NYSEG

NEW YORK STATE ELECTRIC & GAS CORPORATION

James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902-5224

Remedial Action Design
100% Submittal

For Removal and Off-site Disposal of Coal Tar Impacted Soil

Associated With

Cortland-Homer
Former Manufactured Gas Plant Site (OU-1)
South Main Street
Village of Homer, Cortland County, New York

NYSDEC SITE # 7-12-005

March 2008

Prepared By:
Earth Tech Northeast, Inc.

For:
NYSEG Environmental Compliance
Site Investigation and Remediation

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ACGIH	American Congress of Government Industrial Hygienists
ASP	Analytical service protocol
BTEX	benzene, toluene, ethylbenzene and xylenes
CFR	Code of Federal Regulations
CLP	Contract Laboratory Protocol
COC	Chain-of-Custody
DER	Department of Environmental Remediation
ELAP	Environmental Laboratory Approval Programs
EPA	Environmental Protection Agency
EPA	Environmental Protection Agency
FS	Feasibility Study
GC	gas chromatograph
GCS-DN	gas chromatograph station - downwind
GCS-UP	gas chromatograph station – upwind
gpm	gallons per minute
IRM	Interim Remedial Measure
ISS	In-Situ Stabilization
MGP	manufactured gas plant
NAPL	non-aqueous phase liquid
NIOSH	National Institute for Occupational Safety and Health
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSEG	New York State Electric & Gas Corporation
OSHA	Occupational Safety and Health Act or Administration
PAHs	polycyclic aromatic hydrocarbons
PID	photo ionization detector
PPE	personal protective equipment
ppm	parts per million
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SPDES	State Pollution Discharge Elimination System
SRI	Supplemental Remedial Investigation
SSP	Steel Sheet Pile
STEL	Short-term exposure limit
SVOCs	semi-volatile organic compounds
TAGM	technical and administrative guidance memorandum
TCL	target compound list
TCLP	toxicity characteristic leachate procedure
VOCs	volatile organic compounds
VOA	volatile organic analysis

1.0 INTRODUCTION

This Remedial Action Design describes the site preparation, construction of a sheet pile excavation support system, temporary water treatment system, limited demolition, and the excavation and off-site disposal of underground structures, their contents, associated piping, visible tarry waste, and Manufactured Gas Plant (MGP) impacted soil and ISS of these soils within the utility corridor along South Main Street (Rt11) associated with the Cortland-Homer former MGP site located in the Village of Homer, Cortland County, New York (Figure 1). This project is being proposed in accordance with Section VII of the Order on Consent (Index Number DO-0002-9309, see Appendix A) between New York State Electric & Gas Corporation (NYSEG) and the New York State Department of Environmental Conservation (NYSDEC), and the Record of Decision (ROD) for the site dated March 2007.

This Remedial Action Design describes the sampling, community air-monitoring, excavation, materials handling, waste characterization, and the transportation and off-site disposal of MGP structures, soil and residues. This Remedial Action Design will be performed under the approval and oversight of the NYSDEC and the New York State Department of Health (NYSDOH).

1.1 Site Location and Description

The former NYSEG MGP site is in the Village of Homer, Cortland County, New York. The site is approximately 2 acres in size and is comprised of two adjoining parcels of land that are privately owned. The southern parcel contains a single story commercial building which is approximately 30,000 square feet in area. This building is occupied by a general plumbing and electrical supply store (I.D. Booth) and a utility company service and maintenance center (Verizon). The northern parcel is utilized for parking.

The site parcels are bordered by New York State (NYS) Route 11 to the east, the New York and Susquehanna railroad line to the west, and commercial properties to the north and south. East of NYS Route 11 is the West Branch of the Tioughnioga River. The west bank of the river is approximately 150 feet to the east of the site parcels across Rt. 11.

1.2 Site History

From approximately 1858 through 1932, NYSEG (or predecessor companies) used the former MGP site on South Main Street in Homer to manufacture gas, which was used by the local residents and businesses near the site. In 1858, the Homer & Cortland Gas Light Company (HCGL) began distributing gas manufactured from coal to the citizens of Homer and the next

year added Cortland to its service area. In 1908, HCGL was renamed Barstow and Co. of New York and in 1911 it became part of NYSEG. Coal gas production continued until 1921. From 1921 until 1932 carbureted water gas production was conducted at the plant. NYSEG operated the site as a natural gas and electric service center from 1932 until 1935 when the operation was relocated to a new service center.

Figure 2 shows the former operations layout.

In 1940 NYSEG had the 45,000 cu. ft. steel gas holder dismantled. The remaining structures were subsequently demolished in 1944 when Brockway Motor Company, Inc. (Brockway) purchased the site. Brockway constructed a truck sales and service facility on the site starting in 1947. Irving D. Booth purchased the property in 1971 and renovated it to its present condition.

Currently, I.D. Booth, a general plumbing and electrical supplier, owns the site. I.D. Booth operates one of its supply stores in the southern portion of the building. The northern portion of the building is currently occupied by Verizon, which operates a service center onsite. The building houses a combination of offices, general storage, garage space, a showroom, and a sales counter. To facilitate remediation, the southern two thirds of the building (the portion utilized by I.D. Booth) will be demolished while the remaining third of the building (utilized by Verizon) will continue to be occupied and functioning during remediation efforts. The property immediately to the south of the site is occupied by Natoli's Market. This property may be available as a staging area for the WWTP and construction equipment for the remediation.

The neighborhood around the former gas plant is a commercial section of Homer.

1.3 Previous Investigations and Remedial Actions

Between 1985 and 2004 the site has been subject to several investigations. These are listed below as compiled by URS Corporation for NYSEG in the "Feasibility Study Report" 2004.

1. Investigation of Former Coal Gasification Sites, Cortland/Homer, Homer, NY, prepared by E.C. Jordan Co., October 1985.
2. Investigation of Former Coal Gasification Sites, Cortland/Homer, Homer, NY, Task 2 Report, prepared by E.C. Jordan Co., July 1987.
3. Investigation of Former Coal Gasification Sites, Cortland/Homer, Homer, NY, Task 3 Report, prepared by E.C. Jordan Co., May 1989.
4. Feasibility Study Addendum, Cortland/Homer Former MGP, Site #7-12-005, Cortland, New York, prepared by Groundwater Technology, Inc., February 1993.
5. Historical Summary NYSEG Cortland/Homer Former MGP, Cortland County, New York, prepared by Stearns and Wheeler for NYSEG, April 2001.

6. Supplemental Remedial Investigation (SRI) NYSEG Cortland/Homer Former MGP Site, Cortland County, New York, prepared by Stearns and Wheeler for NYSEG, March 2003.
7. Feasibility Study Report, NYSEG Cortland/Homer Former MGP Site, Cortland County, New York, prepared by URS Corporation for NYSEG, April 2004.

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

Cortland Free Library
32 Church Street
Cortland, NY 13045
Mon-Thurs 9:30 am – 8:00 pm
Friday 9:30 am - 5:30 pm
Saturday 9:30 am – 4:30 pm

NYSDEC Region 7
615 Erie Blvd. West
Syracuse, NY 13204-2400
Contact: Diane Carlton
Phone: 315-426-7413
Mon-Fri 8:30 am - 4:30 pm

New York State Department of Environmental Conservation
Central Office, 625 Broadway 11th Floor
Albany, New York 12233-7014
Attn: Mr. William Ports
(518) 402-9667 (By appointment only)

2.0 REMEDIATION OBJECTIVES

The primary objectives of the remedial action, as required by the Record of Decision issued March 2007, include the elimination or reduction, to the extent practicable:

- Exposures of persons at or around the site to site-related constituents, VOCs, SVOCs and PAHs, in groundwater and subsurface soils;
- The release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards;
- The release of contaminants from subsurface soil under buildings into indoor air through soil vapor; and
- Migration of coal tar beyond the site boundary.

Further, remediation objectives for the site include the attainment to the extent practicable:

- Ambient groundwater quality standards

The primary activities covered under this remedial action design include:

- Removal to a depth of 24 feet of all MGP waste, NAPL and contaminated soils meeting one or more of the following criteria:
    - visible tar or oil;
    - the presence of sheens or odors with total PAHs over 1000 ppm;
    - purifier waste with reactive cyanide levels above 250 ppm; or
    - purifier waste with reactive sulfide levels above 500 ppm.

  A temporary shoring system for excavations will be required to obtain proposed remediation depths and to limit lateral water inflow which would otherwise increase the amount of dewatering required and to prevent settlement of unaffected portions of the site and surrounding area. Dewatering will be implemented as required to remove standing water from excavation areas. The Feasibility Study estimates excavation of 44,000 cubic yards of contaminated soils to a depth of 24 feet below the ground surface. Soil excavation will proceed deeper if soils exceed one or more of the above criteria and depths are within the limits of the designed shoring system (40 foot maximum).
- Excavated soils exceeding the criteria specified in the first bullet above will be disposed of or thermally treated off site. Excavated materials which are below the criteria will be stockpiled and evaluated for reuse on-site.
- The excavation will be backfilled with stockpiled soils and clean soil as defined in 6 NYCRR 375-6.7(d), graded, and the ground surface will be prepared to meet future land use requirements.
- Stabilization testing to determine reagents and mix ratios for ISS of Utility corridor soils and a field demonstration of the ISS process.
- ISS of the utility corridor area.

- Placement of clean granular backfill overlaying the utilities in contaminated areas of the utility corridor
- Soil vapor intrusion in the remaining portion of the building will be evaluated after soil excavation, with mitigation and or monitoring as determined to be necessary.

Implementation of this Remedial Action Design is not currently scheduled; a proposed project schedule has been included in Appendix B as a projection for project duration.

3.0 ORGANIZATIONAL STRUCTURE AND RESPONSIBILITY

NYSEG and New York State regulatory agencies will participate jointly in this remedial action associated with the Cortland-Homer former MGP site. NYSEG has the ultimate responsibility for implementing this Remedial Action Design for the project, including the community air-monitoring program during construction (see Organization Structure in Appendix C). Approval of this Remedial Action Design by the NYSDEC and the NYSDOH will be secured prior to intrusive activities and site excavation. NYSDEC and NYSDOH personnel are anticipated to be on-site periodically for purposes of general program oversight. The remediation contractor will be responsible for all on-site construction operations during the project, unless otherwise stated in Section 4.0, including: excavation safety and protection of adjacent structures and utilities; construction personnel health and safety; implementation of contingency plans for odor control; management of wastewater and waste-handling operations; maintenance of site controls (i.e., run-off, run-on); the construction, excavation, and material handling activities associated with the remedial action; soil sampling program associated with the remedial action; and documentation of the extent of the removal action. NYSEG will be responsible for the community air monitoring program.

Communication with regulatory agencies and with members of the surrounding community will be managed by NYSEG. The plan for sharing project information with the community is described in the *Citizen Participation Plan* for the Cortland-Homer former MGP site included in Appendix D.

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

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E-mail: jmg07@health.state.ny.us

4.0 REMEDIAL ACTION DESIGN

4.1 Introduction

This Remedial Action Design includes a chronological description and performance schedule of anticipated project activities for OU-1. Documents include a health and safety plan, figures, citizen participation plan, ISS Stabilization Study (Plan), Construction Quality Assurance Plan, Quality Assurance Project Plan, transportation of solid and/or liquid waste plan, project schedule, organizational structure, Site Vapor Emission Response Plan, Contingency Plan, and NYSDEC Remedial Action Design approval letter.

Actual project data (e.g., community air-monitoring, noise, dust control) obtained from NYSEG's previous remediation efforts at other MGP sites have been used as guidance to design the procedures for the Cortland-Homer site remediation project.

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

4.1.1 Definitions of Manufactured Gas Plant Site Materials

- ***Manufactured Gas Plant Site Residue –*** All material, which is impacted with waste from the MGP.
- ***Coal Tar*** – Free phase tar.
- ***Tarry Waste*** – Grossly impacted soil, with visible free phase tar present. For purposes of this Remedial Action Design, includes soil containing over 5,000 ppm total PAHs.
- ***Coal Tar Soil*** – Soil that exhibits evidence of coal tar staining, but no free phase tar. For purposes of this Remedial Action Design, any soil exhibiting coal tar staining will be disposed as coal tar soil.

4.1.2 Pre-Remediation Sampling and Analysis

NYSEG will conduct an in situ sampling event at the Cortland-Homer manufactured gas plant site prior to initiation of remediation activities. This sampling event will be conducted in accordance with the *Pre-Remediation In Situ Sampling & Analysis Work Plan For Activities Associated With Cortland-Homer Former Manufactured Gas Plant Site*, approved by the NYSDEC (to be submitted under separate cover).

The results of the sampling and analysis will be used to designate sections of the soil into four categories:

- **Subsurface Fill** – Non-hazardous soil without visible evidence of staining and that has been sampled ex-situ and determined to have total PAHs (polycyclic aromatic hydrocarbons) concentrations below 1000 ppm.

- **Non-hazardous Waste** – Coal tar soil found not to exceed the TCLP (toxicity characteristic leachate procedure) limits and reactivity limits. However, during excavation, tarry waste will be segregated out from non-hazardous waste.

- **Conditionally Exempt Manufactured Gas Plant Remediation Waste** – Material as defined per NYSDEC *Department of Environmental Remediation (DER) Program Policy DER-4, Management of Coal Tar Wastes and Coal Tar Contaminated Soils and Sediment from Former Manufactured Gas Plants*.

- **Hazardous Waste** - Coal tar soil found to exceed the toxicity characteristic leaching procedures (TCLP) limits or reactivity limits.

4.1.3 Cleanup Objectives

The overall objective is the excavation and off-site treatment or disposal or ISS of coal tar impacted soil with concentrations greater than 1000 ppm total PAHs or soils containing visual tar or NAPL and excavation and off-site disposal of purifier wastes.

4.1.4 Disposal Protocol

Pre-remediation in situ soil samples will be collected and analyzed in accordance with NYSDEC Approved *Pre-Remediation In Situ Sampling & Analysis Work Plan For Cortland-Homer Manufactured Gas Plant Site* (to be submitted under separate cover). Additional characterization samples may be collected during excavation in accordance with Section 6.2.2 of this Remedial Action Design to determine how the soils will be handled. Based on the analytical results, soils will be handed according to the following criteria:

Subsurface Fill:

If analytical results indicate analytes listed in Table 4-1, Table 4-2, Table 4-4 and Table 4-5 fall below specified limits and if during excavation the soil does not exhibit coal tar staining, then the soil will be used as Subsurface Fill within the excavation without any additional sampling. If coal tar stained soil is encountered during excavation, then the soil will be stockpiled, sampled

ex-situ and analyzed in accordance with Section 6.2.1 of this Remedial Action Design. If the analytical results of the ex-situ samples are below the limits specified in Table 4-5, NYSEG will provide information to the NYSDEC for acceptance prior to using the soil as Subsurface Fill. If the analytical results of the ex-situ samples are above the specified limits, then the respective soil will be sent to a permitted disposal facility.

Resource Conservation and Recovery Act (RCRA) Non-hazardous Waste:
If the analytical results indicate analytes listed in Table 4-1, Table 4-2, Table 4-3, and Table 4-4 are below specified limits, then the respective soil will be sent to either (1) a RCRA Subtitle D landfill; or (2) a thermal treatment facility permitted to accept it.

Conditionally Exempt MGP Remediation Waste:
If the analytical results indicate analytes listed in Table 4-2, Table 4-3, and Table 4-4 are below the specified limits but fail to meet the Toxicity Characteristic Leaching Procedure (TCLP) limit for benzene as specified in Table 4-1, then the soil will be managed as a RCRA conditionally exempt waste and sent to a thermal treatment facility permitted to accept these wastes.

RCRA Hazardous Waste:
If the analytical results indicate any analyte listed in Table 4-2, Table 4-3, and Table 4-4 is above the specified limits and exceeds the TCLP limit, then the soil will be sent to RCRA permitted disposal facility.

TABLE 4-1
SAMPLE TCLP BENZENE ANALYTE AND LIMIT

TCLP ANALYTE	REGULATORY LIMIT (mg/L)
Benzene	0.5

TABLE 4-2
SAMPLE ANALYTES AND ACTION LIMITS
REACTIVE CYANIDE AND REACTIVE SULFIDE (REACTIVITY)

ANALYTE	US EPA ACTION LIMIT (mg/kg)
Reactive Cyanide	250
Reactive Sulfide	500

TABLE 4-3
SAMPLE ANALYTES AND ACTION LIMITS
OTHER RCRA CHARACTERISTICS, LANDFILL REQUIREMENTS, and REQUIREMENTS FOR CONDITIONALLY EXEMPT MGP WASTE

ANALYTE	LIMIT
PCB(total)	50 mg/kg
Corrosivity (pH)	Non-Corrosive (pH must be >2 and <12.5)
Ignitability	Must be non-ignitable
Percent Sulfur	Must be <3.5%

TABLE 4-4
SAMPLE TCLP ANALYTE AND LIMITS

TCLP ANALYTE	REGULATORY LIMIT (mg/L) (6NYCRR Part 371)
Arsenic	5.0
Barium	100.0
Cadmium	1.0
Carbon Tetrachloride	0.5
Chlorobenzene	0.03
Chloroform	6.0
Chromium	5.0
Cresols (total of o,m.p)	200.0
2,4-D	10.0
1,4-Dichlorobenzene	7.5
1,2-Dichloroethane	0.5
1,1-Dichloroethene	0.7
2,4-Dinitro Toluene	0.13
Endrin	0.02
Heptachor	0.008
Hexachlorobenzene	0.13
Hexachlorobutadiene	0.5
Lead	5.0
Lindane	0.4
Mercury	0.2
Methoxychlor	10.0
Methyl Ethyl Ketone	200.0
Nitrobenzene	2.0
Pentachlorophenol	100.0
Pyridine	5.0
Selenium	1.0
Silver	5.0
Silvex	1.0
Tetrachloroethylene	0.7
Toxaphene	0.5
Trichloroethylene	0.5
2,4,5-Trichlorophenol	400.0
2,4,6-Trichlorophenol	2.0
Vinyl Chloride	0.2

TABLE 4-5 COMPOSITE SAMPLE ANALYTES FOR PAHs (polycyclic aromatic hydrocarbons) Total PAHs Shall Not Exceed 1000 ppm
ANALYTE
Naphthalene
2-Methylnaphthalene
Acenaphthene
Acenaphthylene
Fluorene
Phenanthrene
Anthracene
Florathrene
Dibenzofuran
Pyrene
Benzo (g,h,i) perylene
Benzo (a) anthracene
Chrysene
Benzo (b) fluoranthene
Benzo (k) Fluoranthene
Benzo (a) pyrene
Indeno (1,2,3 cd) pyrene
Dibenzo (a,h) Anthracene

4.1.5 Confirmation Sampling

Confirmation soil samples will be collected at the limit of excavation. Procedures for confirmation soil sampling and analytical methods are presented in Section 6.2.

4.2 Site Set-up

4.2.1 Utility Clearance and Markout

Prior to any construction activities, Dig Safely New York will be notified, and all on-site underground utilities will be marked in the work areas. Local police and fire departments will also be notified. The Village of Homer Water and Sewer Department will also be notified. The Citizen Participation Plan for Cortland-Homer former MGP site addresses notification of adjacent property owners and local officials.

4.2.2 Site Security

Where necessary, a 6-foot high chain link fence will be installed around the perimeter of the site work area with the main entrance gates along Route 11. "NO TRESPASSING" signs will be

installed on the perimeter fence. A project sign for "NYSDEC Order on Consent No. D0-0002-9309" compliant with NYSDEC specifications will be posted. During daily operations, admittance requirements and visitor monitoring will be in effect, as specified in the Health and Safety Plan for Activities at the Cortland-Homer Former MGP site. Placement of the chain link fence will be as shown on the design drawings.

4.2.3 Site Preparation

Several general site preparation activities will be performed by the contractor prior to any intrusive soil excavation or grading activities, including utility clearances and identification, survey of pre-excavation cut-lines, survey of sheetpile layout, demolition of existing structures, installation of erosion controls, clearing and removal of any vegetation, preparation of a “clean” access area, and implementation of a traffic control strategy.

4.2.4 Local Traffic Control

Truck access and departure will be limited to the new site access road (to be installed by contractor). The objective here is to minimize impact to traffic on South Main Street (Rt. 11).

4.2.5 On-Site Project Trailers

Two project trailers will be mobilized, blocked and leveled, and equipped with office supplies. One trailer (400 sq ft) will be utilized as offices by the NYSEG project coordinator, NYSEG sampling technician, and NYSDEC on-site representative. The NYSDEC onsite personnel will have an area with a desk, electrical outlet, phone, and a phone line for computer hookup. Electric, telephone service, facsimile capabilities, office supplies, potable water and portable toilets will be available for all project personnel. Also available will be space for records storage, personal protective equipment, monitoring equipment, first aid location, and sample preparation and storage. A second trailer will to be utilized by the remediation contractor for project office tasks, safety meetings and changing area.

4.2.6 Exclusion Zone

The work area Exclusion Zone (i.e., the active work area immediate to the excavation) will change as excavation progresses. Yellow caution tape fastened to tee posts will be used to delineate the perimeter of the Exclusion Zone. The Exclusion Zone includes the area inside the waste transporter’s trailer or roll-off container.

4.2.7 Contamination Reduction Zone

The work area Contamination Reduction Zone (i.e., the area immediately outside the Exclusion Zone) will be used as a primary decontamination area for equipment and personnel. The Contamination Reduction Zone includes the truck loading area. Orange construction fence fastened to tee posts will be used to delineate the perimeter of the Contamination Reduction Zone. At a minimum the contamination Reduction Zone will be a three feet buffer around the Exclusion Zone.

4.2.7.1 Equipment Contamination Reduction Pad

An equipment contamination reduction pad, with a minimum size of 20 feet X 40 feet, will be constructed and maintained inside the Contamination Reduction Zone. The interior of the pad will be sloped to an internal sump so that the wash water and sediment can be collected and removed for disposal. A high-pressure washer will be maintained to clean all vehicles and equipment exiting the Exclusion Zone (see Section 4.5 Construction Equipment, Vehicles and Tools Decontamination).

A submersible pump will be placed in the sump to transfer the decontamination water via hose to an appropriate container. The equipment contamination reduction pad will be covered with polyethylene sheeting when not in use. The sheeting will be secured with sandbags. At the completion of the remediation project, the sand, stone, and sediment will be sampled, analyzed and disposed of at a permitted facility.

The equipment contamination reduction pad will be constructed as follows: the existing ground will be graded and compacted as required; medium sand will be placed over the proposed area; 10-inch x 10-inch timbers, held in place by #5 rebar, will be placed around the perimeter; sand will be bermed around the inside of the timbers to protect the liner; a minimum 30-mil thick high density polyethylene liner will be placed over the sand and timbers; liner will be secured by nailing wooden battens on the outside of the timbers; two inches of medium sand will be placed above the liner; a sump will be constructed in the lowest area by using a slotted PVC pipe and will be set in stone to collect water, the remaining area within the timbers will be filled with coarse stone, and a stone or earthen ramp will be constructed to allow equipment to drive onto the pad. A cover of 6-mil polyethylene sheeting will be placed over the equipment contamination reduction pad when not in use. The cover will be secured with sandbags.

4.2.7.2 Personnel Contamination Reduction Area

A personnel contamination reduction area will be constructed and maintained inside the Contamination Reduction Zone. At a minimum, 6-mil polyethylene sheeting will be placed on the ground. Stage 1 will contain a boot washtub with solution of detergent, water and a long handle brush. Next will be an additional boot washtub containing rinse water, a long handle brush and a final rinse with a hand pump sprayer. A 55-gallon barrel lined with a 6-mil thick polyethylene bag will also be available for personal protection equipment (PPE) disposal. Stage 2 will contain a hand washtub with a solution of detergent and water. Next there will be an additional hand washtub containing rinse water and a final rinse with a hand pump sprayer. Waterless hand cleaners may be used to replace the hand washtubs. Paper hand towels will also be available in this area.

4.2.7.3 Preparation of Stockpile Management Area (If Required)

Stockpile management area will be prepared for stockpiling excavated soils. The areas will be prepared as follows: the existing ground surface will be graded and compacted as required, a sump will be constructed in the lowest area; medium sand will be placed over the proposed storage area; 8-inch by 8-inch timbers, held in place by #5 rebar, will be placed around the perimeter; sand will be bermed around the inside of the timbers to protect the sheeting; a minimum, 20-mil thick reinforced polyethylene sheeting will be placed over sand and timbers; sheeting will be secured by nailing wooden battens on the outside of the timbers; and three inches of medium sand will be placed on the sheeting. A cover of 6-mil thick polyethylene sheeting will be placed over the stockpile management area. The cover will be secured with sandbags.

4.2.8 Support Zone

The Support Zone is the area where project support can be rendered without contact with contamination. This area is located outside the Contamination Reduction Zone.

4.2.9 Erosion and Sedimentation Control

Prior to clearing any vegetation, siltation fence and hay bales will be placed along the any affected catch basins. During construction other areas of disturbance outside the sheetpile wall shall have silt fence and hay bails to control erosion and sedimentation on the down gradient side. NYSEG may direct contractor to install additional erosion and sedimentation controls for

surface water runoff (i.e., haybales and or earth berm) during construction. The integrity of the siltation fence and earth berm shall be checked daily. Silt fences should be installed in front of hay bales closest to the remediation activities.

4.3 Mobilization

As part of the mobilization activities, labor, construction equipment, materials, and sanitary facilities will initially be mobilized to the Site to prepare for remedial action activities. Several general site preparation activities will be performed before intrusive soil excavation activities are initiated. The various components associated with mobilization and site preparation activities are illustrated on Figure 3. Equipment and mode of operation will be described in further detail in the following sections.

4.4 Demolition

Prior to this remediation and under a separate contract, the southern portion of the I.D. Booth building and all outbuildings will be demolished in order to allow for the excavation. The portion of the building and any outbuildings that will be demolished prior to remediation will be removed only to the slabs and foundations. The floor slabs and foundations remaining will be demolished and removed by the contractor under this contract. This material will be shipped off as construction and demolition debris as part of the site remediation. Material shall be processed down to a size that meets the disposal facility requirements prior to loading into off-site transportation vehicles. If required, prior to work starting all utilities will be disconnected to this structure.

4.5 Well Decommissioning

Monitoring wells located on the west side of Route 11 shall be decommissioned prior to remedial construction activities by pulling the well casing and screen in accordance with NYSDEC procedures (NYSDEC, 1996).

4.6 Work Activities

All workers will comply with the Occupational Safety and Health Administration's (OSHA's), "Hazardous Waste Operations and Emergency Response", (20 CFR 1910.120) and Safety and Health Regulations for Construction - Excavations (29 CFR 1926 Subpart P). Remedial activities undertaken during the remediation action will be completed in accordance with the Construction

Quality Assurance Plan for Activities at Cortland-Homer, South Main Street Former MGP site (Appendix F).

The excavated area will be shored using watertight sheetpiling (see Sheetpile Design Document). The sheetpiling system will be the limits of the excavation activities while implementing the remedial action. In the event that a particular area becomes impractical or unsafe to continue to excavate, NYSEG will document the visible presence of NAPL and the concentrations for MGP residuals contained in the subsurface at that particular location by utilizing the documentation sampling criteria described in Section 6.2.1.

Dewatering activities will be necessary due to groundwater present in soils within the sheetpiling, precipitation events, and lateral/upward groundwater flow into the excavation. Groundwater removed during excavation will be transferred to the on-site wastewater treatment system.

Odors, dust or fugitive vapors which could potentially emanate from remedial activities will be actively controlled by misting the working area with BIO SOLVE® (odor or vapor control) or water (dust control). The BIO SOLVE® (See Appendix F for product information) will be applied using a pressure washer. If required, a worker will be available for dedicated operation of this equipment. In addition, inactive portions of the stockpile and inactive areas of the excavation will be covered with polyethylene sheeting to help minimize emissions.

The truck loading area will be adjacent to the Exclusion Zone in the Contamination Reduction Zone. The truck loading area will be protected by placing 6-mil polyethylene sheeting on the ground. Sheeting will be held in place by sandbags. Plastic tarps with shepherd hooks will also be draped over the loading side of the dump trailers to protect against spillage during loading. An excavator and/or wheel loader will be used to load materials into trucks. Care will be exercised when loading trucks not to spill material on the outside of the dump trailers. Prior to leaving the loading area, each truck will be visually inspected (i.e., box sidewall, box tailgate, and tires, etc.) and cleaned with brushes as required. If required, dump trailers will be cleaned on the Equipment Contamination Reduction Pad (see Section 4.2.7.1). **Drivers will not be allowed to walk over loads**. NYSEG remedial workers will reposition the tarp bars over the loads. The driver will cover the trailer with a solid fabric (i.e., vinyl, reinforced polyethylene) over the entire load.

4.6.1 Excavation Procedures

The excavations will be completed within a temporary watertight steel sheetpile excavation support system. The nature of the soils underlaying the site may produce difficult driving conditions and vibration on or near the site. For this reason vibration monitoring will be necessary when driving the steel sheetpiles within 40 feet of sensitive structures (i.e. the Verizon portion of the building on the site, the railroad, and utilities). These structures may also experience settlement due to the excavation. Therefore settlement monitoring will also be conducted while there is an open cell within 40 feet of these structures. All steel sheetpiling that are installed within 40 feet of these sensitive structures will utilize augering techniques in order to minimize the pile driving vibration. Augering shall be conducted to a depth consistent with the depth of the top of the confining clay/silt layer prior to driving the sheeting.

Excavation depths will depend on actual conditions encountered at the bottom of each excavation area and may extend up to a maximum depth of 40 feet, depending on the presence of contaminated material. The remediation area being excavated is 122-ft x 304-ft. This area will be broken into five phases. Each phase will be 125-ft x 65-ft. Each phase will then be divided in half, yielding two cells of 62.5-ft x 65-ft. Once impacted soil is removed, the NYSEG project coordinator, in consultation with the NYSDEC construction oversight, will inspect the bottom of the excavation for any visible coal tar impacted soil. If no visible coal tar impacted soil is present, then confirmation samples will be collected by the sampling technician from the bottom of the excavation in the following manner:

- For these rectangular shaped excavations, quadrants of roughly 30-ft by 30-ft grids will be laid out within the excavated area. One confirmation sample will be collected from the center of each grid and surveyed in with a hand held Global Position System (GPS) unit.

Each confirmation sample will be a single grab sample representing the rectangular grid. Each confirmation sample will be analyzed for the compounds specified in Section 6.2.2.2 – Laboratory Analytical Protocols.

The excavation sequence will be as follows:

The sequence of constructing excavation cells shall be determined by the contractor. Excavation cells adjacent to the Verizon Building or Natoli's Market shall not be constructed until at least one other cell is successfully completed beforehand, thereby ensuring that any special

precautions that may be necessary to minimize risk of building damage can be evaluated and implemented.

During operations in close proximity to the Railroad tracks coordination will be required with the operating Railroad to ensure all applicable regulations are met and to enhance safety. This may require the presence of a Railroad employee onsite during operations near or affecting the railroad.

NYSDOT approval of all work conducted within the Right of Way of Rt. 11 must be obtained prior to beginning these portions of the project. NYSDOT approval must also be obtained for any diversion or limiting of traffic on Rt. 11.

4.6.2 Excavation Support System

An excavation support system has been designed to protect existing facilities and to provide a watertight barrier during excavation of the contaminated soils and structures. The excavation support system is provided as Appendix G.

4.7 In-situ Stabilization

4.7.1 Existing Conditions

Seven soil borings and monitoring wells have been placed within the utility corridor area during earlier investigations. The Pre-Remediation Sampling and Analysis will further investigate this area and identify the required depth of treatment in this area.

4.7.1.1 Subsurface Conditions

The subsoil consists of sand and gravel that overlies a silt/clay confining unit. The sand and gravel contains some silt and, in a few locations, some clay. The upper 2 to 5 feet also contains variable amounts of sand, gravel, building ruble, silt, and clay. This region is predominantly fill of different types that cover the utilities.

One boring within the utility corridor contained a layer of cobble at 7 feet bgs. Additional borings near the utility corridor contain this one to two foot thick cobble layer. The Pre-Remediation Sampling and Analysis will seek to determine the extent of this layer. However due to complications cobbles can cause with jet grouting, conservatively, it should be assumed that the layer exists across the entire area to be jet grouted. In the majority of the utility corridor this layer would be removed when the utilities are exposed however it could still be an issue if the layer is encountered at an increased depth. At three boring locations within the utility corridor

high blow counts (N-values greater than 50 per foot) were encountered. These values were observed at varying depths in the borings.

The confining soil unit is predominantly made up of clay/silt. This layer has been established under previous investigations to be at least ten feet thick and continuous across the Site. The surface elevation of this unit will be further explored in the Pre-Remediation Sampling and Analysis. This information will then be given in table form in its report.

4.7.2 Remediation Limits and Method

The remedial action will solidify MGP source material in-situ within the utility corridor on the east side of the site. This area will extend from the northern end of the steel sheetpiling line to the southern sheetpiling line. The utility corridor will extend twenty feet east of the eastern sheetpiling line. The ISS will utilize jet grouting to solidify the impacted soils beneath the utility corridor. Jet grouting will begin approximately at one (1) foot below the invert of the 24 inch sanitary sewer main and extend to a depth consistent with the findings of the Pre-Remediation Sampling and Analysis. The top of jet grouting will be dictated by the type of equipment utilized by the contractor. The emphasis will be to protect the 24 inch sewer main that could be damaged by a direct hit or glancing blow from the jet grouting spray. Therefore the contractor will determine, and submit for NYSEG review, the minimum depth below the sewer main that jet grouting will take place. Contaminated soils surrounding and overlaying the utilities will be excavated and handled in accordance with Section 4.1.4 of this Remedial Action Design.

4.7.3 Bench Scale Stabilization Testing

Bench-scale stabilization testing will be performed by contractor to develop a binder mixture that can be used to solidify the entire utility corridor. The stabilization study shall use MGP source materials and contaminated site soils taken from known sections of the utility corridor that contain visible product or sheen, are oil saturated, or contain elevated BTEX and TPAH concentrations. This will result in the development of a conservative or worst case, mixture. An ISS Stabilization Study is included in Appendix E.

Stabilization tests attempt to represent field conditions to the extent possible. They can be performed to simulate a worst case condition, which is accomplished by selecting soil samples from areas that have known high levels of contamination. Stabilization tests can also be performed to represent less severe, “typical” or “average”, conditions. For the purposes of this Remedial Action Design, the design mix shall utilize high-level contaminated samples (i.e.

"worst case") to provide a factor of safety for unexpected conditions such as unanticipated contamination levels or soil mixing inconsistencies.

Groundwater samples will be collected and analyzed as specified in Appendix L to determine current conditions. The results will be used to demonstrate the current state of leaching to groundwater.

The selected stabilization mixture is expected to contain various proportions of contaminated soil, cement, and any other additives such as slag. Additives may also be required to promote workability and prevent organic compounds from interfering with the reactions. Proprietary additives may include softening agents, retarders or plugging or bridging agents that are added to the water or grout mixture.

Some of the mixing ratios that will be determined during the stabilization study are water:solids, cement:solids, additive:cement, and water:cement.

In addition to developing a binder mixture, the In Situ Solidification Stabilization Study will emphasize determining solidified soil properties as quickly as possible in the curing process to minimize potential construction delays. For full-scale production, the unconfined compressive strength and permeability test results shall be used to indicate stabilization effectiveness. The goal will be to achieve satisfactory field test results as soon as practicable.

4.7.4 Design Requirements

The effectiveness of the soil stabilization mixture will be determined by the meeting of minimum physical standards and reduction of contaminant leaching potential. Wet samples of the soilcrete mixture will be collected at the time of construction and 7-day and 28-day cured samples shall be tested. The minimum required standards and associated testing methods are listed below.

- UC Strength: A minimum UC strength of 100 pounds per square inch (psi) will be required. The maximum allowable value will be 500 psi. UC strength (ASTM D1633) will be used as a field quality control parameter.
- Permeability: A maximum allowable permeability of 1x10-6 cm/sec will be required. Permeability (ASTM D5084) will be used as an indicator of contaminant leaching potential and to demonstrate uniformity of the solidified soil mixture. Low permeability values will inhibit contaminant transport from the solidified soil mass.
- Bulk Density: This parameter will be measured (ASTM D1556) to provide an indication of mixing consistency and volume increase.
- Contaminant Leaching: Contaminant leaching will be determined by using the modified static leaching test (ANSI/ANS-16.1) for BTEX and site-related TPAHs on raw "untreated" soil and on solidified soil samples from the bench-scale stabilization test. The

static leaching test data will be evaluated to determine the reduction in contaminant leaching for each binder mixture. A target percent reduction (and binder mixture) for the field demonstration and mass production work will be determined by NYSEG in conjunction with NYSDEC and NYSDOH based on the stablization test data. The target contaminant leaching reduction will consider cost of the binder mixture and ease of pumping during mass production work.

4.7.5 Field Demonstration

A soil mixing field demonstration shall be performed by the contractor prior to the mass production work to demonstrate that the contractor's full-scale equipment can achieve the desired results. The field demonstration shall be performed within the Utility Corridor Area and, if acceptable, the solidified soil columns shall be incorporated directly into the work. Unacceptable solidified soil columns from the field demonstration shall be reworked to achieve the required results. The field demonstration shall include a minimum of three jet grout columns. The purpose is to create an example of the actual conditions of the full scale construction work. The field demonstration shall achieve the following objectives:

- Establish quality assurance/quality control (QA/QC) procedures to ensure proper formation of the binder agent mixture.
- Establish the application rates and mixing requirements and refine the stabilization test mixture, if necessary.
- Evaluate the bulking characteristics (volume increase) of the solidified soil.
- Display sampling methodology.
- Establish that the equipment layout shall provide an efficient operation with minimal interruption.
- Display site-specific impact of contaminant loading and/or soil type.
- Display the site-specific impact of dense sand/gravel and any obstructions such as cobbles.
- Demonstrate the method to ensure verticality of jet grouted columns so that overlaps of columns and a monolith of treated soil with no untreated gaps are achieved.
- Monitor off-gas, dust and noise generation.

Specific operations that shall be established during the field demonstration include nozzle assembly advancement rate (downward and upward), nozzle assembly rotation speed, binder mixture injection rate, and multiple stroke requirements (i.e., repeating a downward/upward advancement) over any part of the jet grout column. The field demonstration shall be performed immediately prior to the mass production work, with allowance for a successful field demonstration, to avoid multiple mobilizations and set-ups of the batch plant and support areas. Potential fugitive volatile emissions generated during the mixing process shall be collected at the

ground surface in a vapor shroud maintained under a slight vacuum. Wet samples shall be collected from the freshly-blended soil mixture at one third (1/3) and two thirds (2/3) depths. The samples shall be analyzed for UC strength, permeability, and bulk density. Core sampling shall also be performed at the overlap-interstice of the three jet grout columns. Coring shall be conducted after a minimum of three days of curing have elapsed. Coring shall utilize a triple tube core barrel of the HQ size at a minimum. Full-scale production shall not start until successful performance sample results have been attained and reviewed by NYSEG and NYSDEC.

4.7.6 Excavation (Utility Exposure)

During jet grouting operations it will become necessary to expose the utilities in order to ensure that they are not damaged during construction. This will also be necessary to ensure that any bulking affect the grout injection has on the soil does not affect the integrity of the utilities and that all spoil material can then be cleared from the utilities. Portions of the water main and Verizon fiber optic duct bank will need to be removed and replaced in order to facilitate removal of any contaminated cover soil in this corridor. For details refer to Appendix H - *Sheetpile Excavation Support System Design and Temporary Water Treatment System Design.* Any soil excavated shall be handled in accordance with Section 4.1.4 of this Remedial Action Design.

4.7.7 Construction Sequencing

The utility corridor is to be stabilized from the limits of remediation to the steel sheetpile cofferdam as shown in Drawing 04. This will require the installation of the steel sheetpiling and the jet grouting to be performed in conjunction with each other in order to assure that there are no gaps or “pockets” of unstablized soil caused by limiting of available angles of advancement for the jet grouting equipment.

4.7.8 Spoils Management

Spoils material created by the bulking affect of the added grout mixture will be removed from the utility corridor and placed within the Site to allow curing. The cured materials will then be disposed of as required once they have been tested and classified.

4.7.9 Batch Plant and Methods

A summary of the required batching equipment and materials is provided below.

- The batch plant shall generally consist of mixers, volumetric screw feeders, flow controllers, storage silos and tanks, and conveyance systems. Calibration of the system

shall be performed at the beginning of the work and a minimum of monthly thereafter. The system shall accommodate water, dry solids, and mixed binding agents.

• Cement shall conform to the most current edition of ASTM C-150, Requirements for Portland Type I-II Cement, and shall be protected from moisture until batching.

• Water shall be fresh and clean, of a quality equivalent to tap water, and shall be stored and conveyed in systems that do not lower the water quality.

• Additives, if used, shall be those commonly used in the industry.

4.7.10 Traffic Control

This portion of the remedial action will take place in close proximity to South Main Street (Rt. 11). Therefore the contractor shall submit a detailed traffic control plan for operations in close proximity to the road to the engineer for acceptance. NYSDOT approval of all work conducted within the Right of Way of Rt. 11 and any required permits must be obtained prior to beginning these portions of the project.

4.7.11 Backfill

The utilities corridor will be backfilled in lifts with maximum thickness of one foot using clean granular fill that shall be compacted to 95 percent of the maximum dry density as determined by the Standard Proctor Test (ASTM D698). No soilcrete mixture will be left in contact with the utilities. The uppermost portion of backfill may be temporarily placed in a manner suitable to the construction needs of the site. However upon completion of the remedial activity the utility corridor will be backfilled and graded as described in section 4.12 of this Remedial Action Design. For details refer to Appendix H - *Sheetpile Excavation Support System Design and Temporary Water Treatment System Design.*

4.8 **Groundwater, Storm Water and Wastewater Management**

The degree of groundwater infiltration into the excavation will depend on the vertical hydraulic gradient of groundwater at the time of remediation. Lateral groundwater inflow into the excavation will also occur but will be reduced through the use of sealed sheetpiling. Also, groundwater present within the soil column will need to be managed as part of the remediation effort. Dewatering activities will primarily address the volume of water present within the excavation area, upward groundwater flow through the confining clay/silt layer, and precipitation.

The watertight sheetpiling system will greatly reduce the amount of surface water entering into open excavations. Contractor will have sandbags, hay bales and siltation fencing readily available to construct berms around the excavations when the need arises. Contractor will control rain water entering the excavation in order to accomplish the goals of the Remedial Action Design.

The contractor shall provide a modular temporary water treatment system to treat groundwater encountered during remediation activities. The work shall consist of mobilizing the groundwater treatment system and setting the system up adjacent to the excavation area on the land parcel agreed upon by the Contractor and NYSEG. The temporary water treatment system is provided in Appendix H.

A significant amount of water could be generated in the course of dewatering the work areas. The contractor will construct, operate, maintain, and monitor a water treatment system in accordance with limits and conditions set by the State Pollution Discharge and Elimination System (SPDES) permit.

The water treatment system will be constructed to treat water generated during remediation. Sources of water include, but are not limited to:

- Water from dewatering of excavation area;
- Groundwater from excavation(s);
- Storm water run-off from contaminated areas; and,
- Decontamination water and water from other miscellaneous sources.

Water from the above sources is expected to contain a number of contaminants which must be removed prior to discharge to the West Branch of the Tioughnioga River. The potential contaminants requiring treatment include VOCs, PAHs, solids, and cyanide. Contaminants monitored and their treatment levels are listed in the temporary discharge permit to be issued by the NYSDEC (Attachment G).

A groundwater treatment system will be installed to treat contaminated groundwater collected from the areas listed above. The treated groundwater will be discharged to the storm sewer located to the south of the site and west of NYS Rt. 11 in accordance with approved discharge criteria. The storm sewer discharges directly to the West Branch of the Tioughnioga River.

The system will include (but may not be limited to) the following major components:

- Storage Tankage (minimum of two fractionation tanks and one baffle tank);
- Oil/Water Separation;
- Organo-clay filtration;
- Physical filtration;
- Activated Carbon;
- Anion resin (cyanide removal); and
- Transfer pumps

The design maximum effluent discharge from the groundwater treatment system is 100 gallons per minute (gpm). The groundwater treatment system equipment will be either skid mounted and/or on wheels to make the system mobile. All electrical equipment, wiring and controls will

be installed in accordance with the National Electric Code. All groundwater treatment equipment and process piping shall be installed with adequate clearances for maintenance and safe operation of the equipment and in conformance with all applicable codes and standards. System logic controls and the system motor controls will be designed and installed by the Control System vendor. The required supply of chemicals used in the water treatment system will be ordered and staged appropriately prior to use in the processing equipment.

4.9 Construction Equipment, Vehicle and Tool Decontamination

The tires, tracks, undercarriages, and excavation buckets of all construction equipment (excavator, wheel loaders, dozer, etc.) and tools that enter the Exclusion Zone will be decontaminated at the Equipment Contamination Reduction Pad prior to entering the Support Zone. Decontamination procedures include the physical/mechanical removal of material through high-pressure washing. If tarry waste is encountered during excavation then the equipment will be decontaminated before excavating non-hazardous soil. At a minimum, this would include removal of all soil and steam cleaning of any tar staining.

4.10 Waste Transportation and Disposal

The transportation contractor will transport soil and wastewater in accordance with the NYSEG specification for the Transportation of Solid or Liquid Materials (Appendix H). All truck drivers leaving the site must have either, a Hazardous Waste Manifest, a Conditionally Exempt MGP Remediation Waste Manifest, or a Non-hazardous Solid Waste Manifest signed by NYSEG (or its agent) and the driver.

Trucks transporting hazardous waste or conditionally exempt MGP site remediation waste will either be lined or have the entire box (to top of side boards) lined with polyethylene sheets per NYSEG's discretion. All trucks must have watertight tailgates, which have a gasket between the box and tailgate or a driver will apply caulking between the box and tailgate. All trucks must have a solid fabric (i.e., vinyl, reinforced polyethylene) to cover the entire load.

NYSEG remedial workers will reposition the cover bars over the waste material. **Drivers will not be allowed to walk over waste material.** Truck route for arrival and departure at Cortland-Homer former MGP site will be as follows:

> **Arrival**: From Interstate 81 Exit 12; turn right (south) onto US Route 11 (South Main Street). Enter site from either of the Access Gates on South Main Street.

Departure: Exit the site by either of the Access Gates on South Main Street; turn left (north) onto US Route 11; proceed north to Interstate 81 Exit 12.

4.11 Contingency Plan

A Contingency Plan for Activities Associated with Cortland-Homer Former MGP site (Appendix J) has been developed to address spills and temporary work stoppage.

4.12 Site Restoration

Upon completion of the remedial action, restoration of the site will be undertaken as follows:

- All imported backfill will satisfy the lower of the soil cleanup objectives for Protection of Public Health – Commercial, or Protection of Groundwater as identified in ECL 375.6. The backfill will be placed in lifts and compacted as necessary. Remove and dispose of materials used to prepare the equipment contamination reduction pad, personnel contamination reduction area, siltation fencing and earth berm.

All waste material generated during site restoration will be characterized and disposed of in accordance with applicable regulations. All liners, polyethylene sheeting used to cover materials and personal protective equipment will also be characterized and disposed of appropriately. Site will be graded to allow surface water to runoff. Non-vegetated areas (buildings, roadways, parking lots, etc.) will be covered by a paving system or concrete at least 6 inches thick.

4.13 **Documentation of Site Activities**

4.13.1 Daily Field Construction Report

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

4.13.2 Transportation Log

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

4.13.3 Daily Community Air-monitoring Report

A daily community air-monitoring report will be prepared by NYSEG sampling technician using an on-site computer to document daily air-monitoring results. The daily community air-monitoring report will be submitted at the end of each week in an electronic format to Julia Kenney, NYSDOH at jmg07@health.state.ny.us, Mr. William Ports, NYSDEC at wfports@gw.dec.state.ny.us and Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

4.13.4 Master Sample Log

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

4.13.5 Chain of Custody

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

4.13.6 Waybills

A waybill receipt will be obtained at the time of accepted sample shipment by Federal Express or courier and will be attached to the Master Sample Log.

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

The above-mentioned report forms will be used to document any accident occurring on-site during the remedial project. The sheets are attached to the *Health and Safety Plan* and will be located in the field project trailer.

4.13.8 **C**onstruction Completion Report

At the completion of the project the Project Engineer will prepare and submit a Construction Completion Report to the NYSDEC. This report will include a summary of all of the Daily Field Construction Report's, Daily Community Air-monitoring Report's, Photographic Log, Sampling log, Material Disposition Log, and Variances to Work Plan. The Construction Completion Report will be signed and certified by a professional engineer that all activities were completed in full accordance with NYSDEC approved Work Plan and the NYSDEC Order on Consent Index #DO-0002-9309.

4.14 **Demobilization**

All equipment, materials, construction debris, and personnel will be demobilized from the site at the conclusion of the excavation portion of the project.

4.15 **Project Schedule**

A Project Schedule is provided in Appendix B.

4.16 **Permits**

NYSDEC Waste Transporter permits (6NYCRR Part 364) will be obtained by the Transportation Contractor for the vehicles used for transportation of waste as described in Section 4.6.
Discharge of treated wastewater will be to the West Branch of the Tioughnioga River covered under the NYSDEC issues SPDES permit.

5.0 AIR-QUALITY MONITORING PLAN

5.1 Overview

The objective of this Air-Quality Monitoring Program is to provide direct measurement of VOCs and total suspended particulates that could potentially be released during any activities at the site where contaminated or potentially contaminated soil is disturbed, including, but not limited to excavation, handling, or transportation of soil. The air-quality monitoring program consists of (1) Exclusion Zone air-monitoring for evaluating construction worker health and safety; and (2) community air-monitoring to determine the levels of VOCs and total suspended particulates at the perimeter of the Exclusion Zone.

This Air-Quality Monitoring Program meets or exceeds all criteria and guidance provided in the NYSDOH Generic Community Air-monitoring Plan. The provisions include real-time air-monitoring for VOCs and particulates (i.e., dust) at the downwind perimeter of the Exclusion Zone. The nearest receptor (irregardless of its relationship to wind) will be an additional monitoring location. Real-time air-monitoring and speciated real-time data will be used to guide appropriate action to reduce/minimize air emissions to acceptable levels. NYSEG has developed a Vapor Emission Response Plan for Cortland/Homer Former MGP site (see Appendix J) to address any exceedances of acceptable levels.

5.2 Exclusion Zone Air-Monitoring Program

The air quality within the Exclusion Zone, including inside transporter's trailer and/or roll-off container, will be monitored to ensure worker health and safety in accordance with requirements specified in 29 Code of Federal Regulations (CFR) 1910.120 as described in the Health And Safety Plan For Mechanicville Former MGP site.

5.3 Community Air-Monitoring Program

5.3.1 Overview

NYSEG will undertake a community air-monitoring program during the project to provide direct measurement of VOCs and total suspended particulate that may be released during excavation and handling of MGP structures and soils.

The air-monitoring program was established to address the following objectives:

- To insure concentrations of VOCs and total suspended particulates are minimized to protect human health and the environment.
- To provide an early warning system so engineering controls can be enacted to prevent unnecessary exposure of emissions resulting from project activities.

- To measure and document the concentrations of VOCs, speciated BTEX and total suspended particulates for determining compliance with the established air-monitoring limits.

The community air-monitoring is intended to be a discrete program, which will be operated in conjunction with the Exclusion Zone air-monitoring program. The Exclusion Zone monitoring is established to protect worker health and safety during construction and materials handling. The community air-monitoring will include real time air quality data, which will be collected throughout the duration of all excavation activities and will include upwind, downwind, and nearest receptor measurements. Wind direction will be determined using a weather station or equivalent device.

5.3.2 Real-Time Air-monitoring – Volatile Organic Compounds

The total VOCs monitoring will be accomplished using a total volatile organic analyzer equipped with a photo ionization detector (PID) using a 10.2 eV lamp. Each day the analyzer will be calibrated to benzene with a 100 ppm isobutylene air standard. The volatile organic analyzer will be capable of calculating a 15-minute running average of the measured VOCs concentrations. The 15-minute averages will be used to monitor air quality and will be recorded through out the day.

Real-time VOCs monitoring will start each day with an up wind measurement and immediately following any changes in wind direction. These measurements will be used for establishing baseline emissions due to natural and anthropogenic sources. The baseline value will be added to the air monitoring limits to compensate for the existing ambient conditions (i.e., VOC limit of 5 ppm + 1.2 ppm upwind: 6.2 ppm limit).

The total VOCs monitoring will operate continuously at the downwind perimeter of the Exclusion Zone. The nearest receptor (irregardless of its relationship to wind) will be an additional monitoring location. Readings at each location will be accomplished by pointing the intake tube of the analyzer toward the likely emission source, generally at the height of 3 feet above grade. The instrument will measure concentrations continuously and calculate four 15-minute averages per hour throughout the day. Each 15-minute average will be recorded on log sheets along with the date, time, sampling locations, wind direction, and weather conditions. A daily community air-monitoring report will be maintained in the on-site project trailer. The weekly data will also be submitted at the end of each week in an electronic format to Julia Kenney, NYSDOH at jmg07@health.state.ny.us, Mr. William Ports, NYSDEC at wfports@gw.dec.state.ny.us and Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

Based on data published by Occupational Safety and Health Administration (OSHA), American Congress of Government Industrial Hygienists (ACGIH) and National Institute for Occupational Safety and Health (NIOSH) a short-term quality action level of 5 ppm for total VOCs has been established for air emissions action in the Exclusion Zone. NYSEG will use an action level of 2.5

ppm above the existing ambient conditions (background) in the Exclusion Zone. Engineering control measures will be initiated for VOCs levels greater than 2.5 ppm at the work zone. If actions to control total VOCs emissions are not effective and concentrations continue to increase to 5 ppm (above background), the excavation and waste handling activities will be halted and actions will be initiated as specified under the Vapor Emission Response Plan (Section 5.3.7).

The 5 ppm action level (above background) at the perimeter of the Exclusion Zone is based on an estimated concentration for benzene, which is one of the VOCs included in the volatile organic analyzer reading. Since the volatile organic analyzer detects volatile compounds other than benzene, the 5 ppm action level is considered to be conservative.

In addition an action level of 2.5 ppm above background will be used in the Exclusion Zone where workers have the potential for continuous exposure. The 2.5 ppm limit is OSHA's short-term exposure limits (STEL) for benzene, which was established to insure worker health and safety (29 CFR 1910.1028). If the total VOCs concentration exceeds 2.5 ppm, the worker personal protective equipment will be upgraded from modified Level D to Level C, which requires the use of respirators as specified in the Health and Safety Plan.

5.3.3 Speciated Real-Time Air-monitoring – BTEX

To supplement the real-time VOCs air-monitoring for the community air-monitoring program, a portable GC unit will be used to determine the concentration of the individual benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds. The GC will be a Perkin-Elmer Photovac Voyager™ GC (or equivalent unit) equipped with a photo ionization detector that can accurately determine the BTEX compounds with detection limits in the low ppb (parts per billion) range. The purpose in generating this data will be to (1) supplement the real time VOCs readings, aiding in critical path decisions to be made for the Vapor Emission Response Plan (Section 5.3.7) and the major vapor emission response plan (Section 5.3.8) and (2) monitor emissions of BTEX to the surrounding community during construction activities.

The GC will be calibrated daily using gas standards containing BTEX compounds. Calibration checks will be conducted twice daily (a.m./p.m.) with a verification gas standard containing the BTEX target analytes. Calibration drift of greater than ±15% will require recalibration of the instrument. Samples will be collected in a tedlar bag over a 30-minute period and analyzed by the GC.

An upwind, downwind and nearest receptor monitoring station will be established at the perimeter of the Exclusion Zone. The monitoring stations will be designated as (Gas Chromatograph) GCS-UP (Upwind) and GCS-DN (Downwind) respectively. One sample will be collected and analyzed at each station.

The results of this sampling and analysis will be data logged in the GC memory and downloaded on a daily basis into a laptop personal computer. The results will be provided to the NYSDOH and NYSDEC as soon as possible during instances when the total VOCs action level is exceeded

(See Section 5.3-7) or a community member lodges an odor complaint. In absence of such instances, this data will be provided to NYSDOH, NYSDEC and NYSEG project manager on a weekly basis or upon request. Sample results will be compared to the short-term guidance (SGC) values as published in Air-Guide-1 (Table 5-1).

TABLE 5-1
AIR GUIDE-1 SHORT TERM GUIDANCE (SGC) CONCENTRATIONS

Contaminant	SGC (ug/m^3)	SGC (ppm)
Benzene	30	0.009
Toluene	89,000	24
Ethylbenzene	100,000	23
Xylenes	100,000	23

5.3.4 Odor Monitoring Plan

The nature of MGP site residues pose a concern regarding the generation of nuisance odors during excavation and material handling. As such, an odor control and monitoring plan has been developed for the project. For an odor complaint residents may speak with the NYSEG project coordinator or the NYSDEC on-site representative. A hot-line staffed 24-hours per day will be established to allow registration of odor complaints. The hot line operator document the caller's concern and contact the appropriate project team members who will assess the reason for concern and apply the appropriate engineering controls.

A project fact sheet will be reviewed by NYSDEC and NYSDOH before distribution to adjacent property owners explaining the remediation work to occur at the site, the potential for odors and how the phone system works. This will be distributed prior to beginning any excavation work.

If the site personnel detect significant odor or a complaint is received, engineering controls will be implemented as outlined in the Vapor Emission Response Plan (Section 5.3.7) to reduce odor-causing emissions. Once odors become non-discernable, normal operations may resume. This determination will be subject to the approval of the on-site NYSDEC representative. If in the opinion of NYSDEC on-site representative the concentration of the site related odors are unacceptable, the NYSDEC on-site representative will instruct the NYSEG project coordinator to implement odor control measures.

5.3.5 Real-Time Air-monitoring – Total Suspended Particulates

In conjunction with the real-time volatile emission monitoring, direct-reading monitoring equipment for particulate matter will be used to collect real-time airborne particulate data on an every 15-minute basis. The instrument to be used for this sampling is a personal DataRAM ™ (field modified for active sampling) or the Thermo Andersen ADR-1200S Ambient Particulate Monitoring System both of which operate on the principle of light scattering. Both units respond to particles in the size range of 0.1 to 10 micrometers and in the concentration range of 0.01 to

400 mg/M3. Particulate measurements will be based on a 30-second, time-weighted average. The personal DataRAM ™ will be calibrated daily with a filtered air sample. Recorded measurements at the upwind and downwind monitoring locations will be logged by the technician every 15-minutes. Equivalent back-up real-time air-monitoring equipment will be available on-site in the event of an equipment malfunction.

The New York State Department of Health Generic Community Air-monitoring Plan recommended action level of 0.10 mg/M3 above background for particulate matter less than 10 micrometers in size (PM-10) will be used to determine whether modifications to given processes are required. If the downwind particulate measurement of particles less than 10 micrometers in size (PM-10) is greater than 0.10 mg/M3 above the upwind background level, or if dust is observed leaving the project area, dust suppression techniques (i.e., misting surfaces with water or covering open piles) will be implemented to reduce the generation of fugitive dust. If the action level of 0.15 mg/M3 (above background) is exceeded, work activities will be ceased and the NYSEG and NYSDEC on-site representatives and the NYSEG project manager will be notified.

The NYSEG project manager will notify the Division of Air Resources in writing within five working days in accordance with NYSDEC TAGM: Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites, October 1989.

5.3.6 Documentation for Air Quality Monitoring

An essential part of any sampling/analytical scheme is to ensure the integrity of the sample from collection to data reporting. Sample integrity includes the possession and handling of a sample that is traceable from the time of collection, through analysis and final disposition.

Sample Labels: Unique sample identification codes will be assigned at the time of collection to prevent misidentification of samples. The identification codes will include the following information:

- Project/name/number;
- Sample location;
- Date of collection;
- Time of collection;
- Initials of sampler; and
- Analytical method.

Field Log Book: All information pertinent to sampling will be recorded in a logbook. Sufficient information must be recorded so that the sampling event can be reconstructed without reliance on the collector's memory. Information will be entered into a bound notebook and, at a minimum, entries will be include the following:

- Location of sampling point;

- Sample identification code;
- Sample collection date and time;
- Sample methodology;
- Sample analysis;
- Sampler's field observations, if any; and
- Field measurements, if any.

Dedicated field logbooks will be maintained on site to document the daily calibration of the real-time and speciated real-time air-monitoring equipment.

5.3.7 Vapor Emission Response Plan

The Cortland/Homer Former MGP site Vapor Emission Response Plan (see Appendix J) will be triggered by either an exceedance of the 15-minute average VOCs concentration of 5 ppm (above background) at the perimeter of the Exclusion Zone or a benzene concentration of 0.5 ppm as measured at the perimeter of the Exclusion Zone with the portable GC. If the Vapor Emission Response Plan is triggered all excavation activities will be stopped and the following actions will be taken:

- Continue total VOCs monitoring at the perimeter of the work area. If the total VOCs level drops below 5 ppm (above background) then excavation activities can resume with the addition of engineering controls or modifications to the excavation process to minimize VOCs emissions. However, if the VOCs levels persist above 5 ppm, based on continual observance of the meter, then the construction supervisor will immediately implement engineering controls such as misting area with a vapor suppression solution of BioSolve®, covering, backfilling, etc., to reduce emissions and at the same time notify the site project manager, and the Project Health & Safety Coordinator.
- If the total VOCs levels drop below 5 ppm (above background), after the implementation of engineering controls at the perimeter of the Exclusion Zone, then the excavation activity can resume provided process and work activities were adjusted to reduce emission levels. If work stoppage was due to a high benzene level (greater than 0.5 ppm) at the perimeter of the Exclusion Zone, then work will not resume until the benzene level is documented to be less than 0.5 ppm at the site perimeter.
- If the total VOCs levels continue to be greater than 5 ppm (above background) at the perimeter of the Exclusion Zone after the implementation of engineering controls, then all site activities must be discontinued. When the work is shut down, downwind air-monitoring as directed by the Project Health & Safety Coordinator will be implemented to ensure that the emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission Response Plan (Section 5.3.8).
- If the total VOCs levels are above 25 ppm at the perimeter of the Exclusion Zone, site activities must be shutdown and corrective measures taken.

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

- Adding a vapor suppression solution of BioSolve® to impacted media (application in excavated areas will be a light mist to avoid increasing solubility of wastes leading to increased groundwater contamination;
- Limiting excavation size and surface area of exposed coal tar impacted soil; and
- Covering coal tar impacted soil with polyethylene sheeting.

5.3.8 Major Vapor Emission Response Plan

If after the cessation of the work activities and implementation of engineering controls, benzene levels exceed 0.5 ppm or total VOCs levels exceed 5 ppm (above background) at the nearest receptor or at the perimeter of the Exclusion Zone, then the following actions will be immediately taken:

- Cover the excavated area with polyethylene sheeting or clean soil. Notify Homer Police Department at (607) 749-2022, Homer Volunteer Fire Department (607) 749-3121 and Cortland City Fire Department (607) 756-5612; NYSEG, Tracy Blazicek at (607) 762-8839; NYSDEC, Mr. William Ports at (518) 402-9667 and NYSDOH, Julia Kenney at (518) 402-7870.
- Total VOCs levels will be monitored at the nearest downwind residential or commercial structure. Continuously monitor air quality until VOCs levels drop below 5 ppm.
- If total VOCs levels persist above the 5 ppm (above background), the construction supervisor, Project Health & Safety Coordinator, NYSEG project manager will consult with each other and the Emergency Response agencies to determine the appropriate actions to be implemented. NYSEG project management personnel have ultimate authority during major vapor emissions emergencies. Work shall not resume without approval of NYSDEC.

6.0 SAMPLING AND ANALYSIS PLAN

This Sampling and Analysis Plan has been developed to describe the objectives and procedures for the sampling and analyses of MGP site residues, soil, and waste water that will be produced during this project. In addition, the NYSEG Cortland-Homer Former MGP site Quality Assurance Project Plan (QAPP, Appendix L) should be consulted where specific sampling and analysis procedures and methods are referenced.

The environmental media to be sampled during the project, and the purpose for collecting and analyzing environmental samples, includes the following:

TABLE 6-1
ENVIRONMENTAL SAMPLING MEDIA AND OBJECTIVES

Soil: - Waste Characterization Samples	To characterize soil for proper waste disposal
- Confirmation Samples	To document chemical concentrations in soils that are left in the ground
Wastewater:	To characterize wastewater to be discharged under the SPDES permit to the West Branch of the Tioughnioga River.

Because of the importance of air-monitoring to worker and community health and safety, it has been detailed as a separate section (Section 5.0, Air Quality Monitoring Plan).

The following sections of this Sampling and Analysis Plan provide specific information regarding the rationale and methods for sampling and analyzing MGP site residues, soil, and wastewater.

6.1 Quality Assurance/Quality Control Requirements/Data Quality Objectives

Quality Assurance/Quality Control requirements are specified throughout the data quality objectives are also delineated in the QAPP (Appendix L, Section 2).

6.2 Soil Sampling and Analyses Plan

6.2.1 Soil Sampling Field Protocols

6.2.1.1 Soil Sampling Field Procedures

Samples will be placed into the appropriate containers specified in the QAPP (Appendix K) using disposable plastic or decontaminated stainless steel trowels or spoons. Organic debris (i.e., leaves, twigs, bark) along with large pieces of gravel will be avoided. Sampling containers will be filled completely to avoid creating a headspace where volatiles may escape. After each jar is filled, the threads will be wiped clean so the cap can be threaded on without creating an air gap.

All filled jars will be labeled with the following information as a minimum:

- Project Number;
- Sampling time and date;
- Sample Number;
- Sample Location;
- Analysis; and
- Collector's Initials.

The location, depth of sample, sample type, time of sample, and other associated data (e.g., color of the soil, odors, texture) will be documented in the field notebook when the sample is taken. Once all the soil samples are collected, the samples will be maintained at 4^0C until the samples are delivered off-site for analysis. Solidified soil samples will be maintained at 10-30^0C.

All used sampling devices will be disposed of properly after use or kept together, separate from clean tools, so that they can be cleaned according to appropriate decontamination and cleaning procedure as specified in the Quality Assurance Project Plan (QAPP, Appendix L). In no event will a used sampling device be reused without full cleaning between samples.

6.2.1.2 Soil Sampling Field Equipment List

The following items constitute a minimum listing of required field equipment for collecting soil samples.

- Chemical resistant boots, latex gloves, chemical resistant gloves and the appropriate level of personal protection for working conditions as described in Section 4.2 of the Health and Safety Plan for Activities at the Cortland/Homer Former MGP site.
- Sample containers: glass jars with Teflon-line caps:
- Teflon-coated or stainless steel sample spoons and bowls:
- Wooden stakes and spray paint (highly visible):
- Field Notebooks:
- Sample bottle labels:

- Water resistant tape: and
- Ice cooler for sample storage.

6.2.2 Confirmation Soil Sampling and Analysis Plan

6.2.2.1 Sampling Plan Rationale

A confirmation soil sampling and analyses plan will be implemented to determine the concentration of compounds remaining on the site following excavation. This data will be used to determine if additional excavation is warranted.

6.2.2.2 Laboratory Analytical Protocols

Confirmation soil samples will be analyzed for total BTEX and total PAHs using Environmental Protection Agency (EPA) Laboratory Methods 8260 and 8270, respectively. Samples collected to verify conformance with the cleanup objectives would be subject to NYSDEC Analytical Services Protocol (ASP) Category B deliverables. Target compound list (TCL) volatile and semi-volatile compounds for post remediation confirmatory samples will be determined at a minimum rate of 1 per every group of 10 confirmatory samples or portion thereof. The turnaround time for confirmation sample analytical results will be five (5) business days.

The laboratory chosen for the project will be certified, and maintain certification, under the NYSDOH Environmental Laboratory Approval Program (ELAP) and NYSDOH ELAP Contract Laboratory Protocol (CLP) for analyses of solid and hazardous waste. Only analytical laboratories that have experience in MGP site projects or similar projects will be used.

Confirmation samples will also be collected at the bottom of the excavation for every 900 square feet (30 feet X 30 feet).

A sample representing the first 3 to 6 inches of soil encountered will be taken from each sampling point. This means that in the case of a sidewall sample, the first 3 inches of a sample point in the sidewall will be discarded and the remaining soil at that point, to a lateral depth of approximately 6 inches, will be collected. In the case of a bottom sample, the first 3 inches of a sample point in the excavation floor will be discarded and the remaining soil at that point, to a vertical depth of approximately 6 inches, will be collected. The first 3 inches are discarded to avoid collecting soil sample at the surface of the excavation because volatile compounds at the excavation surface may have been released. Discarding the first 3 inches of soil will help to ensure that a sample representing the volatile compounds present in the excavation are more accurately profiled. The sample will be representative of the area soil based upon visual and olfactory observations and PID readings.

Confirmation samples obtained from excavations extending beyond 4 feet below grade may be collected via a stainless steel remote sampler or a hydraulically activated sampling device. A drawing depicting confirmation sample locations along with information concerning sample

identifications, depth below original ground surface and dates of collection will be maintained by the field sampling technician throughout the project.

6.3 Wastewater Sampling and Analyses Plan

6.3.1 Sampling Plan Rationale

Wastewater resulting from dewatering of the excavation and decontamination of equipment will be generated during the project. A sampling and analysis plan will be implemented to properly characterize the wastewater for disposal to the West Branch of the Tioughnioga River.

If the results of analysis meet the limits specified by the SPDES Permit, then the wastewater will discharged into the West Branch of the Tioughnioga River. If the wastewater is identified as material that exceeds local POTW specifications, the water will be retreated on-site. If the on-site treatment system is incapable of meeting the discharge requirements, then an off-site disposal facility will be utilized.

6.3.2 Laboratory Analytical Protocols

Analytical requirements are determined by the SPDES permit.

6.3.3 Wastewater Sampling Protocols

As the tank nears its capacity, a sample will be collected and analyzed for parameters specified by the SPDES permit.

6.3.4 Wastewater Field Sampling Procedures

Wastewater will be sampled directly from each the effluent tank as required by the SPDES permit. Nitrile gloves will be worn to protect the sampling person and to avoid cross contamination through handling. Wastewater will be sampled by lowering a stainless steel or disposable polyethylene bailer into the tank using a polyethylene cord. The sample contents will be immediately transferred into the appropriate sized container for each analysis as specified in the QAPP (Appendix K). Vials for volatile analyses will be filled completely so as to avoid creating a headspace where volatiles may escape, and must be checked to ensure that no air bubbles are present.

All filled jars must be labeled with the following information as a minimum:

- Project Number;
- Sampling Time and Date;
- Sample Number;
- Analysis; and
- Collector’s Initials.

The sample chain-of-custody form will then be immediately filled out and kept with the sample. The sample will be maintained at 4^0C until delivered to the off-site analytical laboratory.

6.3.5 Wastewater Sampling Field Equipment List

The following items constitute a minimum listing of required field equipment for collecting wastewater samples:

- Chemical resistant gloves and appropriate level of personal protection for working conditions as described in Section 4.2 of the Health and Safety Plan for Activities at the Cortland/Homer Former MGP site Sample containers;
- two 40-ml Volatile Organic Analysis (VOA) vials;
- two one-liter amber containers;
- Stainless steel or disposable polyethylene bailer;
- Field notebook;
- Sample bottle labels; and
- Chain-of-custody forms.

FIGURES

MKR-05-0765

MKR-2364

MKR-05-0762

MKR-2365

MKR-2366

GRAVEL PARKING

GROCERY STORE

4415

STORAGE BARN

4419

FORMER RR SIDING

FORMER COAL STORAGE SHED

I.D. BOOTH

FORMER BUILDINGS

VERIZON

216

FORMER GAS HOLDER

FORMER GAS HOLDER

FORMER PURIFYING HOUSE

PAVED PARKING

PAVED

PAVED

HOMER AVENUE

SOUTH MAIN STREET/U. S. ROUTE 11

PAVEMENT

GATE

GRAVEL

217

217A

CTL-3

PARKING

PARKING

PARKING

4408

SAT DISH

VAULT 1

215

FLOW

WEST BRANCH TIOUGHNIOGA RIVER

MAPPING REFERENCE:

1. BASE MAPPING, INCLUDING EXISTING UTILITY INFORMATION, PROVIDED NEW YORK STATE ELECTRIC & GAS (NYSE&G)

2. FORMER OPERATIONS FEATURES TAKEN FROM A PLAN TITLED "NYSEG - CORTLAND/HOMER FORMER MGP SRI, FIGURE 2-3 COAL GASIFICATION PLANT CIRCA 1920, BY STEARNS AND WHELER COMPANIES, DATED MAR 02. ITEMS DIGITIZED AND THEIR LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.

LEGEND

- SOILS CONTAINING TOTAL SVOC'S ABOVE RECOMMENDED CLEAN-UP OBJECTIVES (TAGM 4046) (FROM URS FEASIBILITY STUDY,EXTENT OF SOIL CONTAMINATION, FIGURE 6)
- FORMER SITE OPERATIONS FEATURE
- CB — CATCH BASIN
- MH — EXISTING SANITARY MANHOLE
- TEST STATION
- CONTROL POINT
- TELEPHONE MARKER
- T — TELEPHONE MANHOLE
- IRON PIN
- GV — GAS VALVE
- WV — WATER VALVE
- UTILITY POLE (CARRYING OVERHEAD UTILITIES, NOT SHOWN)
- LIGHT

0' 15' 30' 60'
SCALE

FILE = L:\WORK\102050\CADD\...\NYSEG-HOMER-DESIGN.DWG

NO	REVISIONS	DRN	CHK	DATE

40 British American Blvd.
Latham, NY
518-951-2200

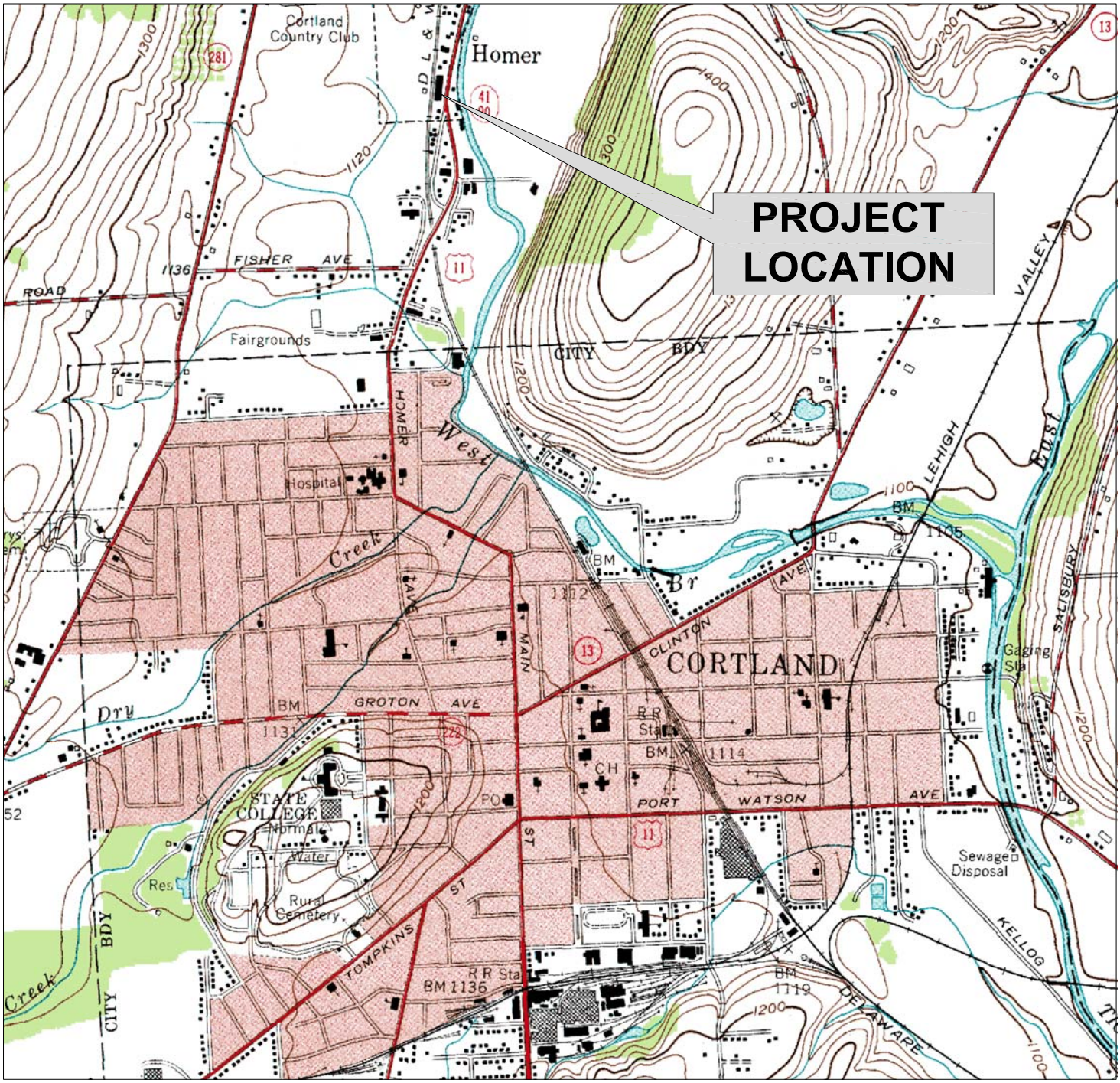
DRN	KAM
DES	DJW
CHK	SAU
APP	CHF

Earth Tech
A Tyco International Ltd. Company

NYSEG - REMEDIAL DESIGN FOR FORMER CORTLAND-HOMER MGP SITE (OU-1) HOMER, NEW YORK

FORMER OPERATIONS LAYOUT

DATE	MARCH 2008
PROJECT NO	102050
FILENAME	102050
SHEET NO	2
DRAWING NO	FIGURE 2



SOURCE: USGS CORTLAND 7.5' SERIES QUADRANGLE

PROJECT LOCATION MAP

NOT TO SCALE

NYSEG
REMEDIAL DESIGN FOR
FORMER CORTLAND-HOMER MGP SITE (OU-1)
HOMER, CORTLAND COUNTY, NEW YORK

EarthTech
A Tyco International Ltd. Company

DATE	MARCH–2008
PROJECT NO	102050
FILENAME	102050–COV
SHEET NO	FIG–1
DRAWING NO	**FIGURE 1**

GROCERY STORE
(BUILDING TO REMAIN)

STORAGE BARN
(PREVIOUSLY REMOVED
TO TOP OF ASPHALT
WEARING SURFACE)

I.D. BOOTH BUILDING
(PORTION PREVIOUSLY
REMOVED TO TOP OF EXISTING
CONCRETE SLAB)

MKR-05-0765
MKR-2364
MKR-05-0762
MKR-2365
MKR-2366
304.2 LF (AZ48)
14.0 FT. +/-
121.9 LF (AZ48)
4419
4415
4408
215
GRAVEL PARKING
PAVED PARKING
EXTERIOR SHEET PILE (AZ48)
LOCATION OF NEW EXTERIOR WALL
10'-0"
INTERIOR SHEET PILE (AZ48) PHASE DIVIDER (TYP.)
CONCRETE BASE
CONCRETE BASE
59'-3½" (TYP.)
60'-2" (TYP.)
20 FT. (MIN.)
VERIZON
(BUILDING PORTION TO REMAIN)
ACCESS GATE
ACCESS GATE
ACCESS GATE
CONCRETE BASES TO BE REMOVED PRIOR TO CELL CONTRUCTION AND DEEP CELL EXCAVATION (LOCATIONS SHOWN ARE APPROXIMATE)
TEMPORARY TRAFFIC CONTROL MEASURES (SEE DWG. 6 FOR INFORMATION)
TEMPORARY CHAIN LINK SECURITY FENCE (TYP.)
HOMER AVENUE
SOUTH MAIN STREET/U. S. ROUTE 11
PAVEMENT
GATE
PORTABLE TOILET
OFFICE TRAILER
GRAVEL
NYSEG
FRAC TANK
FRAC TANK
FRAC TANK
FRAC TANK
UNDERGROUND PIPING DIRECTIONALLY DRILLED UNDER ROADWAY TO TEMPORARY WATER TREATMENT SYSTEM
TL-3
OFFICE TRAILER
WATER TREATMENT PLANT
OUTFALL PIPING TO STREAM
TEMPORARY CHAIN LINK SECURITY FENCE (TYP.)
SAT DISH
VAULT 1
PARKING
PAVED
SAN
MH
CB
GV
W
T

NOTES:

1. BUILDINGS LABELED AS "PREVIOUSLY REMOVED" TO BE REMOVED UNDER A SEPARATE CONTRACT.

2. EXISTING FLOOR SLABS, WEARING SURFACES, FOUNDATION AND OTHER BURIED ITEMS FROM PREVIOUS STRUCTURES, SHOWN OR NOT SHOWN, TO BE REMOVED AND DISPOSED OF UNDER THIS CONTRACT.

3. IN-SITU STABILIZATION AREA SHOWN TO BE INSTALLED IN THE AREA OF EXISTING UTILITIES.SEE DETAILS DWG. 06.

4. FOR INFORMATION ON EXISTING UNDERGROUND UTILITIES SEE DWG. 05.

5. FOR SHEETPILE PHASE LAYOUT INFORMATION SEE DWG. 07.

6. FOR SHEETPILE BRACING AND CONNECTION DETAILS SEE DWG. 08.

MAPPING REFERENCE:

1. BASE MAPPING, INCLUDING EXISTING UTILITY INFORMATION, PROVIDED NEW YORK STATE ELECTRIC & GAS (NYSE&G)

2. ADDITIONAL EXISTING SANITARY SEWER INFORMATION, INCLUDING R.O.W. AND EASEMENT INFORMATION TAKEN FROM A PLAN TITLED " VILLAGE OF HOMER, NEW YORK, SANITARY SEWER CONSTRUCTION, 24" TRUNK SEWER, SOUTH MAIN STREET, DATE LAST REVISED 5/18/1971, BY STEARNS AND WHEELER, CAZENOVIA, NY.

LEGEND

- SOILS CONTAINING TOTAL SVOC'S ABOVE RECOMMENDED CLEAN-UP OBJECTIVES (TAGM 4046) (FROM URS FEASIBILITY STUDY,EXTENT OF SOIL CONTAMINATION, FIGURE 6)
- CHAIN LINK SECURITY FENCE
- CB — CATCH BASIN
- MH — EXISTING SANITARY MANHOLE
- TEST STATION
- CONTROL POINT
- TELEPHONE MARKER
- T — TELEPHONE MANHOLE
- IRON PIN
- GV — GAS VALVE
- WV — WATER VALVE
- UTILITY POLE (CARRYING OVERHEAD UTILITIES, NOT SHOWN)
- LIGHT

0' 15' 30' 60'
SCALE

FILE = L:\WORK\102050\CADD\...\NYSEG-HOMER-DESIGN.DWG

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Latham, NY
518-951-2200

DRN	KAM
DES	DJW
CHK	SAU
APP	CHF

Earth Tech
A Tyco International Ltd. Company

NYSEG - REMEDIAL DESIGN FOR
FORMER CORTLAND-HOMER MGP SITE (OU-1)
HOMER, NEW YORK

PROJECT LAYOUT

DATE	MARCH 2008
PROJECT NO	102050
FILENAME	102050
SHEET NO	3
DRAWING NO	**FIGURE 3**

APPENDIX A

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ORDER ON CONSENT

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

In the Matter of the Development and Implementation of a Former Manufactured Gas Plant (MGP) Sites Investigation and Remediation Program by New York State Electric & Gas Corporation

ORDER ON CONSENT
Index #D0-0002-9309

WHEREAS:

1. The New York State Department of Environmental Conservation (the "Department") is responsible for enforcement of the Environmental Conservation Law, which, inter alia, requires the Department to carry out the environmental policy of the State set forth of the ECL 1-0101. ECL 3-0301.1.

2. The New York State Electric & Gas Corporation ("Respondent") is a business corporation organized under the laws of the State of New York.

3. Respondent is aware of former manufactured gas plant ("MGP") sites at the locations listed in Table "A" of Paragraph I of this Order at which coal tar and associated hazardous substances ("MGP wastes") were, or which may have been, disposed at various times in the past by Respondent or its predecessors or affiliates (individually, "the Site;" collectively, "the Sites"). Respondent also is the owner of other former MGP sites.

4. The Department asserts that its authority to require abatement and remediation of releases of, inter alia, hazardous substances as that term is defined in 42 U.S.C. 9601(14), including MGP wastes, that are in violation of law or that exceed State environmental quality standards (as those set forth in 6 NYCRR Part 703) ("hazardous substances"), is varied, including, but not limited to, ECL 1-0101, 3-0301, 71-1929, 71-2703, and 71-2705. In addition, the Department asserts that it has the power, inter alia, to provide for the prevention and abatement of all water, land, and air pollution caused by, inter alia, the release of hazardous substances into the environment. ECL 3-0301.1.i. Furthermore, the Department asserts that it has authority to require abatement and remediation of significant threats to the public health or the environment caused by threatened releases of hazardous substances that are hazardous wastes as that term is defined in ECL 27-1301.

5. The Department and Respondent agree that the goals of this Order are for Respondent to (i) gather and provide data pertaining to each of the Sites (other than Mechanicville [Central Avenue] and Owego) sufficient to constitute a Preliminary Site Assessment ("PSA") that will enable the Department to characterize hazardous

substances, as that term is defined in 42 USC 9601(14) (including MGP wastes) which are or may be present at the Site and to enable the Department to determine whether such hazardous substances constitute a significant threat to public health or the environment necessitating remediation; (ii) develop and implement a Remedial Investigation ("RI") and prepare a Feasibility Study ("FS") for any Site the Department determines, based upon the results of the PSA, to require the more comprehensive evaluations and assessments that would be provided through the Remedial Investigation/Feasibility Study ("RI/FS") process; (iii) remediate each Site that the Department determines is in need of remediation on a schedule and to an extent acceptable to the Department, including authorizing Respondent to develop and implement Interim Remedial Measures ("IRMs") that the Department determines to be appropriate; (iv) develop and implement acceptable methods of treating and disposing of nonhazardous coal tar soils ("CTS") that minimize any future impacts on public health and the environment and minimize cost, including, as appropriate, the burning of CTS in Respondent's existing utility steam generating facilities including but not limited to Respondent's Hickling and Jennison Stations; and (v) pay for the State's reasonable administrative and oversight costs associated with implementation of this Order.

6. Respondent, without admitting or denying the Department's authority to require investigation and remediation of hazardous substances at the sites listed in Table "A" of Paragraph I of this Order and having waived its right to a hearing herein as provided by law, and having consented to the issuance and entry of this Order, agrees to be bound by its terms. Respondent consents to and agrees not to contest the authority or jurisdiction of the Department to issue or enforce this Order; and agrees not to contest the validity of this Order or its terms. However, should the Department request that this Order be revised, Respondent reserves all of its rights provided by law and the New York Environmental Conservation Law.

7. Respondent and the Department agree that Respondent shall not be responsible under this Order to investigate, gather data concerning, or remediate those hazardous substances that may exist at or originate from any Site listed in Table "A" of Paragraph I of this Order if, respecting that Site, all the following criteria are met:

a. Respondent no longer owns or controls the Site where the hazardous substances are found;

b. the original disposal and release of the hazardous substances occurred after Respondent or its predecessors or affiliates sold or returned control of the Site to its owner;

c. the hazardous substances were not generated, stored, treated, or disposed at the Site while Respondent or its predecessors or affiliates owned or controlled the Site; and

d. investigation and remediation of the hazardous substances would require Respondent to perform activities and incur costs not necessary to study, characterize, and remediate hazardous substances at the Site that were generated, treated, stored, or disposed at the Site during the ownership or control of Respondent or any of its predecessors or affiliates.

NOW, having considered this matter and being duly advised, IT IS ORDERED THAT:

I. Initial Submittals

Unless otherwise agreed with respect to specific Sites, no later than 45 days after the effective date of this Order, Respondent shall submit to the Department all data and information it has respecting each Site listed in Table "A" of this Paragraph. The data and other information shall include, at a minimum:

A. A brief history and description of the Site, including the types, quantities, physical state, location, and, if applicable, dates of disposal of MGP wastes, including methods of disposal and spillage of such wastes;

B. A comprehensive list and copies of all existing relevant reports with titles, authors, and subject matter, as well as a description of the results of all previous investigations of each Site and areas in the vicinity of each Site, including copies of all available topographic and property surveys, engineering studies and aerial photographs; and

C. An 8.5 inch by 11 inch portion of a United States Geological Survey topographic map of the Site which contains the name of the quadrangle and an arrow indicating the orientation of a northern compass point.

TABLE "A"

1. Auburn (Clark Street)
2. Auburn (Green Street)
3. Auburn (McMaster Street)
4. Clyde
5. Cortland/Homer
6. Dansville
7. Elmira (Madison Avenue)
8. Elmira (Water Street)
9. Geneva (Border City)
10. Geneva (Wadsworth Street)
11. Goshen
12. Granville
13. Ithaca (Cayuga Inlet)

14. Ithaca (Court Street)
15. Ithaca First Street)
16. Lockport (State Road)
17. Lockport (Transit Road)
18. Lyons
19. Mechanicville (Central Avenue)
20. Mechanicville (Coon's Crossing)
21. Newark
22. Norwich
23. Oneonta
24. Owego
25. Palmyra
26. Penn Yan (Jackson Street)
27. Penn Yan (Water Street)
28. Plattsburgh (Bridge Street)
29. Plattsburgh (Saranac Street)
30. Seneca Falls
31. Warsaw
32. Waterloo
33. Waterville

II. Preliminary Site Assessment

A. The Department shall review the data and information Respondent shall submit under Paragraph I of this Order for the purpose of determining whether additional data need to be obtained to enable it to characterize the nature and extent of distribution of any hazardous substances at the Site and to determine whether such substances constitute a significant threat to public health or the environment necessitating remediation. For those Sites pertaining to which the Department determines that there exist sufficient data to enable it to make such characterization and determination, the Department shall inform Respondent of its determination, and if the Department determines that the hazardous substances found at the Site constitute a significant threat to the environment, Respondent shall undertake an RI/FS for such Site as described in this Order. For those Sites pertaining to which the Department determines that more data must be acquired to enable it to make such characterization and determination, the Department shall inform Respondent in writing of its determination and identify the information which must be obtained, and Respondent shall undertake such additional investigation (referred to below as a "Preliminary Site Assessment," or "PSA") as the Department shall require in accordance with a schedule the Department shall determine in consultation with Respondent. Such schedule shall include the date by which Respondent shall submit to the Department a work plan to acquire the information the Department shall require and a date by which field work necessary to develop such information shall commence ("PSA Work Plan").

B. The Department may revise the PSA Work Plan submittal date and the field work start date, or either of them, for any Site identified in Table "A" of Paragraph I if information is developed, or otherwise becomes available, indicating the existence of a condition or circumstance justifying immediate or near-term evaluation or response at that Site which otherwise would not be addressed until a later time.

C. Each Site's PSA Work Plan shall describe the methods and procedures to be implemented in undertaking a study at the Site to which it pertains that will cause the generation of information sufficient to enable the Department to characterize the nature and extent of distribution of any hazardous substances at the Site and to determine whether such substances constitute a significant threat to public health or the environment necessitating remediation. Hence, each Site's PSA Work Plan shall include, but not be limited to, the following:

(1) A chronological description of the anticipated investigative activities together with a schedule for the performance of these activities. Such schedule shall take into account, at a minimum, the submission of draft documents, Department review of such documents, and submission of final approvable documents;

(2) A Sampling and Analysis Plan that shall include:

(a) A quality assurance project plan that describes the quality assurance and quality control protocols necessary to achieve the initial data quality objectives. This plan shall designate a data validation expert and must describe such individual's qualifications and experience, and

(b) A field sampling plan that defines sampling and data gathering methods in a manner consistent with appropriate provisions of the "Compendium of Superfund Field Operations Method" (EPA/540/P-87/001, OSWER Directive 9355.0-14, December 1987) as supplemented by the Department; and

(3) A health and safety plan to protect persons at and in the vicinity of the Site during the performance of the investigation, which shall be prepared in accordance with 29 CFR 1910 and all other applicable standards by a certified health and safety professional. Respondent shall add supplemental items to this plan if necessary to ensure the health and safety of all persons at or in the vicinity of the Site during the performance of any work pursuant to this Order.

D. If after review of the data generated during and after implementation of the Department-approved PSA Work Plan for a particular Site the Department determines that the hazardous substances found at the Site constitute a significant threat to the environment and that response actions are needed in addition to any IRMs the Department may approve or may have approved for the Site under Paragraph III of this Order to address adverse environmental conditions at the Site, the Department shall

notify Respondent of that determination and within 90 days after receipt of that notification, Respondent shall submit to the Department a work plan for that Site that shall incorporate all appropriate elements of an RI/FS as set forth in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA") [42 USC 9601 et seq.], as amended; the National Contingency Plan ("NCP") of March 8, 1990 [40 CFR Part 300]; the USEPA guidance document entitled "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA," dated October 1988 and any subsequent revisions to that guidance document in effect at the time the RI/FS Work Plan is submitted; and appropriate USEPA and Department technical and administrative guidance documents (the "RI/FS Work Plan" for that particular Site). (However, Respondent shall undertake RI/FSs for Mechanicville [Central Avenue] [546033] and Owego [754008] under the terms of, respectively, Department Orders on Consent A5-0276-91-10 dated 23 February 1993 and A7-0150-88-09 dated 2 January 1991.)

III. IRMs

A. (1) Respondent may propose one or more IRMs for any Site. Respondent may propose a treatability study as an IRM.

(2) In proposing each IRM, Respondent shall submit to the Department a work plan that includes a chronological description of the anticipated IRM activities together with a schedule for performance of those activities (an "IRM Work Plan" for that Site).

(3) Upon the Department's determination that the proposal is an appropriate IRM and upon the Department's approval of such work plan, the IRM Work Plan shall be incorporated into and become an enforceable part of this Order; and Respondent shall submit to the Department for its review and (as appropriate) approval, in accordance with the schedule contained in the Department-approved IRM Work Plan, detailed documents and specifications prepared, signed, and sealed by a professional engineer to implement the Department-approved IRM. Such documents shall include a health and safety plan, contingency plan, and (if the Department requires such) a citizen participation plan that incorporates appropriate activities outlined in the Department's publication, "New York State Inactive Hazardous Waste Citizen Participation Plan," dated August 30, 1988, and any subsequent revisions thereto. Respondent shall then carry out such IRM in accordance with the requirements of the approved IRM Work Plan, detailed documents and specifications, and this Order. Respondent shall notify the Department of any significant difficulties that may be encountered in implementing the Department-approved work plan, detailed documents, or specifications and shall not modify any obligation unless first approved by the Department.

(4) During implementation of all construction activities identified in the Department-approved IRM Work Plan, Respondent shall have on-Site a full-time

representative who is qualified to supervise the work done.

(5) Within the schedule contained in the Department-approved IRM Work Plan, Respondent shall submit to the Department a final engineering report prepared by a professional engineer that includes a certification by that individual that all activities that comprised the IRM were performed in full accordance with the Department-approved IRM Work Plan, detailed documents and specifications, and this Order.

(i) If the performance of the Department-approved IRM encompassed construction activities, the final engineering report shall include a detailed post-remedial operation and maintenance plan ("O & M Plan"); "as-built" drawings and a final engineering report (each including all changes made to the Remedial Design during construction); and a certification by a professional engineer that the IRM was implemented and all construction activities were completed in accordance with the Department-approved detailed documents and specifications for the IRM. The O & M Plan, "as built" drawings, final engineering report, and certification must be prepared, signed, and sealed by a professional engineer.

(ii) Upon the Department's approval of the O & M Plan, Respondent shall implement the O & M Plan in accordance with the requirements of the Department-approved O & M Plan.

(6) After receipt of the final engineering report and certification, the Department shall notify Respondent in writing whether the Department is satisfied that the IRM was completed in compliance with the Department-approved IRM Work Plan and design.

B. (1) In implementing any IRM approved by the Department under this Order, Respondent shall be exempt from the requirement to obtain any permit issuable by the Department for an activity satisfying the criteria set out in Subparagraph III.B(2) of this Order.

(2) The following criteria must be met:

(i) The activity is conducted on the Site. For purposes of this Order, an activity is on the Site:

(a) if it is conducted on the same premises as the Site, or

(b) if it is conducted on different premises that are under common control or are contiguous to or physically connected with the Site and the activity manages exclusively hazardous substances for which Respondent is liable (except

in situations where the PSA discloses the existence of off-Site hazardous substance deposits derived from, or otherwise related to materials deposited on-Site, in which case such deposits shall be deemed "on-Site" and subject to this Order to the extent Respondent is able to obtain access for purposes of investigation and/or removal); and

(c) the activity is conducted in a manner which satisfies all substantive technical requirements applicable if the activity were conducted pursuant to a permit issued by the Department.

IV. Performance and Reporting of PSA and of Remedial Investigation

A. (1) In accordance with the schedule contained in a Site's Department-approved PSA Work Plan, Respondent shall commence that Site's PSA.

(2) Respondent shall perform the PSA in accordance with that Site's Department-approved PSA Work Plan.

(3) During the performance of that Site's Department-approved PSA, Respondent shall have at such Site a full-time representative who is qualified to supervise the work done. Respondent's designated representative may be a qualified employee of a consultant or contractor.

(4) In accordance with the schedule contained in a particular Site's Department-approved PSA Work Plan, Respondent shall prepare a PSA Report pertaining to that Site that shall:

(i) include all data generated and all other information obtained during the investigation of that Site;

(ii) provide all appropriate assessments and evaluations set forth in CERCLA, the NCP, and the guidance documents identified in Subparagraph II.D of this Order; and

(iii) include a certification by the individual or firm with primary responsibility for the day to day performance of the PSA for that Site that all activities that comprised the Investigation were performed in full accordance with the Department-approved PSA Work Plan for that Site.

B. This Subparagraph applies only to those Sites identified in Table "A" of Paragraph I of this Order concerning which the Department determines under this Order that an RI/FS must be prepared. (Respondent shall undertake RI/FSs for Mechanicville [Central Avenue] [546033] and Owego [754008] under the terms of, respectively, Department Orders on Consent A5-0276-91-10 dated 23 February 1993 and A7-0150-88-09 dated 2 January 1991.)

(1) In accordance with the schedule contained in a particular Site's Department-approved RI/FS Work Plan, Respondent shall commence that Site's Remedial Investigation.

(2) Respondent shall perform the Remedial Investigation in accordance with that Site's Department-approved RI/FS Work Plan.

(3) During the performance of that Site's Remedial Investigation, Respondent shall have at such Site a full-time representative who is qualified to supervise the work done. Respondent's designated representative may be a qualified employee of a consultant or contractor.

(4) In accordance with the schedule contained in a particular Site's Department-approved RI/FS Work Plan, Respondent shall prepare a Remedial Investigation Report pertaining to that Site that shall:

(i) include all data generated and all other information obtained during the remedial investigation of that Site;

(ii) identify any additional data that must be collected; and

(iii) provide all appropriate assessments and evaluations set forth in CERCLA, the NCP, and the guidance documents identified in Subparagraph II.D of this Order; and

(iv) include a certification by the individual or firm with primary responsibility for the day to day performance of the Remedial Investigation at that Site that all activities that comprised the Remedial Investigation were performed in full accordance with the Department-approved RI/FS Work Plan for that Site.

C. As an element of the Feasibility Study pertaining to a Site, Respondent may undertake a treatability study of remedial alternatives for potential use at such Site, including two EPRI-sponsored demonstration projects, one involving a clean soil process and another involving a contaminated groundwater biotreatment demonstration project (the "study"). The Department agrees with Respondent that the data generated during the course of the study will be beneficial to both Respondent and the Department. In implementing the study, Respondent shall be exempt from the requirement to obtain any permit issuable by the Department for an activity that is conducted on the Site. For purposes of this Order, an activity is on the Site:

1. if it is conducted on the same premises as the Site, or

2. if it is conducted on different premises that are under common control or are contiguous to or physically connected with the Site and the activity

manages exclusively hazardous substance for which Respondent is liable (except in situations where the PSA discloses the existence of off-Site hazardous substance deposits derived from, or otherwise related to materials deposited on-Site, in which case such deposits shall be deemed "on-Site" and subject to this Order and this Subparagraph to the extent Respondent is able to obtain access for purposes of investigation and/or removal); and

3. the activity satisfies all substantive technical requirements applicable to like activity conducted pursuant to a permit as determined by the Department.

Respondent, under the provisions of the Freedom of Information Law, may request that the Department treat as confidential any technology descriptions and data submitted to the Department as part of the study; and the Department, under the provisions of the Freedom of Information Law, shall maintain as confidential any of those descriptions or data that the Department determines is confidential.

V. Feasibility Study

This Paragraph applies only to those Sites identified in Table "A" of Paragraph I of this Order concerning which the Department determines under this Order that an RI/FS must be prepared. (Respondent shall undertake RI/FSs for Mechanicville [Central Avenue] [546033] and Owego [754008] under the terms of, respectively, Department Orders on Consent A5-0276-91-10 dated 23 February 1993 and A7-0150-88-09 dated 2 January 1991.)

A. Within 150 days after receipt of the Department's approval of the Remedial Investigation Report pertaining to a particular Site, Respondent shall submit a Feasibility Study evaluating on-Site and off-Site remedial actions to eliminate, to the maximum extent practicable, all health and environmental hazards and potential hazards attributable to hazardous substance disposal at that Site. Such evaluation may include remediation cleanup levels based upon a Site-specific risk assessment that shall consider a range of exposure scenarios and assumptions that take into account the form, nature, biodegradation, fate, and transport of the contaminant present, and available toxicological data that are based upon generally accepted and peer-reviewed scientific evidence or methodologies. Such Site-specific risk assessment shall be consistent with guidance and regulations for exposure assessment developed by the United States Environmental Protection Agency pursuant to CERCLA and other statutory authorities as applicable; and any proposed remediation cleanup level based upon a Site-specific risk assessment shall be protective of the public health and safety and of the environment. In the event that Respondent intends to undertake such evaluation using a Site-specific risk assessment, Respondent shall submit such risk assessment to the Department for its review no later than 90 days before Respondent shall be required to submit the Feasibility Study for the Site. Unless the Department determines that such risk

assessment is not consistent with peer-reviewed scientific evidence or methodologies, or appropriate guidance and regulations--in which case, the Department shall provide Respondent with a written explanation of the basis for such a determination--the Site-specific risk-based remediation cleanup level determined by application of the risk assessment shall be approved by the Department and shall be used for purposes of selecting the remedial alternative for the Site. Such evaluation also shall take into account any and all Department-approved IRMs that were implemented at the Site. The Feasibility Study shall be prepared by and have the signature and seal of an individual licensed and registered to practice professional engineering in the State of New York who shall certify that the Feasibility Study was prepared in accordance with this Order.

B. Unless the Department otherwise specifies for a particular Site, Respondent shall perform and prepare the Feasibility Study in accordance with the Department-approved RI/FS Work Plan in a manner consistent with appropriate sections of CERCLA, the NCP, and the guidance documents identified in Subparagraph II.D of this Order. If the Department specifies otherwise for a particular Site, Respondent shall perform and prepare the Feasibility Study in accordance with the Department's specifications.

C. (1) Within 30 days after the Department's approval of the Feasibility Study, Respondent shall cooperate and assist the Department in soliciting public comment on the RI/FS and the proposed remedial action plan identified therein, in accordance with appropriate provisions of CERCLA, the NCP, the guidance documents identified in Subparagraph II.D of this Order, and with any Department policy and guidance documents in effect at the time the public comment period is initiated.

(2) The Department shall afford Respondent an opportunity to review and comment upon the proposed remedial action plan for a Site before its release to the public using the following procedure: the Department shall prepare a proposed remedial action plan and shall mail a copy of same to Respondent at least fifteen business days before the scheduled date of the publication of the notice of availability of the document. Respondent shall have ten business days to meet with the Department to discuss it. In the event that Respondent disputes the proposed remedial action plan, within that ten day period, it may request in writing a resolution of its dispute using the procedures contained in Subparagraph XVII.A of this Order. Any resolution of the dispute through the use of those procedures shall concern only the contents of the proposed remedial action plan to be released to the public and shall not preclude the Department from selecting a final remedial alternative for the Site that may be inconsistent with the contents of the proposed remedial action plan that shall have been released to the public.

(3) After the close of the public comment period, the Department shall select a final remedial alternative for the Site in a Record of Decision ("ROD").

The ROD shall be incorporated into and become an enforceable part of this Order.

VI. Remedial Design

This Paragraph applies only to those Sites concerning which the Department determines under this Order that an RI/FS must be prepared, and to Mechanicville (Central Avenue) (546033) and Owego (754008).

A. Unless the ROD selects the "no action" alternative, within 180 days after the ROD is signed, or as otherwise specified in the ROD, Respondent shall submit to the Department a remedial design to implement the remedial alternative for the Site selected by the Department in the ROD (the "Remedial Design"). The Remedial Design shall be prepared by and have the signature and seal of a professional engineer who shall certify that the Remedial Design was prepared in accordance with this Order.

B. The Remedial Design shall include the following:

(1) A detailed description of the remedial objectives and the means by which each essential element of the selected remedial alternative will be implemented to achieve those objectives, including, but not limited to:

(i) the construction and operation of any structures;

(ii) the collection, destruction, treatment, and/or disposal of hazardous substances and their constituents and degradation products, and of any soil or other materials contaminated thereby;

(iii) the collection, destruction, treatment, and/or disposal of contaminated groundwater, leachate, and air;

(iv) physical security and posting of the Site;

(v) health and safety of persons living and/or working at or in the vicinity of the Site;

(vi) quality control and quality assurance procedures and protocols to be applied during implementation of the Remedial Design; and

(vii) monitoring which integrates needs which are present on-Site and off-Site during implementation of the Department-selected remedial alternative.

(2) "Biddable quality" documents for the Remedial Design including, but not limited to, documents and specifications prepared, signed, and sealed

by a professional engineer. These plans shall satisfy all applicable local, state and federal laws, rules and regulations;

(3) A time schedule to implement the Remedial Design;

(4) The parameters, conditions, procedures, and protocols to determine the effectiveness of the Remedial Design, including, if the Remedial Design encompasses groundwater monitoring, a schedule for periodic sampling of groundwater monitoring wells on-Site and off-Site;

(5) A description of operation, maintenance, and monitoring activities to be undertaken after the Department has approved construction of the Remedial Design, including the number of years during which such activities will be performed;

(6) A contingency plan to be implemented if any element of the Remedial Design fails to achieve any of its objectives or otherwise fails to protect human health or the environment;

(7) A health and safety plan for the protection of persons at and in the vicinity of the Site during construction and after completion of construction. This plan shall be prepared in accordance with 29 CFR 1910 by a certified health and safety professional; and

(8) A citizen participation plan which incorporates appropriate activities outlined in the Department's publication, "New York State Inactive Hazardous Waste Citizen Participation Plan," dated August 30, 1988, and any subsequent revisions thereto.

VII. Remedial Construction

This Paragraph applies only to those Sites concerning which the Department determines under this Order that an RI/FS must be prepared, and to Mechanicville (Central Avenue) (546033) and Owego (754008).

A. Within such time as identified in the Department's approval of the Remedial Design (such time being determined in consultation with Respondent), Respondent shall commence construction of the Remedial Design. The Department will extend this period if reasonably necessary to accommodate weather-related limitations or other restrictions upon the construction season.

B. Respondent shall implement the Remedial Design in accordance with the Department-approved Remedial Design.

C. During implementation of all construction activities identified in the Remedial Design, Respondent shall have on-Site a full-time representative who is qualified to supervise the work done.

D. Within 90 days after completion of the construction activities identified in the Remedial Design, Respondent shall submit to the Department a detailed post-remedial operation and maintenance plan ("O & M Plan"); "as-built" drawings and a final engineering report (each including all changes made to the Remedial Design during construction); and a certification by a professional engineer that the Remedial Design was implemented and all construction activities were completed in accordance with the Department-approved Remedial Design. The O & M Plan, "as built" drawings, final engineering report, and certification must be prepared, signed, and sealed by a professional engineer.

E. Upon the Department's approval of the O & M Plan, Respondent shall implement the O & M Plan in accordance with the requirements of the Department-approved O & M Plan.

F. After receipt of the "as-built" drawings, final engineering report, and certification, the Department shall notify Respondent in writing whether the Department is satisfied that all construction activities have been completed in compliance with the approved Remedial Design.

G. If the Department concludes that any element of the Remedial Program fails to achieve its objectives or otherwise fails to protect human health or the environment, Respondent shall take whatever action the Department determines necessary to achieve those objectives or to ensure that the Remedial Program otherwise protects human health and the environment.

VIII. Progress Reports and Meetings

A. Respondent shall submit to each of the parties set forth in Paragraph XVI of this Order two copies of written monthly progress reports that:

1. describe the actions which have been taken toward achieving compliance with this Order during the previous month;

2. identify all work plans, reports, and other deliverables required by this Order that were completed and submitted during the previous month;

3. describe all actions, including, but not limited to, data collection and implementation of work plans, that are scheduled for the next month and provide other information relating to the progress at each Site;

4. include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Respondent's obligations under the Order, and efforts made to mitigate those delays or anticipated delays; and

5. include any modifications to any work plans that Respondent has proposed to the Department or that the Department has approved. Respondent shall submit these progress reports to the Department with respect to each Site by the 10th day after the end of the month to which the report pertains.

B. Respondent shall allow the Department to attend, and shall provide the Department at least seven days advance notice of the occurrence of, any of the following: prebid meetings, job progress meetings, substantial completion meeting and inspection, and final inspection and meeting; provided, however, that if circumstances are such as to prevent Respondent from providing the Department with such seven day notice period, Respondent shall provide as much advance notice as possible, under the circumstances.

IX. Review of Submittals

A. (1) The Department shall review each of the submittals Respondent is required to make pursuant to this Order to determine whether it was prepared, and whether the work done to generate the data and other information in the submittal was done, in accordance with this Order and generally accepted technical and scientific principles. Respondent shall include all results of sampling and tests and all other data received or generated by Respondent or Respondent's contractors or agents, including quality assurance/quality control information, whether conducted pursuant to this Order or conducted independently by Respondent, in the submittal to which such sampling, tests, and other data pertain. The Department shall notify Respondent in writing of its approval or disapproval of the submittal, except for the health and safety plans identified in Paragraph III and in Subparagraphs II.C(3) and VI.B(7) of this Order. All Department-approved submittals shall be incorporated into and become an enforceable part of this Order.

(2) (i) If the Department disapproves a submittal, it shall so notify Respondent in writing and shall specify the reasons for its disapproval. Within 30 days after receiving written notice that Respondent's submittal has been disapproved, Respondent shall make a revised submittal to the Department that addresses and resolves all of the Department's stated reasons for disapproving the first submittal.

(ii) Within a reasonable time after receipt of the revised submittal so as to not cause Respondent to be unable to comply with subsequent obligations and schedule deadlines as presented in Department-approved work plans, the Department shall notify Respondent in writing of its approval or disapproval. If the Department disapproves the revised submittal, Respondent shall be in violation of this

Order and the Department may take any action or pursue whatever rights it has pursuant to any provision of statutory or common law, unless Respondent exercises the dispute resolution procedure described in Subparagraph XVII.A of this Order. If the Department approves the revised submittal, it shall be incorporated into and become an enforceable part of this Order.

B. The Department may require Respondent to modify and/or amplify and expand a submittal if the Department determines, as a result of reviewing data generated by an activity required under this Order or as a result of reviewing any other data or facts, that further work is necessary.

X. Penalties

A. Respondent's failure to comply with any term of this Order constitutes a violation of this Order and the ECL.

B. Respondent shall not suffer any penalty under this Order or be subject to any proceeding or action for enforcement of this Order if it cannot comply with any requirement hereof because of war, riot, or an unforeseeable disaster which the exercise of ordinary human prudence could not have prevented. Respondent shall, within five days of when it obtains knowledge of any such condition, notify the Department in writing. Respondent shall include in such notice the measures taken and to be taken by Respondent to prevent or minimize any delays and shall request an appropriate extension or modification of this Order. Failure to give such notice within such five-day period constitutes a waiver of any claim that a delay is not subject to penalties. Respondent shall have the burden of proving that an event is a defense to compliance with this Order.

XI. Entry upon Site

Subject to conditions that may be described in a particular Site's health and safety plan, Respondent hereby consents to the entry upon the Site or areas in the vicinity of the Site which may be under the control of Respondent by any duly designated employee, consultant, contractor, or agent of the Department or any State agency for purposes of inspection, sampling, and testing and to ensure Respondent's compliance with this Order.

XII. Payment of State Costs

The Department shall establish an interest-bearing account into which the Department shall place all monies received from Respondent under the provisions of this Paragraph in order to pay for the State's expenses (including, but not limited to, direct labor and fringe benefits, overhead, travel, analytical costs, and contractor costs) incurred by the State of New York to fund environmental monitors for work associated with

reviewing and revising submittals made pursuant to this Order, overseeing activities conducted pursuant to this Order, collecting and analyzing samples, and administrative costs associated with administering the requirements of this Order. Respondent shall make payments to the Department as follows:

A. Respondent shall submit to the Department the sum of $310,000, which shall represent the State's estimate of the first year expenses (including, but not limited to, direct labor and fringe benefits, overhead, travel, analytical costs, and contractor costs) incurred by the State of New York to fund environmental monitors for work associated with reviewing and revising submittals made pursuant to this Order to date, overseeing activities conducted pursuant to this Order, collecting and analyzing samples, and administrative costs associated with administering the requirements of this Order. The $310,000 shall be submitted as follows: $110,000 on or before the effective date of this Order; $100,000 on or before the 60th day after the effective date of this Order; and $100,000 on or before the 120th day after the effective date of this Order. Respondent shall make subsequent quarterly payments to the Department for the duration of this Order in order to maintain an account balance sufficient to meet the next nine months' anticipated above-described State costs, however, not exceeding on an annual basis $310,000 (which amount may be increased on an annual basis based upon increases in the Consumer Price Index). Each quarterly billing will be based on expenditures incurred to date. The quarterly billing will take into account matters such as inflation, salary increases, accrued interest to be applied to the balance, changes in operating hours and procedures and the need for additional personnel and supervision of such personnel by full-time supervisors. Costs and expenses to be covered by this account include:

(1) Direct personal service costs and fringe benefits of the State's staff assigned to work associated with reviewing and revising submittals made pursuant to this Order, overseeing activities conducted pursuant to this Order, collecting and analyzing samples, and administrative costs associated with administering the requirements of this Order, including their supervisors and including the costs of replacement personnel for the persons regularly assigned to these duties;

(2) Direct non-personal service costs, including but not limited to purchase of a vehicle if necessary and its full operating costs, any appropriate chemical sampling and analysis, travel, supplies, and contractual costs;

(3) Indirect support or overhead costs at the annually approved indirect support cost rate; and

(4) Consultant services.

B. The Department shall notify Respondent in writing when a quarterly payment is due by submitting a quarterly billing. Respondent shall make such payment

in the form of a check payable to the order of the New York State Department of Environmental Conservation and shall submit such payment to the Department at the following address no later than 30 days from receipt of such billing:

New York State Department of Environmental Conservation
50 Wolf Road, Room 608
Albany, NY 12233-1510
ATTENTION: Director of Environmental Monitors

Payments are to be in advance of the period in which they will be expended. Respondent may dispute a quarterly billing by informing the Department in writing within 30 days of receipt of such billing that the amount of such billing is unreasonable. For purposes of this Order, the sole grounds for determining that a billing is unreasonable are that it contains clerical errors; and that all or a portion of a billing cannot be substantiated by the documentation identified in Subparagraph XII.D or XII.E, as appropriate, of this Order. The procedures contained in Subparagraph XVII.A of this Order shall be used to resolve such dispute, and Respondent shall pay the amount as those procedures shall determine Respondent shall pay, within the time period they shall require.

C. Upon the later termination of this Order and upon payment of any outstanding costs and expenses, the Department shall return the unexpended balance, including interest, to Respondent.

D. Actual personal service costs will be based on Site-specific time and activity ("T&A") costs. Non-personal service costs will be prorated based on the type of cost incurred: general costs (such as, supplies and equipment) will be prorated evenly among the Sites subject to this Order; while other project-related costs will be prorated based on the percentage of T&A incurred for each Site subject to this Order for that time period.

E. Actual costs incurred will be documented by quarterly T&A reports for personal service costs. Copies of actual invoices will not be provided but shall be made available for auditing purposes.

XIII. Department Reservation of Rights

A. Nothing contained in this Order shall be construed as barring, diminishing, adjudicating, or in any way affecting any of the Department's rights.

B. Nothing contained in this Order shall be construed to prohibit the Commissioner or his duly authorized representative from exercising any summary abatement powers.

XIV. Indemnification

Respondent shall indemnify and hold the Department, the State of New York, and their representatives and employees harmless for all claims, suits, actions, damages, and costs of every name and description arising out of or resulting from the fulfillment or attempted fulfillment of this Order by Respondent, and/or Respondent's directors, officers, employees, servants, agents, successors, and assigns; provided, however, that Respondent shall not indemnify the Department, the State of New York, and their representatives and employees in the event that such claim, suit, action, damages, or cost relate to or arise from any unlawful, willful, grossly negligent, or malicious acts or omissions on the part of the Department, the State of New York, or their representatives and employees.

XV. Public Notice

A. Within 30 days after the effective date of this Order with respect to each Site Respondent owns as of the effective date of this Order, or within 30 days after Respondent acquires ownership in any Site, Respondent shall file, with respect to each Site, a Declaration of Covenants and Restrictions with the Clerk of the County within which each such Site is located to give all parties who may acquire any interest in such Site notice of this Order.

B. If Respondent proposes to convey the whole or any part of Respondent's ownership interest in any Site, Respondent shall, not fewer than 60 days before the date of conveyance, notify the Department in writing of the identity of the transferee and of the nature and proposed date of the conveyance of the Site in question and shall notify the transferee in writing, with a copy to the Department, of the applicability of this Order and shall accompany such notification with a copy of this Order.

XVI. Communications

A. All written communications required by this Order shall be transmitted by United States Postal Service, by private courier service, or hand delivered as follows:

Communication from Respondent shall be sent to:

(1) Charles N. Goddard, P.E.
Assistant Director
Division of Hazardous Waste Remediation
New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

(2) Director, Bureau of Environmental
Exposure Investigation
New York State Department of Health
2 University Place
Albany, New York 12203

(3) Department Regional Director in whose
Region the Site in question is located

(4) Charles E. Sullivan, Jr.
Division of Environmental Enforcement
New York State Department of
Environmental Conservation
50 Wolf Road, Room 609
Albany, New York 12233-5500

B. Copies of work plans and reports shall be submitted as follows:

(1) Six copies (one unbound) to Mr. Goddard

(2) Two copies to the Director, Bureau of
Environmental Exposure Investigation

(3) One copy to Mr. Sullivan

C. Within 30 days of the Department's approval of any report submitted pursuant to this Order, Respondent shall submit to Mr. Goddard a computer readable magnetic media copy of the approved report in American Standard Code for Information Interchange (ASCII) format. This requirement shall not apply to past reports that will be submitted to the Department but have already been completed by Respondent.

D. Communication to be made from the Department to Respondent shall be sent to:

Phillip M. Murphy, Manager--Alternative Methods
Environment & Research Department
New York State Electric & Gas Corporation
Corporate Drive, Kirkwood Industrial Park
P.O. Box 5227
Binghamton, New York 13902-5227

E. The Department and Respondent reserve the right to designate additional or different addressees for communication or written notice to the other.

XVII. Miscellaneous

A. (1) This Subparagraph applies only to those Sites identified in Table "A" of Paragraph I of this Order concerning which the Department determines under this Order that an RI/FS must be prepared.

(2) If after conferring in good faith, there remains a dispute between Respondent and the Department concerning a provision of this Order identified as subject to this Subparagraph's procedures, within the time period provided in that provision Respondent serve on the Department a request for an appointment of an Administrative Law Judge ("ALJ"), and a written statement of the issues in dispute, the relevant facts upon which the dispute is based, and factual data, analysis, or opinion supporting its position, and all supporting documentation on which Respondent relies (hereinafter called the "Statement of Position"). The Department shall serve upon Respondent its Statement of Position, including supporting documentation no later than ten (10) business days after receipt of Respondent's Statement of Position. Respondent shall have five (5) business days after receipt of the Department's Statement of Position within which to serve upon the Department a reply to the Department's Statement of Position, and in the event Respondent serves such a reply, the Department shall have five (5) business days after receipt of Respondent's reply to the Department's Statement of Position within which to serve upon Respondent the Department's reply to Respondent's reply to the Department's Statement of Position. In the event that the periods for exchange of Statements of Position and replies may cause a delay in the work being performed under this Order, the time periods may be shortened upon and in accordance with notice by the Department as agreed to by Respondent.

(3) The Department shall maintain an administrative record of any dispute being addressed under this Subparagraph. The record shall include the Statement of Position of each party served pursuant to Subparagraph XVII.A(2) and any relevant information. The record shall be available for review of all parties and the public.

(4) Upon review of the administrative record as developed pursuant to this Subparagraph, the ALJ shall issue a final decision and order resolving the dispute. If the matter in dispute concerns a submittal,

(i) Respondent shall revise the submittal in accordance with the Department's specific comments, as may be modified by the ALJ and except for those which have been withdrawn by the ALJ, and shall submit a revised submittal. The period of time within which the submittal must be revised as specified by the Department in its notice of disapproval shall control unless the ALJ revises the time frame in the ALJ's final decision and order resolving the dispute.

(ii) After receipt of the revised submittal, the Department

shall notify Respondent in writing of its approval or disapproval of the revised submittal.

(iii) If the revised submittal fails to address the Department's specific comments, as may be modified by the ALJ, and the Department disapproves the revised submittal for this reason, Respondent shall be in violation of this Order and the ECL.

(5) In review by the ALJ of any dispute pursued under this Subparagraph, Respondent shall have the burden of proving by a preponderance of the evidence that the Department's position should not prevail.

(6) a deadline involving any matter that is the subject of the dispute resolution process described in this Subparagraph shall be held in abeyance while it is the subject of the dispute resolution process unless the Department and Respondent otherwise agree in writing. The invocation of the procedures stated in this Subparagraph shall constitute an election of administrative remedies by Respondent, and such election of this remedy shall constitute a waiver of any and all other administrative remedies which may otherwise be available to Respondent regarding the issue in dispute.

B. All activities and submittals required by this Order shall address both on-Site and off-Site contamination resulting from the disposal of hazardous substances at each Site.

C. Respondent shall retain professional consultants, contractors, laboratories, quality assurance/quality control personnel, and data validators acceptable to the Department to perform the technical, engineering, and analytical obligations required by this Order. Within 30 days after completion of Respondent's retainer process resulting in the selection of a particular firm or individual to perform any of such obligations, Respondent shall submit to the Department a summary of the experience, capabilities, and qualifications of the firm or individual retained. Respondent must obtain the Department's approval of these firms or individuals before the initiation of any activities for which Respondent and such firms or individuals will be responsible.

D. The Department shall have the right to obtain split samples, duplicate samples, or both, of all substances and materials sampled by Respondent, and the Department also shall have the right to take its own samples. Respondent shall have the right to obtain split samples, duplicate samples, or both, of all substances and materials sampled by the Department, and Respondent also shall have the right to take its own samples. Respondent shall make available to the Department the results of all sampling and/or tests or other data generated by Respondent with respect to implementation of this Order, including a tabular summary of any such results in any report submitted pursuant to this Order requiring such results.

E. Respondent shall notify the Department at least 10 working days in

advance of any field activities to be conducted pursuant to this Order. The Department's project manager is hereby authorized to approve any modification to an activity to be conducted under a Department-approved work plan in order to adapt the activities to be undertaken under such work plan to the conditions actually encountered in the field.

F. Respondent shall use reasonable efforts to obtain whatever permits, easements, rights-of-way, rights-of-entry, approvals, or authorizations are necessary to perform Respondent's obligations under this Order. If Respondent is unable, after exhaustion of such reasonable efforts, to obtain any such permissions, the Department will exercise whatever authority is available to it, in its discretion, to obtain same. In no event will Respondent be determined to be in violation of this Order if it fails to obtain any such permissions after exhausting reasonable efforts to obtain same. This is in recognition of the fact that, with respect to certain Sites, the New York State Electric and Gas Corporation is the current owner of only part of the potential area of disposal of MGP wastes, and may in fact, as to certain Sites, not be the owner of any portion of the Site. Significant impediments may, therefore, be encountered as to Respondent's ability to obtain access for purposes of carrying out the requirements of this Order.

G. If Respondent determines, in connection with any given Site, that a valid claim exists in favor of Respondent as against any other potentially responsible party, for contribution toward response costs deemed necessary by the Department in connection with such Site (or for recovery of an appropriate portion of such costs previously incurred by Respondent), the Department shall provide, in a timely manner, information responsive to any reasonable request (otherwise in conformity with Freedom of Information Law requirements) by such party related to conditions at the Site and any other relevant information that may be helpful in substantiating Respondent's claim. Similarly, if Respondent requests access to non-privileged and otherwise disclosable information in the Department's possession and relevant to the potential liability of any person or entity who may be subject to such claim by Respondent for contribution or cost recovery, the Department will take reasonable steps to expedite Respondent's access to such information.

H. Respondent and its successors and assigns shall be bound by this Order. Any change in ownership or corporate status of Respondent including, but not limited to, any transfer of assets or real or personal property shall in no way alter Respondent's responsibilities under this Order. Respondent's officers, directors, employees, servants, and agents shall be obliged to comply with the relevant provisions of this Order in the performance of their designated duties on behalf of Respondent.

I. Respondent shall provide a copy of this Order to each contractor hired to perform work required by this Order and to each person representing Respondent with respect to the Site and shall condition all contracts entered into hereunder upon performance in conformity with the terms of this Order. Respondent or Respondent's contractors shall provide written notice of this Order to all subcontractors hired to

perform any portion of the work required by this Order. Respondent shall nonetheless be responsible for ensuring that Respondent's contractors and subcontractors perform the work to be done under this Order in accordance with this Order.

J . All references to "professional engineer" in this Order are to an individual licensed and registered to practice professional engineering in accordance with Article 145 of the New York State Education Law.

K. All references to "days" in this Order are to calendar days unless otherwise specified.

L. The section headings set forth in this Order are included for convenience of reference only and shall be disregarded in the construction and interpretation of any of the provisions of this Order.

M. (1) The terms of this Order shall constitute the complete and entire Order between Respondent and the Department concerning the Site. No term, condition, understanding, or agreement purporting to modify or vary any term of this Order shall be binding unless made in writing and subscribed by the party to be bound. No informal advice, guidance, suggestion, or comment by the Department regarding any report, proposal, plan, specification, schedule, or any other submittal shall be construed as relieving Respondent of Respondent's obligation to obtain such formal approvals as may be required by this Order. However, in the event that Respondent determines that it cannot continue burning CTS at either its Jennison Station or Hickling Station, then Respondent may request that the Department modify its obligations regarding the Sites listed in Table "A" of Paragraph I of this Order. The Department's decision on whether to grant Respondent's request shall not be unreasonably denied and shall consider, but not be limited to, Respondent's costs of proceeding with its obligations under this Order.

(2) If Respondent desires that any provision of this Order be changed, Respondent shall make timely written application, signed by the Respondent, to the Commissioner setting forth reasonable grounds for the relief sought. Copies of such written application shall be delivered or mailed to Messrs. Goddard and Sullivan.

N. The effective date of this Order shall be the date it is signed by the Commissioner or his designee.

DATED: Albany, New York
March 30, 1994

J. LANGDON MARSH
Acting Commissioner
New York State Department
of Environmental Conservation

CONSENT BY RESPONDENT

Respondent hereby waives its right to a hearing herein as provided by law; consents to the issuance and entry of this Order; and agrees to be bound by its terms, not to contest the authority or jurisdiction of the Department to issue or enforce this Order, and not to contest the validity of this Order or its terms.

NEW YORK STATE ELECTRIC & GAS CORPORATION

by: Vincent W Rider

Typed name of signer: Vincent W. Rider

Title of signer: Vice President - Electric Generation

Date signed: March 25, 1994

STATE OF NEW YORK)
) ss:
COUNTY OF Broome)

On this 25th day of March, 1994, before me personally appeared Vincent W. Rider, to me known, who, being duly sworn, did depose and say that he resides in Endicott, New York; that he is Vice President - Electric Generation of the New York State Electric & Gas Corporation; that he executed the foregoing instrument on behalf of the New York State Electric & Gas Corporation; that he knew the seal of said corporation; that the seal affixed to said instrument was such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; and that he signed his name thereto by like order.

Gail A. Marion
Notary Public State of New York
Registration number: 5003473
My commission expires: 10/26/94

GAIL A. MARION
Notary Public, State of New York
No. 5003473
Residing in Broome County
My commission expires Oct 26 19 94

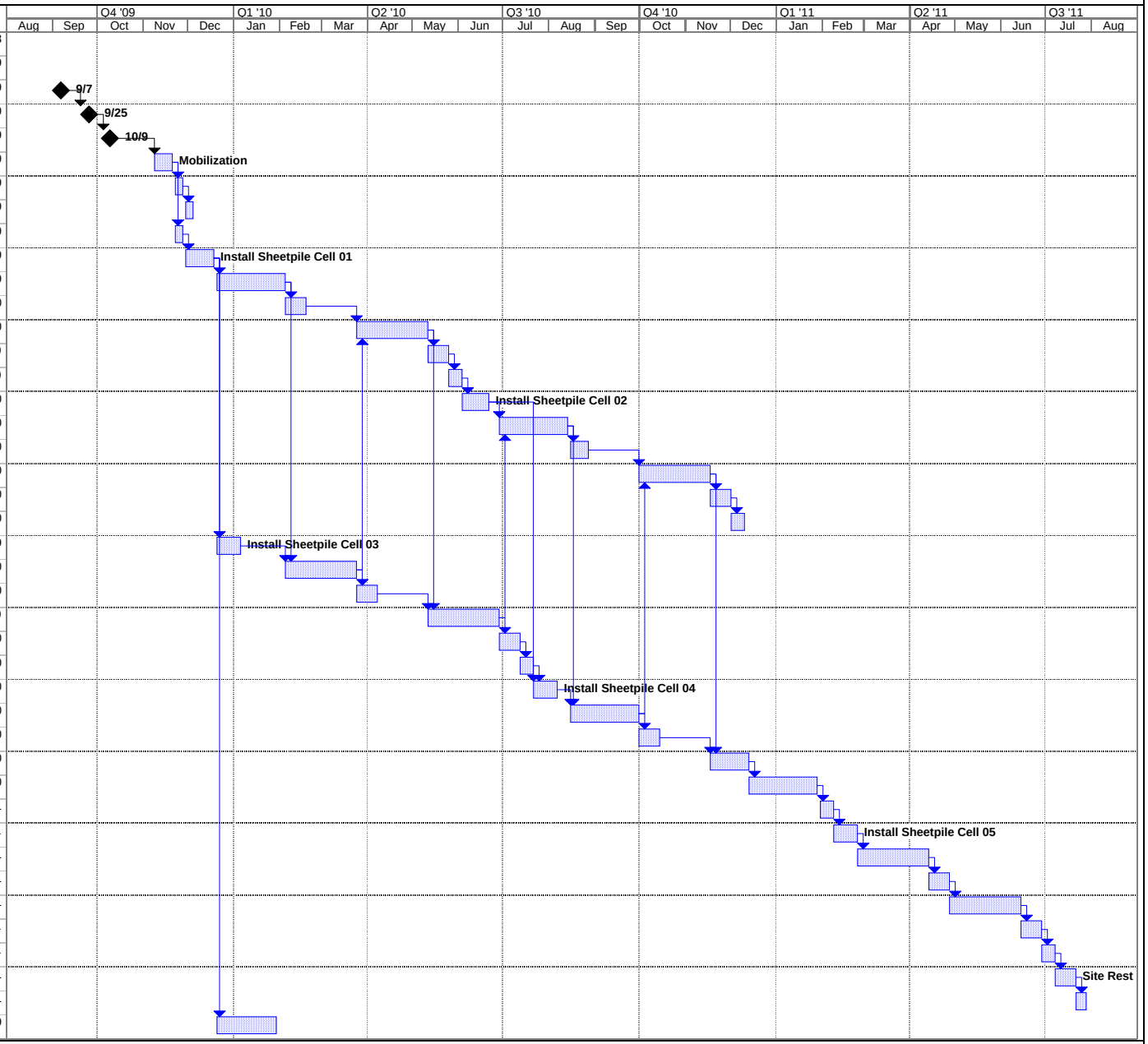
(oNYSEG2.cst)

APPENDIX B

PROJECT SCHEDULE

NYSEG - CORTLAND-HOMER MGP SITE
CONSTRUCTION SCHEDULE

ID	Task Name	Duration	Start
1	Final Remedial Design to NYSDEC	0 days	Tue 4/1/08
2	Waste Characterization Sampling	10 days	Mon 3/2/09
3	Site Walk	0 days	Mon 9/7/09
4	Bids Due	0 days	Fri 9/25/09
5	Contract Award	0 days	Fri 10/9/09
6	Mobilization	10 days	Mon 11/9/09
7	Demolition of remaining structures	5 days	Mon 11/23/09
8	Prepare Gas Holder Areas	5 days	Mon 11/30/09
9	Temporary Water Treatment Plant	5 days	Mon 11/23/09
10	Install Sheetpile Cell 01	15 days	Mon 11/30/09
11	Excavate Cell 01A	34 days	Mon 12/21/09
12	Backfill Cell 01A	10 days	Fri 2/5/10
13	Eaxcavate Cell 01B	34 days	Thu 3/25/10
14	Backfill Cell 01B	10 days	Wed 5/12/10
15	Remove Sheetpile Cell 01	7 days	Wed 5/26/10
16	Install Sheetpile Cell 02	12 days	Fri 6/4/10
17	Excavate Cell 02A	34 days	Tue 6/29/10
18	Backfill Cell 02A	10 days	Mon 8/16/10
19	Eaxcavate Cell 02B	34 days	Fri 10/1/10
20	Backfill Cell 02B	10 days	Thu 11/18/10
21	Remove Sheetpile Cell 02	7 days	Thu 12/2/10
22	Install Sheetpile Cell 03	12 days	Mon 12/21/09
23	Excavate Cell 03A	34 days	Fri 2/5/10
24	Backfill Cell 03A	10 days	Thu 3/25/10
25	Eaxcavate Cell 03B	34 days	Wed 5/12/10
26	Backfill Cell 03B	10 days	Tue 6/29/10
27	Remove Sheetpile Cell 03	7 days	Tue 7/13/10
28	Install Sheetpile Cell 04	12 days	Thu 7/22/10
29	Excavate Cell 04A	34 days	Mon 8/16/10
30	Backfill Cell 04A	10 days	Fri 10/1/10
31	Eaxcavate Cell 04B	18 days	Thu 11/18/10
32	Backfill Cell 04B	34 days	Tue 12/14/10
33	Remove Sheetpile Cell 04	7 days	Mon 1/31/11
34	Install Sheetpile Cell 05	12 days	Wed 2/9/11
35	Excavate Cell 05A	34 days	Fri 2/25/11
36	Backfill Cell 05A	10 days	Thu 4/14/11
37	Eaxcavate Cell 05B	34 days	Thu 4/28/11
38	Backfill Cell 05B	10 days	Wed 6/15/11
39	Remove Sheetpile Cell 05	7 days	Wed 6/29/11
40	Site Restoration	10 days	Fri 7/8/11
41	Demobilization	5 days	Fri 7/22/11
42	In-Situ Stabilization of Utility Corridor	30 days	Mon 12/21/09



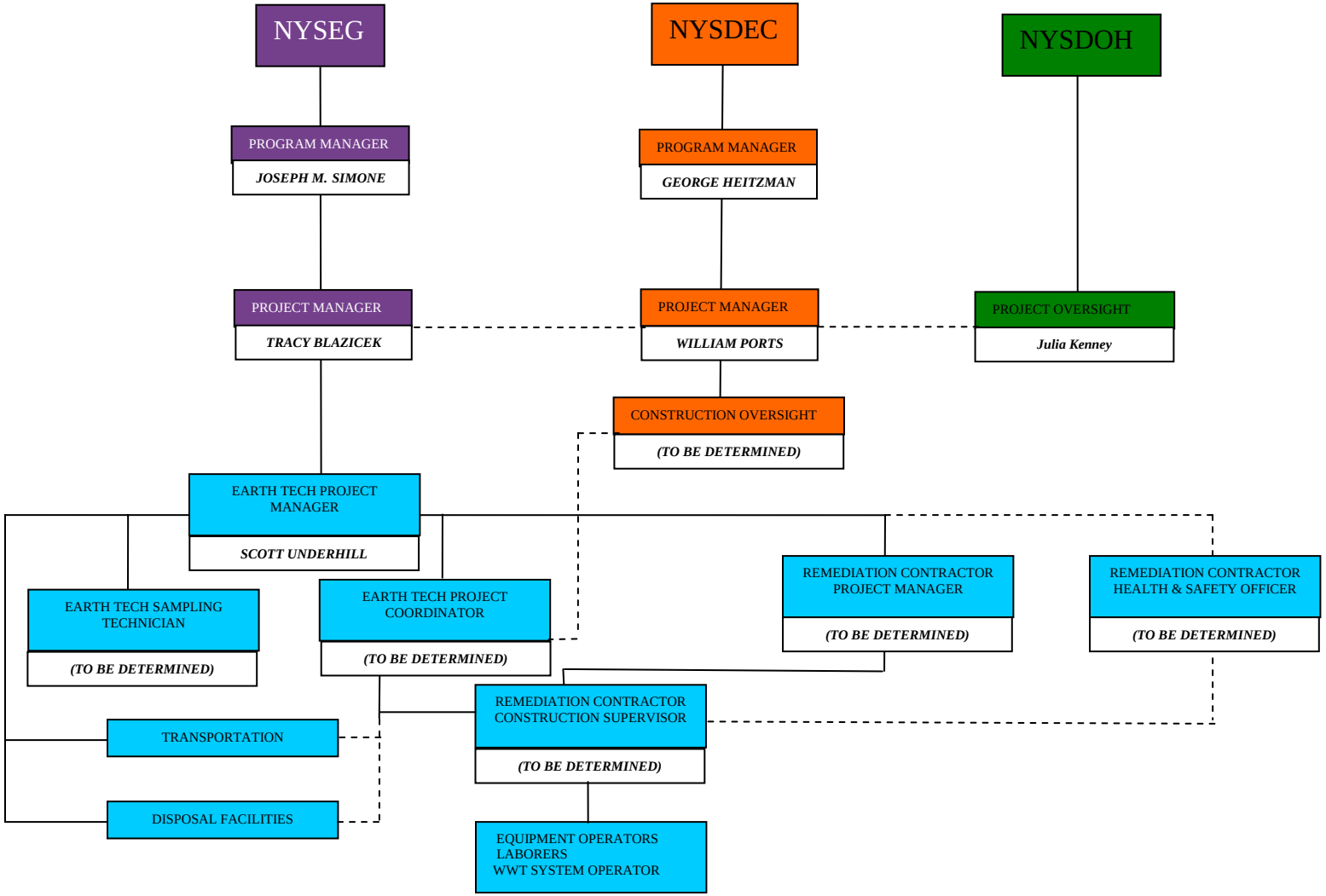
Project: Schedule 1
Date: Fri 3/14/08

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

APPENDIX C

ORGANIZATIONAL STRUCTURE

ORGANIZATIONAL STRUCTURE FOR REMEDIATION ACTIVITIES AT CORTLAND-HOMER FORMER MANUFACTURED GAS PLANT SITE



APPENDIX D

CITIZEN PARTICIPATION PLAN

NYSEG

NEW YORK STATE ELECTRIC & GAS CORPORATION

James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902-5224

Remedial Action Design

CITIZEN PARTICIPATION PLAN

For Removal and Off-site Disposal of Coal Tar Impacted Soil

Associated With

Cortland-Homer
Former Manufactured Gas Plant Site
South Main Street
Village of Homer, Cortland County, New York

NYSDEC SITE # 7-12-005

February 2008

Prepared By:
Earth Tech, Inc.

For:
NYSEG Environmental Compliance
Site Investigation and Remediation

TABLE OF CONTENTS

Section **Page**

1.0 INTRODUCTION

New York State Electric & Gas Corporation (NYSEG) is preparing to implement a Remedial Action Design involving the excavation and off-site disposal of coal tar impacted soil associated with Cortland-Homer former manufactured gas plant site located in the Village of Homer, Cortland County, New York. This *Citizen Participation Plan* will detail citizen participation activities that will be implemented for this remediation project.

A *Remedial Action Design For Removal And Off-site Disposal Of Coal Tar Impacted Soil Associated With Cortland-Homer Former Manufactured Gas Plant Site* has been developed. The proposed *Remedial Action Design* will involve excavation, removal and disposal of coal tar impacted soil and debris. The *Remedial Action Design* will be conducted according to the requirements of an Order on Consent between NYSEG and the New York State Department of Environmental Conservation (NYSDEC). The Order on Consent is a legal document that defines the obligations of each party for conducting site investigations and remediations. The Order on Consent requires that all work by NYSEG at the site be performed under the oversight of the NYSDEC and the New York State Department of Health (NYSDOH).

2.0 PROJECT OBJECTIVE

The primary objectives of the remedial action design, as required by the Record of Decision issued March 2007, include:

- Removal to a depth of 24 feet of all MGP waste, NAPL and contaminated soils meeting one or more of the following criteria: visible tar or oil; the presence of sheens or odors with total PAHs over 1000 ppm; purifier waste with reactive cyanide levels above 250 ppm; or purifier waste with reactive sulfide levels above 500 ppm. Dewatering will be implemented as required to achieve removal. The remedy includes a temporary shoring system for excavations to limit lateral inflow which would otherwise increase the amount of dewatering required and to settlement of unaffected portions of the site and surrounding area. The Feasibility Study estimated excavation of 44,000 cubic yards of contaminated soils to a depth of 24 feet below the ground surface. Soil excavation will proceed deeper if soils exceed one or more of the above criteria. Excavated materials which are below the criteria will be stockpiled and evaluated for reuse on-site.

- The excavation will be backfilled with stockpiled soils and clean soil as defined in 6 NYCRR 375-6.7(d), graded, and the ground surface will be prepared to meet future land use requirements. Non-vegetated areas (buildings, roadways, parking lots, etc.) will be covered by a paving system or concrete at least 6 inches thick.
- Soil vapor intrusion in the remaining portion of the building will be evaluated after soil excavation and building modification, with mitigation and or monitoring as determined to be necessary.
- Disposal of excavated soils that exceed the criteria specified in the first bullet above off-site. Imported soil used for contouring will also meet the requirements for human health protection for commercial use and the protection of groundwater as specified in 6 NYCRR 375-6.

This *Work Plan* is scheduled for 2009 (see project schedule in Appendix B).

3.0 BASIC SITE INFORMATION

The former NYSEG MGP site is in the Village of Homer, Cortland County, New York. The site is approximately 2 acres in size and is comprised of two adjoining parcels of land that are privately owned. The southern parcel contains a single story commercial building which is approximately 30,000 square feet in area. This building is occupied by a general plumbing and electrical supply store and a utility company service and maintenance center. The northern parcel is utilized for parking. The site parcels are bordered by New York State (NYS) Route 11 to the east, the New York and Susquehanna railroad line to the west, and commercial properties to the north and south. East of NYS Route 11 is the West Branch of the Tioughnioga River. The west bank of the river is approximately 150 feet to the east of the site parcels across Rt. 11.

From approximately 1858 through 1932, NYSEG (or predecessor companies) used the former MGP site on South Main Street in Homer to manufacture gas, which was used by the local residents and businesses near the site. In 1858, the Homer & Cortland Gas Light Company (HCGL) began distributing gas manufactured from coal to the citizens of Homer and the next year added Cortland to its service area. In 1908, HCGL was renamed Barstow and Co. of New York and in 1911 it became part of NYSEG. Coal gas production continued until 1921. From 1921 until 1932 carbureted water gas production was conducted at the plant. NYSEG operated the site as a natural gas and electric service

center from 1932 until 1935 when the operation was relocated to a new service center.

In 1940 NYSEG had the 45,000 cu.ft. steel gas holder dismantled. The remaining structures were subsequently demolished in 1944 when Brockway Motor Company, Inc. (Brockway) purchased the site. Brockway constructed a truck sales and service facility on the site starting in 1947. Irving D. Booth purchased the property in 1971 and renovated it to its present condition.

Currently, I.D. Booth, a general plumbing and electrical supplier, owns the site. I.D. Booth operates one of its supply stores in the southern portion of the building. The northern portion of the building is currently occupied by Verizon, which operates a service center onsite. The building houses a combination of offices, general storage, garage space, a showroom, and a sales counter. In order for remediation to take place the southern two thirds of the building will be demolished and the remaining third of the building will be repaired and functioning during remediation efforts. The property immediately to the south of the site is occupied by Natoli's Market. This property may be available as a staging area for the WWTP and construction equipment for the remedial action.

The neighborhood around the former gas plant is a commercial section of Homer.

4.0 PREVIOUS INVESTIGATIONS AND REPORTS

- Between 1985 and 2004 the site has been subject to several investigations. These are listed below as compiled by URS Corporation for NYSEG in the "Feasibility Study Report" 2004.
- Supplemental Remedial Investigation (SRI) NYSEG Cortland/Homer Former MGP Site, Cortland County, New York, prepared by Stearns and Wheeler for NYSEG, March 2003.
- Historical Summary NYSEG Cortland/Homer Former MGP, Cortland County, New York, prepared by Stearns and Wheeler for NYSEG, April 2001.
- Feasibility Study Addendum, Cortland/Homer Former MGP, Site #7-12-005, Cortland, New York, prepared by Groundwater Technology, Inc., February 1993.

- Investigation of Former Coal Gasification Sites, Cortland/Homer, Homer, NY, Task 3 Report, prepared by E.C. Jordan Co., May 1989.
- Investigation of Former Coal Gasification Sites, Cortland/Homer, Homer, NY, Task 2 Report, prepared by E.C. Jordan Co., July 1987.
- Investigation of Former Coal Gasification Sites, Cortland/Homer, Homer, NY, prepared by E.C. Jordan Co., October 1985.

5.0 DOCUMENT REPOSITORY

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

- New York State Department of Environmental Conservation
  Central Office, 625 Broadway 11th Floor
  Albany, New York 12233-7014
  Attn: Mr. William Ports
  (518) 402-9648
  (By appointment only)

- Cortland Free Library
  32 Church Street
  Cortland, NY 13045
  Mon-Thurs 9:30 AM – 5:30 PM
  Friday 9:30 AM – 5:30 PM
  Saturday 9:30 AM – 4:30 PM

6.0 INTERESTED/AFFECTED PUBLIC

A mailing list has been developed that includes adjacent property owners and businesses, local and State elected officials, local media, and other identified interested parties. Names can be added to the mailing list by contacting any of the individuals listed below in Section 8.0 (Additional Information), or by completing an “interested party mailer” that is included with all NYSEG mailings for this site.

7.0 DESCRIPTION OF CITIZEN PARTICIPATION ACTIVITIES FOR EACH MAJOR ELEMENT OF THE REMEDIAL ACTION DESIGN PROJECT

To facilitate the *Remedial Action Design* process, NYSEG in cooperation with NYSDEC and NYSDOH, will inform the public and local officials of planned remedial activities. Public participation will include at least the following:

- Distribution to those identified in Section 6.0 of this document of a fact sheet prepared by either NYSDEC or NYSEG describing the planned remedial activities.

- The *Remedial Action Design* will be available for public review a minimum of 30 days prior to the public availability session.

- A public availability session will be held by NYSDEC, in conjunction with NYSDOH and NYSEG, prior to *Remedial Action Design* finalization, to describe the planned activities at the site.

- Posting by NYSEG a phone number (1-800-572-1111) for public to call, between 7 a.m. – 7 p.m., with any questions or concerns that may arise during the project. A NYSEG customer service representative will answer calls. The NYSEG customer service representative will contact NYSEG project manager.

- Notice of public availability session will be provided either NYSDEC or NYSEG via mailing list and notices through the local media.

8.0 ADDITIONAL INFORMATION

For additional information about this project you may contact any of the following individuals:

NYSEG:

Mr. James S. Salmon: Community Projects Manager
6 Werner Road
Clifton Park, New York 12065-3410
Phone: (518) 664-9534, Ext. 353
E-mail: jssalmon@nyseg.com

Mr. Tracy Blazicek: Remediation Project Manager
James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902
Phone: (607) 762-8839
E-mail: tlblazicek@nyseg.com

NYSDEC: Mr. William Ports: Site Project Manager
NYSDEC
625 Broadway
Albany, New York 12233-7014
Phone: (518) 402-9667
E-mail: wfports@gw.dec.state.ny.us

NYSDOH: Julia Kenney: Public Health Specialist
NYSDOH
254 River Street
Troy, New York 12180-2216
Phone: (518) 402-7870
E-mail: jmg07@health.state.ny.us

APPENDIX E

IN-SITU SOLIDIFICATION STABILIZATION STUDY PLAN

NYSEG

NEW YORK STATE ELECTRIC & GAS CORPORATION

James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902-5224

In Situ Solidification Stabilization Study

For Remediation of Coal Tar Impacted Soil

Associated With

Cortland-Homer
Former Manufactured Gas Plant Site (OU-1)
South Main Street
Village of Homer, Cortland County, New York

NYSDEC SITE # 7-12-005

March 2008

Prepared By:
Earth Tech Northeast, Inc.

For:
NYSEG Environmental Compliance
Site Investigation and Remediation

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Background

This In Situ Solidification Stabilization Study (Plan) provides a description of the sampling and laboratory procedures/protocols to be used in support of the Remedial Design for Operable Unit 1 (OU-1) associated with the Cortland-Homer South Main Street former manufactured gas plant site located in the Village of Homer, Cortland County, New York. This Plan discusses objectives and methods of conducting a bench-scale stabilization study on MGP source material using contaminated soil from the utility corridor of OU-1. The soils are contaminated by petroleum VOCs (BTEX) and SVOCs (PAHs), and contain isolated areas of NAPL that occur primarily as subtle staining or as a sheen. This In Situ Solidification Stabilization Study (Plan) is designed to be used in conjunction with a New York State Department of Environmental Conservation (NYSDEC) approved *Remedial Design* with regards to specific project objectives and field sampling activities. To the extent that discrepancies exist between this *Quality Assurance Project Plan* and the *Remedial Design,* the *Remedial Design* shall control.

1.2 Stabilization Study Objectives

The objectives of the stabilization study are as follows:

- Develop soil solidification mixes that will bind in-place MGP source material, using cement and/or other additives to serve as the binding agents.

- Cost:Benefit - Develop a comparison between contaminant leaching, design mixes, and costs that meet the unconfined compressive (UC) strength and permeability criteria listed in Table 1.

- Establish mixes and mixing methods that are suitable and representative of, to the extent possible, full scale jet grouting soil-mixing technology in the field.

- Develop “worst case” (i.e., high levels of contamination) mixes that will provide a safety factor for unexpected conditions such as unanticipated contamination levels or soil mixing inconsistencies.

- Determine the likely bulking or soil volume increase due to solidification.

Off-gas measurements will be determined in the pilot-scale field demonstration that shall be performed by the construction contractor and not during the stabilization study. The pilot-scale field demonstration will provide a more representative indication of off-gases during full-scale field work solidification.

During jet grouting in the field, there is a degree of homogenizing of the soil profile along the axis of the treatment column. This jetting action blends the contaminants and soil into a sort of homogeneous mass that will have a more average contamination. Therefore, a worst-case design mix can be achieved by selecting soil samples directly from the most contaminated zones. Dense non-aqueous phase liquids (DNAPLs) are more challenging to solidify than most of the other contaminants, and soils containing noticeable DNAPL will be considered as a unique area requiring special attention.

1.3 Stabilization Study Approach

In this bench-scale study, design mixes will be established using Portland cement as the primary binding agent for solidifying MGP source material. This Plan requires the use of actual site soils to establish a site-specific recipe. The grout (water with additives) will be made with potable water, as it would be in the field. The mixing method will, to the greatest extent possible, be conducted with mixing energies that are representative of typical field mixing, so that the eventual pilot-scale field demonstration will not result in significant changes to the chosen bench-scale design mixture. The site soils and groundwater will be characterized via standard physical and chemical testing methods prior to use in the design mix program. A worst-case condition will be established during field screening by selecting soil samples from known zones of high-level contamination. This will represent the worst-case full-scale field work. The final binding agent mix will be a wet grout that includes water for ease of pumping.

Performance of the mixes will be demonstrated during the stabilization study by the reduction in contaminant leaching, increased UC strength, and decreased permeability. UC strength and permeability will be the sole indicators of contaminant leaching during full-scale field construction.

2.0 STABILIZATION STUDY SCOPE

2.1 Mix Design Steps

The stabilization study will be performed to determine how contaminant leaching varies with the relative proportions of additives to one another and to the contaminated soil. This process will attempt to minimize the number of mix iterations. The study will consist of performing the major tasks described below. The scope of the individual steps shown for each major task are guidelines only, may be revised, and depend on the soil and contaminant type(s) and their response to binding agent additives.

TASK 1 – Preliminary Screening and Sample Collection

Based on visual field screening, identify areas of "worst case" contamination and collect soil material from those areas for the study in accordance with the Pre-Remediation Sampling and Analysis Plan.

TASK 2 – Homogenize Soil Samples

2(a) Blend the collected soil so that there will be a composite or homogenized soil that has consistent properties throughout. All soil discussed in the tasks below refers to homogenized soil.

2(b) Determine physical and chemical characteristics of the (untreated) homogenized soil.

TASK 3 – Iterative Mix Designs

Tailor the mixes to the soil types and contaminants via mix designs and testing as below.

3(a) Pre-Screen Cement-Only Mixes for Strength: Create preliminary soil/additive mixes using cement as the only additive, and test for 7-day UC strength. Select the most economical cement-only mix as the starting point for further testing that will include cement plus other additives. The most economical cement-only mix is the mix with the least amount of cement that achieves the minimum required UC strength.

3(b) Replace Cement with Cement/Additive: The chosen pre-screened mix from 3(a) shows the additive proportion point around which to "bracket" with cement-plus-other additives. Develop various mixes that contain both cement and other additives.

Day 1: Vary the total additive-to-soil proportions to provide 6 mix designs, 4 samples each for a total of 24 samples. One-half of the 24 will contain accelerator. Implement accelerated curing (to represent 28-day curing on about the 8th day of real-time curing) on one-half of samples with accelerator and on one-half without accelerator. For clarity, the table below shows the procedure using an assumed 20% additive (cement-only) determined in Task 3(a):

Total Additive % (versus dry soil)	**Curing Type**			
See Note 1	**Normal 7-day**	**Accelerated to "28-days"**	**Normal 7-day**	**Accelerated to "28-days"**
See Note 2	Column I	Column II	Column II	Column IV
14%	1A	1A	1	1
16%	2A	2A	2	2
18%	3A	3A	3	3
Starting point to bracket around-20% cement (versus dry soil)				
22%	4A	4A	4	4
24%	5A	5A	5	5
26%	6A	6A	6	6

Notes:

1.0 "Total Additive" refers to cement-plus-other additive (e.g., 1/3 cement + 2/3 slag).

2.0 Actual percentages and range will depend on results of soil type and the pre-screen results using cement-only.

A = Accelerator added
2A = Mix design #2 with accelerator added
3 = Mix design with no accelerator

Day 8: Retain Physically Acceptable Design Mixes: Test all 12 "28-day" cured samples (Columns II and IV) for UC strength and retain only the mix designs that meet minimum UC strength criterion. Eliminate all failures from future consideration. Based on these (accelerated) "28-day" results, retain only the physically acceptable samples/designs from Columns I and III and let those cure for 28 days.

Day 9: Create samples for permeability testing: Using the remaining physically acceptable mixes, batch fresh new cylinders for eventual 28-day permeability tests.

Test the remaining Physically Acceptable Design Mix Cylinders for 28-day Properties:

UC Strength (Day 28): Test remaining physically acceptable designs for 28-day strength.

Permeability (Day 28 + 9 = 37): Test remaining physically acceptable designs for 28-day permeability. These were created on Day 9.

Day 38: Leaching of Final Design Mix Options – Using mixes that provide both acceptable UC strength and permeability, start the static leaching tests (modified ANSI/ANS-16.1) and determine the amount of leaching reduction for each mix.

3(c) Create Leaching vs. Design Mix/Cost Comparisons: Based on trends obtained from Task 3(b), implement various additive proportions (and/or other additive types) to demonstrate the reduction in contaminant leaching versus increased additives/costs. Designate this as a Base Comparison Curve.

2.2 Sample Collection

2.2.1 Soil Samples

Contractor will conduct soil/contamination sampling of the utility corridor for the purpose of generating soil samples for this study. Retain worst-case samples so there will be a minimum of approximately 36 gallons of soil from the site within the proposed solidification area. In addition to containing MGP source material, the samples are intended to represent the typical grain size distribution of site soils in their natural state.

2.2.2 Groundwater Samples

Site groundwater will be collected as listed on Table 2 and analyzed for BTEX, site-related TPAHs, oil and grease and pH in accordance with the Pre-Remediation Sampling and Analysis Plan, to measure the current state of contaminant leaching to groundwater. The data will be compared to static leaching test results to verify that a reduction in leaching is achieved.

2.3 Homogenize, Test and Subdivide Soil

The bulk soil samples will be thoroughly mixed together to create a homogenized soil that can be subdivided and used for individual mixes. The homogenized soil will be stored in a leak-proof container. It will be important to watch for moisture leakage from the subdivided samples (or its source bulk pile if such samples will be extracted as needed) throughout the study, and re-mix any draining moisture back into the soil, to maintain the homogenized condition. Two homogenized soil samples will be subjected to the following characterization testing.

Parameter Standard	Method/Reference
Grain size with clay fraction	ASTM D422
Atterberg limits	ASTM D4318
Natural moisture content	ASTM D2216
Specific gravity	ASTM D854
Organic content	ASTM D2974
Total Oil and Grease	USEPA 19071B
pH	USEPA 9045C
Static Leach Test, BTEX and TPAHs	Modified ANSI/ANS-16.1

2.4 Iterative Mix Designs

2.4.1 Efficiency

The duration of the testing program will be minimized to the extent possible to prevent changing the chemical properties of the MGP source material, be cost-effective, and avoid impacting the start of construction. As described in Section 2.1, a sufficient number of testing rounds will be used to improve and refine the mixture and to demonstrate the impact of additive quantities/costs on contaminant leaching while still meeting UC strength and permeability criteria. The testing

will be concluded when the incremental reduction in contaminant leaching is small with respect to the incremental increase in the additive quantities and costs. The experience of the designer and laboratory with these types of studies, including knowledge of literature history, is important to minimize the number of iterations and the testing program duration.

2.4.2 Methodology

The finally-selected design mix will provide the same degree of reduction of contaminant leaching in the field. The mixing methods and sequence used in the laboratory will represent, to the extent possible, those that will be used in the field. For example, any required hydration of cement (and/or other additive) that is experienced in the laboratory, prior to addition of any other binding agents, will also be required for the field work. Additives may be added as a slurry and must be consistent between laboratory and field.

Typical mixing methods in the laboratory that will simulate field energies include a high shear mixer for the preparation of the grout and a planetary mixer (such as a Hobart mixer with a dough hook) to simulate the field mixing of the grout and soil.

Each final mix option will be subject to all performance criteria tests. The following information will be determined:

- Water:Solids ratio.
- Cement:Solids ratio.
- Additive:Cement ratio.
- Water:Cement ratio.
- Ratio of any other additives to solids.
- Sequence of combining binding agents including hydration times.

2.5 Materials

In addition to site soils and groundwater, the materials to be included in the mixture will include clean water and Portland cement as the primary additive. Potential admixtures include bentonite, lime, fly ash, blast furnace slag, gypsum, powdered activated carbon, organophillic clay, and proprietary additives such as softening agents, dispersants, retarders or plugging or bridging agents. The requirements of some of these materials are described below:

- Water – Potable water.
- Portland Cement – Type I Portland cement conforming to the latest edition of ASTM C150, *Requirements for Portland Type I-II Cement.* Protect from moisture change until batching.
- Bentonite – Sodium cation-base montmorillonite powder that conforms to the latest edition of API Specification 13A, *Specifications for Oil-Well Drilling Fluid Materials.*
- Fly Ash (Class F or Class C).
- Blast Furnace Slag – Ground, granulated, rapid quenching NewCem ground granulated blast furnace slag from La Farge Cement (one of the major suppliers on the East Coast) or similar. Others slag materials are acceptable but its use needs to be decided and obtained before field sampling.
- Powdered Activated Carbon – General Carbon Corporation "GC Powdered", a proprietary material.
- Proprietary Additives – Examples of such additives include Organophillic Clay.

The properties of some materials such as fly ash and blast furnace slag will be dependent on the source and processes conducted at the source. For example, particle size, shape, and chemical composition can vary and, therefore effect the cementitious reactions. Therefore, only a source that can be used for both the stabilization study and the full-scale field work will be considered.

2.6 Equipment

At a minimum, the laboratory will contain the following equipment or equivalent substitutes:

- Storage space with leak-proof containers and moisture retention.
- Hobart-type mixer with dough hook.
- High shear mixer for grout preparation.
- Oven.
- Beakers.
- Magnetic stirring device.

- Spoons or spatulas for transfer of treated mixtures.
- Stainless steel mixing vessels.
- Thermometers.
- Scales.
- Tamping rods.
- Glove box or hood.
- Equipment to perform standard test methods.

2.7 General Comments on Procedures

2.7.1 Mixing Time to Composite Individual Soil Samples

To minimize the loss of volatiles during the blending (homogenization) of field samples, the blending time duration will be minimized to the extent possible.

2.7.2 Approximate Mix Proportioning of Dry Solids

Pre-Screening Design: Unless there are unique or unusual site conditions or there is an economically attractive local alternative to Portland Type I cement, testing with other types of cementitious materials is not considered economical during the pre-screening mix phase.

Final Design: For a general example of approximate proportioning, based on soil that is sandy with about 10 percent fines (similar to this site), a mix containing 15% cement and slag by dry weight of soil would give strength results that are close to the required criteria (i.e., 100 psi to 500 psi UC strength). This mix will provide about 20% bulking. The actual initial mix in this study will be governed by the site-specific soil properties such as grain size distribution.

2.7.3 Slurry Processing

The water-cement slurry is typically prepared at a ratio of 3:4 by weight using a high shear mixing process to obtain a uniform slurry. Additional additives could be used as required. Marsh Funnel viscosity will be measured (ASTM D6910) to illustrate its practical use in the field during actual soil mixing. A viscosity of less than 40 seconds is generally considered pumpable without a fluidizer or the addition of more water, and will be used as an upper limit for this study. If additional binding agents cause a viscosity over 40 seconds, water will be added to the slurry to achieve a viscosity of less than 40 seconds.

2.7.4 Slurry/Soil Processing

For mix designs, water-additive slurry is added to the wet soil to achieve a mixture with the desired soil-additive ratio and uniformly blended with a planetary type mixer for about one minute. Some hand mixing may also be performed to create a uniform mix. (Note - this may incur more blending than will occur during full-scale field work but is necessary to obtain the uniformity required to compare one mix design to another). The soil/additive mix will then be placed into minimum size 2-inch diameter by 4-inch high plastic molds (or 3-inch by 6-inch molds if gravel is the major soil component) and tamped with a rod to remove major air voids. The prepared soil cylinders will be cured under high humidity conditions for at least 7 days prior to any strength and permeability testing.

Strength and permeability will be used as screening measurements to determine if refined mixes will be prepared and when it is economical to perform contaminant leaching tests (because contaminant leaching tests are relatively expensive and incur the most lengthy turnaround time).

2.8 Sampling and Analysis

2.8.1 Field Screening

Field screening of soil samples collected for the stabilization study will consist of visual confirmation of oil sheen and evidence of tars.

2.8.2 Sample Shipment

To ensure that soil, groundwater, and stabilized soil samples are properly shipped with detailed instructions, specific information is included in the QAPP (Appendix L) on sample identification codes, transport requirements, chain-of-custody procedures, and sample tracking procedures.

2.8.3 Sample Containers, Preservatives and Holding Times

The QAPP **(Appendix L)** specifies acceptable containers, preservatives and holding times. A table outlining each analytical protocol is included in the QAPP. The QAPP requirements apply to samples of soil and groundwater, as well as stabilized soil samples from the stabilization study, and full-scale field work. Re-sampling or re-mixing will be required if the applicable QAPP (See Appendix L) criteria are violated so as to render samples non-representative of field or laboratory mix conditions.

2.8.4 Laboratory Turnaround Time

The maximum acceptable turnaround time (TAT) for the analytical laboratory to provide preliminary data reports will be dictated by the need to not exceed holding times. The need for expedited TAT will be determined during the study and be required if it appears that the design mix progress may compromise the quality of the soil samples. To expedite the process, it will be acceptable to proceed with a stabilization study phase based on preliminary data reports provided the preliminary data has gone through the laboratory's internal QA process. Final reports will ultimately be required but are not necessary for any portion of the study to proceed.

2.9 Quality Assurance/Quality Control (QA/QC)

The QA/QC requirements for sampling and laboratory procedures/protocols, including those to be used in analytical testing for the stabilization study, is provided in the Quality Assurance Project Plan (QAPP) in Appendix L of the Remedial Action Design. The QAPP includes the minimum requirements for the testing laboratory qualifications. It also requires that only standard test methods such as those by ASTM and USEPA will be used.

3.0 DATA ANALYSIS AND REPORTING

3.1 Data Analysis

Since the chemical characteristics of site contaminants are critical to the success of the study, the analytical laboratory will perform internal QA/QC of all data and information developed from the analysis of homogenized soil, groundwater, and solidified soil samples. All data packages will also be reviewed by NYSEG or their Consultant to ensure that all data deliverables have been properly provided. The stabilization study will not proceed until this QA/QC and NYSEG/Consultant review is complete.

The laboratory data packages will include raw data as well as qualitative field information such as visual observations/descriptions and unexpected conditions.

3.2 Reporting

Stabilization study results will be presented in a formal final report that will include physical and chemical laboratory test reports and accompanying narrative. The laboratory test reports will be final charts and tables that bear the signature of the laboratory manager or other approved entity. The narrative will follow the outline shown below and be adjusted as necessary to match the actual study process:

FINAL REPORT

1.0 INTRODUCTION
- 1.1 Background
  - 1.1.1 Site Description and History
  - 1.1.2 Available Data and Assumptions
- 1.2 Project Objectives
- 1.3 Report Organization
- 1.4 Timeline Schedule

2.0 SAMPLE COLLECTION AND HANDLING
- 2.1 Sample Locations and Field Screening
- 2.2 Field Sampling and Handling Procedures

3.0 INITIAL SAMPLE CHARACTERIZATION
- 3.1 Chemical Test Results
- 3.2 Physical Test Results

4.0 HOMOGENIZED SAMPLE CHARACTERIZATION
- 4.1 Chemical Test Results

FINAL REPORT (Continued)

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Table 1

STABILIZATION STUDY PERFORMANCE CRITERIA

CORTLAND/HOMER OU-2 SITE REMEDIATION

Test	Method	Performance Criteria
Static Leaching	Modified ANSI/ANS-16.1	Based on comparison of leaching reduction vs. mix cost
UC Strength	ASTM D 1633	≥ 100 psi after 7 days ≤ 500 psi after 28 days
Permeability	ASTM D 5084	≤ 1x10-6 cm/sec
Maximum volume increase	ASTM D1556	~ 20 percent nominal

Table 2

STABILIZATION STUDY GROUNDWATER SAMPLING RATIONALE

CORTLAND/HOMER OU-1 SITE REMEDIATION

Location	Screen Depth	Rationale
MW-3	3 ft. to 13 ft.	Well screen is near the top of the water table.
MW-24	30 ft. to 40 ft.	Well screen is at the bottom of the water-bearing zone in an area that produces recoverable DNAPL.

APPENDIX F

CONSTUCTION QUALITY ASSURANCE PLAN

NYSEG

NEW YORK STATE ELECTRIC & GAS CORPORATION

James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902-5224

Remedial Action Design

CONSTRUCTION QUALITY CONTROL PLAN

For Removal and Off-site Disposal of Coal Tar Impacted Soil

Associated With

Cortland-Homer
Former Manufactured Gas Plant Site
South Main Street
Village of Homer, Cortland County, New York

NYSDEC SITE # 7-12-005

February 2008

Prepared By:
Earth Tech, Inc.

For:
NYSEG Environmental Compliance
Site Investigation and Remediation

TABLE OF CONTENTS

1.0 INTRODUCTION

This *Construction Quality Assurance Plan (CQAP)* is designed *to* assure the quality of the project by monitoring, inspecting, and testing the processes and materials associated with the remediation to be completed at New York State Electric and Gas Corporation's (NYSEG's) Cortland-Homer South Main Street site (MGP), Village of Homer, Cortland County, New York. This Construction Quality Assurance Plan supplements the Work Plan.

1.1 Construction Quality Assurance Plan (CQAP) Objectives

The objective of this *CQAP* is to identify and standardize measures to provide confidence that activities in all phases of the project will be completed in accordance with the *Remedial Action Design,* applicable local, state and federal regulations and appropriate industry standards. The CQAP will be implemented through inspection, sampling, testing, review of services, workmanship, and materials. Specific objectives of this plan establish protocols and procedures for the following components:

1. Responsibility and Authority - The responsibility and authority of the key personnel involved in the completion of the project.

2. Inspection and Testing Activities - Establish the observations and implement inspections and tests that will be used to ensure that the construction activities for the project meet or exceed all design criteria, (i.e., Work Plan, and local, state and federal regulations).

3. Sampling Strategies - Establish responsibility for sampling activities and methods including frequency and acceptance criteria for ensuring that sampling meets criteria in the Work Plan, local, state and federal regulations.

4. Documentation and Reporting - Establish appropriate field documents (i.e. daily field construction reports, photographic log, sampling log, and variances to the Work Plan).

2.0 RESPONSIBILITY AND AUTHORITY

Responsibilities of each member of the construction project team are described below.

*2.1 Contractor (*To Be Determined*)*

The contractor is responsible for coordinating field operations for the remediation, including coordination of subcontractors, to comply with the requirements of the *Remedial Action Design* and permitting agencies. The Contractor is responsible for completing and submitting documentation required by the *CQAP* and also has the authority to accept or reject the materials and workmanship of any subcontractors at the site.

The contractor is also responsible to ensure a functional construction quality control organization is active during the project and provide support for the construction quality control system to perform inspections, tests and retesting in the event of failure of any item of work, including that of the subcontractors, and to assure compliance with the contract provisions. The construction quality control system includes, but is not limited to, the inspections and tests required in the technical provisions of the *Remedial Action Design,* and will cover all project operations.

2.2 Construction Quality Assurance Officer: **To Be Determined**

The responsibility of the construction quality assurance officer is to perform those activities in this *CQAP* deemed necessary to assure the quality of construction and support quality control efforts. The construction quality assurance officer will be on-site as required during construction activities. The responsibility of the construction quality assurance officer is to ensure the quality of construction meets or exceeds that defined by the *Remedial Action Design* and identified in the *Quality Assurance Plan (QAPP).* Specific responsibilities of the construction quality assurance officer include:

- Directing and supporting the construction quality control representative inspection personnel in performing observations and tests by verifying that the data are properly recorded, validated, reduced, summarized, and inspected.

- Evaluating the construction activities and the construction quality control representative's efforts

- Evaluating sampling activities and efforts of the sampling quality assurance officer

- Educating construction quality control inspection personnel on construction quality control requirements and procedures

- Scheduling and coordinating construction quality assurance inspection activities

2.3 Sampling Quality Assurance Officer: To Be Determined

The responsibility of the sampling quality assurance officer is to perform those activities in this *CQAP, Remedial Action Design and QAPP* deemed necessary to assure the quality of sampling and testing and support quality control efforts.

The sampling quality assurance officer provides the permitting agency an assurance that all sampling efforts, for both field and laboratory analysis, meet or exceed that defined by the *Remedial Action Design* and identified in the *CQAP.* The sampling quality assurance officer will be on-site as required during the project. The sampling quality assurance officer will report directly to the construction quality assurance officer.

Specific responsibilities of the sampling quality assurance officer include:

- confirming that the test data are properly recorded and maintained (this may involve selecting reported results and back tracking them to the original observation and test data sheets);

- confirming that the testing equipment, personnel, and procedures do not change over time or making sure that any changes do not adversely impact the inspection process; and

- confirming that regular calibration of testing equipment occurs and is properly recorded.

- Providing the construction quality control officer with up to date sampling results.

2.4 Construction Quality Control Representative: Earth Tech, Inc. Project Coordinator

A construction quality control representative, supplemented as necessary by additional personnel, is to be on the work site during the construction process, with complete authority to take any action necessary to ensure compliance with the *Remedial Action Design* as necessary to achieve quality in the constructed facility. The construction quality control representative will be the field engineer. Specific responsibilities of the construction quality control representative include:

- Reviewing the *Remedial Action Design* for clarity and completeness so that the construction activities can be effectively implemented.

- Observe and document contractor's construction quality for compliance with this Construction Quality Assurance Plan.

- Verifying that a contractor's construction quality is in accordance with CQAP.

- Performing on-site inspection of the work in progress to assess compliance with the *Remedial Action Design.*

- Prepare daily field construction reports to document daily on-site activities. The Daily Field Construction Reports will be submitted at the end of each week in an electronic format to Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

- Prepare transportation manifests for the transportation of non-hazardous waste, hazardous waste, and conditionally exempt materials (i.e., soil, water, debris).

- Prepare a transportation log documenting all loads of solid or liquid waste that are transported off-site. The Transportation Log will be

submitted at the end of each week in and electronic format to Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

- Perform the duties of the health & safety officer.

- Reporting the results of all observations and tests as the work progresses, modify materials and work to comply with *Remedial Action Design.* This includes:

  1. Providing reports on daily field construction, material shipments, and inspection results.

  2. Review and interpretation of all data sheets and reports.

  3. Identification of work that should be accepted, rejected, or uncovered for observation, or that may require special testing, inspection, or approval.

  4. Rejection of defective work and verification that corrective measures are implemented.

  5. Make observations and records that will aid in finalization of the Final Report.

- Reporting to the construction quality assurance officer results of all inspections including work that is not of acceptable quality or that fails to meet the *Remedial Action Design.*

- Verifying that the equipment used in testing meets the test requirements and that the test are conducted according to the proper standardized procedures.

- Verifying that materials are installed as specified, except where necessary field modifications were required.

- Serves as the overall Project Emergency Coordinator and have ultimate authority in specifying and facilitating any contingency action during any potential emergencies when the *Contingency Plan*

is implemented.

The construction quality control representative will report directly to the quality assurance officer.

2.5 Sampling Representative: Sampling Technician

A sampling representative, supplemented as necessary by additional personnel, is to be on the work site at all times during the construction process. The sampling representative reports directly to the sampling quality assurance officer. Specific responsibilities of the sampling representative include:

- Set up and operation of the weather station.
- Daily recording of meteorological data.
- Daily calibration and operation of real time total volatile organic compound (VOCs), suspended particulate and speciated BTEX (benzene, toluene, ethylbenzene, and xylenes) monitoring equipment.
- Daily recording of real time air quality data. Informs project coordinator and on-site New York State Department of Health (NYSDOH) representatives when concentration of air contaminants approaches or exceeds action levels specified in the Work Plan. Submit at the end of the day real-time air quality data in an electronic format to Julia Kenney, NYSDOH at jmg07@health.state.ny.us, Mr. William Ports, NYSDEC at wfports@gw.dec.state.ny.us and Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.
- Daily calibration and operation of the portable gas chromatograph per guidelines specified in the *Quality Assurance Project Plan and Work Plan.* Compiling calibration and results data onto spreadsheets. E-mailing compiled data along with chromatograms to Sampling Quality Assurance Officer daily.
- Collection, packaging and shipment soil and water samples per

guidelines specified in the *QAPP and Work Plan*. Maintaining master log of all air, water and soil samples collected. Faxing copies of the chain of custody sheets to the Sampling Quality Assurance Officer daily. Tracking confirmation sample points and construct a map depicting confirmation sample point locations.

- Consultation with Sampling Quality Assurance Officer for all technical questions, problems, considerations, or requests for supplies or equipment.

- Consultation with Sampling Quality Assurance Officer for all technical questions, problems, considerations, or requests for supplies or equipment.

- Maintaining and organizing on-site field specialist equipment and supplies storage area.

- Performing the duties of Assistant Health & Safety Officer.

3.0 FIELD QUALITY CONTROL INSPECTIONS, TESTING, AND SAMPLING REQUIREMENTS

The definable features of work identified below are described in Section 4 of the Work Plan. This section of the CQAP describes the anticipated inspection, testing, and sampling requirements of these definable feature works.

3.1 Site Preparation

Elements of the site preparation, including clearing, grubbing, temporary fence installation, erosion control measures will be inspected as they occur *to* assure compliance with the *Work Plan*. Inspection of the siltation fence shall confirm that it's contiguous and its skirt is embedded along its length.

3.2 Equipment Set-up

All materials and equipment are designed to meet specific project needs. Each delivery of materials and/or equipment will be inspected upon arrival by the construction quality control representative and stored at a designated area of the site. Equipment will be set-up per the work plan design and drawings.

3.3 Staging of Materials

Material will be managed at the excavation area. Piles will be inspected a minimum of once per day to assure that covers are in place and intact, and standing water is removed from the liner as needed. Covers will be replaced as needed to prevent precipitation from contacting the material and dust from being generated by the material.

3.4 Loading of Material for Transportation

Staged products will be loaded with a rubber tired articulated wheel loader or excavator into dump trailers for transportation to permitted disposal facility. Polyethylene sheeting will be placed between the pile and the truck to retain any material spilled from the loader. The spilled material will be added back to the pile following completion of loading of each truck. The loading area will be visually inspected to confirm that material remains within the area and not tracked onto truck tires.

3.5 Excavation of Existing MGP Residue

Excavation activities will comply with Occupational Safety and Health Administration's (OSHA's), "Hazardous Waste Operations and Emergency Response" (29 CFR 1910.120) and Safety and Health Regulations for Construction - Excavations (29 CFR 1926 Subpart P). Excavation activities undertaken during the IRM will be in accordance with the *Remedial Action Design*. Limits of the excavation will be measured by the construction quality control representatives upon completion of the excavation for documentation drawings. Confirmation Sampling is covered in the *Quality Assurance Project Plan*.

3.6 Loading of Materials for Transportation

Materials will be loaded with an excavator into dump trailers for transportation to permitted disposal facility. Polyethylene sheeting will be placed between the stockpile or excavation and the truck to retain any material spilled. The spilled material will be added back to the excavation following completion of loading of each truck. The loading area will be visually inspected to confirm that material remains within the sheetpile containment wall.

3.7 In-Situ Stabilization of the utility corridor

All utility corridor stabilization activities and associated water treatment will be inspected to ensure that erosion and sedimentation control requirements are met, and that the requirements and intent of the following permits are met: NYSDEC Protection of Waters, and SPDES.

Requirements for pre-construction sampling and analysis within the utility corridor are covered in the *Pre-Remediation Sampling and Analysis Plan* (submitted under separate cover). Analytical testing requirements are established in Appendix L - Quality Assurance Project Plan.

In-situ solidification of the utility corridor will be observed for compliance with the RAD. The limits and depths of the solidified area will be measured and recorded for the Final Engineering Report. The disposition of any excess solidified soil will also be documented for the Final Engineering Report. Solidification mix components and performance criteria test sample locations/results will be recorded as noted below.

Cement and Additives: Delivery tickets and material certifications from the manufacturers will be obtained for each truckload to ensure compliance with job requirements.

Grout: Remedial Action Design (Section 4.7.4) indicates the grout mix parameters that will be tested twice per day.

Unconfined Compressive (UC) Strength: Remedial Action Design Section 4.7.4 indicates sample frequency and depths from which samples will be extracted, as well as noting that 7-day and 28-day strength measurements are required.

Permeability: Remedial Action Design Section 4.7.4 indicates the sample frequency and depths from which permeability tests will be conducted, as well as noting that 7-day and 28-day tests are required.

Bulk Density: The Remedial Action Design Section 4.7.4 indicates the methods and accuracy by which soil volume increase will be determined.

The required depth of solidification for stabilization of MGP impacted soil will be confirmed.

3.8 Site Restoration

Site restoration will be observed by the construction quality control representative. The excavation noted above will be backfilled as specified in the *Work Plan,* and the surface will match the specification in the *Remedial Action Design*. Clean imported fill material will be inspected upon arrival. Backfilling and compacting of the excavation will be observed and documented by the construction quality control representative. All liners will be removed and disposed. No stockpiles will remain on-site at the end of the project. All affected areas will be graded to match the specification in the *Remedial Action Design*. The finish surface will be as defined in the *Remedial Action Design*. Visual inspections will confirm that the site surfacing meets owner approval.

4.0 DOCUMENTATION AND REPORTING REQUIREMENTS FOR CQAP ACTIVITIES

The value of the *CQAP* will be assured by proper documentation techniques. The construction quality assurance plan inspection team will be guided by data sheets, schedules and checklists. The documentation of the inspection activities will facilitate the adherence to the design documents and maintain the level of reporting required by the parties involved in the project.

4.1 Daily Field Construction Report

A Daily Field Construction Report shall be prepared identifying work force and their labor hours, location, and description of work performed, lost time accidents, equipment left on job site, equipment/materials received and if applicable, submittal status, non-compliance notices received, errors and/or omission in plans and specifications, visitors to the job site, weather conditions and temperatures, and any other pertinent information. The Daily Field Construction Report will be submitted at the end of the week in an electronic format to Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

4.2 Transportation Log

A Transportation Log will remain in the field office to record all loads of solid or liquid waste that are transported off-site. The Transportation Log will be submitted at the end of the week in an electronic format to Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

4.3 Photographic Log

The photographic log is designed to document construction activities by still photos. Photographic log may also be used to photographically record activities recorded in a daily construction log or an as-built sketch log. The construction quality control representative will collect photographs.

4.4 Daily Field Construction Report

The construction quality control representative shall prepare a Daily Field Construction Report (DFCR) identifying work force and their labor hours, location and description of work performed, lost time accidents, equipment left on job site,

equipment/materials received and if applicable, submittal status, non-compliance notices received, errors and/or omission in plans and specifications, visitors to the job site, weather conditions and temperatures, and any other pertinent information.

4.5 Daily Community Air-monitoring Report

The Daily Community Air-monitoring Report is designed to document all sampling activities and how they correspond to the *Work Plan*. All observations, field and/or laboratory tests will be recorded on a daily sampling log. It is important to note recorded field observations may take the form of notes, charts, sketches, or photographs. The daily community air-monitoring report will be submitted at the end of each week in an electronic format to Julia Kenney, NYSDOH at jmg07@health.state.ny.us, Mr. William Ports, NYSDEC at wfports@gw.dec.state.ny.us and Mr. Tracy Blazicek, NYSEG project manager at tlblazicek@nyseg.com.

4.6 Master Sample Log

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

4.7 Chain-of-Custody

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

4.8 Waybill

A waybill receipt will be obtained at the time of accepted sample shipment by Federal Express or courier and will be attached to the Master Sample Log.

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

The above-mentioned report forms will be used to document any accident occurring on-site during the remedial project. The sheets are attached to the Health and Safety Plan and will be located in the field project trailer.

4.10 Variances to Work Plan

Required changes to the Work Plan will be processed through the use of a variance log. Approval form the NYSEG project manager is required to recommend a change to the Work Plan. An amendment to the Work Plan will be developed for acceptance and the approval by NYSDEC and NYSDOH.

4.11 Final Engineering Report

At the completion of the project the Project Manager/Construction Quality Assurance Officer will prepare and submit a Final Engineering Report to the NYSDEC. This report will include a summary of all of the Daily Field Construction Report's, Daily Community Air-monitoring Report's, Photographic Log, Sampling log, Material Disposition Log, and Variances to Work Plan. The Final Engineering Report will be signed and certified by a professional engineer that all activities that comprised in full accordance with NYSDEC approved Work Plan and the NYSDEC Order on Consent Index #DO-0002-9309.

APPENDIX G

BIOSOLVE® PRODUCT INFORMATION

MATERIAL SAFETY DATA SHEET

THE WESTFORD CHEMICAL CORPORATION®
P.O. Box 798
Westford, Massachusetts 01886 USA

Ref. No.: 2001
Date: 1/1/2008

Phone: (978) 392-0866/ (978) 392-0689
Alternate Phone: 1-866-838-3909
Emergency Phone-24 Hours: 1-800-225-3909
Fax: (978) 692-3487 / (978) 496-1108
Web Site: http://www.biosolve.com
E-Mail: info@biosolve.com

SECTION I - IDENTITY

Name:	BioSolve®
CAS #:	138757-63-8
Formula:	Proprietary
Chemical Family:	Water Based, Biodegradable, Wetting Agents & Surfactants
HMIS Code:	Health 1, Fire 0, Reactivity 0
HMIS Key:	4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight, 0 = Insignificant

SECTION II - HAZARDOUS INGREDIENTS

Massachusetts Right to Know Law or 29 C.F.R. (Code of Federal Regulations) 1910.1000 require listing of hazardous ingredients.

This product does not contain any hazardous ingredients as defined by CERCLA, Massachusetts Right to Know Law and California's Prop. 65.

DOT Class: Not Regulated/Non Hazardous

SECTION III - PHYSICAL - CHEMICAL CHARACTERISTICS

Boiling Point	: 265°F	Specific Gravity	: 1.00 +/-.01
Melting Point	: 32°F	Vapor Pressure mm/Hg	: Not Applicable
Surface Tension- 6% Solution	: 29.1 Dyne/cm at 25°C	Vapor Density Air = 1	: Not Applicable
Reactivity with Water	: No	Viscosity - Concentrate	: 490 Centipoise
Evaporation Rate	: >1 as compared to Water	Viscosity - 6% Solution	: 15 Centipoise
Appearance	: Clear Liquid unless Dyed	Solubility in Water	: Complete
Odor	: Pleasant Fragrance	pH	: 9.1+/-.3
Pounds per Gallon	: 8.38		

SECTION IV - FIRE AND EXPLOSION DATA

Special Fire Fighting Procedures	: None	Flammable Limit	: None
Unusual Fire and Explosion Hazards	: None	Auto Ignite Temperature	: None
Solvent for Clean-Up	: Water	Fire Extinguisher Media	: Not Applicable
Flash Point	: None		

SECTION V - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be taken in Handling and Storage: Use good normal hygiene.
Precautions to be taken in case of Spill or Leak -

Small spills, in an undiluted form, contain. Soak up with absorbent materials.
Large spills, in an undiluted form, dike and contain. Remove with vacuum truck or pump to storage/salvage vessel. Soak up residue with absorbent materials.

Waste Disposal Procedures -

Dispose in an approved disposal area or in a manner which complies with all local, provincial,
and federal regulations.

SECTION VI - HEALTH HAZARDS

Threshold Limit Values: Not applicable
Signs and Symptoms of Over Exposure-

Acute : Moderate eye irritation. Skin: Causes redness, edema, drying of skin.
Chronic: Pre-existing skin and eye disorders may be aggravated by contact with this product.

Medical Conditions Generally Aggravated by Exposure: Unknown
Carcinogen: No
Emergency First Aid Procedures -

Eyes: Flush thoroughly with water for 15 minutes. Get medical attention.
Skin: Remove contaminated clothing. Wash exposed areas with soap and water.
Wash clothing before reuse. Get medical attention if irritation develops.
Ingestion: Get medical attention.
Inhalation: None considered necessary.

SECTION VII - SPECIAL PROTECTION INFORMATION

Respiratory Protection	: Not necessary	Local Exhaust Required	: No
Ventilation Required	: Normal	Protective Clothing	: Gloves, safety glasses Wash clothing before reuse.

SECTION VIII - PHYSICAL HAZARDS

Stability	: Stable	Incompatible Substances	: None Known
Polymerization	: No	Hazardous Decomposition Products	: None Known

SECTION IX - TRANSPORT & STORAGE

DOT Class	: Not Regulated/Non Hazardous		
Freeze Temperature	: 28°F	Storage	: 35°F-120°F
Freeze Harm	: None (thaw & stir)	Shelf Life	: Unlimited Unopened

SECTION X - REGULATORY INFORMATION

The Information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application, which is not described on the Product label or in this Material Safety Data Sheet, is the sole responsibility of the user. This Material Safety Data Sheet was prepared to comply with the OSHA Hazardous Communication Regulation and Massachusetts Right to Know Law.

APPENDIX H

SHEETPILE EXCAVATION SUPPORT SYSTEM DESIGN
AND
TEMPORARY WATER TREATMENT SYSTEM DESIGN

NYSEG

NEW YORK STATE ELECTRIC & GAS CORPORATION

James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902-5224

Remedial Action Design

WATERTIGHT SHEETPILE EXCAVATION SUPPORT SYSTEM AND TEMPORARY WATER TREATMENT SYSTEM DESIGN

For Removal and Off-site Disposal of Coal Tar Impacted Soil

Associated With

Cortland-Homer
Former Manufactured Gas Plant Site
South Main Street
Village of Homer, Cortland County, New York

February 2008

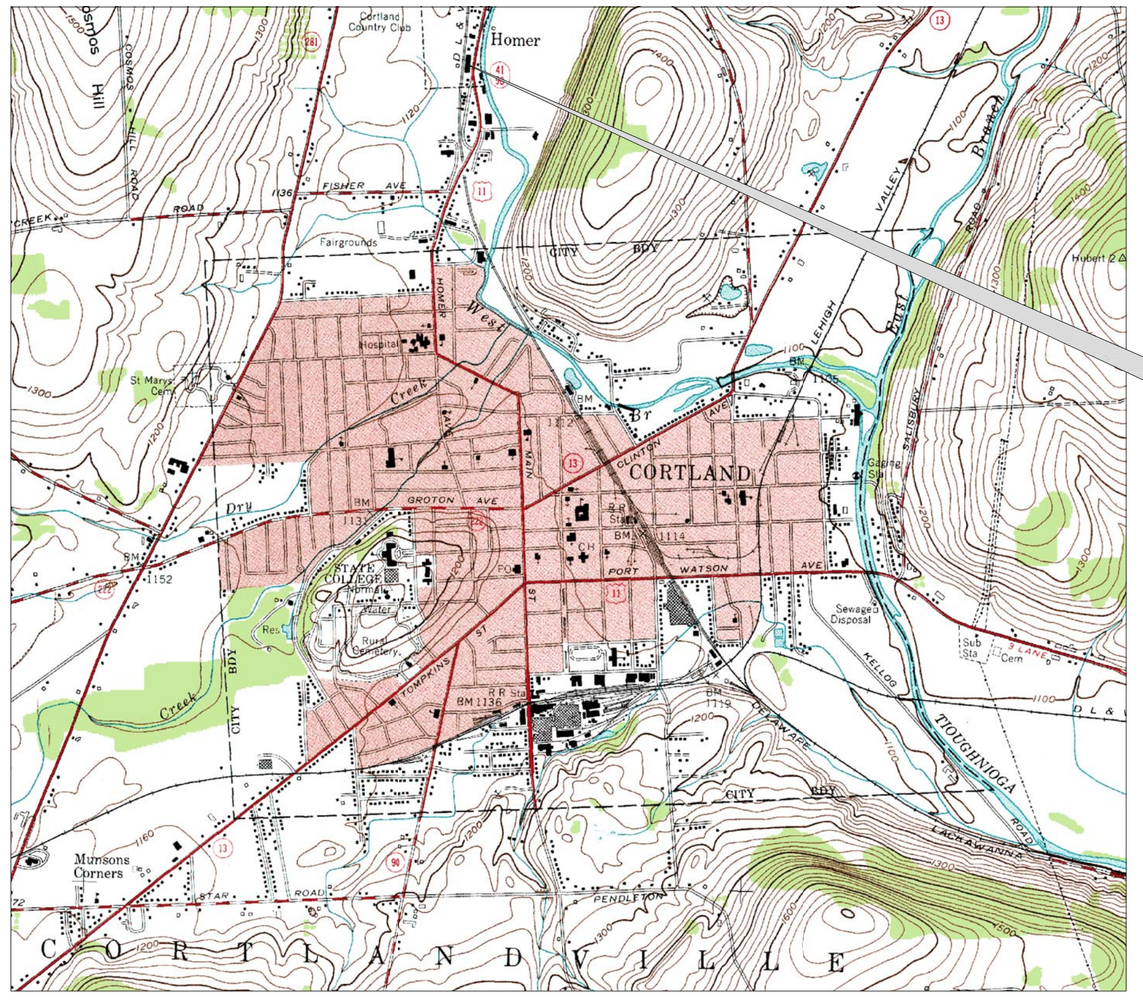
Prepared By:
Earth Tech, Inc.

For:
NYSEG Environmental Compliance
Site Investigation and Remediation

TABLE OF CONTENTS

NYSEG
REMEDIAL DESIGN FOR
FORMER CORTLAND-HOMER MGP SITE (OU-1)
HOMER, CORTLAND COUNTY, NEW YORK
MARCH 2008

INDEX OF DRAWINGS



SOURCE: USGS CORTLAND 7.5' SERIES QUADRANGLE

PROJECT LOCATION
Not To Scale

Prepared For:

NYSEG

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

Prepared By:

EarthTech
A Tyco International Ltd. Company
40 British American Blvd.
Latham, New York, 12110
(518) 951-2200

Carsten H. Floess, P.E. Date
NYSPE Lic. No. 061261

Scott A. Underhill, P.E. Date
NYSPE Lic. No. 075332

100% Design

FILE = L:\WORK\102050\CADD\102050_COV.DWG

GENERAL NOTES:

PROJECT LIMITS

PROJECT LIMITS ARE DEFINED AS THE AREA WITHIN THE CHAIN LINK SECURITY FENCING SHOWN ON THESE PLANS FOR BOTH EAST AND WEST OF SOUTH MAIN STREET / STATE ROUTE 11.

THESE LIMITS INCLUDE PORTIONS OF THE NYSDOT R.O.W. FOR SOUTH MAIN STREET / STATE ROUTE 11 , THE NEW YORK, SUSQUEHANNA, & WESTERN (NYS&W) RAILROAD R.O.W. AND A SEWER EASEMENT FOR THE VILLAGE OF HOMER 24" TRUNK SEWER, ALONG WITH ADDITIONAL UTILITIES AND STRUCTURES LOCATED WITHIN THESE EASEMENT LINES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MAINTAINING UNINTERRUPTED UTILITY SERVICES FOR THE DURATION OF THE PROJECT.

ANY DAMAGE OR DISTURBANCE TO EXISTING UTILITIES, RAILROAD TRACKS OR ACCESS ROADS, OR ROADWAY FEATURES SHALL BE REPAIRED IMMEDIATELY, TO THE SATISFACTION OF THE PROPERTY OWNER AND AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO NYSEG.

NYSDOT COORDINATION:

PROJECT LIMITS SHOWN ARE WITHIN THE NYSDOT R.O.W. FOR SOUTH MAIN STREET / STATE ROUTE 11. NO WORK SHALL BE PERFORMED IN THE R.O.W. WITHOUT PRIOR APPROVAL OF THE NYSDOT AND OF THE ENGINEER.

IT IS ANTICIPATED THAT THE CONTRACTOR WILL REQUIRE A SHOULDER CLOSURE TO BE INSTALLED ON THE SOUTH BOUND SHOULDER OF SOUTH MAIN STREET / STATE ROUTE 11. FOR THE DURATION OF THE EXCAVATION AND IN-SITU SOIL STABILIZATION WORK. A DETAILED TRAFFIC CONTROL PLAN FOR THIS SHOULDER CLOSURE AND FOR ANY OTHER WORK WITHIN THE NYSDOT R.O.W. AND/OR NEAR THE TRAVELING PUBLIC SHALL BE SUBMITTED TO THE ENGINEER FOR ACCEPTANCE PRIOR TO ANY WORK PERFORMED.

THE CONTRACTOR SHALL PROVIDE ALL MANPOWER AND MATERIALS IN ACCORDANCE WITH NYSDOT STANDARD SPECIFICATION ITEM 619.01- BASIC MAINTENANCE AND PROTECTION OF TRAFFIC, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR ANY WORK WITHIN THE NYSDOT R.O.W. AND/OR NEAR THE TRAVELING PUBLIC, AS DIRECTED BY THE ENGINEER. ITEMS INCLUDE BUT ARE NOT LIMITED TO: FLAG PERSONNEL, CONE, BARRELS, TEMPORARY CONCRETE BARRIER, CONSTRUCTION BARRICADES, LIGHTING FOR CONSTRUCTION BARRICADES, CONSTRUCTION SIGNS, TEMPORARY ADVANCED WARNING SIGNS (TRUCKS ENTERING).

RAILROAD COORDINATION:

PROJECT LIMITS SHOWN ARE IN CLOSE PROXIMITY TO THE THE NEW YORK, SUSQUEHANNA & WESTERN (NYS&W) RAILROAD TRACKS AND ASSOCIATED R.O.W. NO WORK SHALL BE PERFORMED WITHIN THE NYS&W R.O.W. WITHOUT PRIOR APPROVAL OF THE RAILROAD AND OF THE ENGINEER.

AT NO TIME WILL ANY PART OF THE CONTRACTORS EQUIPMENT AND/OR MATERIAL BE ALLOWED TO FOUL THE OPERATED TRACKS .

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ADDITIONAL COSTS FOR WORK WITHIN THE NYS&W R.O.W. AS REQUIRED BY THE RAILROAD. THESES COST SHALL INCLUDE, BUT ARE NOT LIMITED TO, SUPPLYING RAILROAD PERSONNEL (FLAG MAN) TO COORDINATE WORK WITH ONGOING TRAIN TRAFFIC.

VERIZON COORDINATION:

THE CONTRACTOR SHALL COORDINATE WITH VERIZON FOR THE CUTTING AND CAPPING OF THE EXISTING CONDUIT BANK IN THE LOCATION OF THE IN-SITU SOIL STABILIZATION AREA. NO EXCAVATION WORK SHALL BE PERFORMED IN THIS AREA WITHOUT PRIOR APPROVAL OF VERIZON AND OF THE ENGINEER.

THE CONTRACTOR SHALL NOTIFY VERIZON UPON COMPLETION OF THE IN-SITU SOIL STABILIZATION WORK AND BACKFILL IN THE AREA OF THE EXISTING UTILIIES AND PRIOR TO FINAL SITE RESTORATION IN THIS AREA FOR THE RE-INSTALLATION OF THE CONDUIT BANK BY VERIZON, OR THEIR APPOINTED INSTALLATION SUB-CONTRACTOR.

THE COTRACTOR SHALL BE RESPONSABLE FOR FINAL SITE RESTORATION, FOR ALL DISTURBED AREAS, UPON COMPLETION OF THE CONDUIT BANK RE-INSTALLATION.

VILLAGE OF HOMER COORDINATION:

THE CONTRACTOR SHALL NOTIFY THE VILLAGE OF HOMER 1 WEEK PRIOR PERFORMING ANY WORK IN OR NEAR TO THE VILLAGE OF HOMER SANITARY SEWER EASEMENT OR VILLAGE WATER UTILITIES. CONTRACTOR SHALL ALSO PROVIDE AT LEAST 1 WEEK NOTICE PRIOR TO START OF SHEET PILE INSTALLATION ADJACENT TO ANY OF THE VILLAGE OF HOMER UTILITIES.

GEOTECHNICAL NOTES:

GEOTECHNICAL ASSUMPTIONS & DESIGN PARAMETERS:

GEOTECHNICAL DESIGN PARAMETERS ARE BASED ON AVAILABLE TEST BORINGS: SB-1, SB-2, SB-3, SB-4, SB-5, SB-7, SB-12, SB-14, B-2, B-3, B-4, AND B-7. NO ADDITIONAL GEOTECHNICAL INVESTIGATION OR TESTING WAS PERFORMED.

BORINGS INDICATE THAT OVERBURDEN COMPRISES FILL OVER SAND AND GRAVEL, FOLLOWED BY SILT AND CLAY.

BORINGS EXTEND TO A MAXIMUM DEPTH OF 54 FEET, TERMINATING IN THE SILT AND CLAY. TOP OF ROCK WAS NOT ENCOUNTERED IN THE BORINGS.

THE FOLLOWING GEOTECHNICAL PARAMETERS WERE USED FOR DESIGN OF THE EXCAVATION SUPPORT SHEETPILING:

STRATUM	SPT BLOW COUNT BLOWS / FT		UNIT WEIGHT	SHEAR STRENGTH		INTERFACE FRICTION δ	DEPTH
	RANGE	MEDIAN	PCF	C PSF	Φ DEGREE	DEGREE	FEET
FILL	18-88	32	118	0	30 (1)	0	VARIES
SAND AND GRAVEL	35-77	46	118	0	30 (1)	0	UP TO 40' +/-
SILT AND CLAY	6-30	11	130	1400	0	0	UNKNOWN

NOTES: (1) DESIGN FRICTION ANGLE BASED ON GRANULAR BACKFILL MATERIAL IN ADJACENT EXCAVATION CELLS.

EXCAVATION ASSUMPTIONS:

LIMITS AND DEPTH OF EXCAVATION ARE BASED ON REMOVAL OF SOIL CONTAINING SVOC CONCENTRATATIONS > 1000 PPM.

THE MAXIMUM EXCAVATION DEPTH IS 40 FEET.

BACKFILL:

BACKFILL SHALL BE CLEAN AND FREE OF DEBRIS. THE MATERIAL SHALL HAVE A MAXIMUM OF 20 PERCENT PASSING THE #200(75 μm) SIEVE. THE MAXIMUM PARTICLE SIZE SHALL BE 12 INCHES. THE MATERIAL SHALL BE PLACED IN LIFTS OF NO MORE THAN 12 INCHES AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY (ASTM D 698).

GROUNDWATER ASSUMPTIONS:

GROUNDWATER DEPTH IS BASED ON AVAILABLE BORING LOGS.

THE DESIGN GROUNDWATER LEVEL IS AT A DEPTH OF 3 FEET BELOW EXISTING GRADE.

SURCHARGE ASSUMPTIONS:

AN EQUIPMENT SURCHARGE LOAD OF 500 PSF WAS INCLUDED IN THE DESIGN OF ALL SHEETPILE WALLS. THE EQUIPMENT SURCHARGE LOAD ACTS OVER AN AREA OF 15 FEET BY 30 FEET, IMMEDIATELY ADJACENT TO THE WALL.

A RAILROAD SURCHARGE LOAD CORRESPONDING TO COOPER E-80 LOADING WAS INCLUDED IN THE DESIGN.

STRUCTURAL NOTES:

SHEETPILE ASSUMPTIONS:

SHEETPILES WILL BE PROVIDED BY NYSEG.

SHEETPILES ARE AZ 48 SECTIONS, GRADE 50, 54-FOOT LENGTHS.

SHEETPILES EXTEND TO A MINIMUM DEPTH OF 54 FEET BELOW GROUND SURFACE.

STRUCTURAL NOTES:

SHEETPILE NOTES:

LOCATE EXISTING UTILITIES PRIOR TO INSTALLING SHEETPILES. SHALLOW UTILITIES IN CLOSE PROXIMITY TO PLANNED SHEETING SHALL BE CAREFULLY EXPOSED PRIOR TO DRIVING THE SHEET PILES. SHEETING SHALL BE LOCATED A MINIMUM OF 5 FEET FROM THE EDGE OF ACTIVE UNDERGROUND UTILITIES UNLESS APPROVED OTHERWISE BY NYSEG.

SHEETING SHALL BE LOCATED A MINIMUM OF 10 FEET FROM EXISTING STRUCTURES, INCLUDING THE EXISTING VERIZON BUILDING, UNLESS APPROVED OTHERWISE BY NYSEG.

EXCAVATE EXPLORATORY TEST PITS TO VERIFY LOCATIONS OF UTILITIES AND POTENTIAL INTERFERENCES. REMOVE INTERFERING PORTIONS OF HOLDERS, ABANDONED BUILDING FOUNDATIONS AND ANY OTHER OBSTRUCTIONS AS NECESSARY TO FACILITATE INSTALLATION OF THE SHEETPILES AND BRACING.

PREAUGER TO THE TOP OF THE SILT AND CLAY SOIL (APPROXIMATELY 40 FEET) ADJACENT TO THE STRUCTURES TO REMAIN AND ALONG THE EASTERLY COFFERDAM WALL (ALONG ROUTE 11). PREAUGERING IS REQUIRED AT ALL LOCATIONS WITHIN 25 FEET OF THE STRUCTURES TO REMAIN AND ANY UNDERGROUND UTILITY. DO NOT PREAUGER INTO THE SILT AND CLAY SOIL.

COBBLES, BOULDERS, AND OTHER OBSTRUCTIONS ARE ANTICIPATED IN THE FILL AND NATURAL GRANULAR SOILS. PRE-EXCAVATE, PREDRILL, AND/OR SPUD AS NECESSARY TO FACILITATE INSTALLATION OF SHEETPILES. PREDRILLING AND SPUDDING SHALL NOT EXTEND INTO THE SILT AND CLAY SOIL.

ALL SHEETPILES SHALL BE ASTM A 573, GRADE 50 (50 KSI). ALL SHEETPILES SHALL BE NEW OR LIKE-NEW CONDITION.

ALL SHEETING SHALL BE WATERTIGHT. SHEETPILE INTERLOCKS SHALL BE SEALED OVER THEIR FULL LENGTH USING DENEEF SWELLSEAL SHEETPILE INTERLOCK SEALANT, OR EQUIVALENT, AS APPROVED BY THE NYSEG. SEALANT SHALL BE INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S SPECIFICATIONS, PROCEDURES, AND RECOMMENDATIONS. DEFECTIVE OR DAMAGED SEALANT SHALL BE REMOVED FROM INTERLOCKS AND REPLACED. PROMPTLY SEAL ALL LEAKS THAT ARE OBSERVED AS EXCAVATION PROGRESSES USING METHODS ACCEPTABLE TO NYSEG. PREVENT SEALANT FROM SMOLDERING OR BURNING DURING HARD DRIVING. PROVIDE WATER SPRAY TO COOL SHEETPILES AS NECESSARY TO PREVENT OVERHEATING OF THE SEALANT.

ALL SHEETING SHALL BE BRACED USING INTERNAL WALES AND CORNER BRACING.

EXCAVATE TO A MAXIMUM OF 2 FEET BELOW THE INDICATED BRACE DEPTH TO FACILITATE INSTALLATION OF BRACING. EXCAVATION SHALL NOT EXTEND BELOW THIS LEVEL UNTIL THE BRACING IS INSTALLED.

ALL SHEETPILES SHALL BE IN DIRECT CONTACT WITH WALES. INSTALL TIGHT BLOCKING USING HARDWOOD WEDGES OR STEEL SHIMS AS INDICATED AND AS NECESSARY. SOFTWOOD BLOCKING SHALL NOT BE USED. THE INTENT IS TO PROVIDE A STIFF EXCAVATION SUPPORT SYSTEM AND TO MINIMIZE LATERAL DEFLECTION.

STRUCTURAL STEEL NOTES:

ALL STRUCTURAL STEEL HAS BEEN DESIGNED IN ACCORDANCE WITH AISC MANUAL OF STEEL CONSTRUCTION (ALLOWABLE STRESS DESIGN) 13TH EDITION.

ALL STRUCTURAL STEEL (WALERS, BRACING) SHALL BE ASTM A 572 OR ASTM A992, GRADE 50, WITH A MINIMUM YIELD STRENGTH OF 50 KSI.

ALL STRUCTURAL STEEL SHALL BE NEW OR LIKE-NEW CONDITION, FREE OF DIRT, GREASE, RUST, MILL SCALE, OR OTHER FOREIGN MATERIALS.

ALL WELDING ELECTRODES SHALL BE E70XX

ALL BOLTS SHALL BE ASTM A325 WITH ASTM A563 NUTS AND ASTM F 436 WASHERS. WASHERS SHALL BE PLACED ON THE NUT SIDE OF THE BOLT.

BOLT SPACING SHALL BE AS INDICATED ON THE DRAWINGS. THE MINIMUM EDGE DISTANCE SHALL BE 1½"

SITE NOTES:

SITE LAYOUT:

THE CONTRACTORS ATTENTION IS DIRECTED TO THE FACT THAT THERE IS LIMITED SPACE AVAILABLE WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ENGINEER FOR APPROVAL, A DETAILED SITE LAYOUT PLAN FOR EACH PHASE OF WORK. EACH PLAN SHALL SHOW ITEMS INCLUDING BUT NOT LIMITED TO; CURRENT PHASE EXCAVATION AREA(S), SITE ACCESS ROUTES, SOIL STOCKPILING AREA, MATERIAL STAGING AREA(S), ON SITE TRUCKING ROUTES, OFF SITE TRUCKING ROUTES AND DECONTAMINATION AREAS, LOCATION OF EXCAVATION SUMPS AND GROUNDWATER PUMPING ROUTES, ANY OTHER MATERIAL PROCESSING EQUIPMENT. EACH OF THESE REQUIRED PLANS SHALL APPROVED BY THE ENGINEER PRIOR TO THE START OF EXCAVATION FOR THAT PHASE.

SEQUENCE OF WORK:

WORK SHALL BEGIN IN THE CELLS IN PHASES 2, 3, AND 4. CELLS IN PHASES 1 AND 5 SHALL BE CONSTRUCTED ONLY AFTER THE SUCCESSFUL COMPLETION OF AT LEAST ONE OTHER CELL. THE INTENT IS TO EVALUATE POTENTIAL DRIVING, VIBRATION, AND OTHER ISSUES PRIOR TO CONSTRUCTION ADJACENT TO STRUCTURES WHICH ARE TO REMAIN. IF NECESSARY, MODIFY CONSTRUCTION PROCEDURES AND EQUIPMENT TO MINIMIZE RISK OF DAMAGE TO THE STRUCTURES TO REMAIN, AS APPROVED BY NYSEG.

INSTALL PERIMETER SHEETING COMPLETELY AROUND EACH CELL, USING PREFABRICATED CORNER SECTIONS TO CREATE A CONTINUOUS WATERTIGHT CUTOFF.

REMOVE EXISTING SUBSTRUCTURES, HOLDER SLABS, AND OTHER OBSTRUCTIONS AS NECESSARY TO INSTALL SHEETING AND BRACING.

EXCAVATE INDIVIDUAL SUBCELLS (E.G., SUBCELL 2B) ONE AT A TIME.

SUBCELLS SHALL BE BACKFILLED AS SOON AS PRACTICABLE AFTER COMPLETION OF EXCAVATION. THE INTENT IS TO MINIMIZE THE TIME THAT EXCAVATIONS ARE OPEN TO FINAL GRADE.

EXCAVATION OF AN ADJACENT SUBCELL (I.E., ONE WITH A COMMON WALL) SHALL NOT BEGIN UNTIL THE NEIGHBORING SUBCELL IS COMPLETELY BACKFILLED TO FORMER GRADE.

THE CONTRACTOR MAY ELECT TO WORK IN MULTIPLE CELLS SIMULTANEOUSLY, PROVIDED THAT THESE CELLS DO NOT HAVE A COMMON WALL (E.G., CELLS 1B AND 4A)

DEWATERING:

INSTALL DEWATERING SUMP(S) WITHIN THE EXCAVATION CELL AND PUMP TO DRAWDOWN THE GROUNDWATER LEVEL.

GROUNDWATER LEVEL IN THE EXCAVATION CELL SHALL BE AT LEAST 3 FEET BELOW EXCAVATION SUBGRADE LEVEL AT ALL TIMES.

TO THE EXTENT PRACTICABLE, LOCATE AT LEAST ONE SUMP WHERE THE SILT AND CLAY LAYER IS JUDGED TO BE DEEPEST.

WEATHER CONDITIONS:

WEATHER CONDITIONS SHALL BE MONITORED AT ALL TIMES. IN THE EVENT THAT SEVERE WEATHER CONDITIONS (I.E., HEAVY RAINFALL, RAPID SNOWMELT, FLOODING) ARE ANTICIPATED, AND FOR WHICH GROUNDWATER LEVELS MAY EXCEED DESIGN ASSUMPTIONS, EQUIPMENT SHALL NOT BE POSITIONED OR OPERATED IMMEDIATELY ADJACENT TO CELLS THAT ARE PARTIALLY OR COMPLETELY EXCAVATED. THE INTENT IS TO TEMPORARILY REMOVE EQUIPMENT SURCHARGE LOADS DURING UNUSUALLY HIGH GROUNDWATER CONDITIONS.

CONSTRUCTION MONITORING:

SETTLEMENT:

a. ESTABLISH OPTICAL SURVEY ELEVATION POINTS ON ADJACENT STRUCTURES AND FACILITIES PRIOR TO THE START OF WORK:
b. 3 POINTS MINIMUM ON VERIZON BUILDING
c. 3 POINTS MINIMUM ON GROCERY STORE
d. 8 POINTS MINIMUM ON NEAREST RAIL OF THE RAILROAD (50' SPACING ±)
e. 8 POINTS MINIMUM ON CURB LINE ALONG ROUTE 11 (50' SPACING ±)
f. SURVEY ELEVATIONS OF MONITORING POINTS A MINIMUM OF 3 TIMES PRIOR TO THE START OF CONSTRUCTION TO ESTABLISH A BASELINE.
g. MEASURE SURVEY POINTS WEEKLY WHILE DRIVING SHEETPILES.
h. MEASURE SURVEY POINTS WEEKLY DURING EXCAVATION AND BACKFILL OPERATIONS.
i. TABULATE MONITORING DATA AND PROVIDE SUMMARY TO NYSEG ON A WEEKLY BASIS.

CONSTRUCTION MONITORING (CON'T):

VIBRATION:

a. MONITOR VIBRATIONS AT THE VERIZON BUILDING AND GROCERY STORE DUE TO TRAIN TRAFFIC AND TRUCK TRAFFIC ON ROUTE 11 TO PROVIDE AMBIENT VIBRATION DATA.
b. MONITOR VIBRATIONS WHILE DRIVING SHEETPILES WITHIN 50 FEET OF THE STRUCTURES TO REMAIN. POSITION SEISMOGRAPH AT POINT NEAREST PILE DRIVING OPERATIONS.
c. MONITOR VIBRATIONS ABOVE THE UNDERGROUND UTILITIES ALONG ROUTE 11 DUE TO TRUCK TRAFFIC TO PROVIDE AMBIENT VIBRATION DATA.
d. MONITOR VIBRATIONS ABOVE THE UNDERGROUND UTILITIES ALONG ROUTE 11 WHILE DRIVING SHEETPILES WITHIN 50 FEET OF THESE LINES. POSITION SEISMOGRAPH AT POINT NEAREST PILE DRIVING OPERATIONS.
e. TABULATE MONITORING DATA AND PROVIDE SUMMARY TO NYSEG ON A WEEKLY BASIS.

LATERAL DEFLECTION:

a. MONITOR LATERAL DEFLECTION OF THE SHEETPILE WALL DURING EXCAVATION AND BACKFILL. USE SHAPEACCELARRAY (SAA) MANUFACTURED BY MEASURED, INC.., FREDRICKTON, NEW BRUNSWICK, CANADA. USE "FIELD ARRAYS," REFERRED TO AS SAAF. INSTALL ALONG THE FULL LENGTH OF THE SHEETPILE WALL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, USING A 1-INCH DIAMETER PIPE WELDED TO THE SHEETPILE.
b. MONITOR WALL DEFLECTION ON THE SIDE OF THE CELL CLOSEST TO A STRUCTURE, THE RAILROAD, OR UNDERGROUND UTILITIES.
c. RECORD DATA DAILY DURING EXCAVATION AND BACKFILL OPERATIONS.
d. TABULATE MONITORING DATA AND PROVIDE SUMMARY TO NYSEG ON A WEEKLY BASIS.

WATER MAIN INSTALLATION NOTES:

EXISTING 6 NPS DUCTILE IRON WATER MAIN TO BE EXCAVATED, CUT, PLUGGED, CAPPED AND BACKFILLED AT THE APPROXIMATE LOCATIONS SHOWN ON THE PLANS. EXACT LIMITS OF WATER MAIN REMOVAL AND REPLACEMENT TO BE DETERMINED BY PRE-REMEDATION SAMPLING AND ANALYSIS REPORT.

WATER MAIN CAPS SHALL PROVIDE NO WATER LEAKAGE AT FULL OPERATING PRESSURE. WATER MAIN CAPS SHALL BE TESTED FOR LEAKAGE PRIOR TO BACKFILLING. CARE SHALL BE TAKEN NOT TO DISTURB THE PORTION(S) OF THE EXISTING WATER MAIN TO REMAIN.

THE CONTRACTOR SHALL CHOOSE A TIME TO COMPLETE THE CUTTING AND CAPPING WORK AS TO NOT DISTURB EXISTING WATER SERVICES. IF THIS CAN NOT BE ACHIEVED, THE CONTRACTOR SHALL SUPPLY A TEMPORARY WATER SERVICE TO EXISTING CUSTOMERS. TEMPORARY WATER SERVICES SHALL BE PROVIDED BY MEANS OF A WET TAP OR OTHER METHOD(S) APPROVED BY THE ENGINEER. ALL TEMPORARY WORK SHALL BE BACKFILLED IN CONFORMANCE WITH ITEM 663 OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) STANDARD SPECIFICATIONS.

EXISTING VALVES AND HYDRANTS, SHALL BE CAREFULLY REMOVED, STORED AND RETURNED TO THE VILLAGE OF HOMER FOR REFURBISHING AS THEY SEE FIT.

THE CONTRACTOR SHALL PROVIDE NEW, UNUSED, 6 NPS DUCTILE IRON WATER MAIN, VALVES, VALVE BOXES, HYDRANTS, HYDRANT ASSEMBLIES AND CUSTOMER SERVICES.

NEW 6 NPS DUCTILE IRON WATER MAIN, VALVES, VALVE BOXES, HYDRANTS, HYDRANT ASSEMBLIES AND SERVICES TO REMAIN, SHALL BE INSTALLED IN THE APPROXIMATE LOCATION AS THE EXISTING WATER MAIN, VALVES, VALVE BOXES, HYDRANTS AND SERVICES.

NEW 6 NPS DUCTILE IRON WATER MAIN AND ALL ASSOCIATED APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE NYSDOT STANDARD SPECIFICATIONS ITEM 663.

SPECIAL VILLAGE OF HOMER REQUIREMENTS FOR WATER MAIN MATERIALS CAN BE FOUND IN APPENDIX M "OWNER REQUIREMENTS FOR WATER MAINS AND APPURTENANCES"

NO SUBSTITUTION OF THESE LISTED MATERIALS WILL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE VILLAGE OF HOMER AND OF THE ENGINEER.

THRUST BLOCKS AND MECHANICAL RESTRAINTS SHALL BE REQUIRED FOR ALL WATER MAIN BENDS.

UPON COMPLETION OF ALL WATER SUPPLY RELATED CONSTRUCTION, ALL MAINS, VALVES, HYDRANTS AND OTHER APPURTENANCES SHALL BE HYDROSTATICLY TESTED. TESTING SHALL BE IN CONFORMANCE WITH AWWA C-600 WITH THE MAINS THOROUGHLY FLUSHED PRIOR TO TESTING.

UPON COMPLETION OF ALL WATER SUPPLY RELATED CONSTRUCTION, ALL MAINS, VALVES, HYDRANTS AND OTHER APPURTENANCES SHALL BE DISINFECTED, FLUSHED AND TESTED FOR BACTERIOLOGICAL QUALITY IN ACCORDANCE WITH AWWA C-6551.

REFER TO NYSDOT STANDARD SHEET M663-1 THROUGH M663-6 FOR ADDITIONAL DETAILS AND NOTES.

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NYSEG - REMEDIAL DESIGN FOR
FORMER CORTLAND-HOMER MGP SITE (OU-1)
HOMER, NEW YORK

GENERAL NOTES

DATE MARCH 2008
PROJECT NO 102050
FILENAME 102050
SHEET NO 2
DRAWING NO **02**

FILE = L:\WORK\102050\CADD\...\NYSEG-HOMER-DESIGN.DWG

MKR-05-0765

MKR-2364

MKR-05-0762

MKR-2365

MKR-2366

GRAVEL PARKING

GROCERY STORE

4415

PAVED PARKING

STORAGE BARN

4419

DRY WELL

PAVED

SEWER CLEANOUT

FORMER GASS HOLDER CONCRETE BASE (LOCATIONS APPROXIMATE)

I.D. BOOTH

DOWN SPOUT

216

VERIZON

FORMER BUILING / FOUNDATION (TYP.) (LOCATION APPROXIMATE)

PAVED

HOMER AVENUE

SOUTH MAIN STREET/U. S. ROUTE 11

PAVEMENT

GATE

GRAVEL

217A

NYSEG

217

CTL-3

PARKING

215

4408

PARKING

SAT DISH

VAULT 1

PAVED PARKING

FLOW

WEST BRANCH TIOUGHNIOGA RIVER

MAPPING REFERENCE:

1. BASE MAPPING, INCLUDING EXISTING UTILITY INFORMATION, PROVIDED NEW YORK STATE ELECTRIC & GAS (NYSE&G)

2. FORMER SITE OPERATIONS FEATURES TAKEN FROM A PLAN TITLED "NYSEG - CORTLAND/HOMER FORMER MGP SRI, FIGURE 2-3 COAL GASIFICATION PLANT CIRCA 1920, BY STEARNS AND WHELER COMPANIES, DATED MAR 02. ITEMS DIGITIZED AND THEIR LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.

LEGEND

- SOILS CONTAINING TOTAL SVOC'S ABOVE RECOMMENDED CLEAN-UP OBJECTIVES (TAGM 4046) (FROM URS FEASIBILITY STUDY,EXTENT OF SOIL CONTAMINATION, FIGURE 6)
- FORMER SITE OPERATIONS FEATURE
- CB — CATCH BASIN
- MH — EXISTING SANITARY MANHOLE
- TEST STATION
- CONTROL POINT
- TELEPHONE MARKER
- TELEPHONE MANHOLE
- IRON PIN
- GV — GAS VALVE
- WV — WATER VALVE
- UTILITY POLE (CARRYING OVERHEAD UTILITIES, NOT SHOWN)
- LIGHT

N

0' 15' 30' 60'

SCALE

FILE = L:\WORK\102050\CADD\...\NYSEG-HOMER-DESIGN.DWG

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EXISTING CONDITIONS PLAN

DATE	MARCH 2008
PROJECT NO	102050
FILENAME	102050
SHEET NO	3
DRAWING NO	03

GROCERY STORE
(BUILDING TO REMAIN)

STORAGE BARN
(PREVIOUSLY REMOVED
TO TOP OF ASPHALT
WEARING SURFACE)

I.D. BOOTH BUILDING
(PORTION PREVIOUSLY
REMOVED TO TOP OF EXISTING
CONCRETE SLAB)

MKR-05-0765
MKR-2364
MKR-05-0762
MKR-2365
MKR-2366
304.2 LF (AZ48)
121.9 LF (AZ48)
14.0 FT. +/-
4419
4415
4408
215
216
GRAVEL PARKING
PAVED PARKING
INTERIOR SHEET PILE (AZ48) PHASE DIVIDER (TYP.)
EXTERIOR SHEET PILE (AZ48)
LOCATION OF NEW EXTERIOR WALL
CONCRETE BASE
CONCRETE BASE
59'-3½" (TYP.)
10'-0"
20 FT. (MIN.)
60'-0" (TYP.)
VERIZON
(BUILDING PORTION TO REMAIN)
ACCESS GATE
ACCESS GATE
ACCESS GATE
ACCESS GATE
CONCRETE BASES TO BE REMOVED PRIOR TO CELL CONTRUCTION AND DEEP CELL EXCAVATION (LOCATIONS SHOWN ARE APPROXIMATE)
TEMPORARY TRAFFIC CONTROL MEASURES (SEE DWG. 6 FOR INFORMATION)
TEMPORARY CHAIN LINK SECURITY FENCE (TYP.)
HOMER AVENUE
SOUTH MAIN STREET/U. S. ROUTE 11
PAVEMENT
PAVED PARKING
PARKING
PORTABLE TOILET
GATE
GRAVEL
OFFICE TRAILER
OFFICE TRAILER
NYSEG
FRAC TANK
FRAC TANK
FRAC TANK
FRAC TANK
FRAC TANK
UNDERGROUND PIPING DIRECTIONALLY DRILLED UNDER ROADWAY TO TEMPORARY WATER TREATMENT SYSTEM
TL-3
SAT DISH
VAULT 1
OUTFALL PIPING TO STREAM
WATER TREATMENT PLANT
TEMPORARY CHAIN LINK SECURITY FENCE (TYP.)
MH
SAN
GV
W
CB
T
1114'
1113'
1112'
1111'
1115'
1110'
1109'
1108'

NOTES:

1. BUILDINGS LABELED AS "PREVIOUSLY REMOVED" TO BE REMOVED UNDER A SEPARATE CONTRACT.

2. EXISTING FLOOR SLABS, WEARING SURFACES, FOUNDATION AND OTHER BURIED ITEMS FROM PREVIOUS STRUCTURES, SHOWN OR NOT SHOWN, TO BE REMOVED AND DISPOSED OF UNDER THIS CONTRACT.

3. IN-SITU STABILIZATION AREA SHOWN TO BE INSTALLED IN THE AREA OF EXISTING UTILITIES.SEE DETAILS DWG. 06.

4. FOR INFORMATION ON EXISTING UNDERGROUND UTILITIES SEE DWG. 05.

5. FOR SHEETPILE PHASE LAYOUT INFORMATION SEE DWG. 07.

6. FOR SHEETPILE BRACING AND CONNECTION DETAILS SEE DWG. 08.

MAPPING REFERENCE:

1. BASE MAPPING, INCLUDING EXISTING UTILITY INFORMATION, PROVIDED NEW YORK STATE ELECTRIC & GAS (NYSE&G)

2. ADDITIONAL EXISTING SANITARY SEWER INFORMATION, INCLUDING R.O.W. AND EASEMENT INFORMATION TAKEN FROM A PLAN TITLED " VILLAGE OF HOMER, NEW YORK, SANITARY SEWER CONSTRUCTION, 24" TRUNK SEWER, SOUTH MAIN STREET, DATE LAST REVISED 5/18/1971, BY STEARNS AND WHEELER, CAZENOVIA, NY.

LEGEND

- SOILS CONTAINING TOTAL SVOC'S ABOVE RECOMMENDED CLEAN-UP OBJECTIVES (TAGM 4046) (FROM URS FEASIBILITY STUDY,EXTENT OF SOIL CONTAMINATION, FIGURE 6)
- CHAIN LINK SECURITY FENCE
- CB CATCH BASIN
- MH EXISTING SANITARY MANHOLE
- TEST STATION
- CONTROL POINT
- TELEPHONE MARKER
- T TELEPHONE MANHOLE
- IRON PIN
- GV GAS VALVE
- WV WATER VALVE
- UTILITY POLE (CARRYING OVERHEAD UTILITIES, NOT SHOWN)
- LIGHT

0' 15' 30' 60'
SCALE

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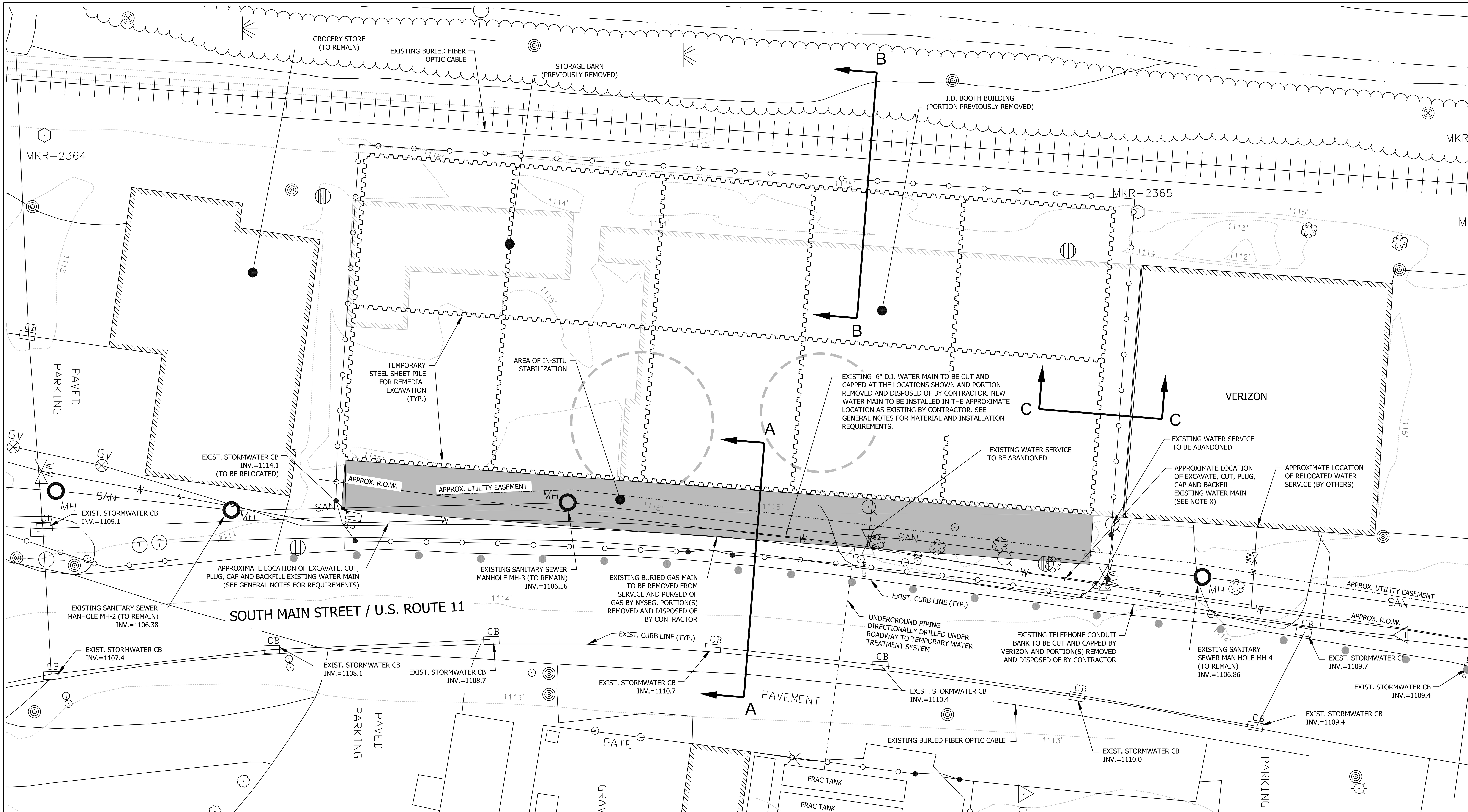
HOMER, NEW YORK

PROPOSED SITE LAYOUT

DATE MARCH 2008
PROJECT NO 102050
FILENAME 102050
SHEET NO 4
DRAWING NO **04**

FILE = L:\WORK\102050\CADD\...\NYSEG-HOMER-DESIGN.DWG



GROCERY STORE (TO REMAIN)
EXISTING BURIED FIBER OPTIC CABLE
STORAGE BARN (PREVIOUSLY REMOVED)
I.D. BOOTH BUILDING (PORTION PREVIOUSLY REMOVED)
MKR-2364
MKR-2365
PAVED PARKING
TEMPORARY STEEL SHEET PILE FOR REMEDIAL EXCAVATION (TYP.)
AREA OF IN-SITU STABILIZATION
EXISTING 6" D.I. WATER MAIN TO BE CUT AND CAPPED AT THE LOCATIONS SHOWN AND PORTION REMOVED AND DISPOSED OF BY CONTRACTOR. NEW WATER MAIN TO BE INSTALLED IN THE APPROXIMATE LOCATION AS EXISTING BY CONTRACTOR. SEE GENERAL NOTES FOR MATERIAL AND INSTALLATION REQUIREMENTS.
VERIZON
EXISTING WATER SERVICE TO BE ABANDONED
APPROXIMATE LOCATION OF EXCAVATE, CUT, PLUG, CAP AND BACKFILL EXISTING WATER MAIN (SEE NOTE X)
APPROXIMATE LOCATION OF RELOCATED WATER SERVICE (BY OTHERS)
EXIST. STORMWATER CB INV.=1114.1 (TO BE RELOCATED)
APPROX. R.O.W.
APPROX. UTILITY EASEMENT
EXIST. STORMWATER CB INV.=1109.1
APPROXIMATE LOCATION OF EXCAVATE, CUT, PLUG, CAP AND BACKFILL EXISTING WATER MAIN (SEE GENERAL NOTES FOR REQUIREMENTS)
EXISTING SANITARY SEWER MANHOLE MH-3 (TO REMAIN) INV.=1106.56
EXISTING BURIED GAS MAIN TO BE REMOVED FROM SERVICE AND PURGED OF GAS BY NYSEG. PORTION(S) REMOVED AND DISPOSED OF BY CONTRACTOR
EXIST. CURB LINE (TYP.)
UNDERGROUND PIPING DIRECTIONALLY DRILLED UNDER ROADWAY TO TEMPORARY WATER TREATMENT SYSTEM
EXISTING TELEPHONE CONDUIT BANK TO BE CUT AND CAPPED BY VERIZON AND PORTION(S) REMOVED AND DISPOSED OF BY CONTRACTOR
EXISTING SANITARY SEWER MAN HOLE MH-4 (TO REMAIN) INV.=1106.86
EXISTING SANITARY SEWER MANHOLE MH-2 (TO REMAIN) INV.=1106.38
SOUTH MAIN STREET / U.S. ROUTE 11
EXIST. STORMWATER CB INV.=1107.4
EXIST. STORMWATER CB INV.=1108.1
EXIST. STORMWATER CB INV.=1108.7
EXIST. STORMWATER CB INV.=1110.7
EXIST. STORMWATER CB INV.=1110.4
EXIST. STORMWATER CB INV.=1110.0
EXIST. STORMWATER CB INV.=1109.7
EXIST. STORMWATER CB INV.=1109.4
EXISTING BURIED FIBER OPTIC CABLE
PAVEMENT
GATE
FRAC TANK
FRAC TANK
PARKING

NOTES:

1. BUILDINGS LABELED AS "PREVIOUSLY REMOVED" TO BE REMOVED UNDER A SEPARATE CONTRACT.

2. IN-SITU STABILIZATION AREA SHOWN TO BE INSTALLED IN THE AREA OF EXISTING UTILITIES, SEE DETAILS DWG. 06.

3. UTILITIES LOCATIONS SHOWN ARE APPROXIMATE. ALL UTILITIES, SHOWN OR NOT SHOWN, SHALL BE LOCATED AND FIELD VERIFIED PRIOR TO ANY WORK PERFORMED.

4. FOR SECTIONS A-A, B - B & C - C, SEE DWG 06.

5. FOR INFORMATION ON REMEDIAL SITE LAYOUT FEATURES, SEE DWG. 04.

6. FOR SHEETPILE PHASE LAYOUT INFORMATION, SEE DWG. 07.

7. FOR SHEETPILE BRACING AND CONNECTION DETAILS, SEE DWG. 08.

8. EXACT LIMITS OF WATER MAIN REMOVAL AND REPLACEMENT TO BE DETERMINED BY PRE-REMEDIATION SAMPLING AND ANALYSIS REPORT.SEE GENERAL NOTES, DWG. 02 FOR MATERIAL AND INSTALLATION REQUIREMENTS.

MAPPING REFERENCE:

1. BASE MAPPING, INCLUDING EXISTING UTILITY INFORMATION, PROVIDED NEW YORK STATE ELECTRIC & GAS (NYSE&G)

2. ADDITIONAL EXISTING SANITARY SEWER INFORMATION, INCLUDING R.O.W. AND EASEMENT INFORMATION TAKEN FROM A PLAN TITLED " VILLAGE OF HOMER, NEW YORK, SANITARY SEWER CONSTRUCTION, 24" TRUNK SEWER, SOUTH MAIN STREET, DATE LAST REVISED 5/18/1971, BY STEARNS AND WHEELER, CAZENOVIA, NY.

LEGEND

CB	CATCH BASIN	TELEPHONE MARKER	WATER VALVE (WV)
MH	EXISTING SANITARY MANHOLE	TELEPHONE MANHOLE	UTILITY POLE (CARRYING OVERHEAD UTILITIES, NOT SHOWN)
	TEST STATION	IRON PIN	LIGHT
	CONTROL POINT	GAS VALVE (GV)	

SCALE 0' 10' 20' 40'

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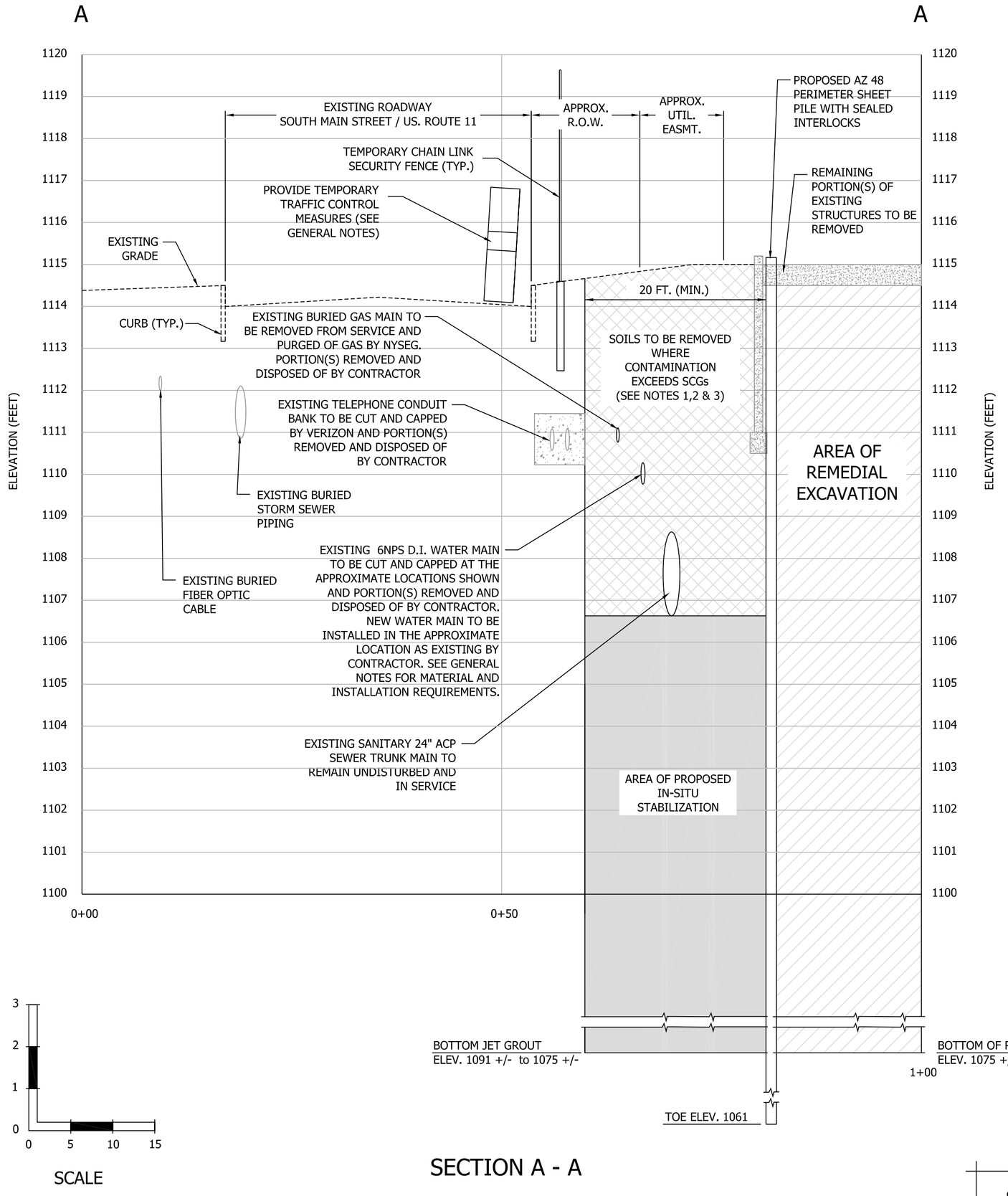
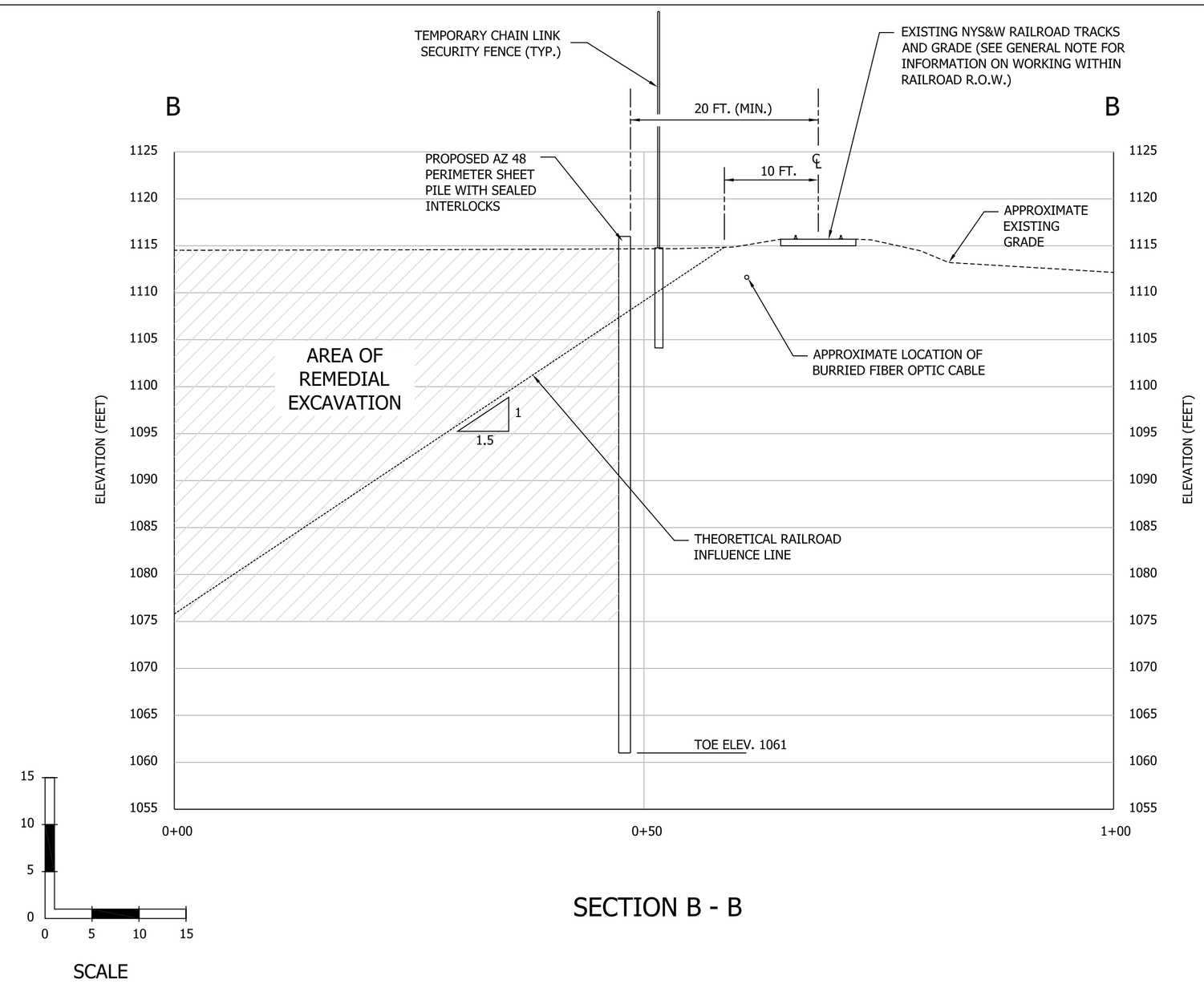
EXISTING UTILITY PLAN

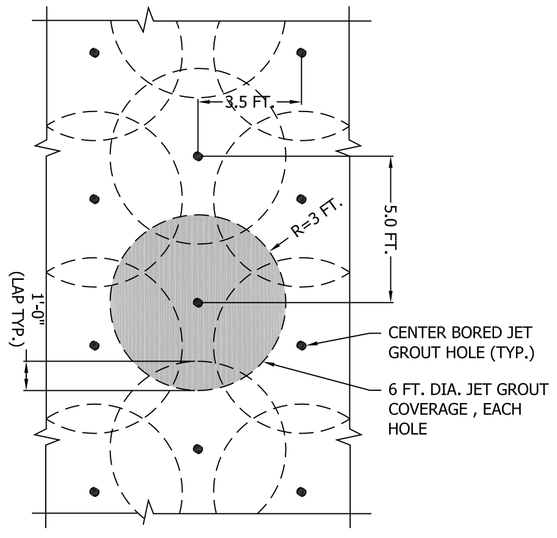
DATE	MARCH 2008
PROJECT NO	102050
FILENAME	102050
SHEET NO	5
DRAWING NO	05



SECTION A - A

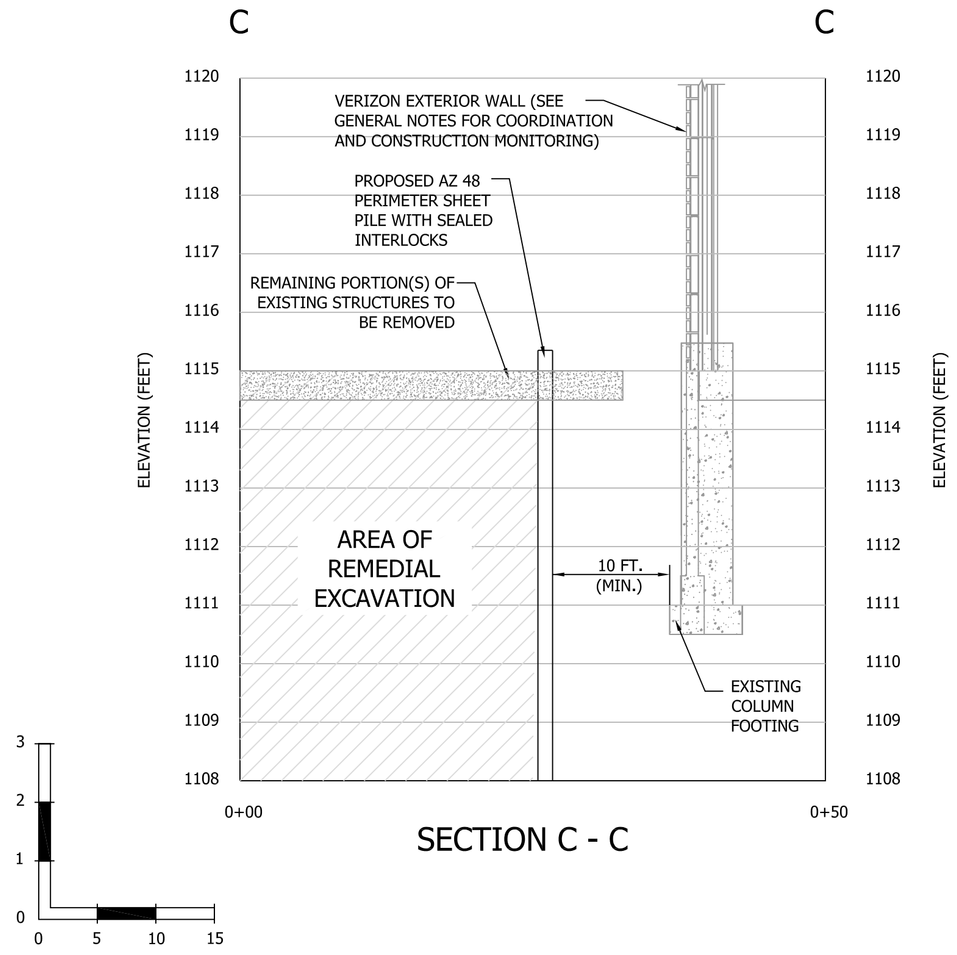


SECTION B - B



IN-SITU SOIL STABILIZATION DETAIL

NOT TO SCALE



SECTION C - C

NOTES:

1. CONTRACTOR TO EXCAVATE AREA AS NOTED USING TRADITIONAL SHORING METHODS. SHORING SHALL BE OF SIZE AND TYPE TO ALLOW IN-SITU SOIL STABILIZATION AND BACKFILL WORK TO OCCUR CONCURRENTLY ALONG ITS LENGTH IN A SAFE MANNER AND WITH NO INTERRUPTION TO UTILITY SERVICES THAT ARE TO REMAIN.

2. SHORING SYSTEM(S) SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO ANY WORK PERFORMED.

3. EXCAVATED AREA SHALL BE BACKFILLED IN THE SAME MANNER AS THE REMEDIAL EXCAVATION AREA (SEE GENERAL NOTES - DWG. 2).

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SECTIONS AND IN-SITU SOIL STABILIZATION DETAIL

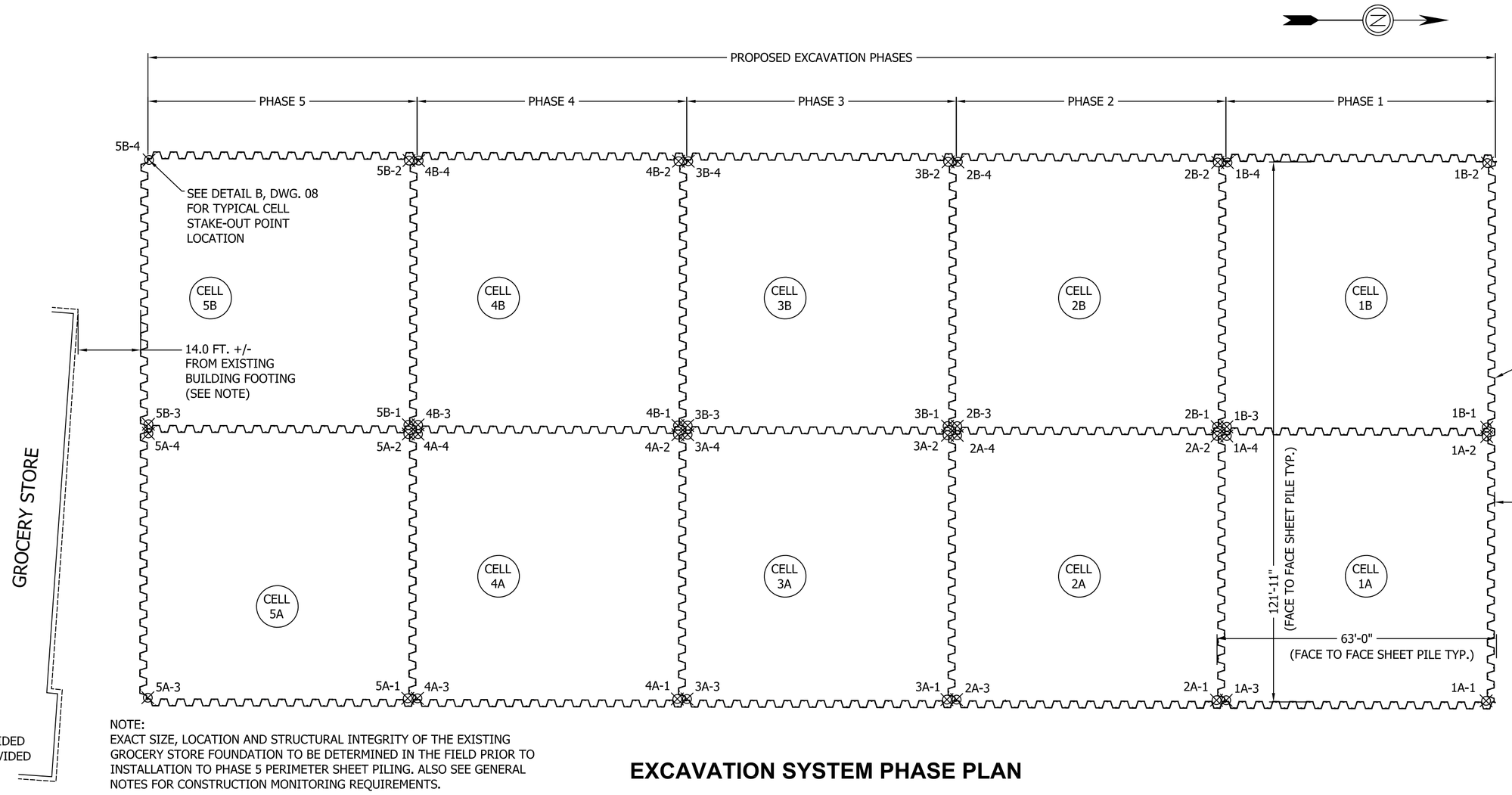
DATE	MARCH 2008
PROJECT NO	102050
FILENAME	102050
SHEET NO	6
DRAWING NO	06

FILE = L:\WORK\102050\CADD\...\NYSEG-HOMER-DESIGN.DWG

CELL STAKE-OUT POINTS

PNT	NORTH	EAST	DESCRIPTION
1001	955567.3007	927647.2161	1A-1
1002	955571.6237	927587.6961	1A-2
1003	955508.7591	927642.9641	1A-3
1004	955513.0821	927583.4441	1A-4
1005	955571.7735	927585.6346	1B-1
1006	955576.0965	927526.1146	1B-2
1007	955513.2319	927581.3826	1B-3
1008	955517.5549	927521.8626	1B-4
1009	955506.5806	927642.8059	2A-1
1010	955510.9037	927583.2859	2A-2
1011	955448.0390	927638.5539	2A-3
1012	955452.3621	927579.0339	2A-4
1013	955511.0534	927581.2244	2B-1
1014	955515.3764	927521.7044	2B-2
1015	955452.5118	927576.9724	2B-3
1016	955456.8348	927517.4524	2B-4
1017	955445.8606	927638.3957	3A-1
1018	955450.1836	927578.8757	3A-2
1019	955387.3190	927634.1437	3A-3
1020	955391.6420	927574.6237	3A-4
1021	955450.3334	927576.8142	3B-1
1022	955454.6564	927517.2942	3B-2
1023	955391.7918	927572.5622	3B-3
1024	955396.1148	927513.0422	3B-4
1025	955385.1405	927633.9855	4A-1
1026	955389.4636	927574.4655	4A-2
1027	955326.5989	927629.7335	4A-3
1028	955330.9220	927570.2135	4A-4
1029	955389.6133	927572.4040	4B-1
1030	955393.9363	927512.8840	4B-2
1031	955331.0717	927568.1520	4B-3
1032	955335.3947	927508.6320	4B-4
1033	955324.4205	927629.5753	5A-1
1034	955328.7435	927570.0553	5A-2
1035	955265.8789	927625.3233	5A-3
1036	955270.2019	927565.8033	5A-4
1037	955328.8933	927567.9938	5B-1
1038	955333.2163	927508.4738	5B-2
1039	955270.3517	927563.7418	5B-3
1040	955274.6747	927504.2218	5B-4

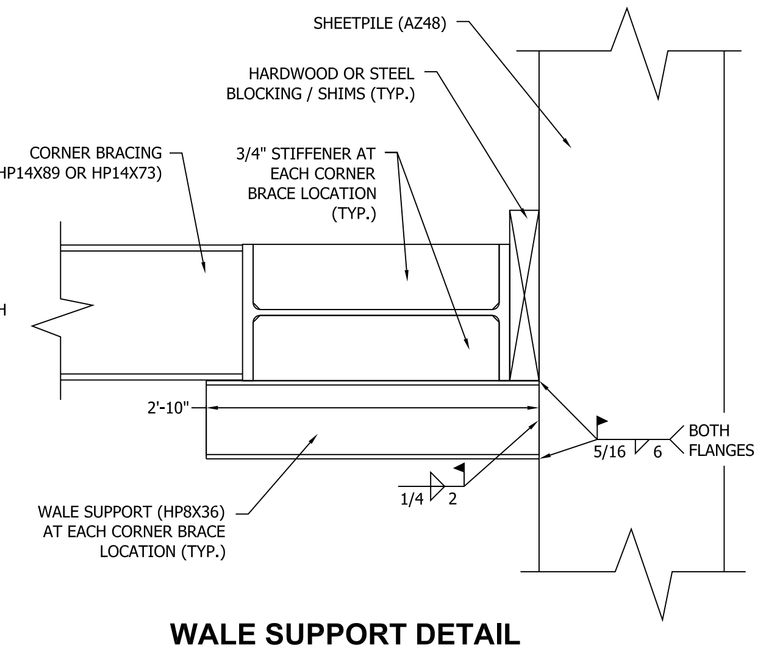
NOTE:
COORDINATES SHOWN BASED ON DRAWING PROVIDED BY NYSEG. CONTROL DATA (BASELINE) TO BE PROVIDED UPON AWARD.



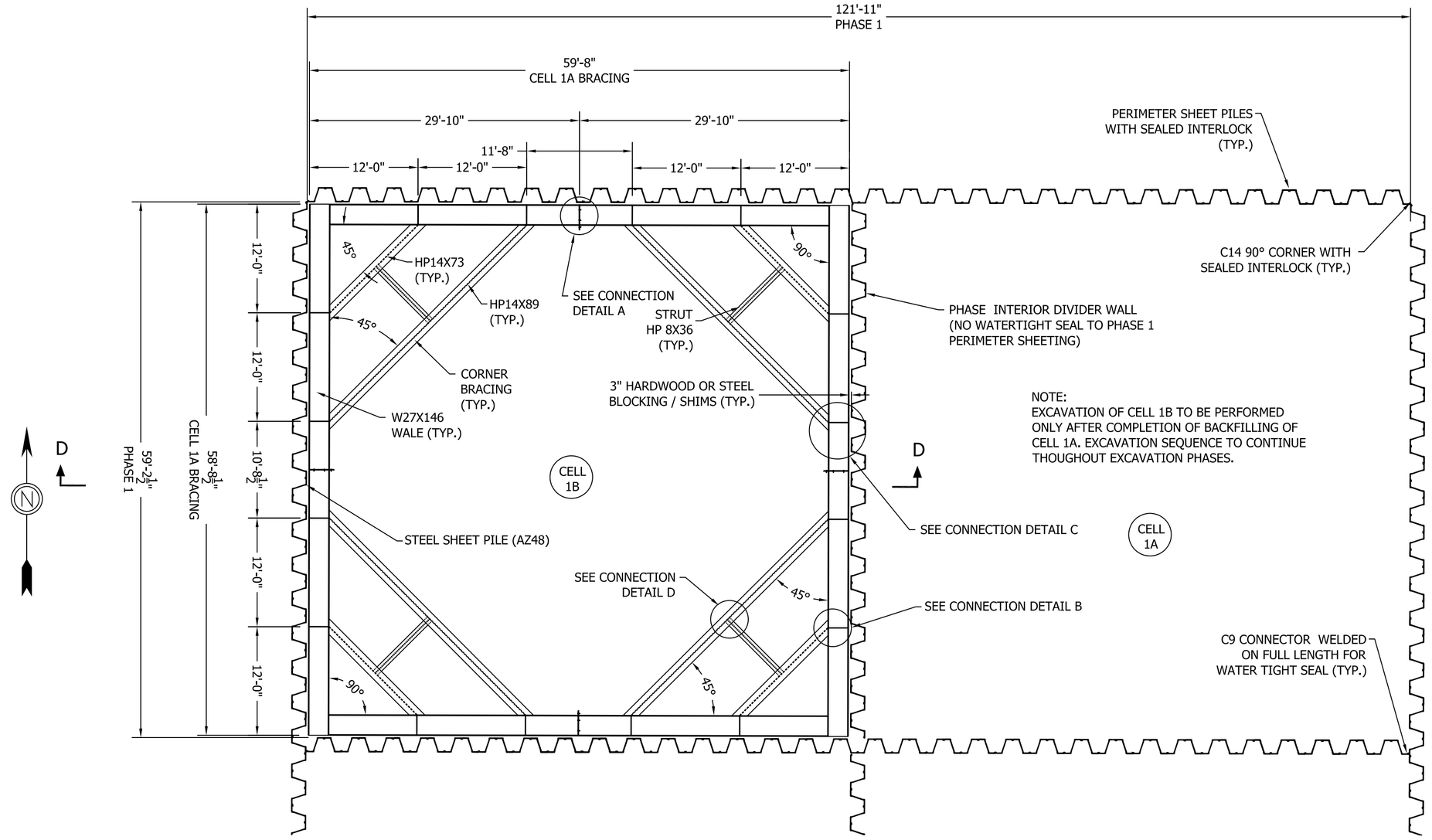
NOTE:
EXACT SIZE, LOCATION AND STRUCTURAL INTEGRITY OF THE EXISTING GROCERY STORE FOUNDATION TO BE DETERMINED IN THE FIELD PRIOR TO INSTALLATION TO PHASE 5 PERIMETER SHEET PILING. ALSO SEE GENERAL NOTES FOR CONSTRUCTION MONITORING REQUIREMENTS.

EXCAVATION SYSTEM PHASE PLAN

0' 10' 20' 40'
SCALE

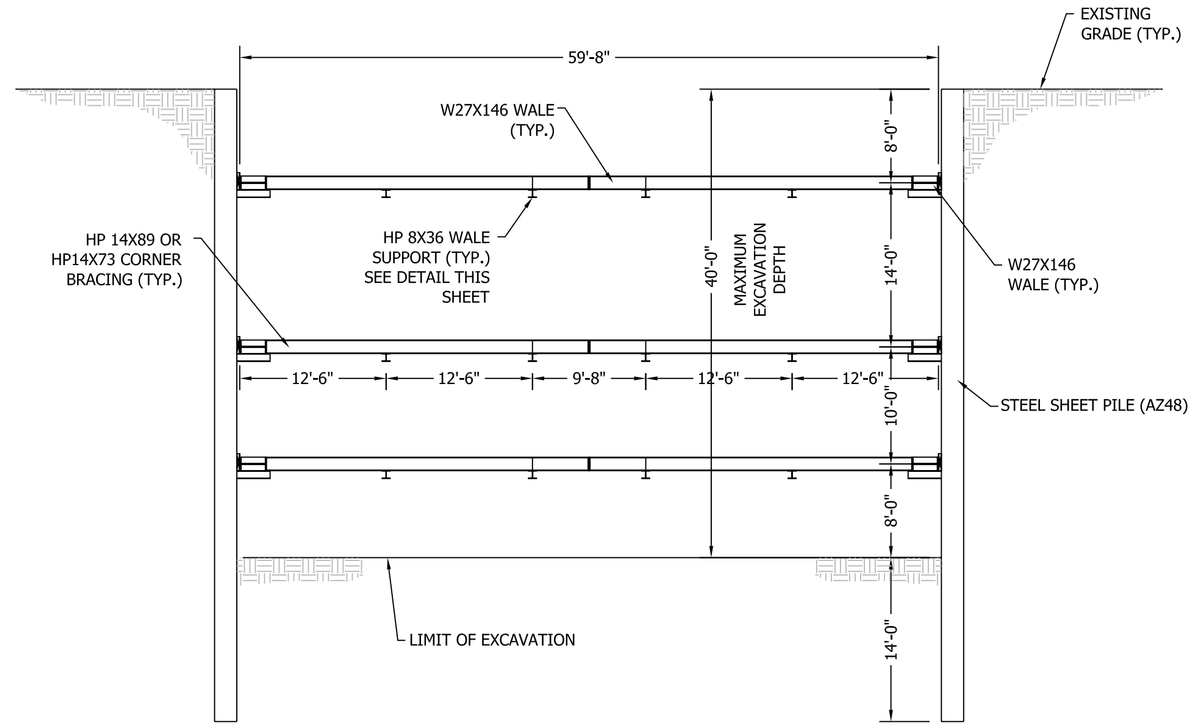


WALE SUPPORT DETAIL



TYPICAL CELL BRACING PLAN

0' 5' 10' 20'
SCALE



SECTION D - D

0' 5' 10' 20'
SCALE

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REVISIONS			
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DES	DJW
CHK	SAU
APP	CHF

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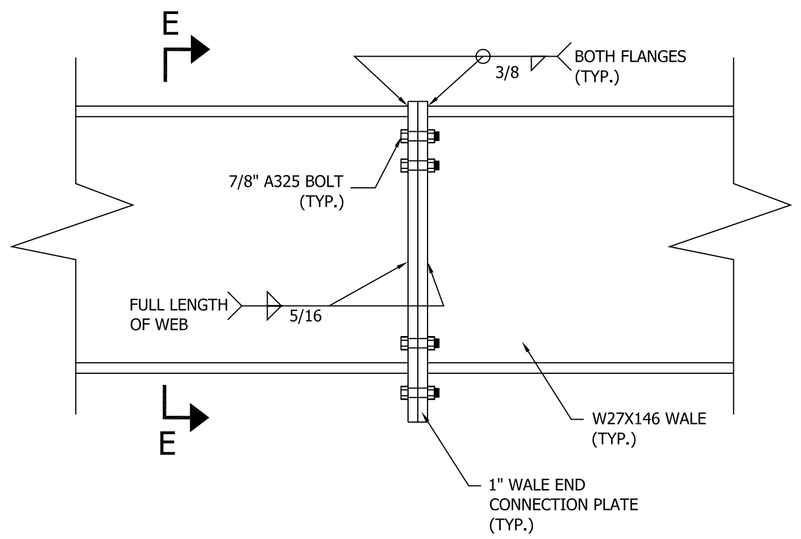
EXCAVATION SYSTEM LAYOUT AND DETAILS 1 OF 2

DATE	MARCH 2008
PROJECT NO	102050
FILENAME	102050
SHEET NO	7
DRAWING NO	07

FILE = L:\WORK\102050\CADD\...\NYSEG-HOMER-DESIGN.DWG



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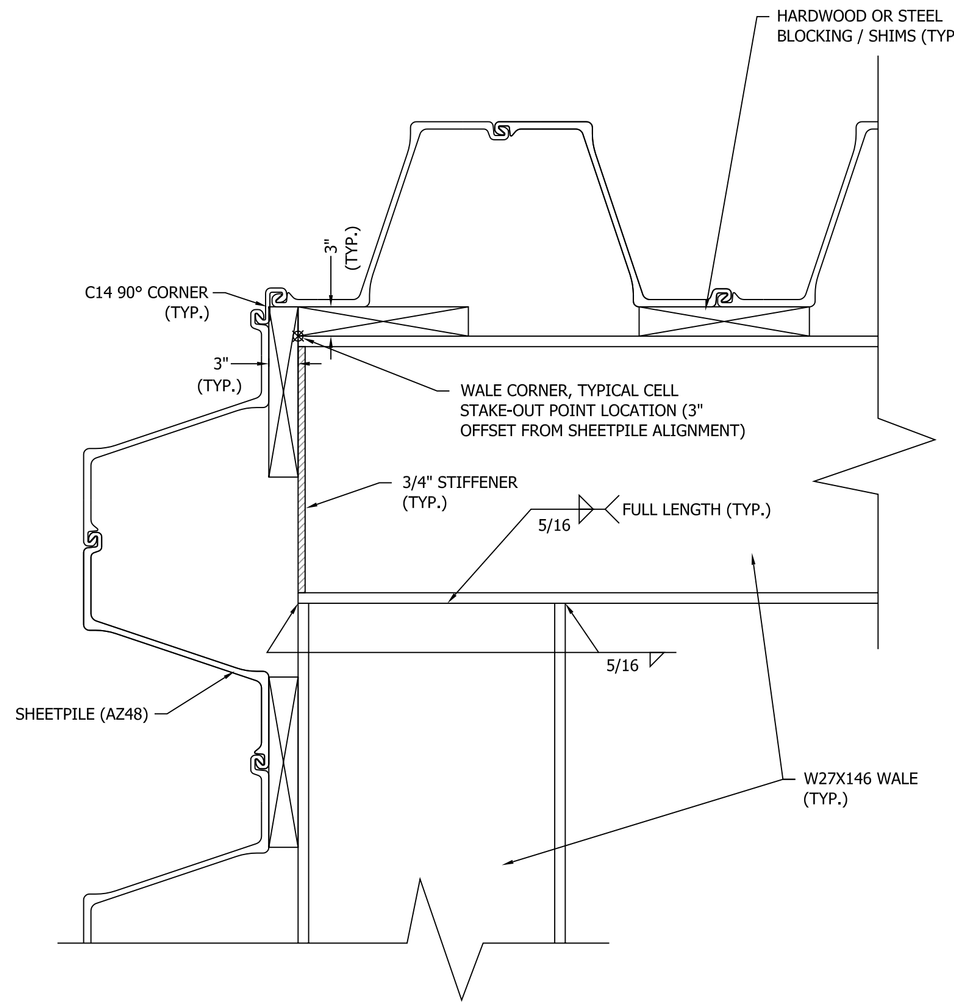

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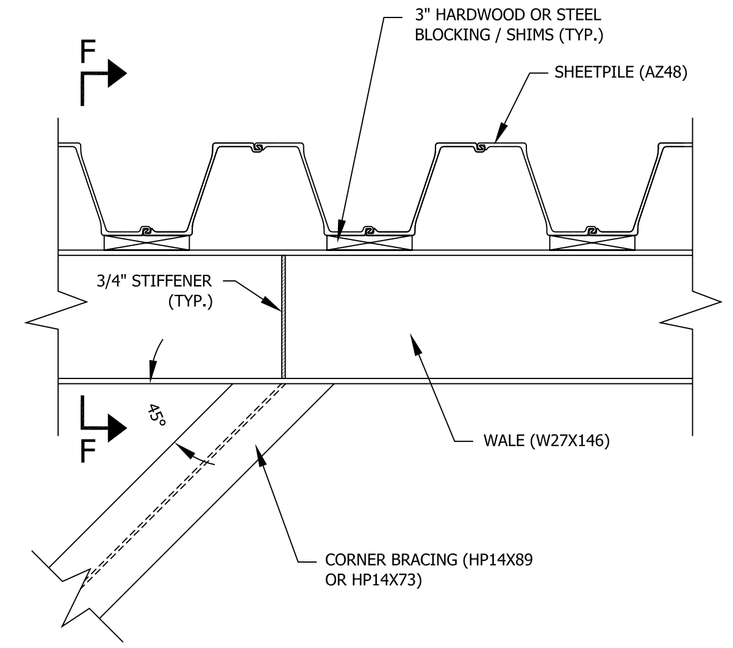

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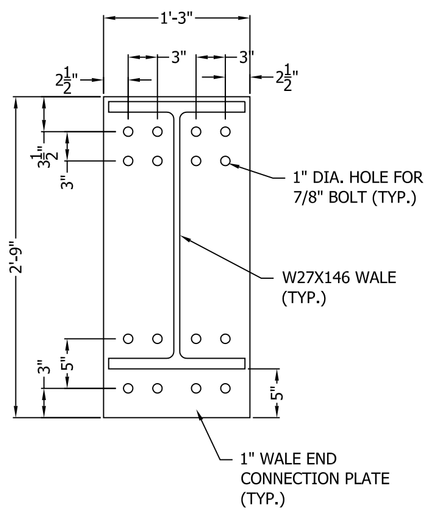

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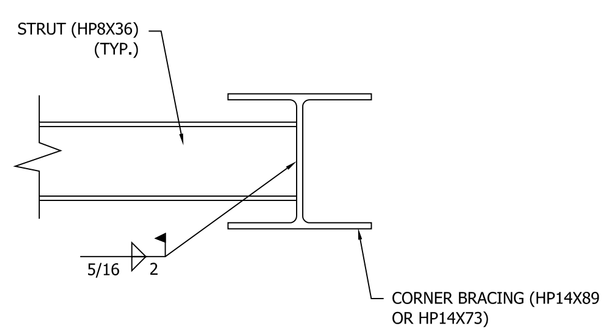
NOTE:
WALE END PLATE CONNECTIONS SHALL BE SHOP FABRICATED. CONNECTIONS SHALL BE TIGHT FITTING. ANY GAPS OR SPACES SHALL BE FILLED WITH STEEL SHIMS.



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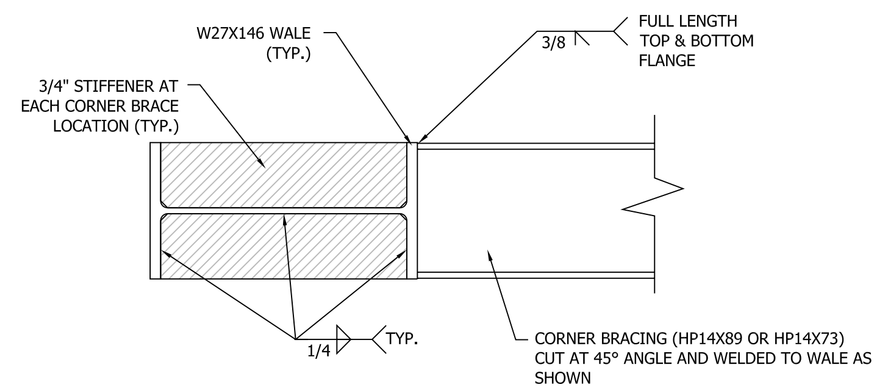

SECTION F - F

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Latham, NY
518-951-2200

DRN	KAM		
DES	DJW		
CHK	SAU		
APP	CHF		

Earth Tech
A Tyco International Ltd. Company

NYSEG - REMEDIAL DESIGN FOR
FORMER CORTLAND-HOMER MGP SITE (OU-1)
HOMER, NEW YORK

EXCAVATION SYSTEM LAYOUT AND DETAILS 1 OF 2

DATE	MARCH 2008
PROJECT NO	102050
FILENAME	102050
SHEET NO	8
DRAWING NO	**08**

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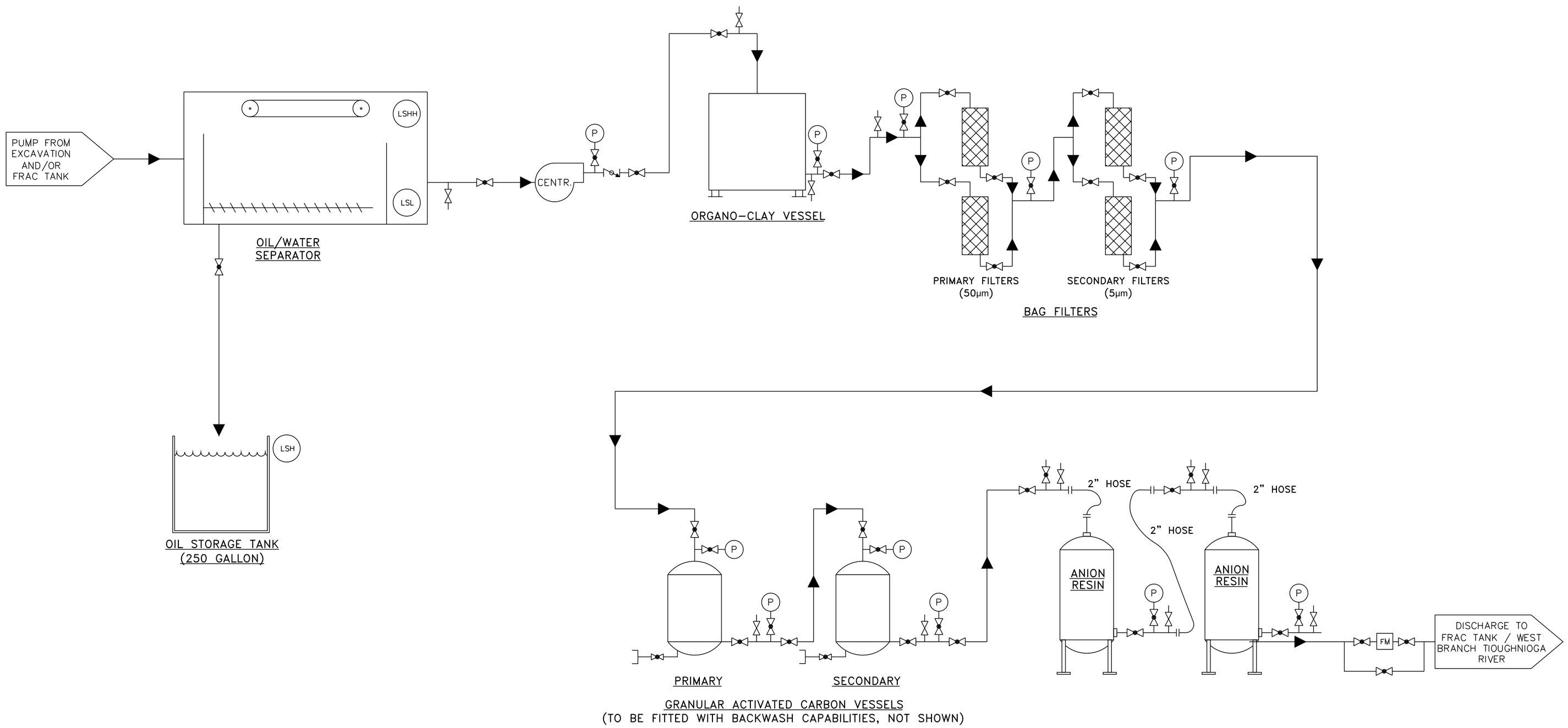
NOTES:

1. THE TEMPORARY WATER TREATMENT SYSTEM SHOWN ON THIS DRAWING IS COMPREHENSIVE AND MAY NOT NECESSARILY REPRESENT THE FINAL WATER TREATMENT SYSTEM THAT WILL BE IMPLEMENTED BY THE CONTRACTOR. THE CONTRACTOR MAY PROPOSE AN ALTERNATE WATER TREATMENT SYSTEM DESIGN, THAT AT A MINIMUM, SHALL MEET THE PERFORMANCE STANDARDS AND DESIGN, CONSTRUCTION, AND OPERATIONAL INTENT AS INDICATED ON THIS DRAWING.
2. THE TEMPORARY WATER TREATMENT SYSTEM SHALL BE CAPABLE OF PROCESSING A FLOW RATE OF AT LEAST 100 GALLONS PER MINUTE.

LEGEND:

- PRIMARY PROCESS PIPING
- SECONDARY PROCESS PIPING
- SAMPLE TAP
- P — PRESSURE GAUGE
- BALL VALVE
- CHECK VALVE
- FM — FLOW METER
- LSH — LEVEL SWITCH HIGH
- LSHH — LEVEL SWITCH HIGH-HIGH
- LSL — LEVEL SWITCH LOW
- CENTR — CENTRIFUGAL PUMP



PROCESS/FLOW DIAGRAM

NTS

NO	REVISIONS	DRN	CHK	DATE

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DRN KAM
DES DJW
CHK SAU
APP CHF

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NYSEG - REMEDIAL DESIGN FOR FORMER CORTLAND-HOMER MGP SITE (OU-1) HOMER, NEW YORK

TEMPORARY WATER TREATMENT SYSTEM PROCESS FLOW DIAGRAM

DATE	MARCH 2008
PROJECT NO	102050
FILENAME	102050
SHEET NO	9
DRAWING NO	09

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WATER TREATMENT SPECIFICATION

Materials and Performance

MATERIALS AND PERFORMANCE

TEMPORARY WATER TREATMENT SYSTEM

PART 1 – GENERAL

1.01 SUMMARY

A. The Contractor shall provide all manpower, equipment, and materials to execute all activities necessary to provide, operate, and maintain a temporary water treatment system at the former Manufactured Gas Plant (MGP) site located in Homer, New York.

B. This section covers the requirements for the functional design, performance, construction features, operation, and testing of the equipment described in the following sections.

C. The contractor may propose an alternate water treatment system design that, at a minimum, shall meet the performance standards (i.e., West Branch Tioughnioga River temporary State Pollution Discharge Elimination System (SPDES) discharge limits) and design, construction, and operational intent established herein.

1.02 DESCRIPTION

A. The Contractor shall provide all manpower, equipment and materials to execute all activities necessary to provide, operate, and maintain a temporary water treatment system. The temporary water treatment system may include the following major components:

1. Berms and containment;
2. Influent tanks (two fractionation tanks and one baffle tank);
3. Effluent storage tank (1 fractionation tank);
4. Double diaphragm pumps;
5. Oil/water separator;
6. Transfer tank;
7. Oil storage tank;
8. Transfer pumps;
9. Organo-clay vessels;
10. Bag filters;
11. Granular activated carbon (GAC) vessels;
12. Anion resin;
13. Piping and appurtenances;
14. Meters and gauges; and
15. Air compressor.

B. The temporary water treatment system shall be capable of treating a flow rate of 100 gallons per minute (gpm).

C. Analytical results for groundwater samples collected within the sheeting area are provided in Attachment A. The proposed temporary water treatment systems shall be capable of reducing these concentrations (i.e., influent characteristics) to the discharge treatment levels required by the temporary SPDES discharge limits as provided in Attachment B.

D. The contractor shall ensure continuous operation of treatment system throughout the duration of the project.

PART 2 – PRODUCTS

2.01 GENERAL

This section specifies the minimum design and construction requirements for major treatment system components. Substitutions of system components other than those specified herein must be submitted for consideration and approval by the Engineer in accordance with the requirements of the Contract Documents.

2.02 BERMS AND CONTAINMENT

The temporary water treatment system, exclusive of influent and effluent tanks shall be constructed with a containment area complete with berms as per construction details shown on the Contract Drawing Detail entitled: Typical Material Staging, Mixing, and Dewatering Area.

2.03 INFLUENT SETTLING TANKS

A. The influent settling tanks shall be of steel construction and shall provide, at a minimum, enough storage capacity to store 60,000 gallons. The tanks shall allow the water level in the tank to be determined by visual inspection and the use of a stick level indicator.

B. Each tank shall be furnished with an inlet and outlet pipe connection. The tank shall be equipped with two, 4-inch valves at each end.

C. The tanks shall be a minimum of two 21,000 gallon Steel Manifold Fractionation Tanks, and one 18,000 gallon baffle tanks, manufactured by Baker Tanks, or equal.

D. The Contractor shall take such measures as are necessary to ensure that water does not freeze within the influent tanks.

2.04 EFFLUENT STORAGE TANKS

A. The treated water storage tanks shall be of steel construction with a total minimum storage capacity of 20,000 gallons.

B. Each tank shall be furnished with an 8" valve manifold with 4" outlets.

C. The tank shall be 21,000 gallon Steel Manifold Fractionation Tank, manufactured by Baker Tanks, or equal.

D. The Contractor shall take such measures as are necessary to ensure that water does not freeze within the final effluent tanks.

E. Additional tanks (if needed) shall be the responsibility of the Contractor.

2.05 DOUBLE DIAPHRAGM PUMPS

A. Double diaphragm pumps shall be rated for a combined pumping rate of 100 gallons per minute (gpm) at a pumping head to be determined by the contractor.

B. Controls for transfer pumps shall consist of level switches for low water level, high water level and high-high water levels.

C. The pumps shall be SA Series Sandpiper, manufactured by Warren Rupp, or equal.

2.06 OIL/WATER SEPARATOR

A. The oil/water separator shall be a gravity type - rectangular channel coalescing oil/water separator capable of removing gross free oil and similar floatable products and shall contain integral collection chambers for settleable sludge/solids recovery.

B. The oil/water separator shall be designed in accordance with Stokes Law and the American Petroleum Institute Publication 421, "Monographs on Refinery Environmental Control Management of Water Discharges, Design and Operation of Oil-Water Separators" and Stokes Law for an influent water flow rate up to 100 gpm. The effluent shall contain less than 10 milligrams per liter (mg/L) of oil droplets greater than 30 micrometers (microns) with a specific gravity of 0.9 or less at a flow rate of 100 gpm or less.

C. The oil/water separator shall be model TS036-F34 molded fiberglass or equivalent or TS036-S34 carbon steel, as manufactured by Hydro-Flo Technologies, Inc., or equal.

2.07 TRANSFER TANK

A. The transfer tank shall contain low, high, and high-high level switches for transfer pump operation.

B. The transfer tank shall be manufactured of one-piece, seamless, linear polyethylene that is translucent for viewing of interior water levels.

C. The transfer tank shall be a 1,000 gallon one-piece, seamless, linear polyethylene tank.

2.08 OIL STORAGE TANK

A. The oil storage tank shall be a 250 gallon auxiliary polyethylene tank to contain oil and sediment from oil water separator.

2.09 TRANSFER PUMPS

A. The transfer pumps shall be horizontal close-coupled, end suction centrifugal pumps of cast iron construction and rated for a combined pumping rate of 100 gpm (maximum allowable throughput to the temporary water treatment system) at a pumping head to be determined by the Contractor.

B. The pump motors shall be non-overloading of National Electrical Manufacturers Association (NEMA) standard design suitable for close-coupled pump mounting.

C. Controls for transfer pumps shall consist of level switches in tank for low water level, high water level and high-high water levels.

D. The transfer pumps shall be model type 3656, as manufactured by Goulds, or equal.

2.10 ORGANO-CLAY VESSEL

A. The organo-clay vessel shall have a loaded hydraulic capacity of 100 gpm. A minimum of 2,000 pounds of organo-clay shall be used upstream of the GAC Adsorption Units.

B. Based on performance specifications of the organo-clay media, the size of the reservoir should be between 5 square foot (minimum) and 8 square foot (maximum) with a bed thickness range between 3 feet (minimum) and 6 feet (maximum). The recommended contact time should be between 5 to 7 minutes.

C. Particle size for the organo-clay material shall be determined by U.S. Standard Sieve Size 8x30 mesh, with a packaged moisture content of 8 percent. Drained moisture retention capacity for organo-clay should be 10 percent with a density between 40 and 60 pounds per cubic foot.

D. The organo-clay vessel shall be model AF-2000, as manufactured by Tetrasolv Filtration, or equal. The organo-clay shall be MCM-830P, as supplied by Ecologix Environmental Systems, or equal.

2.11 BAG FILTERS

A. The bag filters (two total) shall have a loaded hydraulic capacity of up to 100 gpm. The bag filter housing shall be carbon steel, and shall be pressure rated to a maximum 150 pounds per square inch (psi).

B. The primary bag filters shall be model FSPN-85, as manufactured by FSI, or equal. The primary filter bags shall have a rating of a maximum of 50 micron opening.

C. The secondary bag filters shall be model FSPN-85, as manufactured by FSI, or equal. The secondary filter bags shall have a rating of a maximum of 5 micron opening.

2.12 GRANULAR ACTIVATED CARBON VESSELS

A. The Granular Activated Carbon (GAC) vessels (two total) shall have a loaded hydraulic capacity of 100 gpm. A minimum of 2,000 pounds of GAC shall be used. The vessels shall be provided with lifting supports suitable for lifting by a fork lift truck.

B. The vessels shall be designed for a downflow application, a carbon dryfill opening in the top and a carbon discharge connection in the unit bottom. All vessel fittings shall be installed by the GAC vessel manufacturer at the time and place of manufacturer. The Contractor shall not modify the GAC vessel in the field without written approval from the Manufacturer.

C. All water shall be routed through the GAC vessels in series during normal treatment system operations. When the primary GAC vessel becomes spent (breakthrough of constituents above permitted limits), a carbon change-out of the primary vessel shall occur. The secondary vessel shall be moved to the primary position and a new GAC vessel shall be placed in the secondary position. GAC units shall be equipped with backwash capabilities.

D. The GAC units shall be model AF-2000, as manufactured by Tetrasolv Filtration, or equal. The GAC shall be Westates Aquacarb 830 or Aquacarb 1240 carbon as supplied by US Filter or equal.

2.13 PIPING AND APPURTENANCES

A. The contractor shall provide all necessary piping and appurtenances required for operation of the temporary treatment system.

B. Influent piping from the excavation upstream of the influent tanks and outside the containment berm shall be double walled to ensure containment in the event of a leak. Effluent piping from the treatment system to the point of discharge may be single-wall pipe.

C. All piping and appurtenances shall conform to applicable American Society for Testing and Materials (ASTM) standards.

D. All exterior piping required for the treatment system shall be protected from vehicular traffic when placed on ground surface (e.g., influent pipe from excavation areas).

2.14 METERS AND GAUGES

The contractor shall provide all necessary meters and gauges to ensure proper monitoring of the entire treatment system.

2.15 AIR COMPRESSOR

A. The air compressor shall be sized by the Contractor to supply air to the all diaphragm pumps.

B. The air compressor shall have two stage capability, rebuildable components, intake unloaders, and loadless starting.

C. The air compressor shall be a Qunicy Compressor, or equal.

PART 3 - EXECUTION

3.01 GENERAL

The Contractor shall provide, operate and maintain a temporary on-site water treatment system as described in this specification that shall treat liquid waste streams encountered during remedial work. The Contractor shall maintain lines of communication with the appropriate representative of the NYSEG and the NYSDEC regarding all discharge issues. The Contractor shall ensure continuous operation of treatment system throughout the duration of the project.

3.02 DISCHARGE LIMITS

A. The Contractor shall at all times maintain the treatment system so as to not exceed the effluent limits as required for discharge to the West Branch Tioughnioga River and provided in Attachment B.

B. The pH of the discharged effluent shall not be less than 6.5 or greater than 8.5.

C. Metals shall be monitored but will not require treatment unless otherwise specified by the NYSDEC.

3.03 TESTING AND STARTUP ACTIVITIES

A. After mobilization and setup of the water treatment system, the contractor shall perform system startup and testing activities and troubleshooting prior to initiating full scale (normal) operations.

B. Startup and testing activities shall be in accordance with the manufacturer's recommendations and as indicated in the Contractor-prepared O&M manual that has been reviewed by the Engineer. General startup and testing of the temporary water treatment system shall consist of treating a minimum of 20,000 gallons of water collected from the first proposed excavation area (i.e., water that has been in contact with soil/sediment to be removed). During the startup test, the water treatment system shall be operated at the 100 gpm peak flow rate until the entire 20,000 gallon batch is treated or at the maximum flow obtained from the dewatering. During this time, the Contractor shall continuously monitor and record readings (every 30 minutes minimum) from all gauges and meters as necessary in order to demonstrate that the system is operating as designed to the satisfaction of the Engineer. In addition, the Contractor shall make adjustments to the system as necessary to maintain a continuous flow rate of approximately 100 gpm while meeting the operating requirements of each system component.

C. The Contractor shall assist the Engineer in the collection of start-up testing samples following treatment of approximately 10,000 gallons and 20,000 gallons of water. The entire 20,000 gallons of treated water shall be retained in the effluent storage tanks until analytical results obtained

indicate that the Contractor may discharge the water to the West Branch Tioughnioga River. Samples collected during start-up will be submitted by the Engineer for laboratory testing based on the following parameters (Attachment B):

Parameter	Influent/Effluent
Volatile Organic Compounds	Yes
Semi Volatile Organic Compounds	Yes
Cyanide	Yes
pH	Yes
Total Suspended Solids	Yes
Metals	Yes
Phenols	Yes
Turbidity	Yes
Oil & Grease	Yes

D. As required by the temporary SPDES permit, the Contractor shall collect weekly grab samples taken of the discharge of the water treatment systems. The samples shall be analyzed for the parameters identified in Attachment B. All analytical results shall be submitted to the Engineer, NYSEG, and the NYSDEC.

3.04 WATER QUALITY TESTING

Treatment system water quality testing shall also be conducted during normal operations for influent and effluent water only. During the system operation, testing will be conducted once per week. The Engineer will collect the water samples for analysis.

3.05 ROUTINE MONITORING

A. The temporary water treatment system will be manually operated and controlled through a series of valves, visual reading gauges, and pump controls as necessary to accommodate system operation. The Contractor shall provide for a water treatment system operator to be on-site at all times during system operation. The system will be manually controlled by the operator. At a minimum, the daily activities to be performed by the system operator (at least once per shift) include at a minimum:

1. Visual inspection of influent and effluent piping to and from the treatment system;
2. Visual inspection of all pumps, fittings and equipment for leakage;
3. Visual inspection of the waste oil and sludge storage tanks to document storage capacity;
5. Obtaining readings from the system pressure gauges associated with all treatment systems within the treatment train. Pressure gauge readings may be used to determine when a backwash event

or filter replacement is required or that a particular treatment unit is not functioning properly;

6. Obtaining readings from the flow meter to monitor the system flow rate;
7. Obtaining readings from the flow totalizer to record the total system flow to date and calculate the daily flow- total; and
8. During the operation of the treatment system, the influent tanks shall be visually inspected each time they are emptied to determine the depth of the sediment in the bottom of the tank. If sediment is observed to be 4 inches deep (or if directed by the Engineer) the tank shall be cleaned. Liquids from the cleaning activities shall be treated using the temporary water treatment system, while solids shall be collected and placed into the staging area for subsequent disposal by Owner. The Contractor shall solidify material to make it suitable for off-site disposal as a solid waste.

3.07 CORRECTIVE ACTIONS

At the direction of NYSEG or the Engineer, the Contractor shall take corrective actions as necessary to maintain specified treatment system performance in the event of an upset condition and/or operating conditions that result in non-compliant effluent water quality. During Corrective Actions, the Contractor may be required to mobilize additional effluent storage tanks and/or repeat start-up and testing procedures as specified herein.

3.08 DOCUMENTATION

The Contractor shall maintain a daily operations log (i.e., tabulated results) in which the process variables described above will be recorded at a minimum frequency of once per shift or more frequently if requested by the Engineer. In addition, all activities related to O&M of the treatment system will be documented in the daily log. The daily log will be kept on site and will be made available to the Engineer on demand. Copies of each daily log sheet will be submitted to the Engineer on a daily basis.

ATTACHMENT A
GROUNDWATER ANALYTICAL RESULTS

ATTACHMENT B
NYSDEC TEMPORARY SPDES DISCHARGE LIMITS

APPENDIX I

TRANSPORTATION OF SOLID OR LIQUID WASTE

NYSEG

NEW YORK STATE ELECTRIC & GAS CORPORATION

James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902-5224

Remedial Action Design

TRANSPORTATION PLAN

For Removal and Off-site Disposal of Coal Tar Impacted Soil

Associated With

Cortland-Homer
Former Manufactured Gas Plant Site
South Main Street
Village of Homer, Cortland County, New York

NYSDEC SITE # 7-12-005

February 2008

Prepared By:
Earth Tech, Inc.

For:
NYSEG Environmental Compliance
Site Investigation and Remediation

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Section **Page**

1.0 SCOPE OF WORK

This Specification is for the transportation of solid or liquid non-hazardous and hazardous waste associated with the Cortland-Homer South Main Street former manufactured gas plant site in the Village of Homer, Cortland County, New York. All transportation must be in accordance with the Order on Consent Index Number D0-0002-9309 with New York State Department of Environmental Conservation (NYSEDC) and any other applicable Federal, State, and Local Laws.

2.0 WORK BY TRANSPORTATION CONTRACTOR

The transporter contractor shall provide all necessary supervision, training, permits, hazardous waste manifest (when required), labor, personal protective equipment (PPE), tools, equipment, consumable materials, and expendable materials, to transport solid or liquid waste to a disposal facility as detailed herein.

3.0 GENERAL WORK CONDITIONS

3.1 The transporter shall comply with all applicable provisions of NYSDEC Regulation, 6 NYCRR Part 364 “Waste Transporters Permit”, Title 6 of the Official Compilation of codes, Rules and Regulations.

3.2 The transporter shall comply with all applicable provisions of NYSDEC Regulation, 6 NYCRR Part 372 “Hazardous Waste Manifest System and Related Standards of Generators, Transporters and Facilities”, Title 6 of the Official Compilation of codes, Rules and Regulations.

3.3 The transporter shall comply with all applicable provisions of New York State Department of Transportation (NYSDOT), the New York State Department of Motor Vehicle (NYSDMV), and/or any other applicable Federal, State, and Local Laws.

3.4 The transporter shall comply with all applicable provisions of Occupational Safety and Health Act or Administration (OSHA) 29 CFR 1910.120 “Hazardous Waste Operations Health & Emergency Response”.

3.5 The transporter shall develop and implement a written Health & Safety Plan for their drivers that address potential exposure to manufactured gas plant site residuals.

3.6 The transporter shall adhere to the following rules while working on a manufactured gas plant site project and waste disposal facility:

3.6.1 Any truck found unacceptable by NYSEG project coordinator or Contractor health & safety officer will be rejected. Any cost for rejected trucks shall be born by the transporter. If the NYSDEC project oversight finds any truck unacceptable, they should bring it to the attention of NYSEG project coordinator.

3.6.2 The truck drivers will report their arrival to NYSEG project coordinator.

3.6.3 Truck drivers are generally restricted to their trucks and the designated waiting areas. Drivers are not permitted access to the manufactured gas plant site project without express permission from NYSEG project coordinator.

3.6.4 Trucks drivers will don **HARD HATS, SAFETY GLASSES, SAFETY SHOES, and GLOVES,** as a minimum for personal protection.

3.6.5 The drivers of all trucks and roll off containers transporting hazardous solid waste or conditionally exempt manufactured gas plant site remediation waste will line the entire box (to top of side boards) with 6-mil thick polyethylene sheeting. Trucks transporting non-hazardous waste may be lined as previously stated. All trucks will have a watertight tailgate that has a gasket between the box and tailgate or driver will apply caulking between the box and tailgate.

3.6.6 All trucks require working audible and visual backup signals.

3.6.7 When loading or when directed by NYSEG project coordinator, the truck engine should be shut off. Truck may be restarted and driven away only after the “all clear” direction from the loading operator or a site representative.

3.6.8 In residential or other areas where the exhaust and/or noise could be a nuisance the truck engine should be shut off.

3.6.9 No truck will be loaded above the sideboards and no waste will be spilling out of the truck. Before trucks leave the loading areas the truck exterior and tires will be cleaned (by site workers) from waste being loaded.

3.6.10 NYSEG remedial workers will reposition the cover bars over the waste material. **DRIVERS WILL NOT WALK OVER WASTE MATERIAL.**

3.6.11 Drivers will cover loads before leaving the loading area with a solid fabric (i.e., vinyl, reinforced polyethylene) cover that covers the entire load.

3.6.12 Obey traffic signs and notices (obey the posted speed limit).

3.6.13 Obey rules posted on the site and/or any site specific *Health & Safety Plan* for all project personnel.

3.6.14 Report any accidents to the NYSEG project coordinator and cooperate with any subsequent accident investigation.

3.6.15 No children under 16 years of age are allowed on manufactured gas plant site projects.

3.6.16 No passengers are allowing in the Contamination Reduction Zone (loading area).

3.6.17 Slow down and be extra cautious during times of poor weather (i.e., rain, fog, snow).

3.6.18 Take extra care around blind corners (watch for pedestrians and construction equipment).

3.6.19 Smoking, eating, and/or drinking in not permitted within the Contamination Reduction Zone. Smoking, eating, and/or drinking are permitted in designate areas of the Support Zone.

3.6.20 After Disposal of waste, the transporter is responsible for properly decontaminating their truck or trailer, trailer or tanker, and roll off containers.

4.0 TRUCK ROUTE

Truck route for arrival and departure at the Cortland-Homer South Main Street former manufactured gas plant site will be as follows:

- **Arrival:** From Interstate 81 Exit 12; turn right (south) onto US Route 11 (South Main Street). Enter site from either of the Access Gates on South Main Street.

- **Departure:** Exit the site by either of the Access Gates on South Main Street; turn left (north) onto US Route 11; proceed north to Interstate 81 Exit 12.

APPENDIX J

CONTINGENCY PLAN

NYSEG

NEW YORK STATE ELECTRIC & GAS CORPORATION

James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902-5224

Remedial Action Design

CONTINGENCY PLAN

For Removal and Off-site Disposal of Coal Tar Impacted Soil

Associated With

Cortland-Homer
Former Manufactured Gas Plant Site
South Main Street
Village of Homer, Cortland County, New York

NYSDEC SITE # 7-12-005

February 2008

Prepared By:
Earth Tech, Inc.

For:
NYSEG Environmental Compliance
Site Investigation and Remediation

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1.0 INTRODUCTION

This construction contingency plan (CCP) has been developed for personnel to follow during the performance of the remediation project at the NYSEG Cortland-Homer Site, in the Village of Homer, Cortland County, New York. The focus of the work is remove the former gas holders and associated soils. The project will consist of mobilization, temporary watertight sheetpiling installation, temporary water treatment installation, excavation of contaminated soils, material handling, staging, loading, restoration, along with equipment decontamination and demobilization. Soils contain contaminants that may be considered non-RCRA and RCRA hazardous waste. This CCP provides procedures and guidelines that will be implemented in the event of a spill, release, fire, explosion, or other emergency. The CCP includes information necessary to prevent or minimize hazards to human health and the environment.

This CCP was prepared in accordance with United State Environmental Protection Agency (USEPA) and Occupational Health and Safety Administration (OSHA) guidance documents. This CCP supplements the Health and Safety Plan (HASP) that has been prepared for the stated field activities. Reasonable precautions will be taken by the Contractor and its subcontractors to prevent an emergency situation. However, in the event that an emergency occurs, this CCP will be carried out immediately and will govern the procedures to be followed. Subcontractors will be provided with copies of this CCP and will be required to follow the CCP.

2.0 KNOWN CONTAMINANTS OF CONCERN

Based on previous site activities and the site history, the contaminants of concern are MGP related chemicals and are anticipated to be encountered. These include volatile organic compounds and semi-volatile organic compounds (polycyclic aromatic hydrocarbons).

3.0 PLANNED FIELD ACTIVITIES

The planned field activities include the following:

- Site preparation (installation of support facilities).
- Temporary Watertight Sheetpiling Installation.
- Construction of decontamination pad.
- Temporary Water Treatment System.
- Construction of staging areas.
- Excavation of soils.
- Material Handling and dewatering activities.
- Water disposal.
- Loading of soils.
- Equipment Decontamination.
- Demobilization.

4.0 RESPONSIBILITIES AND DESIGNATION OF EMERGENCY COORDINATOR

The emergency coordinator (EC) or his alternate is responsible for implementing this CCP during an emergency. The EC will also act as the site health safety officer (HSO) to maintain continuity in the lines of authority during an emergency. The site HSO/EC reports to the project superintendent, who reports to the project manager on a daily basis. An alternative EC, who will act in the absence of the project HSO/EC, will be designated in case of the primary EC absence. All site employees must be familiar with the procedures in this plan and are responsible for implementing the plan should the EC or the alternate be unavailable.

At the beginning of the site activities, the EC/HSO will designate one or more employees of the project team in conjunction with any subcontractor, to serve as part of a rescue team. At a minimum, the rescue team will consist of two persons. The rescue team will communicate with the project manager on a daily basis.

The rescue team will respond to emergencies, as needed, and will be under the direction of the EC/HSO. The members of the team must be certified in cardiopulmonary resuscitation (CPR) and emergency first aid.

A list of off-site emergency personnel is provided at the back of this plan. The EC/HSO will either notify off-site personnel or designate someone to do so. The first responders consist of police, fire, ambulance, and possibly the New York State Department of Environmental Conservation (NYSDEC). They will be alerted as to the type of emergencies that may arise and the types of hazards at the site.

5.0 COMMUNICATIONS

Communications will be by voice where possible. As a backup, visual signals will be used. Hand signals will be as follows:

Hand gripping throat: ..... Can't breathe.

Grip partner's wrist or
place hands around waist: ..... Leave work area immediately.

Hand on top of head: ..... Need assistance.

Thumbs up: ..... OK. I'm all right.

Thumbs down: ..... No. Negative.

Alternatively, hand-held radios may be used, if they are available and are intrinsically safe. In an emergency, and if necessary, a compressed air horn will be used to notify all workers that an emergency situation exists. The signals shall be as follows:

One long blast: ..... Evacuate the area by nearest exit.

Two short blasts: ..... Evacuate by normal exit procedures.

The EC/HSO will notify emergency personnel or designate an alternate to do so. A portable telephone will be used for this purpose. The portable telephone will be located in the clean

zone. As a backup, telephones are located in the temporary office facility located on the south side of the facility along the access road. Emergency telephone numbers are included at the back of this plan.

6.0 EVACUATION

In the event that the air horn is sounded, employees will evacuate the area. Emergency evacuation routes will be designated at the site, prior to initiating field activities. As field activities progress, it will be necessary to modify the evacuation routes, in accordance with site conditions and layout. Evacuation routes must be clear of obstructions. Evacuation routes will be through the fence gate and toward the parking area, depending on the location of the site activities at the time of the emergency. Evacuation maps will be drawn on site layout maps to outline evacuation routes. These maps will be discussed with site personnel to familiarize them with site conditions.

7.0 SAFE DISTANCES AND REFUGE

The following minimum safe distances have been established. Depending upon the nature of the incident, the EC may increase these distances. Arrangements will be made with the local police department to evacuate nearby neighbors. Any decisions on the need for and distances of evacuation will be made in conjunction with the fire and police department and the NYSDEC:

Minor Spills: ..... Not established

Major Spills: ..... Evacuate non-essential personnel to clean zone or 1,000 feet, whichever is greater.

Minor Fire: ..... Evacuate non-essential personnel to clean zone.

Fire involving a container: ..... Evacuate all personnel 1/2 mile in all directions

Explosion: ..... Evacuate all personnel 1/2 mile in all directions.

8.0 EMERGENCY RESPONSE PROCEDURES

In the event of any releases of materials the CCP shall be immediately activated. The equipment to respond to an emergency will be on-site and activated already. There are additional measures to be taken in the event of an emergency. Emergency equipment that will be present is described in the sections that follow. In addition to this CCP, all responses to releases are subject to controls designated in the site HASP.

9.0 MINOR SPILLS DURING DRUM HANDLING AND REMOVAL

For purposes of the CCP, minor spills would be those that consist of 1 gallon or less. Minor spills will be remediated by removing spill debris with any underlying or surrounding contaminated soil. The spilled material will be handled as hazardous waste. If leaking, the container will be placed in an overpack drum. Additional emergency measures would not be implemented, unless needed. The Contractor will have empty drums, speedi-dri, miscellaneous hand tools, fire extinguishers absorbent pads and booms to deal with minor spills that occur on-site.

10.0 MINOR SPILLS IN THE DRUM STAGING OR STORAGE AREAS

Minor spills onto soil will be cleaned up as discussed above. Minor spills that occur in other areas will need to be collected using absorbent material such as absorbent pads and/or speedi-dri.

11.0 MAJOR SPILLS

For purposes of this CCP, a major spill is defined as those that involve greater than 1 gallon of material. In the event of a major spill, communication and notification procedures will be implemented. The response will depend on the nature of the release. Attempts will be made to control the release by diking and draining the area. An absorbent pad, Oil Dry, or soil will be used to absorb the release. The removed material will be placed into appropriate drums and sealed to prevent hazards. Employees should note that absorbents solidify the liquid, but do not remove the fire or exposure hazards. Solvents will volatilize from the absorbent and can ignite. Therefore, a fire extinguisher will be brought to the area of the release by the emergency response team, until the material is secured inside a drum. In the event that the release is of sufficient magnitude and can not be controlled by diking, damming, absorbing, or other method, the local fire department, NYSDEC, and National Response Center shall be notified.

The local responders would be notified through 911. The Homer Fire Department would be the first responders. The City of Cortland has a Hazardous Materials Team and has capabilities of performing Level A and Level B response actions. If the incident requires Haz Mat response 911 should be called and the appropriate emergency response personnel will be contacted.

12.0 CONFINED SPACE EMERGENCIES

Each employee entering a confined space will wear a safety harness equipped with a lifeline for evacuation purposes in the case of an emergency, unless the lifeline creates more of a hazard for the individual in the space. Emergency equipment such as lifelines, breathing equipment, fire extinguishers and harnesses will be ready for immediate response in case an emergency situation arises.

13.0 FIRE

A fire extinguisher will be used on minor fires where a container is not involved. If the fire can not be extinguished immediately or a container is involved, the area must be evacuated immediately and the fire department notified from a safe location. Extinguishing methods include CO2 or dry chemical. A water spray can also be used (not a direct hose stream). Foam, water spray, or fog can be used on larger spills.

14.0 EXPLOSION

In the event of an explosion, the area shall immediately be evacuated and the fire department notified. The cause of the explosion should be assessed and corrected prior to reentry.

15.0 MEDICAL

Medical emergencies are addressed in the HASP. Appropriate first aid will be administered, and if necessary, the injured individual will be sent to the designated medical facility. An ambulance will be summoned, if needed. The cause of the accident will be determined and corrected, prior to continuing operations. A first aid kit will be maintained in the office trailer at all times.

When possible, injured personnel will be decontaminated or partially decontaminated in accordance with HASP. Based upon the anticipated toxicity of the contaminants, personnel decontamination procedures may be eliminated in a life-threatening situation. Emergency medical personnel will be notified as to the lack of decontamination. Emergency medical personnel will wash with soap and potable water after handling the victim. Appropriate documentation should be completed in accordance with the HASP.

16.0 TRAINING

All employees working on-site will attend an initial 40-hour health and safety training course, annual 8-hour refresher training, and 8-hour training for managers for conducting work at hazardous waste sites. These courses satisfy the initial and follow-up training requirements of 29 CFR 1910.120 (OSHA regulation of hazardous waste site activities). Individuals working in confined spaces are all confined space entry trained with rescue and recovery training

Prior to initiating site work, site personnel will be required to attend a training session given by the EC/HSO. This session will include, but is not limited to, the following topics:

- Site history
- Specific hazards
- Hazard recognition
- Standard operation procedures
- Decontamination (personnel and equipment)
- Emergency procedures

17.0 SEVERE WEATHER CONDITIONS

When a hurricane, flood, freeze-up or other severe weather-related threat is detected, all site personnel will immediately be notified. Each Severe Weather Alert will require last-minute preventative measures to minimize potential damage to facilities and equipment. For example, steps such as checking drains, removing electrical material from open yards, protecting soil piles and excavations and managing sheet flow of water will have to be evaluated depending on weather conditions.

18.0 EMERGENCY TELEPHONE NUMBERS

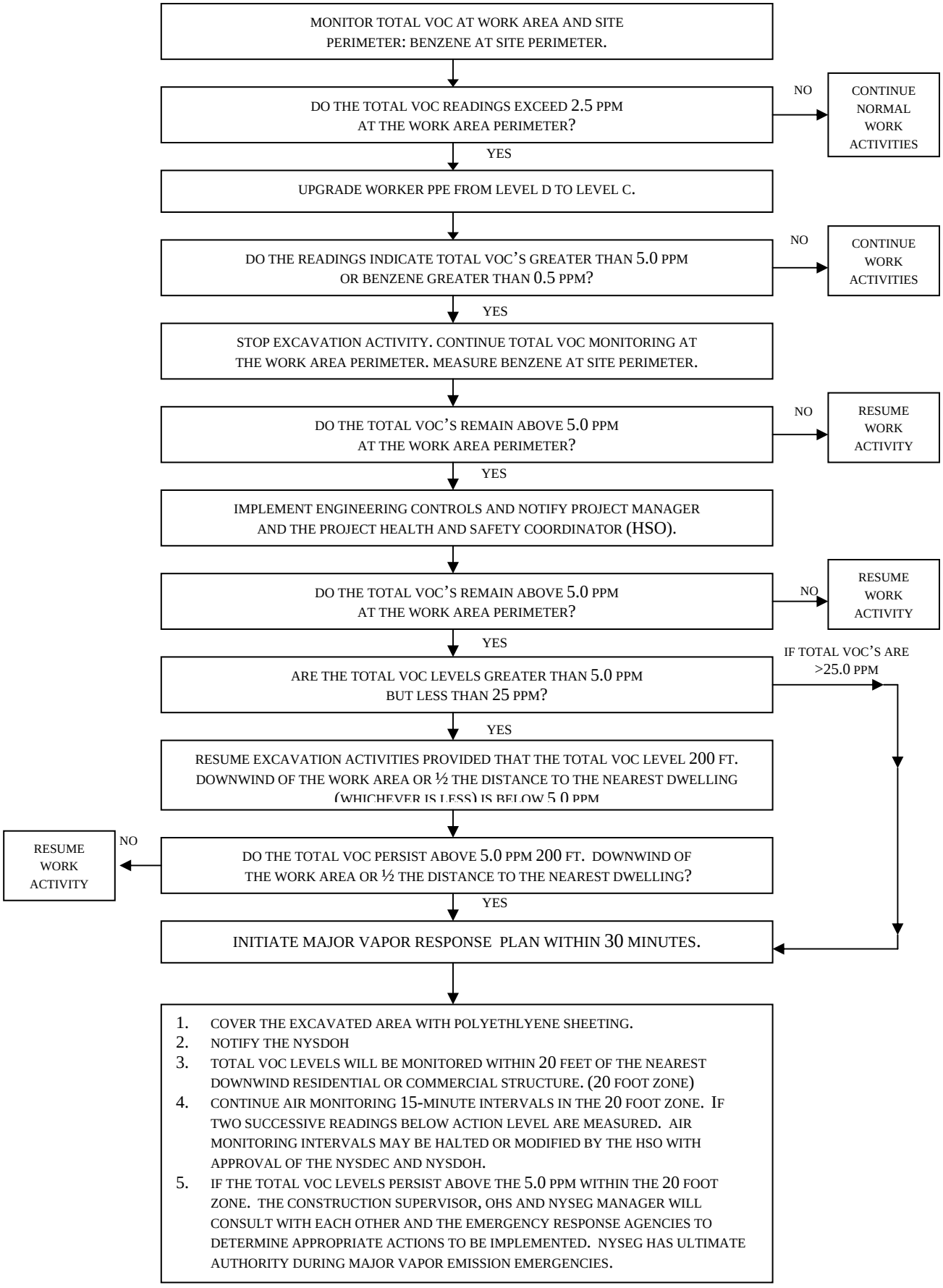
Emergency telephone numbers and directions to the nearest medical facility are shown below and will be kept by field personnel while on-site. These telephone numbers should be posted next to the closest telephone.

Name	**Telephone Number**
NYSEG Site	TBD
Homer Volunteer Fire Department	911 (607) 749-3121
Cortland City Fire Department	911 (607) 756-5612
Ambulance	911 (607) 664-8012
Police Departments	911 (607) 749-2022
Cortland County Sheriff	911 (607) 753-3311
Cortland Regional Medical Center	(607) 756-3500
Physicians under contract or agreement with Earth Tech	Occupational Medical Services 10 Madison Ave Ext. Albany, New York (518) 482-0666
National Response Center	(800) 424-8802
New York Department of Environmental Conservation	(800) 457-7362
Chemtrec (Emergency Technical Information)	(800) 424-9300

APPENDIX K

VAPOR EMISSION RESPONSE PLAN

CORTLAND-HOMER FORMER MGP REMEDIATION
VAPOR EMISSION RESPONSE PLAN



APPENDIX L

QUALITY ASSURANCE PROJECT PLAN

NYSEG

NEW YORK STATE ELECTRIC & GAS CORPORATION

James A. Carrigg Center, 18 Link Drive, P.O. Box 5224
Binghamton, New York 13902-5224

Remedial Action Design

QUALITY ASSURANCE PROJECT PLAN

For Removal and Off-site Disposal of Coal Tar Impacted Soil

Associated With

Cortland-Homer
Former Manufactured Gas Plant Site
South Main Street
Village of Homer, Cortland County, New York

NYSDEC SITE # 7-12-005

February 2008

Prepared By:
Earth Tech, Inc.

For:
NYSEG Environmental Compliance
Site Investigation and Remediation

TABLE OF CONTENTS

Section **Page**

1.0 INTRODUCTION

This *Quality Assurance Project Plan* provides a description of the sampling and laboratory procedures/protocols to be used in support of the Remedial Design associated with the Cortland-Homer South Main Street former manufactured gas plant site located in the Village of Homer, Cortland County, New York. The fundamental purpose of the *Quality Assurance Project Plan* 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 *Quality Assurance Project Plan* is designed to be used in conjunction with a New York State Department of Environmental Conservation (NYSDEC) approved *Remedial Design* with regards to specific project objectives and field sampling activities. To the extent that discrepancies exist between this *Quality Assurance Project Plan* and the *Remedial Design,* the *Remedial Design* shall control.

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 *Remedial Design.* The general project data quality objectives are summarized in this section, with detailed information given throughout this *Quality Assurance Project Plan* and associated sections of the Remedial Design. 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/residues and wastewater analyses.
- To ensure that all final site verification samples (confirmatory samples) are reported with ASP Category B deliverables.

3.0 SAMPLE COLLECTION

3.1 Soils

Soil samples will be collected as described in the appropriate sections of the *Remedial Design* or *Pre-remediation In Situ Sampling and Analysis Work Plan.* These sections describe the collection procedures, sampling equipment, locations and frequencies for the soil samples. These schedules are based on the requirements for soil disposal or confirmation of excavation endpoint.

All sampling equipment will be properly disposed or decontaminated before being reused (see Section 9.1.1). Samples will be collected and placed in pre-cleaned sample containers provided by the laboratory performing the analysis. 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^{o} Celsius until delivered to, and analyzed by the laboratory. This will be accomplished by utilization of an on-site refrigerator and/or coolers with ice. (When collecting composite samples for toxicity characteristic leachate procedure (TCLP) volatile analysis, volatilization will be minimized by covering the sample compositing container and placing it within a cooler filled with ice between grab sample additions.)

3.2 Solidified Soil

Samples of the wet solidified soil will be collected and analyzed in accordance with the following table to determine if the performance criteria are being met.

SOLIDIFIED SOIL SAMPLING AND ANALYSIS(1)		
Test	**Method**	**Performance Criteria**
UC Strength	ASTM D 1633	≥ 100 psi after 7 days ≤ 500 psi after 28 days
Permeability	ASTM D 5084	≤ 1x10-6 cm/sec
Maximum volume increase	ASTM D1556	~ 20 percent nominal

Notes:

(1) Samples will be collected at column depths of one third (1/3) and two thirds (2/3) column depth using a point source sampler. Adequate volume will be collected for analysis of 7-day and 28-day cured samples.

Excess solidified soil will be sampled and analyzed to determine off-site treatment/disposal requirements. One sample will be collected at a minimum of one per 500 yd³, or 750 tons, for analysis of the waste disposal characterization parameters listed in Table B.

Solidified Soil samples will be collected as described in the appropriate sections of the *Remedial Action Design* or *In Situ Solidification Stabilization Study (Plan).* These sections describe the collection procedures, sampling equipment, locations and frequencies for the soil samples. These schedules are based on the requirements for soil disposal or confirmation of contaminated soil stabilization.

All sampling equipment will be properly disposed or decontaminated before being reused (see Section 8.1.1). Samples will be collected and placed in pre-cleaned sample containers provided by the laboratory performing the analysis. 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 10-30^{o} Celsius until delivered to, and analyzed by the laboratory.

3.3 Wastewater Sampling

Wastewater samples will be collected as described in the appropriate sections of the *Remedial Design.* These sections describe the collection procedures, sampling equipment, locations and frequencies for the wastewater samples. Samples of wastewater will be analyzed before being transported to a permitted facility for proper treatment and disposal.

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^{o} Celsius until delivered to, and analyzed by the laboratory. This will be accomplished by utilization of an on-site refrigerator and/or coolers with ice.

3.4 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 (next page).

TABLE A
SAMPLE CONTAINERS & PRESERVATIVES

Analysis	Matrix	Container	Preservative
TCLP Semivolatiles	Soil	500 ml glass*	4° Celsius
TCLP Metals	Soil	500 ml glass*	4° Celsius
TCPL Pesticides/Herbicides	Soil	500 ml glass*	4° Celsius
Reactive Cyanide	Soil	500 ml glass*	4° Celsius
Reactive Sulfide	Soil	500 ml glass*	4° Celsius
TCLP Volatiles	Soil	20 ml glass	4° Celsius
Total PAHs	Soil	250 ml glass	4° Celsius
Total BTEX (benzene, toluene, ethylbenzene, xylenes)	Soil	125 ml glass	4° Celsius
Total Metals	Soil	250 ml glass**	4° Celsius
Percent Sulfur	Soil	250 ml glass**	4° Celsius
PCBs	Soil	500 ml glass***	4° Celsius
Ignitability	Soil	500 ml glass***	4° Celsius
BTU/lb	Soil	500 ml glass***	4° Celsius
Flashpoint	Soil	500 ml glass***	4° Celsius
Percent Solids	Soil	500 ml glass***	4° Celsius
pH	Soil	500 ml glass***	4° Celsius
Reactivity	Soil/Water	500 ml glass***	4° Celsius
Corrosivity	Soil/Water	500 ml glass***	4° Celsius
Total Metals	Water	500 ml Plastic	HNO_3 to pH < 2
Semivolatiles	Water	1000 ml amber glass	4° Celsius
Pesticides/Herbicides	Water	1000 ml amber glass	4° Celsius
Volatiles	Water	40 ml glass	4° Celsius or HCl to pH > 12
Paint Filter	Water	500 ml glass	4° Celsius
Total Cyanide	Water	500 ml Plastic	4° Celsius NaOH to pH > 12

* May be analyzed from same sample container and/or extract.
** May be analyzed from same container.
*** May be analyzed from same container.
Note: All glass containers will be sealed with Teflon liner caps. All water samples for organic fractions will be collected in duplicate.

3.5 Sampling Holding Times

The following Tables identify samples by type and matrix and theirs related holding times.

TABLE B
WASTE CHARACTERIZATION SAMPLES

Sample Type	Matrix	Holding Time*
TCLP Pesticides/Herbicides	Soil/Solidified Soil	5 days (extraction) 40 days (after extraction)
TCLP Semivolatiles	Soil/Solidified Soil	5 days (extraction) 40 days (after extraction)
TCLP Mercury	Soil/Solidified Soil	5 days (extraction) 28 days (after extraction)
TCLP Metals	Soil/Solidified Soil	180 days
TCLP Volatiles	Soil/Solidified Soil	14 days
Reactive Sulfide	Soil/Solidified Soil	7 days
Reactive Cyanide	Soil/Solidified Soil	14 days
PCBs	Soil/Solidified Soil	5 days (extraction) 40 days (after extraction)
Ignitability	Soil/Solidified Soil	NA
Reactivity	Soil/Solidified Soil	Cyanide 14 days Sulfide 7 days
Corrosivity	Soil/Solidified Soil	2 days
Percent solids	Soil/Solidified Soil	NA
Modified Static Leaching Test	Soil/Solidified Soil	As soon as possible, but not more than 5 days.

* Samples will be analyzed on a priority basis and reported within 10 days of collection or the maximum holding time, whichever is less.

TABLE C
WASTEWATER SAMPLES

Sample Type	Matrix	Holding Time*
Semivolatiles	Water	5 days to extraction 40 days after extraction
Metals	Water	180 days
Total Cyanide	Water	14 days
Paint Filter	Water	NA
Reactivity	Water	Cyanide 14 days Sulfide 7 days
Corrosivity	Water	Analyze immediately
Volatiles	Water	14 days

* Samples will be analyzed on a priority basis and reported within 5 days or the maximum holding time, whichever is less.

TABLE D
POST REMEDIATION CONFIRMATORY SAMPLES

Sample Type	Matrix	Holding Time
Total Benzene	Soil	7 days
PAHs	Soil	5 days to extraction 40 days after extraction
TCL Volatiles	Soil	5 days to extraction 40 days after extraction
TCL Semivolatiles	Soil	5 days to extraction 40 days after extraction
Total Mercury	Soil	26 days
Total Lead	Soil	26 days
UC Strength	Solidified Soil	
Permeability	Solidified Soil	

1. Asp Category B deliverables required. Duplicates, matrix spike, and matrix spike duplicate samples will be collected at a rate of ten percent.
2. Samples will be analyzed on a priority basis and reported within 48 hours or the maximum holding time, whichever is less.
3. TCL volatiles and semivolatiles will be determined at a minimum rate of 1 every group of 10 confirmation samples or portion thereof.

4.0 SAMPLE CUSTODY, IDENTIFICATION & TRACKING

4.1 Holding Times and Sample Transport

Since the samples will be analyzed at priority 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 Chain-of-Custody 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 Chain-of-Custody will be included in all hard copies of reports. See Attachment 1 for sample Chain-of-Custody Form.

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 Chain-of-Custody. If a sample container is broken or leaking it will be noted on the Chain-of-Custody form 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 Chain-of-Custody) and the completed Chain-of-Custody 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 2 for sample identification naming convention for air, water, and confirmatory samples. A Site map will be used throughout the project to denote the area or point that a confirmatory sample represents. Each confirmatory sample will be assigned a sample point number that will appear as characters 9 & 10.

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 Minimum 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 and speciated 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) will be used to measure volatile organic vapors will be calibrated to benzene with a 10 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. The portable gas chromatograph unit will be used to measure the BTEX (benzene, toluene, ethyl benzene and xylenes) compounds and will be calibrated to a BTEX standard.

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 E
ANALYTICAL METHODS

Analyte	Analytical Method
TCLP Extractions	SW 846 Method 1311
TCLP Volatiles	SW 846 Method 8260
TCLP Semivolatiles	SW 846 Method 8270
TCLP Metals	SW 846 Method 6000/7000 Series
TCLP Pesticides/Herbicides	SW846 Method 8080/8151
Polycyclic Aromatic Hydrocarbons (Table F)	SW 846 Method 8270
Total Volatiles	SW 846 Method 8260
Total Semivolatiles	SW 846 Method 8270
Total Metals	SW 846 Method 6000/7000 Series
PCBs	SW 846 Method 8082
Reactive Sulfide	SW 846 Chapter 7.3.3.2
Reactive Cyanide	SW 846 Section 7.3.3.2
Percent Sulfur	ASTM D-129
BTU/lb	ASTM D-215
Flashpoint	ASTM D-93
Ignitability	SW 846 Method 1030
Reactivity	SW 846 Section 7
Corrosivity	SW 846 Section 7
Percent Solids	ASP Method D-V-Section IX
pH	SW 846 Method 9045
Total Cyanide	SW 846 9012
Paint Filter Test	SW 846 9095

TABLE F POLYCYCLIC AROMATIC HYDROCARBON (PAH) ANALYTE LIST
Parameter
Naphthalene
2-Methylnaphthalene
Acenaphthalene
Acenaphthylene
Fluorene
Phenanthrene
Anthracene
Fluoranthene
Dibenzofuran
Pyrene
Benzo (g,h,i) perylene
Benzo (a) anthracene*
Chrysene*
Benzo (b) fluoranthene*
Benzo (k) fluoranthene*
Benzo (a) pyrene*
Indeno (1,2,3 cd) pyrene*
Dibenzo (a,h) anthracene*
***Carcinogenic PAHs (cPAHs)**

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 this *Remedial Design.*

7.0 DATA REDUCITON 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 soil and 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/Kg for solid matrices and 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 insure 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 8.3. 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 confirmatory samples will be performed at NYSEG's discretion. Confirmatory 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 provides a thorough review and evaluation of analytical data without the formality of a full third party data validation. A Data Usability Summary Report for the analytical results of confirmatory 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 *Remedial Action Design.*

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 Confirmation 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.
- The equipment will be rinsed with a reagent grade methanol solution diluted with analyte-free water.
- If the equipment is being used for the collection of samples for metals analyses it will then be rinsed with a 10% reagent grade nitric acid solution.
- The equipment will 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 PREVENTATIVE 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 (i.e., balances, ovens, refrigerators, water purification systems, etc.) will be checked and documented. Any discrepancies will be immediately reported to the appropriate laboratory personnel for resolution.

ATTACHMENT 1

ATTACHMENT 2

SAMPLE IDENTIFICATION
NAMING CONVENTION FOR SOIL AND WATER SAMPLES

SYSTEM CODING

First & Second = Site	Cortland-Homer South Main Street	CH
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
Fifth & Sixth = Location	Sidewall Sample	SW
	Bottom Sample	BM
	Waste Soil	WS
	Wastewater	WW
	Debris	DB
Seventh & Eighth = Relative Depth	Surface Soil	00
	Depth below Ground	02
	Non-Applicable	NA
Ninth, Tenth & Eleventh =	Sample Number	005

EXAMPLE: Cortland-Homer South Main Street; Excavation; Sidewall; 2 ft below ground; and sample number

SAMPLE IDENTIFICATION: CHEXSW02005

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 M

SPECIAL NOTE
OWNER REQUIREMENTS FOR WATER MAINS AND APPURTENANCES

Special Note
Owner Requirements for Water Mains and Appurtenances

The following are the requirements of the owner of the water system for this contract. All manufacturer or proprietary material designations are the requirement of the Owner. Approval of an equal item other than that specified must be granted by the Owner.

Owner: Village of Homer, NY – Newton Water Works
Address: 31 North Main Street
City, State, Zip: 13072
Contact: Lawrence Barber
Phone #:

The Owner [~~does not~~] requires review and approval of materials and details. The estimated time required for approval by the Owner of the materials and details during construction is two weeks.

Pipe:

Type of Material: 6 NPS Ductile Iron — Pressure/Thick Class or DR: Class 52 Ductile Iron

Lining:

Type of Joint: Slip or M. J. Joints

Bedding Requirements: Item 4 or #1 (Dimensions and item)

Fittings: (Compact Ductile Iron (C153) required unless otherwise noted)
C110 Full Body Required For Size ____NPS To ____ NPS

Special Requirements: _____

Thrust Restraint Type:

Horizontal Bends - _Restrained Joint of _ Thrust Block or xRetainer Gland or xTie Rod
Vertical Bends - _Restrained Joint of _ Thrust Block or xRetainer Gland or xTie Rod
Tees & Crosses - _Restrained Joint of _ Thrust Block or xRetainer Gland or xTie Rod
Valves - _Restrained Joint of _ Thrust Block or xRetainer Gland or xTie Rod
Hydrants - _Restrained Joint of _ Thrust Block or xRetainer Gland or xTie Rod

Tie Rods:

Type: Threaded Rod — Size: 3/4

Valves:

Manufacturer: Kennedy or Mueller

Type: (Different types may be required for different uses.)

Open: __x_Left (Counter-Clockwise) or ____Right (Clockwise)

Valves may [~~may not~~] be operated by personnel other than Owner's staff.

Special Note
Owner Requirements for Water Mains and Appurtenances

Valve Boxes: (Slide type adjustable required unless otherwise noted)
Type: Screw Type

Hydrants:
Manufacturer: A.V.K. Model:

Pumper nozzle: Qty 1 Thread NST &Size 6" NPS

Hose nozzle Qty 1 Thread NST &Size 2" NPS

Open: Left (Counter-Clockwise) or ~~Right (Clockwise)~~

Size / shape of operating nut: 1 1/4

Depth of Bury: 5 ft.

Color: Red

Service Connection Materials:
Corporation Stop
Type: ¾ Compression
Manufacturer: Mueller or Ford Connection Size: ¾ and up

Curb Stop
Type: Compression
Manufacturer: Mueller or Ford Connection Size: ¾ and up

Curb Box
Type:
Manufacturer: Mueller or Ford Connection Size: 1 in.
Location: Between Curb and Building

Fittings
Manufacturer: Mueller or Ford

Taps
Wet Taps Required? Yes/~~No~~ Tap Fee:
If dry taps allowed, Allowable water main shut down time:

Water Meter Pits

Dimensions (LxWxH): 4'x4'x4'
Roof Loading:
Knockouts, etc:

APPENDIX N

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION APPROVAL LETTER