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Pre-Remediation In-Situ Sampling and Analysis Work Plan

Clark Street Former Manufactured Gas Plant Site
Auburn, New York
Site No. 7-06-008

August 2013

ARCADIS

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Clark Street Site Former
Manufactured Gas Plant Site
Site No. 7-06-008

Prepared for:
NYSEG

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1. Introduction

This *Pre-Remediation In-Situ Sampling and Analysis Work Plan* (Sampling Work Plan) has been prepared by ARCADIS of New York, Inc. (ARCADIS) on behalf of NYSEG and describes the sampling and analysis protocols that will be used during the pre-remediation in-situ waste characterization sampling activities to be conducted in support of the forthcoming remedial construction activities at the NYSEG Clark Street Former Manufactured Gas Plant (MGP) Site located in Auburn, New York (the site, Site No. 7-06-008).

The purpose of the pre-remediation sampling and a brief description of the site background are presented below. Pre-remediation sampling activities and analytical requirements are presented in Section 2 and pre-remediation sampling reporting details are presented in Section 3.

1.1 Purpose

The purpose of this Sampling Work Plan is to present the sampling and analysis protocols that will be utilized to conduct pre-remediation in-situ waste characterization soil sampling. The analytical results obtained for samples collected during this pre-remediation sampling event will be used to facilitate waste characterization and identification of appropriate treatment/disposal facilities (or provide a basis for material reuse) prior to the implementation of the remedial construction activities.

1.2 Background

The Clark Street site is located at the east end of Clark Street near US Route 20 and consists of an approximate 3-acre triangular area. The Clark Street upland area is currently occupied by a NYSEG electrical substation and natural gas regulator building. A majority of the property is covered with gravel and surrounding areas are vegetated with trees, grass, and brush. The Owasco Outlet borders the Clark Street upland area to the east and north, with the upland area forming a peninsula into the outlet.

Based on the results of investigation activities completed to date, MGP-related impacts have been identified in the upland portion of the site (as well as Owasco Outlet sediment adjacent to and downstream of the site). MGP-related impacts at the site consist of non-aqueous phase liquid (NAPL) and related constituents of concern (COCs); namely polycyclic aromatic hydrocarbons (PAHs). In general, NAPL was observed in the overburden at depths of 5 feet below ground surface (bgs) to the top of

bedrock, which is encountered at depths ranging from 10 to 15 feet bgs. A more detailed site history is presented in the *Supplemental Remedial Investigation Report* (SRI Report) (URS, 2008) and results of the previous investigations are presented in the SRI Report, *Sediment PDI Summary Report* (ARCADIS, 2011), and *Upland PDI Summary Report* (ARCADIS, 2012).

Upland soil removal limits are shown on Figure 1. Phase 1 remedial construction activities will consist of excavation in the western portion of the site. Soil and former MGP structures (e.g., gas holder #1 foundation) will be removed to the depth of bedrock. Excavation activities completed during Phase 1 will provide a clean portion of the site to facilitate relocation of electrical transmission infrastructure (i.e., to be completed by NYSEG during Phase 2) and provide a project support area for the remainder of the upland excavation activities (i.e., Phase 3). Note that Phase 3 pre-remediation sampling will be conducted following the removal of the currently existing NYSEG substation (i.e., to be removed by NYSEG during Phase 2), located in the northeastern portion of the site.

Additional details regarding the remedial construction activities are presented in the May 2013 *Draft Final (95%) Remedial Design Report* (RD Report) (ARCADIS, 2013).

2. Pre-Remediation Sampling and Analysis

This section presents a summary of the pre-remediation in-situ waste characterization sampling activities and laboratory analyses to be completed to generate waste characterization data for the material to be excavated during the Phase 1 remedial construction activities. Waste characterization data will be used to identify treatment/disposal requirements prior to commencing remedial activities and to facilitate direct-loading of excavated material destined for off-site treatment and/or disposal.

2.1 Utility Mark-Out

Prior to conducting any intrusive work, ARCADIS' survey subcontractor (Paul Olszewski, PLS, PLLC) will mark-out soil boring locations and ARCADIS will complete a utility clearance by contacting a private utility-locating agency (e.g., Underground Services, Inc.). Based on ARCADIS' past experience, subsurface utilities are not present within the limits of the Phase 1 excavation area. Additionally, ARCADIS' drilling subcontractor (Parratt-Wolff, Inc. [Parratt-Wolff]), will call Dig Safely New York prior to conducting subsurface activities.

As indicated above, Phase 3 pre-remediation sampling will be conducted following Phase 2 (i.e., removal of the existing electrical substation) and prior to Phase 3 remedial construction activities. Additionally, NYSEG anticipates that the gas lines currently located within the Phase 3 excavation area will be relocated prior to the Phase 3 pre-remediation sampling and remedial construction.

2.2 Soil Sampling and Analysis

Pre-remediation in-situ waste characterization sampling activities will be conducted in accordance with the *Quality Assurance Project Plan* (QAPP), *Field Sampling Plan* (FSP), and *Health and Safety Plan* (HASP), included as appendices to the *Remedial Design Work Plan* (RDWP) (ARCADIS, 2010), as well as the community air monitoring procedures described in Section 2.3.

2.2.1 Soil Boring Locations and Sampling Intervals

Soil borings will be completed to facilitate collection of shallow and deep subsurface soil samples. ARCADIS' drilling subcontractor (Parratt-Wolff) will drill soil borings using hollow-stem auger drilling methods at the locations shown on Figure 1. Soil samples

will be collected continuously at each boring to the top of bedrock using 2- or 3-inch diameter split spoon sampling devices. Each soil sample will be characterized for soil type and the presence of visible staining, sheen, NAPL, and obvious odors.

A total of 52 subsurface soil samples (plus three sets of QA/QC samples) will be collected from 26 soil borings. Two composite samples are anticipated to be collected from each soil boring (i.e., one shallow sample and one deep sample, as discussed below). The number of soil borings to be completed and soil samples to be collected has been determined based on the anticipated volume of soil to be excavated during remedial construction activities and treatment and disposal facility sampling requirements. At locations within the limits of former gas holders, the holder foundation slab will be exposed using a backhoe prior to coring through the slab. Once coring is completed at a specific location, the remainder of the boring (i.e., below the holder foundation slab) will be completed to the top of bedrock using hollow-stem augers.

In general, at each boring location, one sample will be collected from the depth interval containing visually impacted material and one sample will be collected from depth interval(s) containing non-visually impacted material. If no visually impacted material is encountered at a particular boring location, one sample will be collected from the upper half (i.e., approximately top 5 feet below grade) of the soil boring and one sample will be collected from the depth interval located immediately above the overburden/bedrock interface. Anticipated subsurface soil sampling intervals for each soil boring are presented on Table 1. Sample intervals may be modified in the field, based on the presence/absence of visual impacts and subsurface obstructions, to meet treatment/ disposal facility sampling frequency requirements.

2.2.2 Soil Sample Analysis Rationale

Soil excavated during remedial construction activities will be transported off-site for treatment and/or disposal or staged for potential reuse on-site as subsurface fill based on the following:

- Soil containing visual MGP-related impacts; that is characteristically hazardous for benzene; or that contains total PAHs at concentrations greater than 1,000 milligram per kilogram (mg/kg) will be sent for off-site treatment via low-temperature thermal desorption (LTTD) (i.e., at ESMI's Fort Edward facility).

- Soil that does not contain visual impacts, but contains total PAHs at concentrations greater than 500 mg/kg and less than 1,000 mg/kg will be sent for off-site disposal as non-hazardous solid waste (i.e., at Seneca Meadows Landfill).

- Soil that does not contain visual impacts and contains total PAHs at concentrations less than 500 mg/kg, will be potentially suitable for on-site reuse as subsurface fill (with NYSDEC-approval).

In general, subsurface soil located immediately above bedrock contains visual MGP-related impacts and/or total BTEX and total PAHs at concentrations greater than 10 and 500 mg/kg, respectively. Therefore, it is anticipated that material removed from the lower portion (i.e., approximately the bottom 6 feet) of the excavation area will be transported off-site for LTTD treatment at ESMI's Fort Edward, New York facility. Deep subsurface soil samples (i.e., collected from the bottom of soil borings), plus select shallow subsurface samples (i.e., anticipated to include non-visually impacted material), will be submitted for the ESMI-required analyses presented in Table 2.

Excavated material from the approximate top 5 feet is anticipated to be potentially suitable for on-site reuse as subsurface fill or will be transported for off-site disposal as a non-hazardous waste at Seneca Meadows Landfill. Shallow subsurface soil samples collected from each soil boring will be submitted for the landfill-required analyses presented in Table 3.

2.3 Community Air Monitoring

Real-time air quality monitoring will be conducted for the duration of intrusive activities. During the completion of soil borings and test pits, monitoring will be conducted at one upwind and one downwind location for VOCs and particulate matter less than 10 micrometers in diameter (PM_{10}). Meteorological monitoring will not be required during the sampling. Additionally, particulate monitoring will not be performed during precipitation events. Monitoring station locations will be determined based on weather conditions (e.g., wind direction). Air monitoring locations will be documented in a field logbook.

A real-time VOC monitor (e.g., RAE MiniRAE 2000 [or equivalent]), equipped with either a photoionization detector (PID), or flame ionization detector (FID), calibrated to 100 parts per million (ppm) Isobutylene will be used to monitor for VOCs. The instrument will be capable of calculating 15 minute running average concentrations. As outlined in the New York State Department of Health (NYSDOH) *Generic Community*

Air Monitoring Plan (GCAMP) (NYSDOH, 2002), if the ambient air concentration for total VOCs exceeds 5 ppm above background (upwind location) for the 15-minute average, work activities will be temporarily halted while monitoring continues. If the total VOC concentration readily decreases (through observation of instantaneous readings) below 5 ppm above background, then work activities can resume with continuous monitoring. Additionally, if odors deriving from the site operations are detected in the nearby community, despite VOCs being below the action level, odor suppression activities will be taken.

A real-time particular monitor (e.g., TSI 8530 DustTrack II [or equivalent]) will be used for particulate monitoring. As also required by NYSDOH GCAMP, if the average ambient air PM_{10} concentration (calculated for continuous 15-minute increments as specified above) at the downwind perimeter location exceeds 100 micrograms per cubic meter ($\mu g/m^3$) above the average background concentration (calculated for continuous 15-minute increments as specified above), or if airborne dust is visually observed leaving the work area, then dust suppression measures will be implemented, and air monitoring will continue.

2.4 Decontamination

All non-disposable equipment (e.g., drilling tools, shovels, etc.) will be decontaminated prior to first use on site, between each investigation location, and prior to demobilization. Decontamination may take place at the sampling location as long as all liquids are contained in pails, buckets, etc. Decontamination procedures will consist of washing equipment with potable water and a detergent (such as Alconox). The sampling equipment will then be rinsed with potable water, a rinse with a 10 percent "ultra pure-grade" nitric acid followed by a distilled water rinse, a 10 percent "pesticide-grade" methanol rinse, and finally a distilled water rinse. Between rinses, equipment will be placed on polyethylene sheets or aluminum foil if necessary. At no time will washed equipment be placed directly on the ground. Equipment will be either used immediately or wrapped in plastic or aluminum foil for storage or transportation from the designated decontamination area to the sampling location.

2.5 Waste Handling

All investigation-derived waste (IDW) will be containerized on-site. Soil cuttings, personal protective equipment, spent disposable sampling materials and water generated during the sampling and decontamination activities will be segregated by waste type and placed in DOT-approved 55-gallon steel drums. Each drum will be

appropriately labeled with the contents, generator, location, and date. IDW will be disposed of with excavated material during remedial construction activities.

2.6 Additional Site Activities

Note that the following additional activities will be conducted as part of the pre-remediation sampling activities:

- Test pitting along the toe of slope – ARCADIS' subcontractor (Parratt-Wolff) will complete a test pit along the toe of the slope to visually confirm the western extent of the former holder foundation (as observed during previous ground-penetrating radar [GPR] survey activities). Excavated material will be staged on polyethylene sheeting adjacent to the test pit. The location and elevation of holder will be surveyed (if observed different than currently known). The test pit will be backfilled by replacing the excavated material in the reverse order that it was removed. Test pitting procedures are described in the FSP included as Appendix B of the RDWP. Community air monitoring, as described in Section 2.3, will be conducted during test pitting activities.

- Conducting a property boundary survey – ARCADIS' survey subcontractor (Paul Olszewski, PLS, PLLC) will conduct a property boundary survey in support of the forthcoming remedial activities (which may require access agreements with neighboring properties not owned by NYSEG).

3. Pre-Remediation Sampling Reporting

Activities and results of the pre-remediation sampling will be documented in a *Pre-Remediation In-Situ Sampling and Analysis Summary Report* (Sampling Summary Report). The visual characterization and analytical results will provide the basis for selecting the appropriate treatment/disposal facility for excavated material (or provide a basis for reuse). The Sampling Summary Report will include the following:

- A brief summary of the sampling activities including health and safety monitoring, field observations, problems encountered, and other pertinent information necessary to document the work.
- Tabulated summaries of visual impacts and analytical results.
- A plan view figure depicting sampling locations and cross sections of the removal areas depicting the proposed treatment/disposal destination for each section based on the in-situ characterization results.
- Field notes (included as attachment).

Soil boring logs will not be prepared, as the material sampled will be excavated shortly after the soil borings are completed.

4. References

ARCADIS, 2010. Remedial Design Work Plan, NYSEG Clark Street Former Manufactured Gas Plant Site, Auburn, New York, February 2010.

ARCADIS, 2011. *Sediment PDI Summary Report, NYSEG Clark Street Former MGP Site,* June 10, 2011.

ARCADIS, 2012. *Upland PDI Summary Report, NYSEG Clark Street Former MGP Site*, March 2, 2012.

ARCADIS, 2013. *Draft Final (95%) Remedial Design Report, NYSEG Clark Street Former MGP Site*, May 2013.

NYSDOH, 2002. *Generic Community Air Monitoring Plan* (GCAMP), December 2002.

URS, 2008. *Supplemental Remedial Investigation Report*, prepared for the NYSEG Clark Street Former Manufactured Gas Plant, Auburn, New York. June 2008.

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Tables

Table 1
Soil Sampling Summary

NYSEG - Clark Street Former MGP Site - Auburn, New York

Soil Boring	Sampling Intervals[1]	Analyses[3,4]
Phase 1 (Western Portion of Site)		
SB-P1WC-01	0-6'	Landfill and ESMI
	6-12'	ESMI
SB-P1WC-02[2]	0-5'	Landfill
	6-12'	ESMI
SB-P1WC-03[2]	0-5'	Landfill
	6-12'	ESMI
SB-P1WC-04	0-6'	Landfill and ESMI
	6-12'	ESMI
SB-P1WC-05[2]	0-5'	Landfill
	6-12'	ESMI
SB-P1WC-06[2]	0-5'	Landfill and ESMI
	6-12'	ESMI
SB-P1WC-07[2]	0-5'	Landfill and ESMI
	6-12'	ESMI
SB-P1WC-08[2]	0-5'	Landfill
	6-12'	ESMI
Phase 3 (Eastern Portion of Site)		
SB-P3WC-01	0-6'	Landfill and ESMI
	6-12'	ESMI
SB-P3WC-02	0-6'	Landfill
	6-12'	ESMI
SB-P3WC-03	0-6'	Landfill and ESMI
	6-13'	ESMI
SB-P3WC-04	0-7'	Landfill
	7-14'	ESMI
SB-P3WC-05	0-7'	Landfill and ESMI
	7-15'	ESMI
SB-P3WC-06	0-7'	Landfill
	7-15'	ESMI
SB-P3WC-07	0-5'	Landfill
	5-11'	ESMI
SB-P3WC-08	0-5'	Landfill and ESMI
	5-11'	ESMI
SB-P3WC-09	0-6'	Landfill
	6-12'	ESMI
SB-P3WC-10[2]	0-5'	Landfill and ESMI
	6-10'	ESMI
SB-P3WC-11[2]	0-5'	Landfill
	6-10'	ESMI
SB-P3WC-12	0-6'	Landfill and ESMI
	6-12'	ESMI
SB-P3WC-13	0-5'	Landfill and ESMI
	5-11'	ESMI

Table 1
Soil Sampling Summary

NYSEG - Clark Street Former MGP Site - Auburn, New York

Soil Boring	Sampling Intervals[1]	Analyses[3,4]
Phase 3 (cont'd)		
SB-P3WC-14	0-5'	Landfill
	5-11'	ESMI
SB-P3WC-15[2]	0-5'	Landfill and ESMI
	5-10'	ESMI
SB-P3WC-16[2]	0-5'	Landfill
	5-10'	ESMI
SB-P3WC-17[2]	0-5'	Landfill and ESMI
	5-10'	ESMI
SB-P3WC-18	0-6'	Landfill
	6-12'	ESMI

Notes:

1. Depth to bedrock varies. Bottom sampling interval to include soil to top of bedrock, regardless of depth.
2. Sampling location limits of former gas holder foundation. Gas holder foundation is assumed to be present from 5 to 6 ft bgs.
3. ESMI-required analyses are presented in Table 2.
4. Landfill-required analyses are presented in Table 3.
5. Sampling intervals are general guidelines. Actual sampling intervals will be selected in the field to focus on visually impacted and non-visually impacted intervals to assess potential handling, treatment, and/or disposal requirements.

Table 2
ESMI Analytical Requirements

NYSEG - Clark Street Former MGP Site - Auburn, New York

Analyte	Laboratory Method
Total TPHs (GRO and DRO)	USEPA Method 8015
Total VOCs	USEPA Method 8260B
Total SVOCs	USEPA Method 8270C
Total PCBs	USEPA Method 8080
Total Metals*	USEPA Method 6010B
Total Cyanide	USEPA Method 9010
Percent Sulfer	USEPA Method D129-64
BTU	ASTM D240-87

Notes:

1. Plus antimony, beryllium, nickel, thallium, vanadium, and zinc.

Table 3
Seneca Meadows Landfill Analytical Requirements

NYSEG - Clark Street Former MGP Site - Auburn, New York

Analyte	Laboratory Method
TCLP VOCs	USEPA Method 8260
TCLP SVOCs	USEPA Method 8270
TCLP Metals	USEPA Method 6010B
Total PCBs	USEPA Method 8082
Pesticides	SW-846 Method 1311/8081B
Herbicides	SW-846 Method 1311/8150A
Reactivity/Corrosivity	USEPA Method 1110A
Flashpoint	SW-846 Method 1010A
Paint Filter	SW-846 Method 9095
pH	SW-846 Method 9045D
Total VOCs	USEPA Method 8260B
Total SVOCs	USEPA Method 8270C

Notes:

1. Total VOC and SVOC analysis required to evaluate potential reuse of excavated material.

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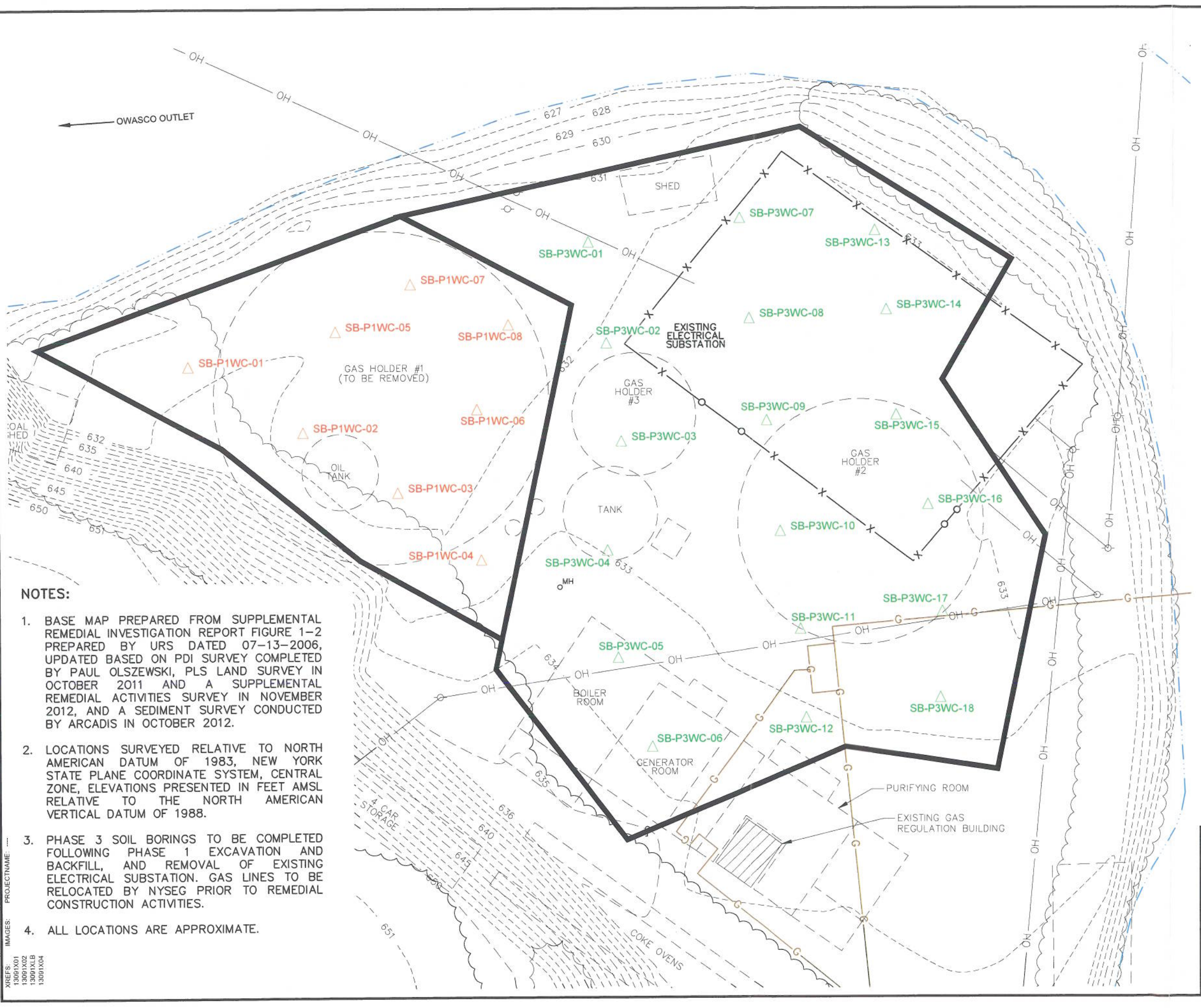
Figure



NOTES:

1. BASE MAP PREPARED FROM SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT FIGURE 1-2 PREPARED BY URS DATED 07-13-2006, UPDATED BASED ON PDI SURVEY COMPLETED BY PAUL OLSZEWSKI, PLS LAND SURVEY IN OCTOBER 2011 AND A SUPPLEMENTAL REMEDIAL ACTIVITIES SURVEY IN NOVEMBER 2012, AND A SEDIMENT SURVEY CONDUCTED BY ARCADIS IN OCTOBER 2012.
2. LOCATIONS SURVEYED RELATIVE TO NORTH AMERICAN DATUM OF 1983, NEW YORK STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, ELEVATIONS PRESENTED IN FEET AMSL RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988.
3. PHASE 3 SOIL BORINGS TO BE COMPLETED FOLLOWING PHASE 1 EXCAVATION AND BACKFILL, AND REMOVAL OF EXISTING ELECTRICAL SUBSTATION. GAS LINES TO BE RELOCATED BY NYSEG PRIOR TO REMEDIAL CONSTRUCTION ACTIVITIES.
4. ALL LOCATIONS ARE APPROXIMATE.

LEGEND:

- TREE LINE
- OH — OVERHEAD ELECTRIC
- G — NATURAL GAS LINE
- EXISTING UTILITY POLE
- MH — UNKNOWN MANHOLE
- LIGHT POST
- X — CHAIN LINK FENCE
- EDGE OF WATER
- 635 — TOPOGRAPHIC CONTOUR
- FORMER MGP STRUCTURE/ FORMER ELECTRICAL SUBSTATION
- SOIL REMOVAL LIMITS
- SB-P1WC-01 — PROPOSED SOIL BORING LOCATION (PHASE 1)
- SB-P3WC-01 — PROPOSED SOIL BORING LOCATION (PHASE 3)

0 30' 60'

GRAPHIC SCALE

NYSEG
CLARK STREET FORMER MGP SITE
AUBURN, NEW YORK
PRE-REMEDIATION SAMPLING WORK PLAN

PROPOSED SOIL BORING LOCATIONS

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FIGURE 1

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: S. KOWALCZYK, E. KRAHMER LD:(Opt) PIC: K. WHITE PM: J. BRIEN TM: J. GOLUBSKI LYR:(Off+On+*OFF*+*REF*
G:\ENVCAD\SYRACUSE\ACTIVE\30013091\0080\00220\DWG\13091G01_Rev0826.dwg LAYOUT: 1 SAVED: 9/26/2013 12:42 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: PDF PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 8/26/2013 1:15 PM BY: SANCHEZ, ADRIAN
XREFS: 13091X01 13091X02 13091XLB 13091X04
IMAGES: PROJECTNAME: ---