2010. During the same period, a NAPL collection system consisting of a conex box, air compressor, utility pole, control panel, C100M controller, electrical receptacles, and Model LP1301 Pulse Pumps was installed. Pnuematic pumps were chosen over the Whale pumps to minimize emulsification. NAPL is pumped directly from recovery wells into a tank trailer using compressed air and bladder pumps. Once the tanker trailer reaches its weight capacity equivalent to approximately 5,000 gallons the tanker trailer is removed from the site for disposal of the NAPL and replaced with an empty tanker trailer. The system operated from April 2010 through October 2010 and removed an additional 32,850 gallons of NAPL. The system was shut down during the winter of 2010/2011 since the NAPL transfer piping was above grade. The system was operated from April

2011 through November 2011 and removed an additional 10,710 gallons. Since the recovery rate was not declining, the system was winterized in November 2011 by burying and heat tracing the NAPL transfer piping. The system has operated continuously since December 2011 and has recovered more than 75,000 gallons of NAPL.

1.5.4 Remaining Contamination

In-situ stabilization does not remove contamination; rather it renders the contamination stabilized by reducing the permeability of the media in which the contamination is found. Therefore the entire ISS monolith is considered contaminated (see Figure 3). This description of remaining contamination is for the portion of the site covered by ISS treatment only. Other residual contamination not treated under Phase 1B or Phase 2, will be addressed under the final SMP.

1.5.5 Engineering and Institutional Controls

Engineering controls installed during this portion of the Site remediation include a soil cover and a demarcation layer. The demarcation layer, orange plastic construction fence fabric, was installed on top of the ISS monolith or placed site reuse soils, where present. In the two residential properties along Front Street four feet of clean imported backfill was placed as a soil cover. This soil cover included 4 inches of topsoil in the two residential properties along Front Street. On the remainder of the Site up to 2 feet of reuse soil was placed on top of the ISS monolith. The remainder of the backfill in this area was comprised of select fill, sub-base fill and in the plaza parking lot asphalt.

2.0 Engineering and Institutional Control Plan

Since residual contaminated soil and groundwater exists beneath the Site, EC/ICs are required to protect human health and the environment. This EC/IC Control Plan describes the procedures for the implementation and management of all EC/ICs at the Site. The EC/IC Plan is one component of the SMP in addition to the Monitoring Plan (Section 3) and O&M Plan (Section 4).

2.1 Purpose

The purpose of the EC/IC Plan is to provide:

- A description of all EC/ICs on the Site;
- The basic operation and intended role of each implemented EC/IC;
- A description of the key components of the ICs created as stated in the Environmental Easement;
- 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 EC/ICs, such as the implementation of an Excavation Plan for the safe handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the Site;
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required for the Site remedy, as determined by the NYSDEC; and
- A description of the reporting requirements for these controls.

2.2 Engineering Controls

2.2.1 Soil Cover

Exposure to remaining contamination in soil/fill at the site is prevented by a soil cover system placed over the site. The soil cover system is underlain by a demarcation layer consisting of orange plastic construction fence fabric. For the two residential properties along Front Street, 4 feet of clean (Unrestricted Use) imported backfill was placed as a soil cover. This soil cover included 4 inches of topsoil. On the remainder of the Site, up to 2 feet of reuse soil (Commercial Use) was placed on top of the ISS monolith. The remainder of the backfill in this area was comprised of select fill, subbase fill and in the plaza parking lot asphalt.

2.2.2 NAPL Recovery System

A temporary NAPL recovery system has been installed on the off-Site property south of Front Street, however, since this interim SMP is intended to only address the Phase 1A remediation area (i.e., area north of Front Street), this system is not included as part of this interim SMP.

2.3 Institutional Controls

Institutional Controls are required by the ROD to: (1) limiting the use and development of the site property to commercial use, which will also permit industrial uses; (2) compliance with the approved site management plan; (3) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (4) the property owner to complete and submit to the NYSDEC a periodic certification of institutional and

engineering controls. Adherence to the ICs is required by the Environmental Easement and will be implemented upon NYSDEC approval of the interim SMP (this document).

Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The site has a series of Institutional Controls in the form of site restrictions. Adherence to these ICs is required by the Environmental Easement. Site restrictions that apply to the Controlled Property are:

- The property may only be used for commercial use (which includes industrial uses) provided that the long-term EC/ICs included in this SMP are employed;
- The property may not be used for a higher level of use, such as unrestricted use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use; and,
- The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.3.1 Excavation Work Plan

The site has been remediated for commercial use. Any future intrusive work that will penetrate, encounter or disturb the remaining contamination, will be performed in compliance with the Excavation Work Plan (EWP) that is attached as Appendix A to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the site. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section A-1 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

The site owner and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The site owner will ensure that site development activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.3.2 Soil Vapor Intrusion Evaluation

Prior to the construction of any enclosed structures located over areas that contain remaining contamination and where potential for soil vapor intrusion (SVI) has been identified, an SVI evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, an SVI mitigation system may be installed as an element of the building foundation without first conducting an investigation. This mitigation system will include a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system.

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York". Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as mitigation. If the property is owned by a third party, include the following: Validated SVI data will be transmitted to the property owner within 30 days of validation.

SVI sampling results, evaluations, and follow-up actions will also be summarized in the next PRR.

2.4 Inspections and Notifications

2.4.1 Periodic Inspections

Periodic inspections of all ECs at the Site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted annually, regardless of the frequency of the PRR. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If the ECs continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If Site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Site Management Reporting Plan.

2.4.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following:

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the Order on Consent, 6NYCRR Part 375, and/or Environmental Conservation Law.

- 10-day advance notice of any proposed ground-intrusive activities that will go to depths greater than 6 feet in the areas where potential impacted soils exist.
- Notice within 48 hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other ECs and likewise any action to be taken to mitigate the damage or defect.
- Notice within 48 hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Notifications will be made to:

Mr. Anthony Karwiel
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7013

In the event that NYSDEC develops a centralized notification system, that system will be used instead.

2.5 Contingency Plan

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

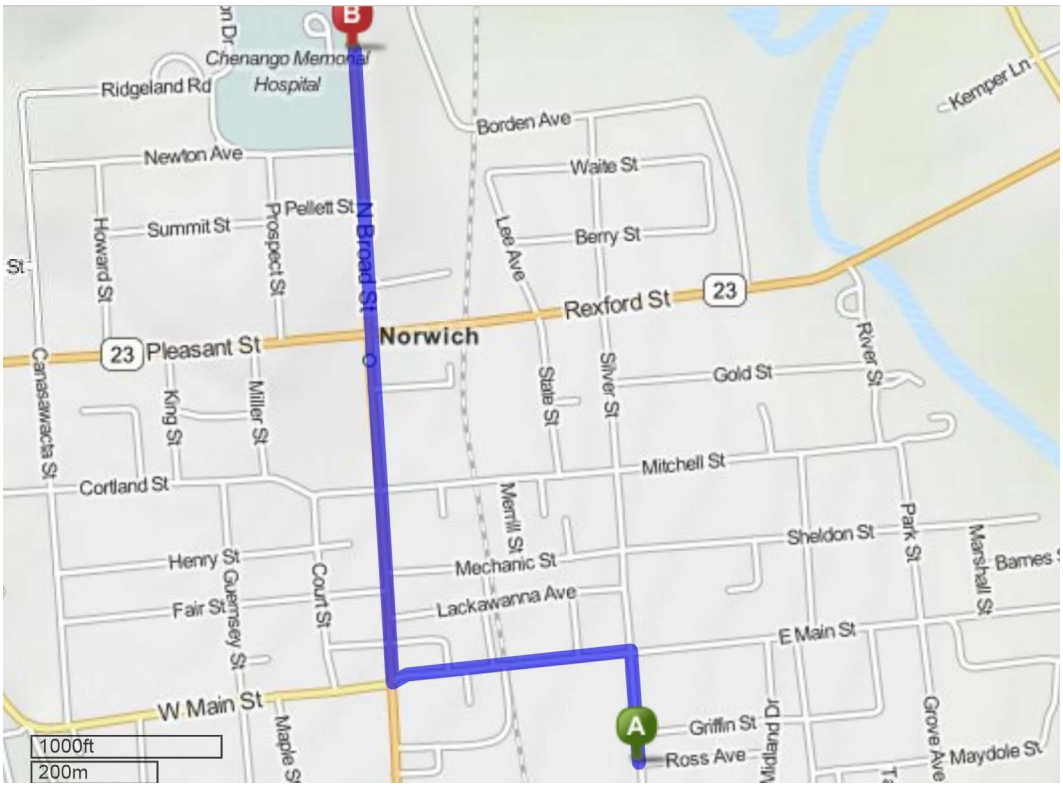
2.5.1 Emergency Contact Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. These emergency contact lists must be maintained in an easily accessible location at the site.

Emergency Contact Numbers

Medical, Fire, and Police	911
Chenango Memorial Hospital	(607) 337-4113
One Call Center	(800) 272-4480
Poison Control Center	(800) 222-1222
Pollution Toxic Chemical Oil Spills	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362
NYSEG Project Manager – Tracy Blazicek	(607) 762-8839 (Office) (607) 237-5325 (Cell)
NYSDEC Project Manager – Anthony Karwiel	(518) 402-9662 (Office)
AECOM Project Manager – Scott Underhill	(518) 951-2208 (Office) (518) 396-7638 (Cell)

2.5.2 Map and Directions to Emergency Health Facility



Site Location: 24 Birdsall Street, Norwich, NY
Nearest Hospital (with Emergency Room): Chenango Memorial Hospital, Norwich
Hospital Location: 179 North Broad Street, Norwich, NY 13815
Phone Number of the Hospital: (607) 337-4113

Directions to the Hospital:

1. Head **north** on **Birdsall Street** 0.1 mi
2. Take first **left** onto **E Main St** 0.3 mi
3. Turn **right** at **N. Broad/RT-12** 0.7 mi
4. Hospital will be on the left at **179 N. Broad St**

- Total Distance: 1.1 Miles
- Total Estimated Time: 3 Minutes

3.0 Monitoring Plan

3.1 Introduction

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, the soil cover system, and all affected site media identified below. Monitoring of other ECs is described in Chapter 4, Operation, Monitoring and Maintenance Plan. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with NYSDEC groundwater standards and soil vapor intrusion guidelines;
- Assessing compliance with discharge or effluent limits (if any system is operational);
- Assessing achievement of the remedial performance criteria;
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on designed monitoring systems (if present);
- Analytical sampling program requirements;
- Reporting requirements; and
- Quality Assurance/Quality Control (QA/QC) requirements (Appendix B);

Monitoring programs for environmental media are summarized in Table 3.1 and outlined in detail in Sections 3.2 through 3.4 below.

Table 3.1: Media Monitoring Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Soil Cover System	Annually	Soil	Ensure that the soil cover on-site is still intact
Groundwater Monitoring	To be updated upon completion of ISCO (Phase 2)		
Indoor Air Quality	Prior to change in site usage or development	Air	TO-15

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

3.2 Soil Cover System Monitoring

Residual contamination (i.e., soils containing NAPL or PAH concentrations greater than 500 ppm) have been solidified, but are still present at the Site within the ISS area shown on Figure 3. Exposure to the residual contamination has been eliminated by the soil cover placed over the ISS monolith. The cover area should be observed for any damages or erosion during the annual Site inspection. The IC/EC certification in the PRR should include language regarding the status and condition of the soil cover and confirm that no excavation has been performed in the area without prior approval by the NYSDEC.

Monitoring Event	Frequency	Monitoring Locations	Measurements/Analysis
Soil Cover	Annual	ISS area (Phase 1A) shown on Figure 3	Visual inspect areas for signs of unauthorized excavations, soil erosion, or other defects to the soil cover.

3.3 Groundwater Monitoring Program

The groundwater monitoring program is a long term plan to monitor the quality of groundwater on-site and off-site. Groundwater samples will be collected from a list monitoring wells to be determined and analyzed until the results meet the groundwater SCGs (based on the NYSDEC "Ambient Water Quality Standards and Guidance Values") for at least two consecutive sampling events; however ceasing the groundwater monitoring program will be made in consultation with the NYSDEC. All monitoring wells will have water levels recorded prior to sampling activities.

Monitoring Event	Frequency	Monitoring Locations	Measurements/Analysis
Groundwater Monitoring	To be determined	To be determined	• Water Levels • Field Parameters (DO, ORP, turbidity, temp) • Chemical Analyses To Be Determined

3.3.1 Groundwater Monitoring Schedule

Groundwater monitoring schedule will be determined upon completion of the ISCO work.

The sampling frequency may be modified with the approval NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

3.3.2 Sampling Event Protocol

All monitoring well sampling activities will be recorded in a field book and a monitoring well purging/sampling form presented in C. Other observations (e.g., well integrity) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network. Prior to sampling the wells, depth to groundwater will be measured using a water level indicator. All wells shall be purged and sampled with a submersible pump using methods specified by the USEPA for low flow/low stress sampling [USEPA, 1996].

The list of analyses will be determined in the Final SMP. All analyses will be performed by a NYSDOH accredited laboratory.

Required equipment and supplies for the groundwater monitoring events include:

- Field book;
- Project plans;
- Electronic oil/water interface probe;
- Disposable polyethylene bailers and low-flow sampling pump;
- Polypropylene rope;
- Temperature, conductivity, and pH meter;
- Turbidity meter;
- Flow through cell;
- Decontamination supplies;
- Peristaltic or submersible pump capable of achieving low-flow rates (i.e., 0.5 liters per minute or less);
- Plastic tubing;
- Plastic sheeting;
- Photoionization detector;
- Clear tape, duct tape;
- Coolers and ice;
- Laboratory sample bottles; and
- Federal Express labels.

Purging activities are detailed below:

- Prior to sampling, the static water level will be measured to the nearest 0.01 foot from the surveyed well elevation mark on the top of the PVC casing with a decontaminated oil/water interface probe. NAPL thickness and depth of the well will be measured to the nearest 0.1 foot with a weighted string or steel tape. The measurement will be recorded in the field book.
- The probe will be decontaminated between uses.
- Groundwater from the well will be purged until field parameters stabilize, up to three well volumes are removed, or 1 hour of continuous purging is performed. Field parameters are considered to be stable when three consecutive readings are within the stabilization criteria for that parameter. The stabilization criteria are as follows: 10% or below 10 NTUs for turbidity, 3% of conductivity and temperature, 0.1 unit for pH, and 10 mV for ORP. Purging will be conducted using the low-flow sampling technique specified by the U.S. EPA Region 1 in its guidance document entitled "Low-Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells".
- The flow rate measurement will be approximately 0.5 liter per minute or less.
- If a well goes dry before the required volumes are removed, it will be allowed to recover, purged a second time until dry or the required parameters are met, and sampled when it recovers sufficiently, in accordance with low-flow sampling protocol.
- All purge water generated from the groundwater monitoring program will be collected and stored in the 55-gallon drums located on-site until arrangements have been made to ship the containers to an off-site facility for proper disposal.

Sampling activities are detailed below:

- Samples will be collected using dedicated polyethylene tubing.
- Prior to filling the sample bottles, the temperature, pH, conductivity, and oxidation reduction potential (ORP) will be measured within a flow-through cell. Turbidity will be measured with a hand-held turbidity meter. All measurements will be recorded in the field book.

- Three 40-ml VOA vials with Teflon lined septa and hydrochloric acid as a preservative will be filled for analysis of VOCs. The VOA vials will be filled to ensure that no bubbles are in the sample. A 1 liter (L) amber glass will be filled for SVOC analysis.
- The sample containers will be labeled, placed in a laboratory-supplied cooler, and packed on ice (to maintain a temperature of 4^{o} C). The cooler will be shipped overnight or delivered to the laboratory for analysis.
- Standard chain of custody procedures will be followed.
- Well sampling data will be recorded on the monitoring well purging/sampling form included in Appendix C, or a similar form.

All sampling and analyses will be performed in accordance with the requirements described in the Quality Assurance Project Plan (QAPP) included as Appendix B.

Groundwater monitoring will continue until the remedial objectives have been achieved or until the NYSDEC determines that it is no longer practical.

3.3.3 Monitoring Well Repairs, Replacement and Decommissioning

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells that are part of this Monitoring Plan, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced, if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance. The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.3.4 Indoor Air Quality Monitoring Program

Since residual contamination may be present at the Site, an evaluation of indoor air quality will be required if occupied structures are constructed on the site in the future.

If indoor air quality evaluation is required, indoor air and sub-slab vapor samples should be collected in accordance with the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York. If sampling identifies VOCs at concentrations exceeding the NYSDOH guidance values, measures will be taken to mitigate the effects of vapor intrusion (e.g. by installing and maintaining an sub-slab depressurization system (SSDS) or maintaining positive pressure inside the building).

3.4 Site-Wide Inspection

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed (Appendix 4). The form will compile sufficient information to assess the following:

1. Compliance with all ICs, including site usage;
2. An evaluation of the condition and continued effectiveness of ECs;
3. General site conditions at the time of the inspection;

4. The site management activities are being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
5. Compliance with permits and schedules included in the Operation and Maintenance Plan; and
6. Confirm that site records are up to date.

3.5 Monitoring Quality Assurance/Quality Control

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the site (Appendix B). Main Components of the QAPP include:

- QA/QC Objectives for Data Measurement
- Sampling Program:
  - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
  - Sample holding times will be in accordance with the NYSDEC ASP requirements.
  - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody
- Calibration Procedures:
  - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
  - The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.
- Analytical Procedures
- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks
- QA Performance and System Audits
- Preventative Maintenance Procedures and Schedules
- Corrective Action Measures

3.6 Monitoring Reporting Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file on-site. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the PRR, as specified in the Reporting Plan of this SMP.

All monitoring results will be reported to NYSDEC on a periodic basis in the PRR. A letter report will also be prepared, subsequent to each sampling event. The report (or letter) will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air);

- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (o be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables are summarized in the Table below.

Table: Schedule of Monitoring/Inspection Reports

Task	**Reporting Frequency***
Site Inspection	Annual
Others to be added as required in the Final SMP	

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC

4.0 Operation and Maintenance Plan

4.1 Introduction

The site remedy for the portion of the site north of Front Street as covered under this interim SMP does not rely on any mechanical systems, such as SSDS or AS/SVE systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP. If at the time of the final SMP an active system is part of the final remedy – presently not anticipated – then this section will be updated to include the operation and maintenance of the installed system.

5.0 Inspections, Reporting and Certification

5.1 Site Inspections

5.1.1 Inspection Frequencies

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections of remedial components will also be conducted when a breakdown of any treatment system component has occurred or whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms contained in Appendix C. Additionally, a general site-wide inspection form will be completed during the site-wide inspection (see Appendix D). All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format in the PRR.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that:

- The EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,
- The site remedy continues to be protective of public health and the environment.

5.1.4 Certification of Engineering and Institutional Controls

After the last inspection of the reporting period, a Professional Engineer licensed to practice in New York State will certify the following:

- The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Use of the site is compliant with the environmental easement; and
- The engineering control systems are performing as designed and are effective.

5.2 Periodic Review Report

A PRR will be submitted to the Department 18 months upon approval of this interim SMP (December 2012) and every five years thereafter, unless the frequency is changed in a subsequent PRR. The PRR will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each certification period. Media sampling results will also be incorporated into the PRR. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site;

- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the site during the reporting period in electronic format;
- Data summary tables and graphical representations of contaminants of concern by media which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- A site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;
    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
    - The overall performance and effectiveness of the remedy.

The PRR will be submitted, in electronic format, to the NYSDEC Central Office and the NYSDOH Bureau of Environmental Exposure Investigation.

5.3 Corrective Measures Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

6.0 References

AECOM, 2009. Remedial Design Work Plan, Norwich Former MGP Site, Norwich, NY. February.

AECOM, 2009a. Monthly NAPL Recovery Status Letters, Norwich Former MGP Site, Norwich, NY. August through December.

AECOM, 2010. Final Phase 1 Remedial Report, Norwich Former MGP Site, Norwich, NY. May.

AECOM, 2010a. Monthly NAPL Recovery Status Letters, Norwich Former MGP Site, Norwich, NY. May through October.

AECOM, 2011. *In Situ* Chemical Oxidation (ISCO) Treatability Study Report, Norwich Former MGP Site, Norwich, NY. May.

AECOM, 2011a. Monthly NAPL Recovery Status Letters, Norwich Former MGP Site, Norwich, NY. April through December.

AECOM, 2012. Construction Certification Report Site Remediation- Phase 1A, Norwich Former MGP Site, Norwich, NY. February.

AECOM, 2012a. Monthly NAPL Recovery Status Letters, Norwich Former MGP Site, Norwich, NY. January through May.

ISH, Inc., 2006. Final Supplemental Remedial Investigation Report, Norwich Former MGP Site, Norwich, New York. October.

ISH, Inc., 2007. Final Feasibility Study Report, NYSEG Former MGP Site, Norwich, New York. November.

NYSDEC and NYSEG Administrative Order on Consent (#D0-0002-9309), 1994. The consent order requires the responsible party to implement a full remedial program for 33 former MGP sites across the State, including the Norwich Site. March.

NYSDEC, 2002. DER-4, Management of Coal Tar Waste and Coal Tar Contaminated Soils and Sediment from former MGPs (TAGM – 4061), January 2002.

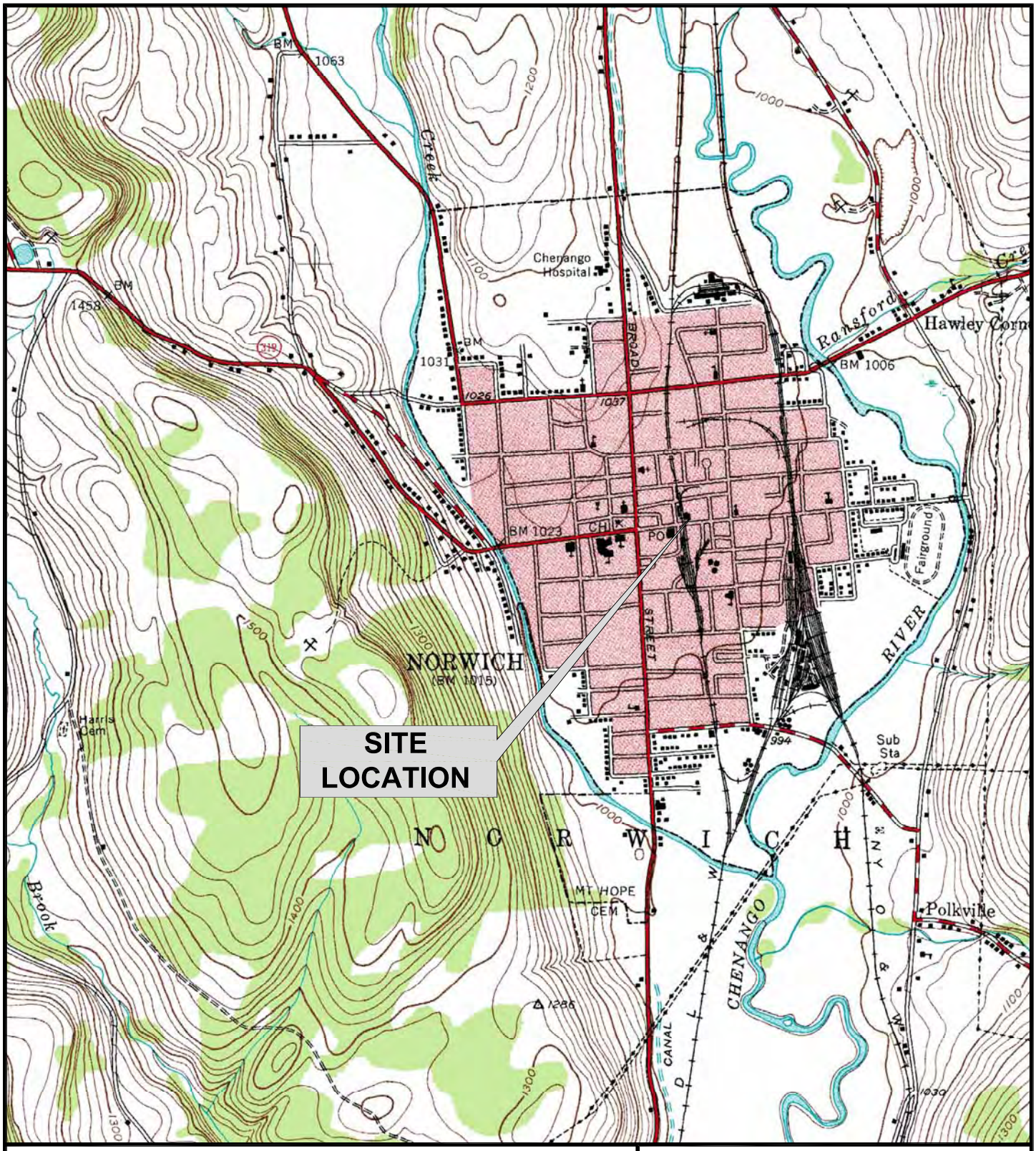
NYSDEC, 2006. NYCRR PART 370 – 374 and PART 376 Environmental Remediation Programs. 2006.

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

NYSDEC. 2008. Record of Decision – NYSEG Norwich Former MGP Site, Norwich, Chenango County, New York, Site No. 709011.

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

Figures



SOURCE: USGS NORWICH
7.5' QUADRANGLE

0' 1000' 2000' 4000'

AECOM

SITE
LOCATION PLAN

NYSE&G - FORMER NORWICH MGP SITE
NORWICH, NEW YORK

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
	—	106404	JUNE 2012	1

Plotted By: meisterk
Layout--Sheet Name: SMP-1
Plot File Date Created: Jun/21/2012 9:11 AM

Filename: L:\WORK\106404\CADD\REF\NORWICH-COVER.DWG

NYSEG SUBSTATION

ON SITE IN-SITU SOLIDIFIED AREA

OFF SITE IN-SITU SOLIDIFIED AREA

COLUMBIA STREET

FRONT STREET

LACKAWANNA RAILROAD

ASPHALT

CURB

CONC. PAD

CONC. CURB

DECK

SIGN

G.W.

NYSEG 80 7

CTL-2

CTL-3

49 50 47 48 45 46 43 42 40 30 10 12

1004 1003 1002 1001

GAS

0' 25' 50' 100'

LEGEND

- 26 - BUILDING LINE / NUMBER
- - APPROX. PROPERTY BOUNDARY
- CONTROL POINT
- UTILITY POLE W/GUY
- POWER POLE
- LIGHT POLE
- FIRE HYDRANT
- MH - MANHOLE
- CB DW - CATCH BASIN / DRY WELL
- 1002 - EXISTING CONTOUR (1 FT. INTERVAL)
- ON SITE IN-SITU SOLIDIFIED AREA (PHASE 1A, AS BUILT)
- OFF SITE IN-SITU SOLIDIFIED AREA (PHASE 1A, AS BUILT)
- APPROXIMATE NAPL REMOVAL / ISCO TREATMENT AREA (AS DEFINED BY THE 2009 GEOPROBE INVESTIGATION) (PHASES 1B & 2)
- PROPOSED ENHANCED BIOREMEDIATION AREA (AS SHOWN IN FINAL SRI REPORT BY ISH, INC. - OCTOBER 2006) (PHASE 3)

NOTE:
AS BUILT DRAWINGS CREATED FROM INFORMATION PROVIDED BY CONTRACTOR

REV	DESCRIPTION	DRN	CHK	DATE (M/D/Y)
	1 INCH = VERIFY SCALE IF PLAN SHEET IS REDUCED			

DRN BY: KAM
DES BY: KAM
CHK BY: CHF
APP BY: SAU

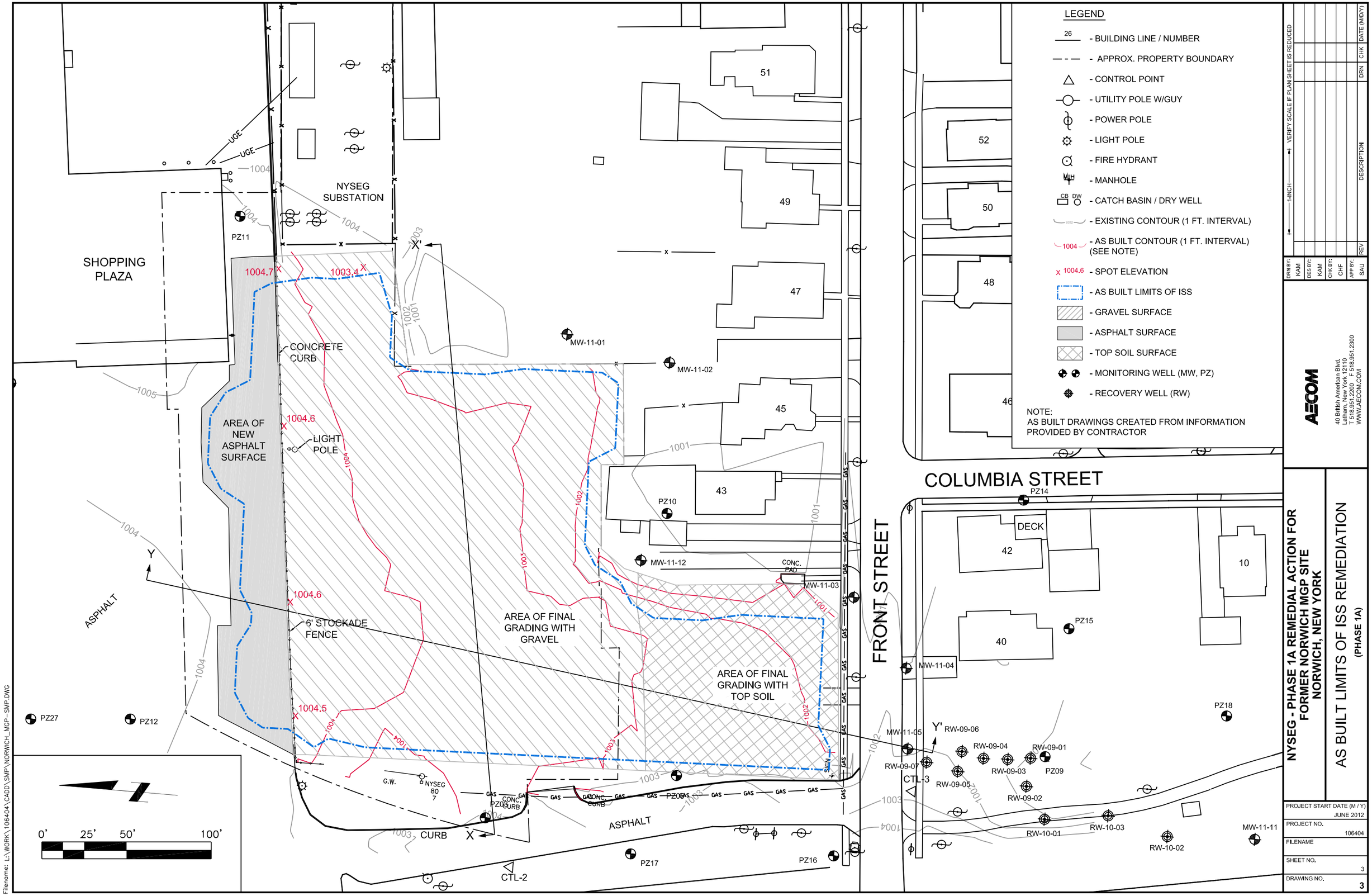
AECOM
40 British American Blvd.
Latham, New York 12110
T 518.951.2200 F 518.951.2300
WWW.AECOM.COM

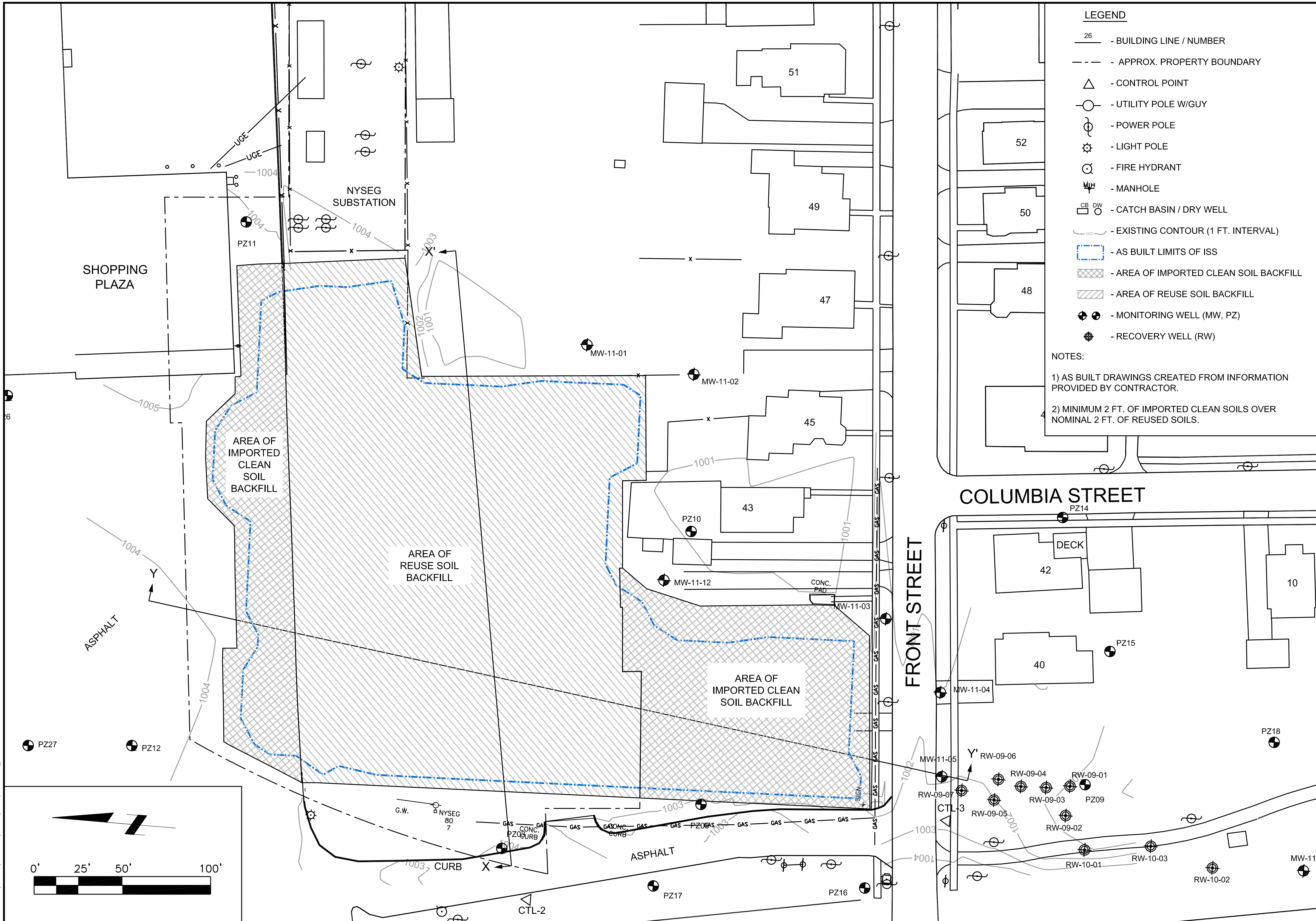
NYSEG - PHASE 1A REMEDIAL ACTION FOR FORMER NORWICH MGP SITE NORWICH, NEW YORK

REMEDIAL ACTION AREA

PROJECT START DATE (M / Y)	JUNE 2012
PROJECT NO.	106404
FILENAME	
SHEET NO.	2
DRAWING NO.	2

Plotted By: meisterk
Plot File Date Created: Jun/13/2012 11:03 AM
Layout-Sheet Name: -2
Filename: L:\WORK\106404\CADD\SMP\NORWICH_MGP-SMP.DWG


LEGEND
26 - BUILDING LINE / NUMBER
- APPROX. PROPERTY BOUNDARY
- CONTROL POINT
- UTILITY POLE W/GUY
- POWER POLE
- LIGHT POLE
- FIRE HYDRANT
- MANHOLE
CB DW - CATCH BASIN / DRY WELL
1002 - EXISTING CONTOUR (1 FT. INTERVAL)
1004 - AS BUILT CONTOUR (1 FT. INTERVAL) (SEE NOTE)
X 1004.6 - SPOT ELEVATION
- AS BUILT LIMITS OF ISS
- GRAVEL SURFACE
- ASPHALT SURFACE
- TOP SOIL SURFACE
- MONITORING WELL (MW, PZ)
- RECOVERY WELL (RW)
NOTE:
AS BUILT DRAWINGS CREATED FROM INFORMATION PROVIDED BY CONTRACTOR
SHOPPING PLAZA
NYSEG SUBSTATION
PZ11
UGE
1004
1005
1004.7
1003.4
1003
1002
1001
CONCRETE CURB
AREA OF NEW ASPHALT SURFACE
1004.6
LIGHT POLE
MW-11-01
MW-11-02
51
49
47
45
43
52
50
48
46
PZ10
MW-11-12
CONC. PAD
MW-11-03
AREA OF FINAL GRADING WITH GRAVEL
AREA OF FINAL GRADING WITH TOP SOIL
1004.6
6' STOCKADE FENCE
1004.5
ASPHALT
Y
Y'
PZ27
PZ12
G.W.
NYSEG 80 7
GAS
CONC. CURB
PZ08
CURB
X
CTL-2
PZ17
PZ16
SIGN
FRONT STREET
COLUMBIA STREET
PZ14
DECK
42
10
40
PZ15
MW-11-04
PZ18
MW-11-05
RW-09-06
RW-09-04
RW-09-01
RW-09-07
RW-09-03
PZ09
CTL-3
RW-09-05
RW-09-02
RW-10-01
RW-10-03
RW-10-02
MW-11-11
0' 25' 50' 100'
DRN BY: KAM
DES BY: KAM
CHK BY: CHF
APP BY: SAU
REV
DESCRIPTION
DRN
CHK
DATE (M/D/Y)
1 INCH — VERIFY SCALE IF PLAN SHEET IS REDUCED
AECOM
40 British American Blvd.
Latham, New York 12110
T 518.951.2200 F 518.951.2300
WWW.AECOM.COM
NYSEG - PHASE 1A REMEDIAL ACTION FOR FORMER NORWICH MGP SITE
NORWICH, NEW YORK
AS BUILT LIMITS OF ISS REMEDIATION
(PHASE 1A)
PROJECT START DATE (M / Y)
JUNE 2012
PROJECT NO.
106404
FILENAME
SHEET NO.
3
DRAWING NO.
3
Plotted By: meisterk
Plot File Date Created: Jun/13/2012 11:04 AM
Layout-Sheet Name: -3
Filename: L:\WORK\106404\CADD\SMP\NORWICH_MGP-SMP.DWG


LEGEND
- BUILDING LINE / NUMBER
- APPROX. PROPERTY BOUNDARY
- CONTROL POINT
- UTILITY POLE W/GUY
- POWER POLE
- LIGHT POLE
- FIRE HYDRANT
- MANHOLE
- CATCH BASIN / DRY WELL
- EXISTING CONTOUR (1 FT. INTERVAL)
- AS BUILT LIMITS OF ISS
- AREA OF IMPORTED CLEAN SOIL BACKFILL
- AREA OF REUSE SOIL BACKFILL
- MONITORING WELL (MW, PZ)
- RECOVERY WELL (RW)
NOTES:
1) AS BUILT DRAWINGS CREATED FROM INFORMATION PROVIDED BY CONTRACTOR.
2) MINIMUM 2 FT. OF IMPORTED CLEAN SOILS OVER NOMINAL 2 FT. OF REUSED SOILS.
SHOPPING PLAZA
NYSEG SUBSTATION
AREA OF IMPORTED CLEAN SOIL BACKFILL
AREA OF REUSE SOIL BACKFILL
AREA OF IMPORTED CLEAN SOIL BACKFILL
COLUMBIA STREET
FRONT STREET
ASPHALT
CURB
DECK
CONC. PAD
CTL-2
CTL-3
MW-11-01
MW-11-02
MW-11-03
MW-11-04
MW-11-05
MW-11-12
PZ10
PZ11
PZ12
PZ14
PZ15
PZ16
PZ17
PZ18
PZ27
PZ09
RW-09-01
RW-09-03
RW-09-04
RW-09-05
RW-09-06
RW-09-07
RW-10-01
RW-10-02
RW-10-03
0' 25' 50' 100'

NYSEG - PHASE 1A REMEDIAL ACTION FOR FORMER NORWICH MGP SITE NORWICH, NEW YORK

AS BUILT SITE BACKFILL PLAN (PHASE 1A)

AECOM
40 British American Blvd.
Latham, New York 12110
T 518.951.2200 F 518.951.2300
WWW.AECOM.COM

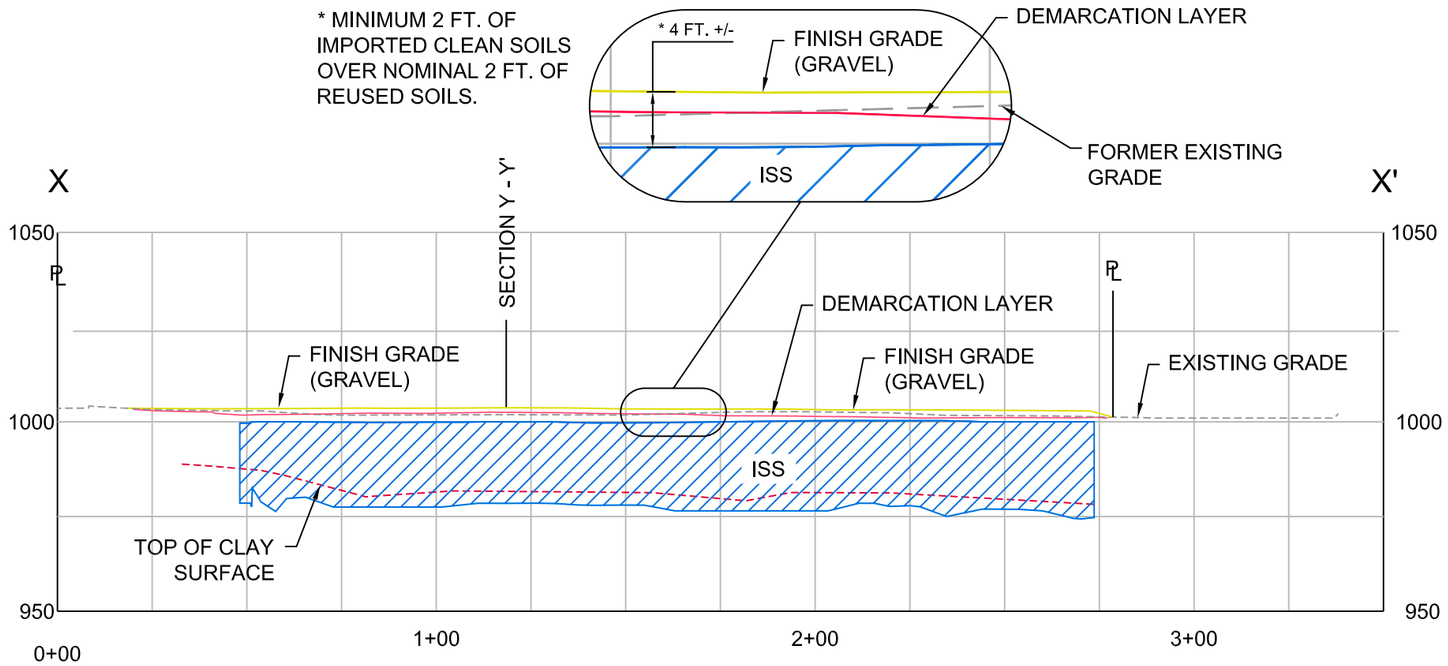
DRN BY: KAM | DES BY: KAM | CHK BY: CHF | APP BY: SAU

VERIFY SCALE IF PLAN SHEET IS REDUCED — 1-INCH

REV	DESCRIPTION	DRN	CHK	DATE (M/D/Y)

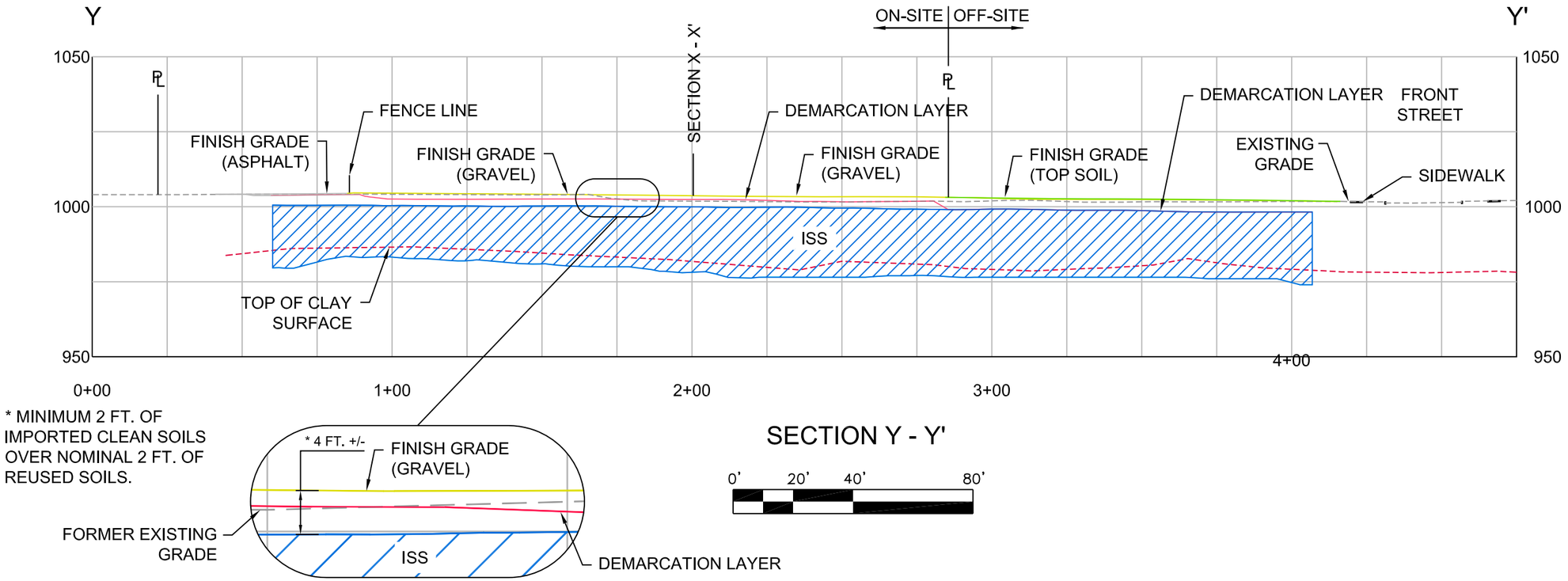
PROJECT START DATE (M / Y): JUNE 2012
PROJECT NO.: 106404
FILENAME:
SHEET NO.: 4
DRAWING NO.: 4

Plotted By: meisterk
Plot File Date Created: Jun/13/2012 11:05 AM
Layout-Sheet Name: -4
Filename: L:\WORK\106404\CADD\SMP\NORWICH_MGP-SMP.DWG



SECTION X - X'

0' 20' 40' 80'



SECTION Y - Y'

0' 20' 40' 80'

VERIFY SCALE IF PLAN SHEET IS REDUCED
1 INCH

DESCRIPTION	DRN	CHK	DATE (M/D/Y)

REV	APP BY:	CHK BY:	DES BY:	DRN BY:
	SAU	CHF	KAM	KAM

AECOM
40 British American Blvd.
Latham, New York 12110
T 518.951.2200 F 518.951.2300
WWW.AECOM.COM

NYSEG - PHASE 1A REMEDIAL ACTION FOR FORMER NORWICH MGP SITE NORWICH, NEW YORK

AS BUILT RESTORATION SECTIONS
(PHASE 1A)

PROJECT START DATE (M / Y)	JUNE 2012
PROJECT NO.	106404
FILENAME	
SHEET NO.	5
DRAWING NO.	5

Plotted By: meisterk
Plot File Date Created: Jun/13/2012 11:06 AM
Layout-Sheet Name: -5
Filename: L:\WORK\106404\CADD\SMP\NORWICH_MGP-SMP.DWG

Appendix A

Excavation Plan

AECOM Environment

Prepared for:
New York State Electric and Gas Corp
18 Link Drive
P. O. Box 5224
Binghamton, NY 13902

Prepared by:
AECOM
Latham, NY
Project 60189777
August 2013

Excavation Plan
Norwich Former MGP Site
Norwich, New York
NYSDEC Site # 7-09-011

FINAL

Contents

1.0 Introduction

This Excavation Plan (EP) provides a description of the excavation procedures/protocols to be used in support of site management activities associated with the Norwich former manufactured gas plant (MGP) site (Site) located in the City of Norwich, Chenango County, New York. Any future intrusive work that will penetrate, encounter or disturb the residual contamination will be performed in compliance with this EP. Intrusive construction work must also be conducted in accordance with the procedures defined in a Site-specific Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) that will be developed for the excavation. Any intrusive construction work require the submission of an Excavation Work Plan to the New York State Department of Environmental Conservation (NYSDEC) that will be performed in compliance with the EP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan. This EP is designed to be used in conjunction with a NYSDEC approved Site Management Plan (SMP). To the extent that discrepancies exist between this EP and the SMP, the SMP shall control.

New York State Electric and Gas Corporation (NYSEG) and all associated parties who prepare remedial documents for submission to the State and parties who perform this work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavation.

2.0 Notification

NYSEG or their representative will submit a notification to the NYSDEC at least 10 days prior to the start of any activity that is reasonably anticipated to encounter remaining contamination. Note that under emergency circumstances, soil removal may have to occur without NYSDEC notification. Under these conditions, the NYSDEC will be notified within 24 hours. Currently, this notification will be made to:

Anthony Karwiel
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7013

This notification should include:

- A detailed description of the work to be performed, including the location and areal extent, plans for Site re-grading, intrusive elements or utilities to be installed below the soil cover, or any work that may impact an engineering control;
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A statement that the work will be performed in compliance with this EP and 29 CFR 1910.120;
- A copy of the contractor's HASP and CAMP;
- Identification of disposal facilities for potential waste streams;
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

3.0 Material Handling

3.1 Soils Screening Methods

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all excavations into residual Site contamination. Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during remediation and during Site development, such as excavations for foundations and utility work in the areas where residual contamination is suspected.

Since the most contaminated portion of the Site has solidified and clean soils have been placed ontop of the solidified monolith, only soils located outside of the solidified monolith limits or materials from monolith itself, should the monolith be excavated, would require management as per methods described in this section. Soils will be segregated, based on previous environmental data and screening results, into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

3.2 Stockpile Methods

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be placed on polyethylene liners and kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced. Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and will be available for inspection by NYSDEC.

3.3 Materials Excavation and Load Out

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material. NYSEG and its contractors are solely responsible for safe execution of all invasive and other work performed under the submitted work plan.

The presence of utilities and easements on the Site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site.

A truck decontamination pad will be operated on-site. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be decontaminated at the truck wash before leaving the Site until the activities performed under this section are completed. Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and New York State Department of Transportation (NYSDOT) requirements (and all other applicable transportation requirements). Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

3.4 Materials Transport Off-Site

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 New York Codes Rules and Regulations (NYCRR) Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used. All trucks will be washed prior to leaving the Site. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Truck transport routes will be identified to: (1) limit transport through residential areas and past sensitive sites; (2) use city-mapped truck routes; (3) minimize off-site queuing of trucks entering the Site; (4) limit total distance to major highways; and (5) promote safety in access to highways.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials, during Site excavation.

3.5 Materials Disposal Off-Site

All soil waste excavated and removed from the areas of potential residual soil contamination on Site will be treated as contaminated and regulated material and will be transported and disposed of in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

3.6 Materials Reuse On-Site

Any excavated materials that are potentially reusable onsite (that do not contain visible tar) must be sampled and proven suitable prior to reuse. Excavated materials must be stockpiled and secured on-site in accordance with the materials management practices stated above prior to sampling. Stockpiles shall be limited to a maximum size of 500 cubic yards for sampling. A three point composite sample will be collected from each stockpile and submitted for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) PAHs. This section is applicable only for the areas where potential contaminated soils are left in place. The excavation and reuse of material in the areas already remediated do not have to be managed per these requirements.

The qualified environmental professional will ensure that unacceptable material does not remain on-site (i.e., concentrations are above the NYS Part 375 Soil Cleanup Objectives for the applicable landuse of that portion of property: residential or commercial). Contaminated on-Site material, including historical fill and contaminated soil, that is acceptable for re-use on-site will be placed

below a demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be reused on-site.

3.7 Fluids Management

All liquids to be removed from the Site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the Site, but will be managed either via a temporary treatment system or transported to an off-site disposal facility.

4.0 Site Restoration

4.1 Backfill from Off-Site Sources

All materials proposed for import onto the Site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP, applicable regulations (6NYCRR 375-6.7(d)) and guidance prior to receipt at the Site. Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the Site. All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d).

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

5.0 Stormwater Pollution Prevention

Soil disturbing activities will be limited and exposed soils will be covered to the extent practicable to minimize erosion. Sediment controls (e.g., silt fence, hay bales, check dams) will be installed downgradient from all disturbed areas to capture sediment and prevent it from leaving the Site.

Erosion protection, silt barriers and check dams will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

6.0 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for full a full list of analytes, unless the Site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in daily and periodic electronic media reports.

Appendix B

Quality Assurance Project Plan

AECOM Environment

Prepared for:
New York State Electric and Gas Corp
18 Link Drive
P. O. Box 5224
Binghamton, NY 13902

Prepared by:
AECOM
Latham, NY
Project 60189777
August 2013

Quality Assurance Project Plan
Norwich Former MGP Site
Norwich, New York
NYSDEC Site # 7-09-011

FINAL

Contents

List of Attachments

1.0 Introduction

This Quality Assurance Project Plan (QAPP) provides a description of the sampling and laboratory procedures/protocols to be used in support of site management activities associated with the Norwich former manufactured gas plant (MGP) site (Site) located in the City of Norwich, Chenango County, New York. The fundamental purpose of the QAPP is to ensure that quality analytical data will be generated to support the project in a manner consistent with the Data Quality Objectives as specified herein. This QAPP is designed to be used in conjunction with a New York State Department of Environmental Conservation (NYSDEC) approved Site Management Plan (SMP) with regards to specific project objectives and field sampling activities. To the extent that discrepancies exist between this QAPP and the SMP, the SMP shall take precedence.

2.0 Data Quality Objectives

Data quality objectives are statements, expressed in either qualitative or quantitative terms, which address the appropriate level of data quality for a project. The quality of data generated must be suitable to support the decisions used to achieve the overall goals as delineated in the SMP. The general project data quality objectives are summarized in this section, with detailed information given throughout this QAPP and associated sections of the SMP. The overall data quality objectives of the project are:

- To ensure that samples collected are representative of the sample population.
- To provide detection limits for the selected analytical methods, which are below the established cleanup objectives or regulatory limits.
- To measure and document precision and accuracy using procedures established by the laboratories, the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) and U.S. Environmental Protection Agency (EPA) approved analytical methods.
- To ensure that a NYSDOH ELAP and NYSDOH ELAP CLP certified laboratory will conduct all soil and water analyses.

3.0 Sample Collection

3.1 Soils

No soil samples will be collected as part of the SMP. In the event that a soil removal action will be required where potentially impacted soils remain at the site, a soil sampling plan will be included with the soil removal work plan submitted to the NYSDEC for approval prior to any soil removal activities.

3.2 Groundwater Sampling

Groundwater samples will be collected as described in the appropriate sections of the SMP. These sections describe the collection procedures, sampling equipment, locations and frequencies for the groundwater samples.

Samples will be transferred directly into pre-cleaned sample collection containers, which are supplied by the laboratory performing the analyses. All necessary preservatives will be added to the sample containers at the laboratory prior to being shipped to the site (see Section 3.3). Samples will be stored at 4° Celsius until delivered to, and analyzed by the laboratory.

3.3 Sample Containers and Preservatives

Sample containers and preservatives will be provided by the contracted laboratories and stored on-site in a clean and dry location. Sample containers and preservatives by matrix and analysis are listed in Table A.

TABLE A
SAMPLE CONTAINERS & PRESERVATIVES

Analysis	**Matrix**	**Container**	**Preservative**
Semivolatiles	Water	1000 ml amber glass	4^{o} Celsius
Volatiles	Water	40 ml glass	4^{o} Celsius or HCl to pH < 2
Total Cyanide	Water	500 ml Plastic	4^{o} Celsius NaOH to pH > 12
Note: All glass containers will be sealed with Teflon liner caps. All water samples for organic fractions will be collected in duplicate.			

3.4 Sampling Holding Times

Table B identifies samples holding times.

TABLE B GROUNDWATER SAMPLES		
Sample Type	**Matrix**	**Holding Time**
Semivolatiles	Water	5 days to extraction 40 days after extraction
Total Cyanide	Water	14 days
Volatiles	Water	14 days

4.0 Sample Custody, Identification and Tracking

4.1 Holding Times and Sample Transport

Since the samples will be analyzed at standard turn around, no exceedance of holding time is expected. Holding times will be calculated from the time the sample is collected to the subsequent extraction, if necessary, or analysis. All samples will be delivered to the laboratory by same day courier or overnight delivery in sealed coolers with ice.

4.2 Chain-of-Custody

A Chain-of-Custody will accompany all samples from the point of sampling to delivery of the samples to the laboratory. The COC will be a record of the location where the sample was collected, the data and time collected, number of containers collected, type(s) of analyses requested, special remarks or requests, and the signature of each custodian of the samples. The complete COC will be included in all hard copies of reports.

Upon sample receipt, laboratory personnel will be responsible for sample custody. The laboratory sample custodian will verify sample integrity and compare the cooler contents against the field COC. If a sample container is broken or leaking, it will be noted on the COC and NYSEG project personnel will be immediately notified. If the sample custodian observes any labeling or descriptive errors, NYSEG project personnel will be contacted immediately to resolve any discrepancies. After all discrepancies (if any) are resolved, the laboratory will acknowledge receipt of the samples (i.e., by signing and dating the COC and the completed COC will be included in all hard copies of reports and become a permanent part of the project records.

4.2.1 Sample Identification

Each sample collected during the project will have a unique identification number. This number, date of collection and type of analysis will be placed on each sample container after the sample is collected. See Attachment 1 for sample identification naming convention for air, water, and confirmatory samples.

4.3 Laboratory Sample Tracking

Each laboratory has an internal tracking mechanism to ensure that each sample received has a unique identification number and that results generated and reported for each sample correspond to the identification number assigned at the laboratory.

5.0 Calibration Procedures

Each analysis will be performed in accordance with NYSDOH ELAP (Environmental Laboratory Approval Program) sanctioned methods or equivalent U.S. EPA analytical procedures. Each procedure specifies the method of frequency of calibration necessary to perform accurate and precise analyses. Each analytical instrument verifies the Method Detection Limit at least every six months as prescribed by the NYSDOH ELAP. The calibration of the instruments is verified at the beginning and end of each auto sampler run. Gas Chromatograph/Mass Spectrometers are tuned and calibrated every 12 hours, at a minimum.

All field equipment, for real time air analyses will be calibrated daily, in accordance with manufacturer's recommendations. All equipment will be calibrated more frequently if conditions warrant. The total organic analyzer equipped with a photo ionization detector (PID) used to measure volatile organic vapors will be calibrated to benzene with a 100 ppm isobutylene air standard. The DataRam™ or a Thermo Andersen ADR-1200s used to measure particulates will be calibrated to zero with filtered air sample.

6.0 Analytical Procedures

6.1 Laboratory Analyses

The following Table shows the analytical method to be used for each analyte or group of analytes for the Project:

TABLE C
ANALYTICAL METHODS

Analyte	Analytical Method
Total Volatiles	SW 846 Method 8260
Total Semivolatiles	SW 846 Method 8270
Total Cyanide	SW 846 9012

6.2 Laboratory Selection

The laboratory chosen for the project must be certified, and maintain certification, under the NYSDOH ELAP and NYSDOH ELAP CLP for analyses of solid and hazardous waste. Only analytical laboratories that have experience in MGP projects or similar projects will be considered for use. NYSEG has contracted with (To Be Determined) to perform laboratory services for Site Management.

7.0 Data Reduction, Validation and Reporting

7.1 Data Reduction

7.1.1 Field Data Collection

Real time field data collected during sampling events will include qualitative information regarding the texture, appearance, odors, and any other observations made while water samples are being collected. Meteorological data and current site activity will be noted while collecting data for real time air monitoring. These observations will be recorded in the field logbook.

7.1.2 Laboratory Data Collection and Reduction

A significant portion of the analyses performed requires the use of automated laboratory instrumentation. Raw data collected from the instruments detectors will be converted to standard units of mg/L for water. All raw data will be stored in electronic form and in laboratory notebooks, in case the analysis needs to be recreated. Raw data for all analyses will be archived for a minimum of four years.

7.2 Data Review

All analytical data will be verified for precision and accuracy utilizing the laboratory's in-house Quality Assurance/Quality Control programs. In addition, all data packages will be reviewed by NYSEG project personnel to ensure that all data deliverables have been properly provided.

7.3 Full Data Validation

The full third party data validation process consists of a formal systematic review of analytical results and quality control documentation with regards to the parameters cited in Section 6.1. On the basis of this review, a third party data validator will make judgments and express concerns on the quality and limitations of the specific data and the validity of the data package as a whole. The data validator prepares documentation of his or her review using the standard USEPA Inorganics Regional Assessment and Organics Regional Assessment forms to summarize deficiencies and general laboratory performance. These forms are accompanied by appropriate supplementary documentation, which identifies specific problems.

Since a full data validation would typically be used for the purposes of litigation, this level of review may surpass the scope of work necessary for the project. Therefore, any full data validation for analytical results of samples will be performed at NYSEG's discretion. Sampling data will be archived in the event that it becomes necessary to perform a full data validation at a future date.

7.4 Data Usability Summary Report

A Data Usability Summary Report (DUSR) provides a thorough review and evaluation of analytical data without the formality of a full third party data validation. A DUSR for the analytical results of samples will be generated in lieu of a full data validation to verify that the proper data deliverables and procedures have been rendered in accordance with the data quality objectives of the SMP.

7.5 Reporting

Final reports for analytical data will be reviewed and accepted by NYSEG prior to submission to the NYSDEC. Reports for analyses performed under the ELAP protocol will contain results sheets for the sample analyzed. These reports must include a minimum:

- NYSEG Sample ID number;
- Laboratory sample ID number;
- Sample collection date;
- Extraction or digestion date (if applicable);
- Date Analyzed;
- Analytical method;
- Analytical results (with units clearly identified);
- Results of laboratory blank and field blanks;
- Results of spikes, matrix spikes, and duplicates;
- Surrogate recoveries (if applicable);
- Complete Chain-of-Custody forms; and
- File log sheets (if available)

8.0 Quality Control Checks

8.1 Field Quality Control

8.1.1 Decontamination Procedures for Sampling

The following decontamination procedure will be followed for all non-disposal sampling equipment before being reused.

- Equipment will be washed thoroughly with a non-phosphate detergent.
- The equipment will then be rinsed with analyte-free water.

After decontamination, equipment will be carefully stored to avoid contamination between sampling events.

8.2 Laboratory Quality Control

Each laboratory is NYSDOH Certified for the analyses they will perform. Each analyst must complete a start-up proficiency procedure to demonstrate their capability to perform accurate and precise analyses on each type of instrument they operate. In addition, each laboratory must accurately analyze samples provided by NYSDOH on a semi-annual basis to maintain certification. The laboratories have internal quality control officers that review all methodologies and implement corrective action, including reanalyzing samples, which do not pass, established laboratory quality control criteria.

Laboratory quality control procedures are specified in the analytical methods. These specifications include the type of laboratory quality control check required, compounds, and concentrations to be used, and laboratory quality control acceptance criteria.

Laboratory quality control checks will include (where specified by method):

- Calibration Standards
- Methods Blanks
- Matrix Spike/Matrix Spike Duplicates
- Surrogate Spikes
- Internal Standards
- Laboratory Duplicates
- Calibration Check Standards
- Laboratory Control Samples

9.0 Preventive Maintenance

9.1 Field Instruments and Equipment

Equipment instruments, tools, gauges, and other items requiring preventative maintenance will be serviced in accordance with the manufacturer's specified recommendations or written procedures developed by the operators. All field equipment service will be conducted by qualified personnel. Prior to any field sampling, each piece of field equipment will be inspected to ensure that it is operational. If the equipment is not operational, it must be repaired prior to use. All equipment which required charging or batteries will be fully charged or have fresh batteries at the start of the project. An equipment repair/maintenance log will be kept for each field instrument. Any non-operational/non-repairable field equipment will be replaced.

9.2 Laboratory Instruments and Equipment

Each laboratory has an instrument/equipment maintenance program, which includes procedures for daily, weekly, monthly, or annual routine maintenance. In addition, maintenance is performed if the accuracy and/or precision of the instrument are in question.

9.2.1 Instrument Maintenance

Preventative maintenance of laboratory instruments will be conducted in accordance with the manufacturer's guidelines or written procedures developed by the operators. All instrument service will be performed by qualified personnel. To minimize potential downtime, the laboratory will maintain a sufficient supply of critical spare parts for its instruments and, where practical, maintain a service contract for rapid instrument repair. Wherever possible, the laboratory will retain backup instrumentation. An instrument repair/maintenance log will be maintained for each instrument.

9.2.2 Equipment Monitoring

On a daily basis, the operation of the laboratory equipment (e.g., balances, ovens, refrigerators, water purification systems) will be checked and documented. Any discrepancies will be immediately reported to the appropriate laboratory personnel for resolution.

Attachment 1

Sample Identification

SAMPLE IDENTIFICATION

NAMING CONVENTION FOR SOIL AND WATER SAMPLES

SYSTEM CODING

First & Second = Site	Norwich (Birdsall Street)	NB
Third & Fourth = Source	Excavation	EX
	Stockpile	SP
	Frac Tank	FT
	Poly Container	PC
	Metal Barrel	MB
	Roll Off Container	RO
	Waste Wrangler	WW
	Test Pit	TP
	Boring	BO
	Geoprobe	GP
	Monitoring Well	MW
Fifth & Sixth = Location	Sidewall Sample	SW
	Bottom Sample	BM
	Waste Soil	WS
	Wastewater	WW
	Surface water	SW
	Groundwater	GW
	Debris	DB
Seventh & Eighth = Relative Depth	Surface Soil	00
	Depth below Ground	02
	Non-Applicable	NA
Ninth, Tenth & Eleventh =	Sample Number	005

EXAMPLE: Norwich; Groundwater from Monitoring Well MW-17; and sample number

SAMPLE IDENTIFICATION: NBMWGWNA017

FORMER MANUFACTURED GAS PLANT SITE OR FORMER MANUFACTURED GAS PLANT SITE DISPOSAL AREA	
Site	**Code**
Albion Ingersoll Street	AI
Auburn Clark Street	AC
Auburn Green Street	AG
Auburn McMaster Street	AM
Binghamton Court Street	BC
Binghamton – Johnson City	BJ
Binghamton Washington Street	BW
Clyde Lock Street	CL
Corning Chestnut Street	CC
Cortland/Homer South Main Street	CH
Dansville Ossian Street	DO
Elmira Madison Avenue	EM
Elmira Water Street	EW
Geneva Border City	GB
Geneva Wadsworth Street	GW
Goshen West Main Street	GS
Granville North Street	GR
Ithaca Cayuga Inlet	II
Ithaca Court Street	IC
Ithaca First Street	IF
Lockport State Road	LS
Lockport Transit Street	LT
Lyons Water Street	LW
Mechanicville Central Avenue	MC
Mechanicville Coons Crossing	ME
Mechanicville Willow Glen MGP Disposal Site	MW
Newark Water Street	NW
Norwich Birdsall Street	**NB**
Oneonta James Georgeson Avenue (Gas Ave.)	OG
Owego East Main Street	OE
Palmyra Park Drive	PP
Penn Yan Jackson Street	PJ
Penn Yan Water Street	PW
Plattsburgh Bridge Street	PB
Plattsburgh Saranac Street	PS
Seneca Falls Fall Street	SF
Warsaw Court Street	WC
Waterloo East Main Street	WE
Waterloo Babbott Street	WB

Appendix C

Monitoring Well Purge Sheet

Monitoring Well Purging/Sampling Form

Project Name and Number: NYSEG Norwich Former MGP Site

Monitoring Well Number: _____ Date: _____

Samplers: _____

Sample Number: _____ QA/QC Collected? _____

Purging / Sampling Method: _____

1. L = Total Well Depth: _____ feet
2. D = Riser Diameter (I.D.): _____ feet
3. W = Static Depth to Water (TOC): _____ feet
4. C = Column of Water in Casing: _____ feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$ _____ gal
6. D2 = Pump Setting Depth (ft): _____ feet
7. C2 = Column of water in Pump/Tubing (ft): _____ feet
8. Tubing Volume = C2(0.005737088) _____ gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter	**Units**	**Readings**						
Time	24 hr							
Water Level (0.33)	feet							
Volume Purged	gal							
Flow Rate	mL / min							
Turbidity (+/- 10%)	NTU							
Dissolved Oxygen (+/- 10%)	%							
Dissolved Oxygen (+/- 10%)	mg/L							
Eh / ORP (+/- 10)	MeV							
Specific Conductivity	mS/cm^c							
Conductivity (+/- 3%)	mS/cm							
pH (+/- 0.1)	pH unit							
Temp (+/- 0.5)	C							
Color	Visual							
Odor	Olfactory							

Comments:

* Three consecutive readings within range indicates stabilization of that parameter.

Appendix D

Site Inspection Form

Site-Wide Annual Inspection Form

Norwich Former MGP Site
Birdsall Avenue
Norwich, New York

Inspection Date:_____

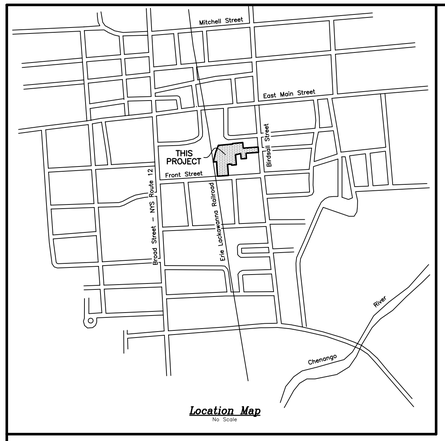
Item	Yes	No	N/A	Comments
Where applicable, is the perimeter fence in good condition?				
Has remedial performance criteria been achieved or maintained?				
Has sampling and analysis of appropriate media been performed during the monitoring event?				
Has the maintenance checklist been completed? (If a system is installed)				
Are site records including the Site Management Plan complete and up-to-date?				
If applicable, have there been any modifications made to the remedial or monitoring system?				
If applicable, does the remedial or monitoring system need to be changed or altered at this time?				
Has there been any intrusive activity, excavation, or construction occurred at the site?				
Were the activities mentioned above, performed in accordance with the SMP?				
Are the monitoring wells in good condition (e.g, covers, casings)?				
Was there a change in the use of the site or were there new structures constructed on the site?				
If the answer above is YES, was a vapor intrusion evaluation done?				
Were new mitigation systems installed based on monitoring results?				

Note: Upon completion of the form any non-conforming items warranting corrective action should be identified here within.

Name of Inspector: _____ Signature of Inspector: _____
Inspector's Company: _____ Date: _____

Appendix E

ALTA Survey Map



Location Map
No Scale

Environmental Easement Description
Site #709011

ALL THAT PARCEL OR TRACT OF LAND SITUATE IN THE CITY OF NORWICH, COUNTY OF CHENANGO AND STATE OF NEW YORK BEING DESCRIBED AS FOLLOWS

Beginning at an iron rod on the northerly highway boundary of Front Street, said iron rod located at the intersection of the northerly highway boundary of Front Street with the easterly boundary of BG Norwich Stop, LLC (Now or Formerly) as described in a Warranty Deed dated March 1, 2004 and recorded in the Chenango County Clerk's Office as instr. #2004–0851; thence N04°59'52"W 182.78 feet along the easterly boundary of BG Norwich Stop, LLC to an iron rod located on the northerly boundary of BG Norwich Stop, LLC; thence S82°53'54"W 37.35 feet along the northerly boundary of BG Norwich Stop, LLC to a magnetic nail on the easterly boundary of BG Norwich Stop, LLC; thence northeasterly 217.40 feet along a curve to the right having a radius of 704.86 feet and along the easterly boundary of BG Norwich Stop, LLC to a magnetic nail located on the southerly boundary of BG Norwich Stop, LLC; thence N83°31'48"E 179.62 feet along the southerly boundary of BG Norwich Stop, LLC to a magnetic nail located on the easterly boundary of BG Norwich Stop, LLC; thence N05°49'13"W 6.50 feet along the easterly boundary of BG Norwich Stop, LLC to a magnetic nail located on the southerly boundary of BG Norwich Stop, LLC; thence N83°31'48"E 128.80 feet along the southerly boundary of BG Norwich Stop, LLC to a point located on the westerly boundary of BG Norwich Stop, LLC; thence S05°02'38"E 70.35 feet along the westerly boundary of BG Norwich Stop, LLC to an iron rod located on the southerly boundary of BG Norwich Stop, LLC; thence N85°05'26"E 188.20 feet along the southerly boundary of BG Norwich Stop, LLC to an iron rod located on the westerly highway boundary of Birdsall Street; thence S04°54'18"E 66.00 feet along the westerly highway boundary of Birdsall Street to an iron pipe located on the northerly boundary of H.G.H. Construction Corporation (Now or Formerly – Liber 556 / Page 404); thence S85°07'26"W 156.69 feet along the northerly boundary of H.G.H. Construction Corporation to an iron rod located on the westerly boundary of H.G.H. Construction Corporation; thence S05°02'10"E 66.32 feet along the westerly boundary of H.G.H. Construction Corporation to an iron rod located on the northerly boundary of The City of Norwich (Now or Formerly – Instr. #2008–0819); thence S85°24'15"W 66.00 feet along the northerly boundary of The City of Norwich to an iron rod located on the easterly boundary of Robert A. Broten and Helen M. Broten (Now or Formerly – Liber 606 / Page 935); thence N05°02'10"W 66.00 feet along the easterly boundary of Broten to an iron rod located on the northerly boundary of Broten; thence S76°57'12"W 67.67 feet along the northerly boundary of Broten to a concrete monument located on the westerly boundary of Broten; thence S05°13'59"E 126.90 feet along the westerly boundary of Broten to an iron rod located on the northerly boundary of Martin E. Morse and Donna J. Morse (Now or Formerly – Liber 787 / Page 407); thence S84°38'31"W 59.40 feet along the northerly boundary of Morse to an iron rod located on the easterly boundary of Lisa A. Meyer and Keven R. Meyer (Now or Formerly – Liber 813 / Page 04); thence N05°56'08"W 13.45 feet along the easterly boundary of Meyer to an iron rod located on the northerly boundary of Meyer; thence S84°57'59"W 49.50 feet along the northerly boundary of Meyer to an iron rod located on the westerly boundary of Meyer; thence S05°06'43"E 139.77 feet along the westerly boundary of Meyer to an iron rod located on the northerly highway boundary of Front Street; thence S85°17'50"W 136.29 feet along the northerly highway boundary of Front Street to the point and place of beginning.

The above described premises containing 2.578± Acres.

Easements – Beneficial to Property

1) 12' Right of Way as set forth in a deed from Norwich Aero Products, Inc. to New York State Electric & Gas Corporation dated March 15, 1995 and recorded in the Chenango County Clerk's Office in Liber 784 of Deeds at Page 57.

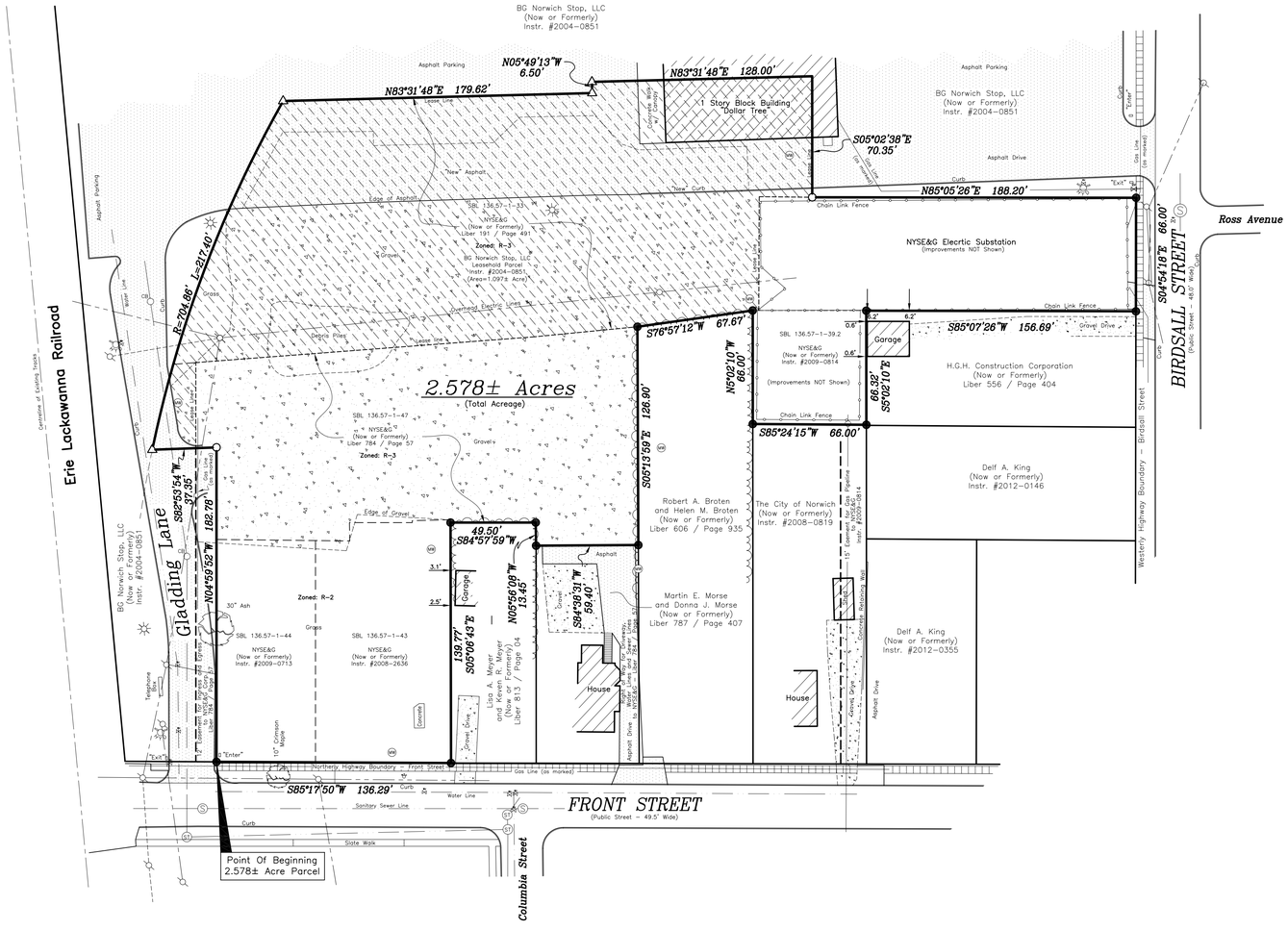
2) Right of Way (no width) for driveway, water lines and sewer lines as set forth in a deed from Norwich Aero Products, Inc. to New York State Electric & Gas Corporation dated March 15, 1995 and recorded in the Chenango County Clerk's Office in Liber 784 of Deeds at Page 57.

3) 15' Easement for gas pipeline as set forth in a deed from The City of Norwich to New York State Electric & Gas Corporation dated May 18, 2009 and recorded in the Chenango County Clerk's Office as Instr. #2009–0814.

Leasehold Parcel

1) Lease agreement between New York State Electric & Gas Corporation and Nathan Benderson, Ronald Benderson and David H. Baldauf (Randall Benderson 1993–1 Trust) dated September 5, 1997 and recorded in the Chenango County Clerk's Office in Liber 804 of Deeds at Page 716.

2) Lease Modification Agreement between New York State Electric & Gas Corporation and Nathan Benderson Ronald Benderson and David H. Baldauf (Randall Benderson 1993–1 Trust) and Ronald Benderson, Randall Benderson and David Baldauf (The Benderson 85–1 Trust) dated June 7, 2000 and recorded in the Chenango County Clerk's Office as Instr. #2000–09520.



General Notes:

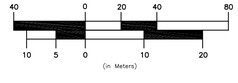
1) Subject Parcel(s) are Zoned: R–2 and R–3 (see map for parcel Zoning).

2) Subject Parcle(s) are NOT located on a 100 year Flood Zone as Shown on Flood Maps on file with the City of Norwich Clerk's Office.

3) Underground utilities, structures and appurtenances have been plotted by field measurements and observed field markings. The surveyor assumes no liability regarding the location of underground utilities, structures or appurtenances shown on this plat, there may be more, the existance of which is presently unknown to me. Before ANY excavation occurs on this site, the contractor Must contact Dig Safe NY.

4) The ALTA/ACSM Land Title Survey shown hereon was completed without the benefit of a Title Report or an Abstract of Title.

Scale: 1"=40'



LEGEND:

- Existing Iron Pin
- Set Iron Rod w/ Cap
- Set Magnetic Nail
- Sanitary Manhole
- Storm Manhole
- Utility Pole
- Light Pole
- Water Valve
- Water Shut Off
- Hydrant
- Monitoring Well
- Gas Valve
- Gas Line Marker
- Diciduous Tree
- Gravel Area
- Asphalt Area
- Lease Area

FILE NO. 12–64A

DEED REFERENCES:

1) George and Elizabeth Rider and Daniel Holmes to Norwich Light Company by Warranty Deed dated March 22, 1894 and recorded in the Chenango County Clerk's Office in Liber 191 of Deeds at Page 491.

2) Norwich Aero Products, Inc. to New York State Electric & Gas Corporation by Warranty Deed dated March 15, 1995 and recorded in the Chenango County Clerk's Office in Liber 784 of Deeds at Page 57.

3) Johnny Gonzalez and Jennie Roman–Gonzalez to New York State Electric & Gas Corporation by Warranty Deed dated December 29, 2008 and recorded in the Chenango County Clerk's Office as Instr. #2008–2636.

4) Dale R. Crosby and Paula J. Crosby to New York State Electric & Gas Corporation by Warranty Deed dated May 8, 2009 and recorded in the Chenango County Clerk's Office as Instr. #2009–0713.

5) The City of Norwich to New York State Electric & Gas Corporation by Quit Claim Deed dated May 18, 2009 and recorded in the Chenango County Clerk's Office as Instr. #2009–0814.

MAP REFERENCES:

1) Map entitled "Boundary Map of part of the lands of County of Chenango Industrial Development Agency" dated March 20, 1996 by Rhinevault Surveyors, P.C. and filed in the Chenango County Clerk's Office as Map #3154.

2) Map "Prepared for Keven R. Meyer & Lisa A. Meyer" dated September 22, 1998 by Purdy Surveying and filed in the Chenango County Clerk's Office as Map #3384.

3) Map entitled "Boundary Map of the lands of NYSE & G Corporation" dated September 29, 2008 by Rhinevault Surveyors, P.C. and filed in the Chenango County Clerk's Office as Map #2009–20.

4) Map entitled "Boundary Map of the lands of Dale R. & Paula J. Crosby Liber 598 Page 782 tobe conveyed to NYSE & G" dated April 14, 2009 and by Rhinevault Surveyors, P.C. and filed in the Chenango County Clerk's Office as Map #2009–17.

The engineering and institutional controls for this Easement are set forth in the Site Management Plan (SMP). A copy of the SMP must be obtained by any party with an interest in the property. The SMP can be obtained from NYS Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany, NY 12233 or at *derweb@gw.dec.state.ny.us*

This is to Certify to the New York State Department of Environmental Conservation that this Map or Plat and the Survey on which it is based were made in accordance with the 2011 Minimum Standard Detail Requirements for ALTA/ ACSM Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1,4,8,11(a),13 and 20(a) of Table A thereof. The fieldwork was completed on July 25, 2012.

Date of Plat or Map: August 6, 2012

Brian A. Chapin L.S. #050699

STATE UNIVERSITY OF NEW YORK BRIAN A. CHAPIN 050699 LICENSED LAND SURVEYOR

REVISIONS	Description

ALTA/ACSM LAND TITLE SURVEY
LANDS OF
NEW YORK STATE ELECTRIC & GAS CORP.
Front Street, Birdsall Street and Gladding Lane
City of Norwich – Chenango County
STATE OF NEW YORK

CHAPIN LAND SURVEYORS
P.O. BOX 205 – #6512 Wes Road
Hamilton, New York 13346
Telephone (315) 824–8221