Steven P. Stucker, C.P.G.
Project Manager
Environmental Department

August 4, 2017

Mr. Scott Deyette
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7014

Re: ***Malone (Amsden Street) Former MGP Site***
Site #: V00469
Final Remedial Investigation Report and Project Schedule

Dear Mr. Deyette:

This letter is prepared in response to your June 8, 2017 letter regarding the Remedial Investigation Report (RIR) for the Malone (Amsden Street) Former Manufactured Gas Plant (MGP) site. In your letter, you approved the August 10, 2016 draft RIR and requested that National Grid provide the New York State Department of Environmental Conservation (NYSDEC) and NYS Department of Health (NYSDOH) with electronic copies of the RIR and Alternatives Analysis Report (AAR). On the date of this letter, we will email you instructions for downloading the final RIR using the cloud-based computer file transfer service known as WeTransfer. We are currently preparing a draft annotated outline to present the proposed format for the AAR and the conceptual site remedy (including the offsite parcels, identified as Tax Parcels 98.81-1- 1, 98.81-1- 4, and 98.81-1-3.200) and plan to send you the outline in August 2017. Once NYSDEC has reviewed the outline, we'd like to have a meeting at the NYSDEC's Albany office to discuss and agree upon the elements of the conceptual site remedy and format for the AAR. We will incorporate the agreements made during the meeting into the draft AAR and anticipate submitting the draft AAR to the NYSDEC in November 2017.

We'd like to take this opportunity to inform you of the following three field activities we are planning to conduct in the near term to support development of the AAR and eventual Remedial Action Work Plan (RAWP):

1. **Topographic Survey:** A topographic and boundary will be conducted by an Arcadis subcontractor, as follows:

    - Completing an ALTA/ACSM property boundary survey in accordance with the NYSDEC's requirements for filing an environmental easement;

    - Spot elevations as necessary to generate one-foot topographic contours;

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- Horizontal and vertical location of buildings, foundations, concrete pads, and walls;

- Horizontal location of exposed piping and utilities, poles, overhead wires, posts, signs, markers, curbs, fencing, gates, valves, hydrants, and other facilities visible at or above ground surface;

- Horizontal limits of lawns, pavements, roads, walks, drives, retaining walls, and other surface improvements;

- Horizontal and vertical location of edge of surface water bodies on site (i.e., groundwater seeps, ponding) and adjacent to the site (i.e., Salmon River); and

- Horizontal and vertical location of manholes, catch basins, vaults, chambers, and similar structures, including rim and invert elevations of each.

2. **Building Observation:** A preliminary building observation will be conducted of the two buildings located on the site. The locations of the building are shown on Figure 1. The observation will be conducted to confirm/determine that the buildings are safe to enter, photo-document the exterior and accessible interior areas, document building construction and condition, and identify materials that potentially contain lead and/or asbestos. The observation will be conducted by an Arcadis NYS-licensed asbestos inspector. The results of the building observation will be incorporated into the AAR and RAWP.

3. **Riverbank Reconnaissance:** A visual reconnaissance will be conducted along the riverbank of the Salmon River where hardened tar was previously observed and removed by National Grid in July 2013 as part of the Interim Remedial Investigation (IRM) Pre-Design Investigation conducted on Tax Parcel 98.81-1-4. The most recent riverbank reconnaissance was conducted in 2014 and documented in the RIR. To support the AAR and RAWP, the reconnaissance will consist of walking along the riverbank adjacent to the following three contiguous tax parcels: Tax Parcel 98.81-1-4, Tax Parcel 98.81-1-3.200, and Tax Parcel 98.81-1-1 (collectively referred to as the "Pritchard Property"). Figure 2 shows the locations of these parcels. During the reconnaissance, the bank will be visually observed to identify the presence of hardened tar. If hardened tar is observed, the tar pieces will be broken up by hand for closer inspection and attempt to determine the extent of tar (to the extent feasible) using hand tools. The visual appearance and the extent of the tar will be recorded in a field notebook and photo-documented. Each tar piece, grouping of tar pieces (if several were observed in close proximity to each other), or larger mass of tar will be flagged and assigned an ID number consistent with the previous riverbank reconnaissance. The results of the reconnaissance will be incorporated into the AAR and RAWP.

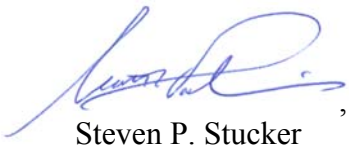
We will notify the NYSDEC approximately two weeks prior to conducting these activities.

National Grid is also currently pursuing a zoning change for the site property and several other properties that will be affected by the site remedy, including property adjacent and south of the

site that is owned by Franklin County, the Carter (Kriff) parcel located adjacent to the site, and the three Pritchard parcels (discussed above) located off Coffee Street. National Grid met with Village of Malone several weeks ago to discuss the future of the site and notify the Village that National Grid was pursuing a zoning change for these parcels from residential to business (including recreational usage) zoning. The Mayor was receptive to the zoning change. The next steps are generally anticipated to include submitting a petition to Village Board, holding a public hearing, and notifying adjacent property owners. We will inform the NYSDEC of the progress, as appropriate.

We appreciate the NYSDEC's continued assistance on this project. If you have any questions or comments regarding the information contained in this letter, please contact me at (315) 428-5652 or at steven.stucker@nationalgrid.com.

Sincerely,

 , for
Steven P. Stucker
Environmental Department

Attachments

cc: Stephanie Selmer, NYSDOH
Carolyn Rooney, National Grid
Scott Powlin, Arcadis
Terry Young, P.E., Arcadis
Michael Benoit, P.E., Arcadis

LEGEND:

- PZ-110 — PIEZOMETER LOCATION
- MW-3 — MONITORING WELL LOCATION
- SB-8 — SOIL BORING LOCATION
- SS-6 — SURFACE SOIL SAMPLE LOCATION
- TP-8 — TEST PIT
- SEEP-1 — SEEP SAMPLE LOCATION
- NATIONAL GRID PROPERTY LINE
- 684 — TOPOGRAPHIC CONTOUR (4/04/2009)
- HISTORIC STRUCTURE BASED ON 1923 SANBORN MAP
- APPROXIMATE EDGE OF WATER
- SANITARY PIPE AND MANHOLE
- STORM LINE AND CATCH BASIN
- FENCE
- GUARD RAIL
- UTILITY POLE
- ACCESS ROAD

NOTES:

1. BASE MAP PREPARED FROM DRAWING FILE BY "TRC" TITLED SEWER ACCESS ROAD BUILT – FIGURE 2 – PROJECT NO. 106355001000–000016, DATED 4/04/09, AT A SCALE OF 1"=20'. MAP IS REFERENCED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983 (NAD83) AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE) AND VERTICALLY TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). NORTH ARROW AS SHOWN INDICATES GRID NORTH REFERENCED TO NAD83 AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE).
2. ALL LOCATIONS ARE APPROXIMATE.

0 60' 120'

GRAPHIC SCALE

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

SITE LAYOUT

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1

CITY:SYRACUSE, N.Y. DIV/GROUP:ENV/IM-DV DB:R.ALLEN LD:(Opt) PIC:(Opt) PM:S.POWLIN TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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XREFS: IMAGES: PROJECTNAME: ---
36706X02
36706XBL

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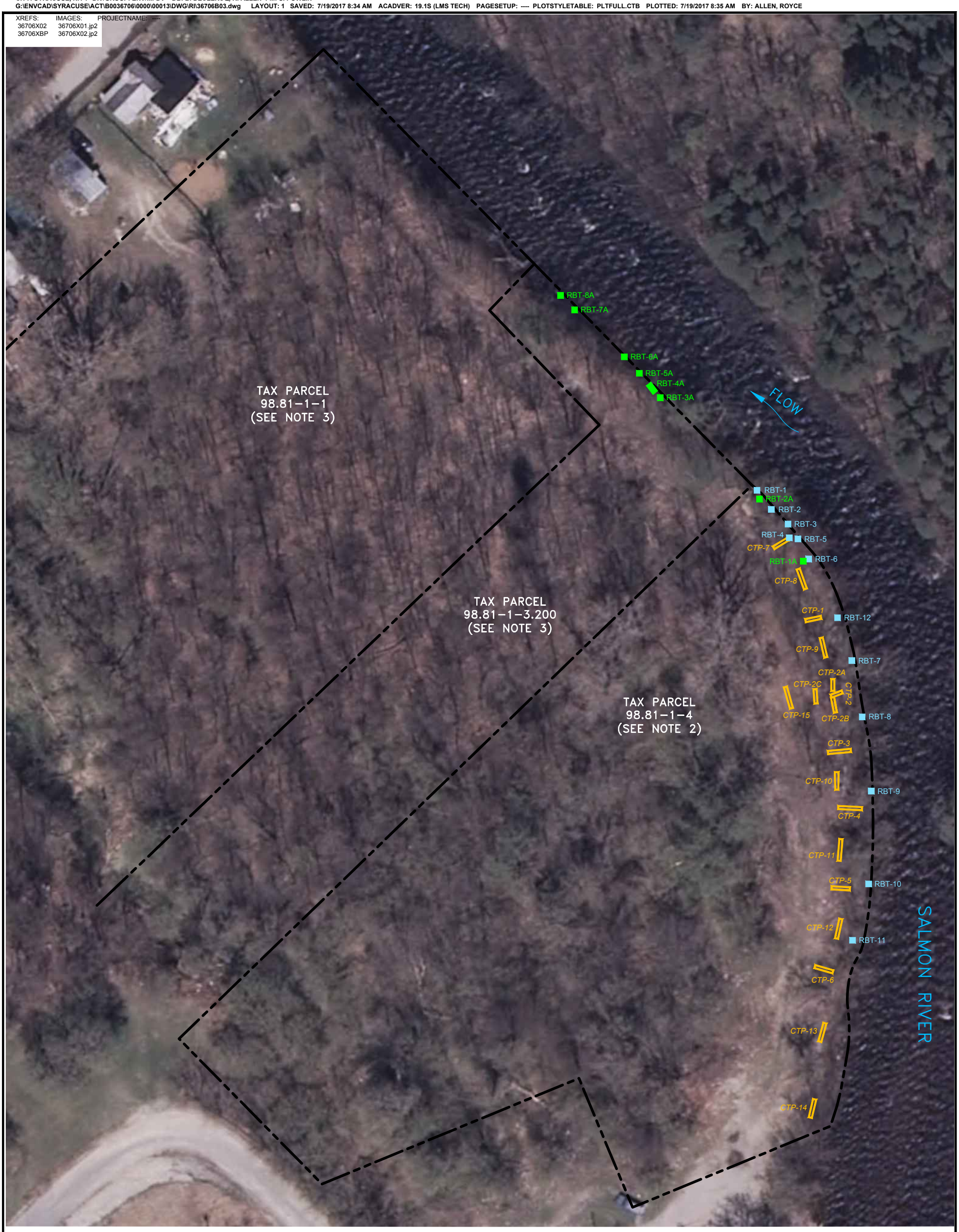
IMAGES: 36706X01.jp2 36706X02.jp2
PROJECTNAME: ----



LEGEND:

- APPROXIMATE HORIZONTAL EXTENT OF TAX PARCEL 98.81-1-4 (SEE NOTE 2)
- TEST PIT LOCATION
- TAR PIECE(S) OBSERVED AND REMOVED ON RIVER BANK (JULY 29, 2013)
- TAR OBSERVED ON RIVER BANK (AUGUST 22, 2014)

NOTES:

1. AERIAL PHOTOGRAPHS OBTAINED FROM THE NEW YORK STATE GEOGRAPHIC INFORMATION SYSTEM (NYS GIS) WEBSITE DATED 2008.
2. PROPERTY LINES FOR TAX PARCEL 98.81-1-4 BASED ON A SURVEY PERFORMED BY THEW ASSOCIATES LAND SURVEYORS, DATED 8/16/13.
3. PROPERTY LINES FOR TAX PARCELS 98.81-1-3.200 AND 98.81-1-1 BASED ON 2014 TAX MAP PROVIDED ON http://franklin.sdgnys.com/index.aspx.
4. TAX PARCELS 98.81-1-1, 98.81-1-3.200 AND 98.81-1-4 OWNED BY MR. TRAVIS PRITCHARD AND MR. TIMOTHY CARTER.

0 60' 120'
GRAPHIC SCALE

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

PRITCHARD PROPERTY

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

ARCADIS Design & Consultancy for natural and built assets

National Grid

REMEDIAL INVESTIGATION REPORT

Malone (Amsden Street)
Former Manufactured Gas Plant Site
Site # V00469
Malone, Franklin County, New York

August 2017

I, Scott Powlin, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Remedial Investigation Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the May 2010 DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in accordance with the DER-approved work plans and any DER-approved modifications cited herein.

Scott A. Powlin
Principal Geologist

REMEDIAL INVESTIGATION REPORT

Malone (Amsden Street)
Former Manufactured Gas Plant Site
Site # V00469
Malone, Franklin County, New York

Prepared for:

National Grid

Prepared by:

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Our Ref.:

B0036706

Date:

August 2017

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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June 8, 2017

Steven P. Stucker
Project Manager
National Grid
300 Erie Blvd. West
Syracuse, NY 13202

Re: Malone (Amsden St.) Former MGP Site
Site #V00469
Malone, Franklin County
Remedial Investigation Report (RIR)

Dear Mr. Stucker:

The New York State Department of Environmental Conservation (Department), in consultation with the New York State Department of Health (NYSDOH), has reviewed the Remedial Investigation Report, dated August 10, 2016, for the National Grid Malone (Amsden Street) Former MGP site. Based on that review the report is approved.

Please submit a final electronic copy of the RIR to both the NYSDEC and NYSDOH, and Alternatives Analysis for the site, including the offsite parcels, identified as Tax Parcels 98.81-1-4, and 98.81-1-3.200, so the NYSDEC can develop a Decision Document. Please feel free to contact me with any questions or comments at (518) 402-9794, or via e-mail at scott.deyette@dec.ny.gov.

Sincerely,

R. Scott Deyette
Chief, Inspection Unit
Remedial Bureau C
Division of Environmental Remediation

Ec: S. Selmer, NYSDOH
C. Bethoney, NYSDOH
S. Powlin, Arcadis

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ACRONYMS AND ABBREVIATIONS

AMSL	Above Mean Sea Level
ASP	Analytical Services Protocol
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CCR	Construction Completion Report
COPCs	constituents of potential concern
CSCOs	Commercial Soil Cleanup Objectives
DER-10	Division of Environmental Remediation-10/Technical Guidance for Site Investigation and Remediation, dated May 3, 2010
DNAPL	dense non-aqueous phase liquid
DUSRs	Data Usability Summary Reports
EDR	Environmental Data Resources, Inc.
FSP	Field Sampling Plan
ft	foot or feet
FWRIA	Fish and Wildlife Resource Impact Analysis
HCV	HamptonClarke-Veritech of Fairfield, New Jersey
HASP	Health and Safety Plan
HHEA	Human Health Exposure Assessment
HSDB	Hazardous Substances Data Bank
IDW	Investigation-derived waste
IPaC	Information, Planning, and Consultation
LNAPL	light non-aqueous phase liquid
mg/kg	milligrams per kilogram
MGP	Manufactured Gas Plant
MTBE	methyl tert-butyl-ether
NAD83	North America Datum of 1983
NAPL	non-aqueous phase liquid
NAVD88	1988 USGS North American Vertical Datum
NHP	Natural Heritage Program

NWI	National Wetlands Inventory
NYCRR	New York Code of Rules and Regulations
NYNHP	New York Natural Heritage Program
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OpTech	OP-TECH Environmental Services
PAHs	Polycyclic aromatic hydrocarbons
PDI	pre-design investigation
PID	photoionization detector
Pritchard Property	Tax Parcels 98.81-1-4 and 98.81-1-3.200
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
QA/QC	quality assurance/quality control
RI	Remedial Investigation
RQDs	rock quality designations
RSCOs	Residential Use Soil Cleanup Objectives
SC/IRM	Site Characterization/Interim Remedial Measure
SCG	standards, criteria, and guidance
SCOs	Soil Cleanup Objectives
site	25 Amsden Street, Malone, New York
SVE	soil vapor extraction
SGVs	Sediment Guidance Values
SVOCs	semi-volatile organic compounds
TAL	Target Analyte List
TCL	Target Compound List
Thew	Thew Associates of Canton, New York
TOC	total organic carbon
TOGS	Technical and Operational Guidance Series
µg/L	micrograms per liter
USEPA	U.S. Environmental Protection Agency

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VCO	Voluntary Cleanup Order
VOCs	volatile organic compounds

EXECUTIVE SUMMARY

This Remedial Investigation (RI) Report presents the findings of environmental investigations conducted at National Grid's Former Manufactured Gas Plant (MGP) Site (the "site") located in Malone, New York (Figure 1). The site has been the subject of two investigations, starting in 2004 with the Site Characterization/Interim Remedial Measure (SC/IRM) investigation and culminating with the RI conducted from 2010 to 2015 to define the nature and extent of MGP-related impacts. The SC/IRM investigation and RI were performed in accordance with Voluntary Cleanup Order (VCO) between the New York State Department of Environmental Conservation (NYSDEC) and Niagara Mohawk Power Corporation (acquired by and now referred to as National Grid), dated January 25, 2002 (VCO Index Number D0-0001-0011).

Over the course of the RI, 43 soil borings were drilled, 10 monitoring wells were installed, 18 test pits were excavated, a sediment investigation was performed, and approximately 120 samples of environmental media were analyzed. The overall objective of the RI was to assess the nature and extent of MGP-related impacts to the environment and to evaluate the risk posed to human health and the environment by those impacts. This overall objective, plus other more focused objectives described in this report, have been satisfied by the work performed during these investigations. The information gathered will enable an evaluation of remedial measures for the site.

The following paragraphs provide a brief summary of background information for the site and describe the RI findings.

Background

The site is located at 25 Amsden Street in a mixed commercial and residential portion of the Village of Malone, New York. The site comprises approximately 2.6 acres and is bound by Amsden Street to the west and the Salmon River to the east. The site is secured with chain-link fencing and locking gates. The former MGP is located in the southern approximately half of the site (Figure 2). Relief of the site is significant, with a sharp drop of approximately 50 feet (ft) from Amsden Street to the Salmon River. The river flows to the north in the vicinity of the site. Much of the site to the east and north is heavily forested, with frequent signs of fill debris noted along the embankment in the northern area (hereafter referred to as "former dumping area"), likely resulting from dumping of general refuse by the public and/or nearby manufacturing businesses (e.g., former Malone Rubber Company).

The MGP manufactured coal gas for approximately 60 years (i.e., 1880s to the 1940s). At its peak of operation, the MGP consisted of a retort house, purifier house, tar tank, coal storage facilities, coke storage building, two gas holders, power house, and substation building. Following cessation of gas production in the 1940s, the site was used for storage and distribution of propane gas until it was sold. The property was subsequently repurchased by Niagara Mohawk Power Corporation (now National Grid) in 2001. More recent site use was for warehousing of carpeting and other home furnishings; however, the site has not been used or occupied since its repurchase in 2001.

Several by-products from the MGP process, including coal tar, coal slag, cinders, ash, and gas purifier wastes, were produced during the gas manufacturing process. Coal tar and purifier wastes are typically responsible for the impacts on soil and groundwater quality at MGP sites. At the site, coal tar is primarily observed on the ground surface and within the upper approximately 5 ft of soil. Coal tar contains many organic compounds, several of which are regulated by the NYSDEC. These organic compounds include

benzene, toluene, ethylbenzene, and xylenes (BTEX) and a more general class of organic compounds called polycyclic aromatic hydrocarbons (PAHs). Purifier wastes often contain cyanide, which is also regulated by the NYSDEC. Although cyanide wastes were not observed at the site, cyanide was detected in soil and groundwater samples. BTEX, PAHs, and cyanide are considered the constituents of potential concern (COPCs) at the site.

Pritchard Property

Small, isolated pieces of MGP-related tar have been observed on two parcels of land located approximately 300 to 700 ft downstream from the site and adjacent to the western riverbank of the Salmon River (Figure 3). These parcels (Tax Parcels 98.81-1-4 and 98.81-1-3.200; hereafter referred to as the Pritchard Property) are approximately 3.6 acres in size and are owned by Mr. Travis Pritchard and Mr. Timothy Carter. Based on observations made during test pit excavations and an Interim Remedial Measure (IRM) completed by National Grid on this property in 2014, it is apparent that the property has been the historical location of uncontrolled dumping by the public. In addition to MGP-related tar, observations documented during the excavations completed on this property consistently revealed a varying degree of anthropogenic materials, such as glass, wood, brick, plastic, and metal. The Pritchard Property is not considered part of the site but is considered an off-site area that is covered by this RI Report.

Geology

The RI subsurface investigations characterized the geology and hydrogeology setting of the site area and the nature and extent of site-related impacts to the subsurface. The results of the investigations identified the three units described below, in descending order:

- **Fill.** The fill unit comprises the uppermost unit and lies on the bedrock surface across much of the site. This unit is approximately 10 to 30 ft thick and consists of reworked native deposits (sands, gravels, silts) and anthropogenic materials primarily in the northern half of the site (e.g., cinders, slag, ash, coal, brick, wood, metal, glass, plastic, rubber, leather, utilities, and foundations). This unit contains perched groundwater likely resulting from the inability of the underlying bedrock to efficiently drain water from the fill.
- **Post glacial alluvial sand and silt.** This unit is as much as 9 ft thick and is only observed in the western half of the site. The unit is comprised of fine to coarse sand interbedded with silt, and similar to the fill, this unit also contains perched groundwater.
- **Potsdam Sandstone (formed 500 million years ago).** This sandstone is light buff to light gray and contains a high percentage of crystallized quartz (i.e., orthoquartzitic). The beds are flat-lying and are generally 1 inch to less than 1 foot in thickness. Horizontal fractures occur along the weaker bedding planes, and very little vertical jointing occurs. The sandstone is competent and not very weathered. The water table lies within this unit across most of the site and, as such, the upper several feet of the rock are “dry”. The majority of groundwater beneath the site is expected to flow through this unit.

Information regarding the geology of the off-site Pritchard Property is limited since only the upper approximately 6 ft of soils were investigated on this property. The subsurface materials within this interval (0 to 6 ft below ground surface [bgs]) consist of fill intermixed with sand and gravel. It is apparent that the property has been the historical location of uncontrolled dumping. In addition to the relatively small amount of MGP-related tar, the fill contains a varying degree of anthropogenic materials, such as glass,

wood, brick, plastic, and metal. It is assumed that, prior to uncontrolled dumping, the ground surface of this area was likely near the level of the river.

Groundwater Flow

Perched groundwater is encountered in the fill and alluvial sand and silt above the bedrock surface across much of the site. The perched groundwater is interpreted to leak downward through the unsaturated portion of Potsdam Sandstone until it reaches the water table, which is located several feet below the rock surface (depending on location). The downward movement of groundwater through the sandstone is impeded by the lack of vertical jointing in the rock and infilling of the joints with sediment. Once groundwater reaches the saturated Potsdam Sandstone, it moves predominately horizontally through bedding plane fractures toward the Salmon River. Once near the river, groundwater either discharges directly to the river from the bedding planes or moves from the bedding planes through a thin layer of soil/sediment until it reaches the river.

Soil Quality

Evaluating the nature and extent of BTEX, PAHs, and cyanide was the main focus of the soil quality evaluation. Soil quality was evaluated by drilling soil borings, excavating test pits, collecting soil samples for laboratory analysis, and observing impacts on the ground surface of the site and Pritchard Property. Soil sampling results were compared to applicable NYSDEC cleanup criteria. Although tar samples were generally not collected for laboratory analysis, it is reasonable to assume that the tar contains concentrations of BTEX and/or PAHs exceeding the NYSDEC criteria.

The soil quality evaluation revealed:

- Tar is primarily observed within the approximate upper 5 ft of overburden in the southern half of the site (Figure 10). Tar is observed at greater depths within the footprint of the southern gas holder.
- Apparent petroleum-related sheens and staining were observed in soils on the bedrock surface at several borings across the site; however, these impacts may be from sources other than the MGP. As shown by the blue shading at MW-5R (Figure 10), gasoline has been observed to accumulate in bedrock monitoring well MW-5R. NYSDEC spill records indicate that the property south of the site is a possible source of the gasoline.
- BTEX was not detected in surface or subsurface soil samples above applicable NYSDEC criteria; however, it is reasonable to assume that tar-containing soil could contain at least one BTEX compound at concentrations above criteria. As such, the locations shown in pink and purple on Figure 10 likely contain at least one BTEX compound above criteria.
- At least one PAH compound was detected above applicable NYSDEC criteria in several surface and subsurface soil samples (Figure 11). Similar to the assumption for BTEX compounds, it is reasonable to assume that tar-containing soil could contain at least one PAH compound at concentrations above criteria. As such, the locations on shown in pink and purple on Figure 10 likely contain at least one PAH compound above criteria.
- Total cyanide was detected in only one subsurface soil samples above applicable NYSDEC criteria.

PAH source evaluations were conducted to assess whether tar observed on the riverbank of the Pritchard Property could be attributable to the former MGP operations. The evaluations found that tar observed on the Pritchard Property had a PAH compositional signature similar to that of the tar observed on the site.

National Grid concluded that, given the proximity of the MGP site to the Pritchard Property, the former MGP cannot be ruled out as the source of the tar on the Pritchard Property. National Grid conducted an IRM on a portion of the Pritchard Property (i.e., on Tax Parcel 98.81.1.4) in September 2014 to remove the tar observed on the property; however, as of the date of this report, the tar observed on and embedded within the western riverbank of Tax Parcel 98.81-1-3.200 remains in place.

Groundwater Quality

Groundwater quality was evaluated by installing monitoring wells, collecting several rounds of groundwater samples for laboratory analysis, and comparing analytical results (principally BTEX, PAHs, and cyanide) to applicable NYSDEC criteria. Figure 13 shows the distribution of these constituents in groundwater. The groundwater investigations found:

- BTEX compounds were detected in groundwater sampled from seven of the 10 monitoring wells at concentrations exceeding NYSDEC criteria. The highest total BTEX concentrations were detected in monitoring wells MW-5R and MW-6. BTEX compounds were also detected above criteria in the seep sample in the northeastern portion of the site. It is probable that the groundwater exceedances for BTEX are not be related to the MGP since several other potential sources are evident near/at the site.
- PAHs were detected in groundwater from five of the 10 monitoring wells at concentrations exceeding NYSDEC criteria. The PAH exceedances in three of the wells (i.e., MW-2, MW-5R, and MW-6) are possibly attributable to sources other than the MGP. The PAH exceedances in the other two wells (i.e., MW-3 and MW-4) are likely related to PAHs present in combustion by-products (e.g., coal, cinders, ash) observed in the fill materials.
- Total cyanide was detected in six of the 10 monitoring well groundwater samples at concentrations that do not exceed NYSDEC criteria. Cyanide was not detected in groundwater from any of the four bedrock monitoring wells.

Sediment Quality

The sediment quality of the Salmon River was evaluated by conducting a sediment probing and sampling program to assess the characteristics of the river and distribution of impacts to sediments. The reaches of river investigated extend from approximately 900 ft upstream to approximately 1,000 ft downstream from the site (Figure 5 and Figures 5A though 5C). The sediment investigation found:

- Due to the high stream energy within the investigated reaches, very little fine-grained sediment is present in the riverbed.
- A total of 22 outfalls were identified upstream from the site, and two were identified on the site. None were identified downgradient from the site.
- MGP impacts (i.e., tar material) were not observed in any sediment samples collected for laboratory analysis.
- Possible MGP-related impacts have been observed in two areas of the river: 1) a hardened tar deposit located at the river level and on a bedrock face within fractures along the river's edge adjacent to the site (Figure 5B and Figure 10); and 2) solidified pieces of tar on and embedded within the western bank of the Salmon River on the Pritchard Property (Figure 3).

- Most sediment samples had total PAH concentrations less than 15 milligrams per kilogram (mg/kg), with the exception of four samples adjacent to the site that had concentrations ranging from 20 to 28 mg/kg, and one downstream sample with the concentration (290.5 mg/kg) collected near the Pritchard Property.
- A forensic evaluation found that all sediment samples have a PAH composition and concentration that is typical of an urban setting. The evaluation also found low levels of coal tar residual PAHs in samples collected adjacent to the site. The sample collected adjacent to the Pritchard Property with the highest PAH concentration had a compositional signature resembling coal tar, but the signature does not match that of the site-related tar. Given the proximity to the site, it is reasonable to assume the PAHs in the sample are attributable to tar from the site. Minor levels of petroleum-related PAHs were also found in upstream, adjacent, and downstream samples.
- Exceedances of NYSDEC's screening criteria for contaminated sediments were observed throughout the sampled reaches of the river (upstream, adjacent to the site, and downstream).

In summary, minor levels (less than 28 mg/kg) of site-related coal tar residual PAHs appear to be present in a few shallow sediment deposits adjacent to the site; however, with the exception of one sample collected near the Pritchard Property, site-related PAHs do not appear to be present in sediments downstream from the site.

Risk Assessment

This assessment evaluated the potential risks posed to human health and the environment by site-related constituents. Potential risks posed to wildlife were evaluated by conducting a Fish and Wildlife Resource Impact Analysis (FWRIA). Potential risks posed to human health were evaluated through a Human Heath Exposure Assessment (HHEA).

The assessment found that there is potential for human and wildlife exposure to surface soils and tar observed on the ground surface and riverbank of the site and riverbank of the Pritchard Property. Exposure to impacts in subsurface soil and groundwater is limited to construction and/or utility workers engaged in potential intrusive activities. However, these potential exposures would likely be mitigated through implementation of a health and safety plan (HASP) requiring the use of personal protective equipment (PPE) that would mitigate potential exposures to subsurface impacts. Exposure of wildlife to impacts in subsurface soil and groundwater is not expected because the depth to the impacts is below the foraging and nesting depth. Exposure of humans and wildlife to sediment in the Salmon River is not expected to be a significant exposure pathway due to the general lack of fine-grained sediments within the riverbed and because PAHs are generally not bioaccumulative.

The evaluation also determined that the site itself does not have value to wildlife because of its location within the Village of Malone and other physical factors (e.g., habitat fragmentation, steep topography) and because access to the site is restricted by a fenced perimeter.

Conclusion

National Grid has adequately characterized the nature and extent of the site impacts on the environment and fulfilled the requirements of the VCO. Based on the findings of the RI, no imminent threat to human health or the environment has been identified. Following the NYSDEC's approval of this RI Report, National Grid will prepare an Alternatives Analysis Report to identify remedial action objectives and evaluate appropriate remedial measures for the site and Pritchard Property.

1 INTRODUCTION

This Final Remedial Investigation (RI) Report documents the findings of environmental investigations conducted from 2010 to 2015 at National Grid's Former Manufactured Gas Plant (MGP) site (the "site"; New York State Department of Environmental Conservation [NYSDEC] site number V00469) located in Malone, New York (Figure 1). This Final RI Report supersedes the draft version submitted to the NYSDEC on August 10, 2016. The NYSDEC provided a June 8, 2017 letter to National Grid approving the draft RI Report without comment.

Three summary reports were previously submitted to the NYSDEC to summarize the RI data and obtain the NYSDEC's concurrence that the RI work was completed. These summary reports are:

- March 2, 2011 *Remedial Investigation Data Summary* – summarized the RI results for upland investigations
- March 30, 2012 *Salmon River Sediment Sampling Results* – summarized RI results for sediment samples collected in the Salmon River
- January 7, 2016 *PAH Forensic Evaluation of Tar Samples Collected on Riverbank of Tax Parcel 98.81-1-3.200* – provided a forensic evaluation of tar samples collected on Tax Parcel 98.81-1-3.200 and recommended that an RI Report be prepared to include impacts on the site and the off-site properties owned by Mr. Travis Pritchard

The NYSDEC provided responses to each of these reports and agreed that additional investigations were not warranted for the site, river, or off-site properties as part of the RI. The NYSDEC also agreed that an RI should be prepared to incorporate data from the site, river, and off-site properties. Copies of the above reports and NYSDEC responses are provided on the attached CD.

The RI was performed in accordance with Voluntary Cleanup Order (VCO) #D0-0001-0011, dated January 25, 2002, between the NYSDEC and National Grid, and NYSDEC's document titled *Division of Environmental Remediation-10/Technical Guidance for Site Investigation and Remediation*, dated May 3, 2010 (DER-10) (NYSDEC 2010). The environmental investigations were conducted by Arcadis on behalf of National Grid to meet the objectives described in the VCO and NYSDEC-approved work plans and subsequent related correspondence. Copies of the work plans and related correspondence with the NYSDEC are provided on the attached CD.

In addition to the findings of the RI work detailed in the above-referenced work plans, this RI Report also incorporates relevant work and findings of environmental investigations completed during a Site Characterization/Interim Remedial Measure (SC/IRM) investigation conducted in 2004. The results of the SC/IRM were presented in the Site Characterization Data Summary submitted to the NYSDEC on February 23, 2005 (TRC 2005a). A copy of this report is provided on the attached CD.

1.1 Remedial Investigation Objectives

The overall objective of the RI is to assess the nature and extent of MGP-related environmental impacts and evaluate the potential risks posed to human health and the environment by those impacts. The findings of the RI will be used to evaluate potential final remedial measures to address MGP-related environmental impacts.

National Grid developed the following specific objectives for the RI:

- Evaluate the presence and extent of impacts from the former MGP in soil by collecting, visually characterizing, and analyzing soil samples.
- Evaluate the presence and extent of impacts from the former MGP in groundwater by collecting and analyzing groundwater samples.
- Evaluate the presence and extent of impacts from the former MGP in the sediments of the Salmon River by collecting and analyzing sediment samples.
- Assess groundwater flow patterns at the site using water-level measurements from groundwater monitoring wells.
- Qualitatively evaluate potential human and ecological exposure pathways for both current and anticipated future conditions at the site and Salmon River using the investigation sampling results and observations made while on site during the RI.

1.2 Report Organization

The RI Report is organized as follows:

- **Section 1 – Introduction.** Discusses the site setting and history, a summary of previous investigations, and objectives of the RI.
- **Section 2 – Remedial Investigation Activities.** Describes the tasks performed and general methods followed to meet the investigation objectives.
- **Section 3 – Remedial Investigation Findings.** Presents and interprets field observations and laboratory results relating to the investigation of soil, bedrock, groundwater, and sediment.
- **Section 4 – Risk Assessment.** Presents the results of a Fish and Wildlife Resource Impact Analysis (FWRIA) and a Human Health Exposure Assessment (HHEA).
- **Section 5 – Summary and Conclusion.** Summarizes the findings of the RI and presents the conclusions drawn.

The text of this RI Report is supported by tables, figures, appendices, and an attached CD, all of which are cited throughout the report.

1.3 Site Setting and History

The site is owned by National Grid and is located at 25 Amsden Street in a mixed commercial and residential portion of the Village of Malone, New York. For the purposes of this report, the site is defined as the property located at this address. The site comprises approximately 2.6 acres and is bound by Amsden Street to the west and the Salmon River to the east. The former MGP is located in the southern approximately half of the site. The site location is depicted on a U.S. Geological Survey (USGS) 7.5 minute quadrangle map, provided as Figure 1. A site plan is provided as Figure 2.

Two unused structures remain on site: a single story cut stone and cinder block building in the southwest comer of the site and a two-story stone building immediately to the north. Both of these structures are located

on Amsden Street. Remains of a former gas holder foundation slab are evident near the center of the site, to the northeast of the main MGP operations area. The site is secured with chain-link fencing and locking gates.

Relief of the site is significant, with a sharp drop of approximately 50 feet (ft) from Amsden Street to the Salmon River (i.e., grade elevation of 692 ft Above Mean Sea Level [AMSL] near Amsden Street to a grade elevation of 645 ft AMSL near the river). The river flows to the north in the vicinity of the site. Much of the site to the east and north is heavily forested, with frequent signs of fill debris noted along the embankment. Several subsurface utilities were identified on site during previous and RI investigations. In addition to an exposed sanitary line that runs approximately south-to-north along the riverbank, two other sewer lines are evident. An apparent inactive 10-inch-diameter clay sanitary sewer line extends from the MGP facility down the embankment to the northeast, to a manhole located immediately west of the former power house foundation. A 42-inch-diameter concrete storm sewer extends from Amsden Street, beneath the northern part of the adjacent property to the north, to a discharge outfall along the river embankment. Extensive, visible rust-colored staining has been noted within the outfall and associated drainage swale of this sewer.

Immediately north of the site and MGP operations area, a small parcel (currently owned by Mr. Timothy Carter) is occupied by an unused, two-story warehouse building. The building was previously used as a warehouse for furniture, garment manufacturing, and production of rubber goods. The nearest residence is located on the adjacent property north of the site. A paved parking lot is located immediately south of the site, with several commercial stores located further to the south. Based on a review of an Environmental Data Resources, Inc. (EDR) report (see the attached CD), the property to the south has three closed NYSDEC spill reports (#9506718, #9508013, and #9808391). In addition, a soil vapor extraction (SVE) system was operated on the property in 1995 and 1998. As discussed in Section 3, petroleum-related impacts have been observed at monitoring well MW-5R. The petroleum-related impacts on the property to the south of the site are a likely source of impacts observed at MW-5R.

Figure 1-1 Carter building on adjacent property, looking southwest

Based on review of available Sanborn Fire Insurance maps (see the attached CD), the MGP was used to manufacture coal gas from the 1880s to the 1940s. At its peak of operation, the MGP consisted of a retort house, purifier house, tar tank, coal storage facilities, coke storage building, two gas holders (one above-grade and one below-grade construction), power house, and a substation building. The power house was constructed in the mid- to late-1890s and operated for approximately 10 years before being converted to a transformer house for an undetermined period of time. Following cessation of gas production in the 1940s, the site was used for storage and distribution of propane gas until it was sold. The property was subsequently repurchased by Niagara Mohawk Power Corporation (now National Grid) in 2001. More recent site use was for warehousing of carpeting and other home furnishings; however, the site has not been used or occupied since its repurchase in 2001.

1.3.1 Pritchard Property

As discussed in detail in Section 3, MGP-related tar has been observed on two parcels of land located approximately 300 to 700 ft downstream from the site and adjacent to the western riverbank of the Salmon River. These parcels (Tax Parcels 98.81-1-4 and 98.81-1-3.200; hereafter referred to as the Pritchard Property) are approximately 3.6 acres in size and are owned by Mr. Travis Pritchard (Figure 3). During the initial stages of the RI, some work plans and reports developed to support the RI referred to the property as the "Carter Property".

Based on observations made during test pit excavations and an IRM completed by National Grid on the Pritchard Property in 2014, it is apparent that the property has been the historical location of uncontrolled dumping by the public. In addition to MGP-related tar, observations documented during the excavations completed on this property consistently revealed a varying degree of anthropogenic materials, such as glass, wood, brick, plastic, and metal. The Pritchard Property is not considered part of the site, but is considered an off-site area that is covered by this RI Report. The Pritchard Property is currently undeveloped; however, National Grid has entered into a legal agreement that restricts future development of the property and requires the property owner comply with an environmental easement and Site Management Plan (SMP) that encumber the property.

1.4 Summary of Previous Investigations and Remedial Measures

This section summarizes the previous investigations and remedial measures that have been conducted at the site. The previous investigations and remedial activities are also discussed in the respective documents included on the attached CD.

1.4.1 SC/IRM Investigation (2004)

National Grid conducted a SC/IRM investigation in 2004. The investigation consisted of:

- Excavating eight exploratory test pits (TP-1 through TP-8) to evaluate the construction of former MGP structures and the potential presence of subsurface impacts.
- Drilling eight soil borings (SB-1 through SB-8) to evaluate the potential presence of MGP-related impacts in soil. Soil samples were submitted for laboratory analysis of a combination of benzene, toluene, ethylbenzene, and xylenes (BTEX); polycyclic aromatic hydrocarbons (PAHs); total cyanide; and total organic carbon (TOC). Selected samples were also submitted for full Target Compound List (TCL) volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) and Target Analyte List (TAL) metals analysis.
- Installing two overburden monitoring wells (MW-3 and MW-4) and collecting one round of groundwater samples for TCL VOCs, TCL SVOCs, and TAL metals analysis. Attempted to install two additional overburden monitoring wells (MW-1 and MW-2), but the locations were dry.
- Collecting eight on-site (SS-1 through SS-8) and five off-site (SS-9 through SS-13) surface soil samples for TCL VOCs, TCL SVOCs, TAL metals, and TOC analysis.
- Collecting one groundwater seep sample (Seep-1) for TCL VOCs, TCLS SVOCs, and TAL metals analysis.

The results were presented in the Site Characterization Data Summary which was submitted to the NYSDEC on February 23, 2005 (TRC 2005a). As discussed in that report, the results indicated that MGP-related impacts are present on site, including coal tar residuals within the southernmost former holder and a former tar well. The results also indicated the presence of weathered tar with associated PAH concentrations above NYSDEC Technical and Administrative Guidance Memorandum 4046 criteria in surface and subsurface soils. MGP-related impacts were also detected in shallow site groundwater. A copy of the Site Characterization Data Summary (TRC 2005a) is provided on the attached CD.

1.4.2 Miscellaneous Improvement IRMs (2005)

National Grid completed three improvement IRMs in 2005. The issues addressed by these IRMs were initially identified during the 2004 SC/IRM investigation, as follows:

- Potential liabilities associated with the former hydro-electric powerhouse foundation located adjacent the Salmon River
- Surface runoff erosion issues extending from Amsden Street toward the Salmon River
- Absence of site security

The following three IRMs were subsequently completed between May 31 and June 23, 2005, to address the above observations.

1. Demolition of the former powerhouse foundations
2. Implementation of permanent erosion and sediment control measures
3. Installation of a site security fence

General details regarding each of the IRMs are summarized below. A copy of the Interim Remedial Measures Construction Completion Report (TRC 2005b) is provided on the attached CD.

1.4.2.1 Decommissioning of the Former Powerhouse Foundations

Demolition of the former powerhouse foundation was initiated on June 3, 2005. The subgrade foundation, constructed primarily of brick and stone, was demolished into the bottom of the structure. All brick and stone from the structure foundation was pulverized, resized, and mixed with the 3 ft of soil/debris that was removed from the top of the powerhouse and used as backfill. A “small quantity of highly-weathered tar” was observed on the top surface of the foundations that were backfilled into the foundation. A short section of the stone retaining wall associated with the powerhouse was left in place along the southern-most end of the demolition area to stabilize a steep section of the existing embankment. Following completion of the demolition activities, the area was graded to allow for proper draining to the sedimentation basin (described in the subsection below).

1.4.2.2 Permanent Erosion and Sedimentation Control Measures

Surface runoff erosion was observed extending from Amsden Street towards the Salmon River during the SC/IRM investigation. Several control measures were put in place to permanently address the erosion at the site, including:

- Construction of a bituminous curb and ramp along Amsden Street
- Construction of two drainage swales along the eastern portion of the site
- Construction of a sedimentation basin
- Establishment of a vegetative cover

During the SC/IRM investigation, it was determined that the primary source of erosion at the site was due to storm water runoff from Amsden Street near the main access gate to the site. This issue was addressed by constructing a bituminous curb and ramp adjacent the western access gate. The curb and ramp structure raised the grade near the access gate to the site and successfully diverted storm water runoff to a nearby catch basin.

Two drainage swales measuring 25 and 125 ft in length were also constructed to minimize erosion in the eastern portion of the site. The swales were constructed 2 ft wide by 1 ft deep and were lined with jute fabric for stabilization. Check dams consisting of riprap were placed every 25 ft within the swales to diffuse flow energy. The swales were established to minimize erosion by diverting sheet flow from the former holder foundation and the steep slopes in the eastern portion of the site towards the river and the on-site sedimentation basin.

Although originally established to minimize the amount of sediment entering the river during the construction work, the sedimentation basin was ultimately included as part of the final erosion control measures for the site. Prior to final grading, the liner was removed from the open sedimentation basin, and it was subsequently backfilled to grade with crushed stone to allow for infiltration and retention of fine grained sediment during storm events. The basin not only collects sheet flow from the site but also water diverted to it from the 125-ft north-south drainage swale discussed above.

Once a final grade was established, 123 tons of topsoil were brought on site to construct a 4-inch-thick soil cover across the areas to be re-vegetated. The 13,000 square ft area was subsequently seeded with a clover and rye grass blend and covered with straw mulch to initiate growth of a vegetative cover at the site. Site inspections are conducted on regular intervals to confirm the integrity of the vegetative cover as well as the other erosion control measures at the site.

1.4.2.3 Installation of a Site Security Fence

Security was addressed at the site by repairing and adding new chain link fence to fully encompass the site property. This included installation of 510 ft of new fence as well as two new swing gates along the western and northeastern property boundaries. Each of the gates was secured with a keyed-alike padlock. The location of the fence and gates is shown on Figure 2.

1.4.3 Sewer Access Road IRM (2008)

National Grid constructed a sewer access road at the site from September 29 through November 13, 2008. The purpose of the road was to create heavy equipment access to the eastern portion of the site and to enable the Village of Malone Public Works Department to access their sewer line that transects the eastern portion of the site. The access road is shown on Figure 2. Prior to construction, the original grade on the eastern portion of the site was too steep to safely traverse with a backhoe or other wheeled

vehicles. The new road created a stable surface, which is required for heavy equipment. The road construction also included improvements to drainage to protect the road from erosion and to maintain its serviceability for the Village Public Works crews and future site-related work. Gated access was also constructed at the northern and southern ends of the site to allow authorized personnel to access the site.

Figure 1-2 Access road near bottom of slope, looking south

Although the road was primarily constructed to facilitate safe equipment access, environmental impacts were observed during its construction. Weathered tar was observed in the approximate top 2 ft of soil while constructing the road near the southern site boundary (i.e., between SB-118 and SB-119 on Figure 2). Soils/materials excavated to facilitate the installation of the sewer access road were transported and disposed of at the Franklin County Landfill as non-New York State Department of Transportation (NYSDOT), non-Resource Conservation and Recovery Act (RCRA) regulated material (soil potentially contaminated with MGP waste).

A copy of the Sewer Access Road IRM Construction Completion Report (TRC 2009) is provided on the attached CD.

1.4.4 Pritchard Property IRM

National Grid completed an IRM on the Pritchard Property on September 16 and 17, 2014. The purpose of the IRM was to remove and dispose of MGP-related wastes (i.e., tar) encountered on Tax Parcel 98.81-1-4 (Figure 3). The IRM addressed the following MGP wastes (the observations are discussed in further detail in Section 3):

- Test pit CTP-1, where two softball-sized pieces of hardened tar were observed in August 2011
- Test pit CTP-2, where an approximate 6-inch layer of taffy-like tar was observed in August 2011, at approximately 4.5 to 5 ft below grade
- Scattered, small pieces of hardened tar along the riverbank that were manually removed in July 2013

Figure 1-3 Backfilling IRM excavation with clean fill

The IRM was conducted in substantial conformance with the November 2013 IRM Work Plan prepared by Arcadis (Arcadis 2013) and approved by the NYSDEC in a November 15, 2013 letter to National Grid. Arcadis prepared a draft IRM Construction Completion Report (CCR) and submitted the draft report to the NYSDEC on December 7, 2015 (Arcadis 2015). The NYSDEC provided approval of the report as documented in a June 6, 2016 letter to National Grid. A copy of the final IRM CCR Report is provided in the attached CD.

2 REMEDIAL INVESTIGATION ACTIVITIES

2.1 Overview

This section describes the work activities completed during the RI from 2010 to 2015. The RI consisted of five general field programs designed to meet the investigation objectives discussed in Section 1:

- Soil and Bedrock Investigation
- Groundwater Investigation
- Salmon River Sediment Investigation
- Non-aqueous phase liquid (NAPL) Monitoring
- PAH Forensic Evaluation

Several NYSDEC-approved work plans were prepared to support these five main field programs. The work plans outlined the scope of these investigations and the procedures to be used to perform them. The work plans can be found on the attached CD. In general, the field activities identified in the work plans were performed in accordance with the:

- most recent version of DER-10 (NYSDEC 2010)
- most recent version of the New York State Department of Health (NYSDOH) Community Air Monitoring Plan
- National Grid's NYSDEC-approved *Generic Site Characterization/IRM Work Plan for Site Investigations at Non-Owned Former MGP Sites* and supporting appendices (Field Sampling Plan [FSP] and Quality Assurance Project Plan [QAPP]), dated November 2002 (National Grid 2002)

Arcadis planned and oversaw the RI fieldwork; however, several other firms also contributed to the work, as follows:

- Drilling services by Parratt-Wolff of East Syracuse, New York
- Excavation services by OP-TECH Environmental Services (OpTech; now NRC) of Massena, New York
- Analytical services by HamptonClarke-Veritech (HCV) of Fairfield, New Jersey, and Alpha Analytical Laboratories (Alpha) of Mansfield, Massachusetts
- Surveying services by Thew Associates of Canton, New York (Thew), a New York State-licensed surveyor

2.2 Soil and Bedrock Investigation

The soil and bedrock investigation consisted of three forms of field exploration: drilling soil/bedrock borings, excavating test pits, and collecting soil samples for chemical analysis. In most cases, this work provided two types of data:

- Visual classification of subsurface materials and site-related impacts
- Analytical samples to identify and quantify site-related impacts to soil

The investigation method, sampling location, and suite of samples collected varied from point to point to meet the objectives of the work task. This section describes the varied tasks included in the soil and bedrock investigation, including the general methods applied and general objectives addressed.

Additional information relating to the soil and bedrock investigation can be found in the following places:

- Figures 2 and 3 depict boring and test pit locations.
- Appendix A contains soil boring and test pit logs.
- Table 1 provides a comprehensive list of analytical sample locations and analytes for all site-related investigations, and Tables 2 and 3 summarize analytical results. These results are discussed in Sections 3 and 4.

2.2.1 Borings

The RI included drilling and sampling 43 borings from July to November 2010. As a primary method to investigate the geology and the nature and extent of site-related impacts on and near the site, the completed borings provide data to meet a variety of objectives, including acquisition of subsurface samples for physical or chemical testing and/or to provide for installation of a monitoring well.

Figure 2-1 Typical Setup for Drilling Borings, Monitoring Well MW-8R shown, looking north

The 43 borings ranged in depth from approximately 1 to 65 ft below ground surface (bgs) and were typically drilled to refusal (assumed to be the top of the bedrock). Exceptions are those borings drilled into the bedrock to install bedrock monitoring wells or the seven shallow hand-auger borings (SS-A through SS-G) completed to evaluate the vertical extent of weathered tar observed on the ground surface. All bedrock drilling was completed using bedrock coring equipment, and the bedrock holes produced are referred to as “coreholes”. Of the 43 borings drilled during the RI, four were completed as bedrock monitoring wells (MW-1R, MW-5R, MW-8R, and MW-9R). The monitoring wells that are installed in both overburden and bedrock are discussed later in this section. A list of the RI borings and primary rationale for completing the borings is provided in the following table.

Table 2.1 Boring Summary

Boring Identification	General Location	Primary Rationale
SB-100, SB-101, SB-102, SB-104, SB-109, SB-129, and SB-133	West side of site, former tar well area, and former purifier house	Assess the lateral and vertical extent of potential MGP-related impacts in the former tar well area, purifier house, and western portion of site.
SB-103	On property owned by Mr. Timothy Carter	Assess the potential presence of MGP-related impacts on this property.

Boring Identification	General Location	Primary Rationale
SB-105, SB-106, SB-130, SB-131, SB-134, and SB-135	Along the southern site boundary and on adjacent property to the south	Assess whether potential MGP-related impacts extend off site to the south. Allow installation of MW-1R at SB-105.
SB-107, SB-108, SB-110, SB-112, and SB-132	Former southern gas holder area	Assess the lateral and vertical extent of MGP-related impacts associated with this former holder. Allow installation of MW-5 and MW-5R at SB-132 and SB-110, respectively.
SB-111 and SB-113	Former northern gas holder area	Assess potential presence of MGP-related impacts associated with this former holder.
SB-114, SB-115, SB-116, SB-117, SB-126, SB-127, and SB-128	Northern fill area	Assess the lateral and vertical extent of fill material and potential MGP-related impacts in the northern upland portion of the site. Allow installation of MW-6R at SB-115.
SB-118 through SB-125	Along western edge of the Salmon River	Assess the lateral and vertical extent of fill material and potential MGP-related impacts at the base of the slope near the Salmon River. Allow installation of MW-2, MW-7, MW-8R, MW-9R, and MW-10.
SS-A through SS-G	Slope in southeast corner of site	Assess the lateral and vertical extent of the tar observed on surface of this slope.

2.2.1.1 Drilling Methods

Overburden soil borings were drilled using conventional hollow-stemmed auger/split-spoon sampler techniques. Overburden borings followed a consistent methodology, as follows:

- Soil samples were retrieved continuously from grade to the total boring depth.
- Recovered soil samples were observed and described by the geologist and screened for VOCs using a photoionization detector (PID).
- Selected samples were submitted for various laboratory analyses, as described below.
- Upon completion, borings were tremie-grouted to grade, drilled further using bedrock drilling methods described below, and/or a monitoring well was installed.
- Boring locations were later surveyed for position and surface elevation. The horizontal coordinates were surveyed relative to the North America Datum of 1983 (NAD83) New York State Plane Coordinate System, East Zone, and the elevations were surveyed relative to the 1988 USGS North American Vertical Datum (NAVD88).

As previously mentioned, bedrock monitoring wells were installed at a number of locations. The coreholes completed to facilitate the monitoring well installations were drilled using consistent methodology, as follows:

- A 4-inch-diameter steel casing was grouted several feet into the top of competent bedrock to isolate overburden materials and potential NAPL from the bedrock corehole.
- Bedrock was continuously cored using either PQ-sized or HQ-sized coring equipment, resulting in an approximately 3.8-inch corehole.

- Recovered bedrock samples were observed and described by the geologist and screened for VOCs using a PID.
- Upon completion, monitoring wells were installed in the coreholes as described in Section 2.3.1.

2.2.2 Test Pit Excavation

Test pits were excavated on Tax Parcel 98.81-1-4 of the Pritchard Property (Figure 3) during two mobilizations: an initial mobilization was conducted on August 3, 2011, and a follow-up IRM pre-design investigation (PDI) was conducted on July 29, 2013. The investigations were conducted in accordance with the following NYSDEC-approved work plans:

- *Results for Off-Site Investigation of Carter Property*, submitted to the NYSDEC on August 30, 2011 (National Grid 2011b). The NYSDEC provided approval of the work plan, as documented in a May 17, 2011 letter to National Grid.
- *IRM Pre-Design Investigation for Tax Parcel 98.81-1-4 (Former Carter Property, property now owned by Travis Pritchard)*, submitted to the NYSDEC on August 30, 2013 (National Grid 2013). The NYSDEC provided approval of the work plan, as documented in a May 23, 2013 letter to National Grid.

The objective of the initial investigation was to assess the presence and distribution of tar pieces on the Pritchard Property proximal to the Salmon River. Tar pieces were previously observed on the riverbank adjacent to Tax Parcel 98.81-1-4; therefore, the investigation was completed to evaluate whether the tar pieces were also present in subsurface soil inward from the river. The objective of the IRM PDI was to further assess the absence/presence and distribution of MGP-related wastes previously encountered during the initial investigation, with the intent of defining the limits of removal to be performed as an IRM (the details of the IRM are discussed in Section 1). A total of nine test pits (CTP-1 through CTP-6, and CTP-2A through CTP-2C) were excavated during the initial investigation, and a total of nine test pits (CTP-7 through CTP-15) were excavated during the IRM PDI (i.e., 18 total test pits between the two mobilizations). Figure 3 shows the test pit locations.

Figure 2-2 Test pit CTP-2 on Pritchard Property, looking south

The locations of the test pits were agreed to in the field with the on-site NYSDEC representative prior to starting the work. Test pits were excavated using a rubber-tired backhoe or a track-mounted excavator operated by OpTech. Test pits were approximately 9 to 15 ft long and were excavated to approximately 1 ft below the water table, which was encountered between approximately 4 and 6.5 ft below grade. Soils recovered from the test pits were visually characterized (i.e., for staining, presence of tar, soil type, etc.) and screened with a PID to assess the presence of volatile organic vapors. National Grid and the NYSDEC concurred in the field that soil sampling for laboratory analysis was not required during the initial

mobilization; however, one waste characterization sample was collected from test pit CTP-2 during the IRM PDI to profile soil for off-site disposal purposes.

Observations and measurements made at each test pit were recorded in field notes, and each test pit was photo-documented. Copies of the test pit logs are provided in Appendix A.

Each test pit was backfilled using material excavated from that test pit. The material was returned to the test pit in the approximate order from which it was removed. Test pit locations were surveyed relative to the NAD83 New York State Plane Coordinate System, East Zone, and the grade elevations were surveyed relative to NAVD88.

2.2.3 Surface Soil Sampling

Fifteen surface-soil samples (SS-100 through SS-107 and SS-A through SS-G) were collected during the RI. SS-100 though SS-107 were collected along the northern, southern, and eastern site boundaries to evaluate the potential presence of MGP-related constituents near the site boundary. SS-A through SS-G were collected around the edges of the weathered tar deposit observed in the southeast corner of the site to define the lateral extent of the impacts associated with the tar. SS-100 through SS-107 were collected from the top 2 inches of exposed ground in accordance with the procedures described in the FSP. SS-A through SS-G were collected using a hand auger to excavate a borehole to approximately 1-ft below grade, and a composite sample was collected from 0 to 1-ft below grade. Surface soil samples were analyzed for TCL VOCs, TCL SVOCs, total cyanide, and free cyanide as further described below.

2.2.4 Soil Analyses

Soil samples were collected from borings and surface soils to assess the nature and extent of MGP-related constituents in the overburden. The list of collected samples is provided in Table 1. A total of 45 subsurface soil samples were collected from soil borings for TCL VOCs, TCL SVOCs, and total cyanide analysis. Thirty-six of the forty-five samples were also analyzed for free cyanide to evaluate whether cyanide is in a form that is biologically available to humans or in a complex form. As mentioned above, all 15 surface soil samples were analyzed for TCL VOCs, TCL SVOCs, total cyanide, and free cyanide. Analytical methods, sample-handling procedures, and laboratory protocols were conducted in accordance with the QAPP included in the NYSDEC-approved *Generic Site Characterization/IRM Work Plan for Site Investigations at Non-Owned Former MGP Sites*, dated November 2002 (National Grid 2002).

As described in the QAPP, soil samples were submitted for laboratory analysis using U.S. Environmental Protection Agency (USEPA) SW-846 Methods as referenced in the most recent edition of the NYSDEC Analytical Services Protocol (ASP), with Category B analytical laboratory reports. Free cyanide analyses were performed using the micro-diffusion method (ASTM-4285-95). HCV, an Environmental Laboratory Accreditation Program-approved laboratory, performed the analyses. Data Usability Summary Reports (DUSRs) of the laboratory data packages were prepared, and the results of the DUSRs were incorporated into the data tables provided in this RI Report.

Subsurface soil sample intervals were chosen in the field on a case-by-case basis, depending on the subsurface conditions and data needs. At most locations, a sample was collected from the most impacted interval observed, if present. The field geologist inferred impacts if NAPL, sheens, or staining was observed, or if headspace readings were significantly above background. At selected locations, samples

were also submitted from the first visibly non-impacted interval to delineate the vertical extent. If no impacts were noted at a particular location, samples were typically collected from the approximate elevation at which impacts were observed in neighboring borings.

2.3 Groundwater Investigation

The RI groundwater investigation consisted of four primary tasks, as follows:

- Installing four bedrock groundwater monitoring wells, five overburden monitoring wells, and one overburden piezometer
- Sampling groundwater for chemical analysis
- Testing hydraulic conductivity of soil and bedrock
- Gauging fluid levels

These tasks provided two principal types of data needed to meet the RI objectives: water quality data to quantify and delineate the nature and extent of MGP-related constituents in overburden and bedrock groundwater, and hydraulic data to better quantify groundwater flow characteristics. A description of the groundwater investigation activities is presented below.

2.3.1 Monitoring Well Installation

The intent of the monitoring wells installed during the RI varied by type and location. Table 2.2 below summarizes the purpose of each.

Table 2.2 Monitoring Well Summary

ID	Screen Interval (ft bgs)	Location	Purpose
MW-1R	44.1 - 64.1	Near southwest corner of site	Evaluate potential impacts to groundwater upgradient from the site.
MW-2	3.5 - 6.3	Northern area of site (in dumping area)	Evaluate groundwater quality in the northern portion of the site, to the north and side-gradient from the former MGP structures.
MW-6	20.7 - 30.0		
MW-10	3.3 - 8.1		
MW-5	14.4 - 19.3	Central and east areas of site	Evaluate potential groundwater impacts near and downgradient from the former MGP structures.
MW-5R	30.9 - 50.4		
MW-7	8.5 - 13.3		
MW-8R	20.4 - 40.4		
MW-9R	20 - 39.5		
PZ-110	6 - 15.3	Inside southern former gas holder	Evaluate the presence of MGP-related impacts within the former holder and evaluate hydraulic connection of the holder to groundwater.

Note:
"R" suffix denotes monitoring well installed in bedrock.

Well locations are shown on Figure 2, and subsurface boring and well construction logs are included in Appendix A. Monitoring well specifications are also summarized in Table 4.

The new groundwater monitoring wells provide hydraulic and water-quality data to meet specific objectives (noted in Table 2.2 above). Upon completion of each soil boring to the desired total depth, either an overburden or bedrock monitoring well was installed at each boring location as follows.

2.3.1.1 Overburden Monitoring Wells

- Soil borings were drilled to their target depths following the practices described in Section 2.2.1.1. Target depths were chosen based on observed NAPL and/or geologic contacts (i.e., soil/bedrock interface).
- Two-inch inside diameter Schedule 40 polyvinyl chloride (PVC) material was used.
- 20-slot screens were used with varying lengths depending on the saturated overburden thickness, as described in Table 2.2 (above) and Table 4.
- Appropriately sized silica sand packs were installed in the annular space around the screened interval and generally between 0.5 and 2 ft above the top of the screen.
- Above the sand pack, the well annulus was filled with several feet of hydrated bentonite chips to provide a seal. A cement/bentonite grout was placed on top of the seal to ground surface using tremie pipe.
- Each well was protected at the surface with 4-inch steel stickup casing. Each well was also fitted with an appropriately sized locking J-plug cap and locked.
- Each well was installed with a sump at the bottom, with varying lengths (between 0.2 and 0.6 ft long).
- The top of the PVC riser of each well was marked, and the elevation of this mark was determined by instrument survey to the nearest 0.01 ft. Ground surface elevation and well location were also determined by instrument survey.

2.3.1.2 Bedrock Monitoring Wells

- Coreholes were drilled to their target depths following the practices described in Section 2.2.1.1. Target depths were chosen based on the presence of impacts (i.e., NAPL, sheen, staining) (if any), and/or observed bedrock structures (e.g., increased frequency of fractures).
- Wells installed in coreholes were constructed using 2-inch-diameter Schedule 40 PVC.
- 20-foot long, 20-slot screens were used, as described in Table 2.2 and Table 4.
- Appropriately sized silica sand packs were installed in the annular space around the screened interval and generally 1 to 2 ft above grade.
- Bedrock wells were double-cased with 4-inch black steel casing and grouted into place approximately 2 to 3 ft into top of competent bedrock. The 4-inch casing extended approximately 3 ft above grade to serve as a protective outer casing.

- Above the sand pack, the well annulus was filled with several feet of hydrated bentonite chips to provide a seal. A cement/bentonite grout was placed on top of the seal to surface using tremie pipe.
- The outer black casing at each well was fitted with a locking well cover. A 2-inch locking J-plug cap was also secured on top of the inner PVC riser.
- The top of the PVC riser of each well was marked, and the elevation of this mark was determined by instrument survey to the nearest 0.01 ft. Ground surface elevation and well location were also determined via instrument survey. The horizontal coordinates were surveyed relative to the NAD83 New York State Plane Coordinate System, East Zone, and the elevations were surveyed relative to NAVD88.

2.3.2 Monitoring Well Development

At least 24 hours after installation, the monitoring wells were developed by surging/purging using a Waterra positive displacement pump and dedicated polyethylene tubing. The wells were surged using a surge block and developed until the water removed from the well was reasonably free of visible sediment (50 nephelometric turbidity units), or until the turbidity levels stabilized following the removal of a minimum of 10 well volumes.

2.3.3 Groundwater Sampling

Two rounds of groundwater samples were collected from all site monitoring wells in September/October 2010 and November 2011 for TCL VOCs, TCL SVOCs, and total cyanide analysis. Prior to groundwater sampling, groundwater elevations were measured at each monitoring well using a water level probe. The presence of light non-aqueous phase liquid (LNAPL) or dense non-aqueous phase liquid (DNAPL) was also checked at wells using an oil-water interface meter. After groundwater elevations were measured, the wells were purged and sampled. Groundwater samples were obtained using low-flow purging and sampling procedures described in the FSP. Groundwater field parameters measured during purging included conductivity, dissolved oxygen, oxidation-reduction potential, pH, temperature, and turbidity. Groundwater sampling logs are provided on the attached CD.

Samples were containerized in laboratory-provided glassware and preserved with ice and laboratory-provided preservative (as required). Sample analyses followed the most recent NYSDEC ASP analytical protocol and included quality assurance/quality control (QA/QC) samples as required by the QAPP. HCV performed the groundwater analyses. DUSRs of the laboratory data packages were prepared, and the results of the DUSRs were incorporated into the data tables provided in this RI Report.

2.3.4 Seep Sampling

A groundwater seep sample (SEEP-1) was collected on October 14, 2010, from a drainage swale at the toe of the slope in the northeast corner of the site (Figure 2). The sample was submitted to HCV for TCL VOCs, TCL SVOCs, and total cyanide analysis. The seep sample was collected to evaluate potential impacts to groundwater emanating from the side of the embankment in the northern portion of the site. The sample was obtained by collecting the sample directly into the sample containers.

2.3.5 Water-Level Measurements

Groundwater elevations were measured at each monitoring well prior to collecting groundwater samples and during NAPL gauging events (discussed in Section 2.5). The Salmon River water level was also gauged during the sampling events at two staff gauges (SG-1 and SG-2; Figure 2) established near the upstream and downstream ends of the site. Water level measurements were obtained using a water level probe and/or oil/water interface meter. Groundwater elevations for each event are summarized in Table 5. The round of levels measured on September 7, 2010, was used as the basis for water level information provided on Figure 4, which are presented in Section 3.

2.3.6 Specific-Capacity Tests

Specific-capacity test data were collected at monitoring wells during groundwater sampling events. Specific-capacity testing is a field method used to estimate the transmissivity of a saturated geologic medium surrounding the screened or open interval of a well. A specific-capacity test involves pumping groundwater from a well at a constant rate and quantifying the pumping rate and magnitude of drawdown inside the tested well after a known duration of pumping. Specific-capacity tests are also referred to as single-well pumping tests or constant-rate tests. The transmissivity is calculated based on the pumping rate and drawdown measured inside the pumped well using the method described by Robbins (2009), Driscoll (1986), and Walton (1962). Section 3.1.3 provides the results of the specific-capacity test reductions.

2.4 Sediment Investigation

A sediment investigation was conducted in the Salmon River during the week of November 7, 2011. The Salmon River is located at the toe of the slope along the eastern boundary of the site (Figure 5). The investigation was conducted in accordance with the NYSDEC-approved scope of work entitled *Salmon River Sediment Investigation – Final Scope of Work,* dated November 4, 2011 (National Grid 2011c). The main objectives of the investigation were to:

- Establish background concentrations of PAHs in sediments upstream from the site.
- Delineate the extent of MGP residuals (i.e., solidified tar) observed at the river's edge adjacent to the site.
- Evaluate whether MGP-related residuals are present in sediment downstream from the solidified tar.

The activities completed during the sediment investigation consisted of:

- Reconnaissance
- Sediment Probing
- Sediment Sampling
- Survey

These activities are discussed in detail, below.

2.4.1 Reconnaissance

A reconnaissance of the Salmon River was performed in consultation with the NYSDEC field representative on the first day of field work (November 7, 2011). The reconnaissance consisted of walking the river upstream, adjacent to and downstream from the site, to observe general stream characteristics, identify any existing outfalls, and select sampling locations. The reconnaissance covered an area of approximately 900 ft upstream from the site to 1,000 ft downstream from the site.

Figure 2-3 Salmon River adjacent to site, facing south, Notice sanitary sewer pipe on riverbed.

The primary objective of the reconnaissance was to mutually select and agree upon background (upstream) sediment sampling locations with the NYSDEC prior to conducting the sampling. During the reconnaissance, Arcadis' sediment sampling team and the NYSDEC representative agreed upon five locations for background sampling in the approximate 900-ft reach of river upstream from the site. Selecting background sediment sampling locations was challenging given the limited amount of soft sediment deposits. The November 4, 2011 work plan specified that background sampling would be conducted within an approximate 500-ft reach of river upstream from the site; however, given the lack of soft sediment, the area for background sampling was lengthened from 500 ft to 900 ft to encompass a significant sediment deposit observed on the upstream side of a dam (Figure 5).

A secondary objective of the reconnaissance was to select and agree upon sediment sampling locations downstream from the limited deposit of solidified tar immediately adjacent to the site. An approximate 1,000-ft reach of river downstream from the site (ending at Factory Street; see Figures 5 and 5c) was evaluated for potential sediment sampling locations during the reconnaissance. General areas for downstream sampling were selected and agreed upon during the reconnaissance; however, given the lack of sizeable sediment deposits that could be sampled, it was determined that the specific sampling locations would need to be determined based upon subsequent probing results that would be targeted within the general areas.

2.4.2 Sediment Probing

Targeted sediment probing was conducted at sampling locations identified during the reconnaissance; however, given the lack of soft sediment, significant sediment deposits were observed at only three of the twenty-five sampling locations (two behind the upstream dam and one behind the power-generator building; Figure 5).

2.4.3 Sediment Sampling

Sediment sampling focused on three reaches (upstream, adjacent to the site, and downstream) and five main areas/types:

- *Background Sampling* – sampling upstream from the site
- *Tar Delineation Sampling* – sampling in an area where solidified tar (i.e., "tar patty") was observed on the river's edge adjacent to the site

- *Floodplain Area Sampling* – sampling in an area where potential "floodplain" deposits exist along the river's edge adjacent to the site
- *Sampling Near Seep* – sampling where potential petroleum impacts were observed near the mouth of a seep emanating from the base of the slope of the former dumping area in the northern portion of the site
- *Downstream Sampling* – sampling downstream from the site (i.e., downstream from the site property boundary)

A total of 38 samples (plus QA/QC samples) were collected from 25 sampling locations (NG-SR-SD-01 through NG-SR-SD-25) within these areas. All 38 samples were analyzed for alkylated PAHs using modified USEPA Method SW8270C with select ion monitoring and TOC by the Lloyd-Kahn method. Two samples (from the seep area) were analyzed for TCL VOCs using USEPA Method SW8260. Sediment sampling locations are shown on Figure 5 and Figures 5a through 5c, and the following table summarizes the distribution of samples relative to the areas discussed above.

Area	No. of Sampling Locations	No. of Collected Samples	Sampling IDs	Analyses Performed
Background	5	14	NG-SR-SD-12 → NG-SR-SD-16	Alkylated PAHs/TOC
Tar Delineation	5	5	NG-SR-SD-1 → NG-SR-SD-5	Alkylated PAHs/TOC
Floodplain Area	11	10	NG-SR-SD-6 → NG-SR-SD-11	Alkylated PAHs/TOC
Near Seep	2	2	NG-SR-SD-24 and NG-SR-SD-25	Alkylated PAHs/TOC/VOCs
Downstream	7	7	NG-SR-SD-17 → NG-SR-SD-21	Alkylated PAHs/TOC
Total	**25**	**38**		

Sediment sampling at each location was initially attempted using methods detailed in the FSP. As discussed in the FSP, sampling was attempted using driven Lexan® tubes; however, alternate sampling methods were required at numerous sampling locations. The sediment sampling procedures employed at each sampling location were as follows:

- The sampling location was probed to estimate the soft sediment depth and water depth.
- Sediment cores were attempted to be collected at each location using one of two methods: 1) driving a 3-inch-diameter Lexan® tube into the sediment until 4 ft or refusal (whichever was encountered first), and/or 2) driving a steel barrel (i.e., Macrocore®) lined with 2-inch-diameter Lexan® tubes and a sampling shoe (to hold sediment in the tubing) into the sediment until 4 ft or refusal (whichever was encountered first). Method 1 was used to collect samples from areas observed to contain obvious soft sediment deposits, and Method 2 was attempted in areas where only a few inches of sediment was observed (understanding that sediment would not stay within a Lexane® tubing upon retrieval). It was not uncommon for Method 2 to require numerous attempts to retrieve an adequate sample volume.

Sediment cores retrieved using the above methods were segmented into the following approximate sampling intervals:

- 0 to 6 inches
- 6 to 12 inches

- 1 to 2 ft
- 2 to 3 ft
- 3 to 4 ft

The sampling methods described above were unsuccessful at collecting adequate sample volume at several locations. In these instances, samples were collected using a grab sampler (stainless steel scoop).

Sediment samples were described with respect to predominant sediment types, texture, color, and moisture content, and headspace screened using a PID. In addition, the presence of odors, sheens, tar, and staining were recorded (if any observed).

Sediment probing and sampling observations are summarized in Table 6.

Sediment samples were containerized in laboratory-provided glassware and preserved with ice and laboratory-provided preservative (as required). Sample analyses followed the most recent NYSDEC ASP analytical protocol and included QA/QC samples as required by the QAPP. Alpha Analytical performed the sediment sample analyses. DUSRs of the laboratory data packages were prepared, and the results of the DUSRs were incorporated into the data tables provided in this RI Report.

2.4.4 Survey

Sediment elevations and horizontal coordinates for each sediment sample location were surveyed via instrument survey on November 22, 2011. The horizontal coordinates were surveyed relative to NAD83 New York State Plane Coordinate System, East Zone, and the elevations were surveyed relative to NAVD88.

2.5 NAPL Monitoring

National Grid initiated a NAPL monitoring program at the site in 2012 in accordance with the monitoring program proposed in an October 22, 2012 letter to the NYSDEC (National Grid 2012). The program was started to gauge and remove the LNAPL observed in monitoring well MW-5R and to check for the presence of NAPL in the remaining site wells. As discussed in Section 3, the LNAPL at MW-5R has been fingerprinted as gasoline and is unrelated to the former MGP. As of the date of this RI Report, a total of five NAPL monitoring events have been performed at the site: December 4, 2012; April 2, 2013; December 17, 2013; September 16, 2014; and October 20, 2015. The program is planned to be continued on an annual basis until implementation of the final remedy for the site.

Each NAPL monitoring event consists of using an oil/water interface meter to check for the presence of NAPL and verify the presence using a clear disposable bailer, if any is detected with the probe. If any DNAPL is present, the thickness would also be measured with a weighted measuring tape. NAPL is removed using a bailer. As of the date of this RI Report, the only NAPL observed in any monitoring well is the LNAPL observed in MW-5R.

2.6 Human Health Exposure Assessment

A site visit was conducted on September 14, 2012, to support preparation of a qualitative HHEA in accordance with Section 3.3(c)4 and Appendix 3B of DER-10 (NYSDEC 2010). The HHEA was performed to evaluate and document how people might be exposed to constituents and to identify and characterize the potentially exposed population(s) based on both current land use and reasonably anticipated future land use. Specifically, the HHEA was performed to characterize the environmental setting at the site, identify constituents of potential concern (COPCs) through a comparison of site data to appropriate screening benchmarks, identify potentially complete exposure pathways, and evaluate constituent fate and transport. The results of the HHEA are presented in Section 4.1.

2.7 Fish and Wildlife Resource Impact Analysis

An Arcadis biologist conducted a site visit on September 14, 2012, to support development of an FWRIA. The FWRIA was conducted in accordance with Section 3.10.1 of DER-10 (NYSDEC 2010). The objectives of the FWRIA were to identify fish and wildlife resources that exist on and near the site and to evaluate the potential for exposure of these resources to constituents in environmental media. Specifically, a habitat characterization was conducted based on desktop research and professional judgment of qualified biologists. Identification of potential natural resources near the site consisted of a review of state and/or federal wetland maps and identification of significant water bodies within a 2-mile radius of the site. Details are of the FWRIA are presented in Section 4.2.

2.8 Site Survey

Following the completion of each phase of soil, groundwater, and sediment investigation, Thew surveyed the soil borings, test pits, monitoring wells, and sediment sampling locations. The survey included the location, ground-surface elevation, and measuring-point elevation for monitoring wells (defined as the top of the inner casing) and sediment surface (for sediment sampling locations). Horizontal coordinates were surveyed relative to NAD83 New York State Plane Coordinate System, East Zone, and the elevations were surveyed relative to NAVD88.

2.9 Equipment Decontamination

Equipment was decontaminated in accordance with the procedures presented in the FSP. In general, non-disposable equipment, including drilling tools and equipment, were decontaminated prior to first use on site, between each investigation point, and prior to mobilization. Equipment rinse blanks were conducted on split-spoon samplers during soil sampling and were submitted for analysis of TCL VOCs, TCL SVOCs, and total cyanide to evaluate the integrity of the decontamination procedures. A rinse blank was not conducted during groundwater sampling because new, disposable equipment was used during sampling.

2.10 IDW Disposal

Investigation-derived waste (IDW) generated during the RI included:

- Drill cuttings
- Drill water
- Development and purge water
- Decontamination fluids
- Spent disposable sampling supplies
- Spent personal protective equipment (PPE)

IDW was containerized in NYSDOT-approved 55-gallon steel drums, a poly tank, and/or a roll-off container, depending on the phase of investigation. Each container was secured and labeled with the date, contents, contact information, and other relevant information. Waste characterization samples were collected from each waste stream. Based on the results obtained from the analysis of the waste characterization samples, both solid and liquid IDW materials were transported by a National Grid - approved waste hauler for off-site disposal as non-hazardous waste.

3 REMEDIAL INVESTIGATION FINDINGS

This section reports the cumulative findings of site investigations into the nature and condition of the subsurface at and near the site. The discussion is divided into the following categories:

- Geology and Hydrogeology (Section 3.1)
- Soil Quality Evaluation – On Site (Section 3.2)
- Pritchard Property Forensic Evaluation (Section 3.3)
- Groundwater Quality Evaluation (Section 3.4)
- Sediment Investigation (Section 3.5)

Findings of the FWRIA and HHEE are reported in Section 4.

3.1 Geology and Hydrogeology

The following sections discuss the regional and site-specific geology and hydrogeology as they relate to the subsurface materials encountered during the RI.

3.1.1 Regional Geology

The Village of Malone is located in the St. Lawrence – Champlain Lowlands physiographic province of New York State. This province is characterized by a smooth plain that borders the Adirondack Mountains and extends northerly beyond the Canadian border. The southern boundary of the province is defined as the line where the crystalline rocks of the mountains are overlapped by the younger sedimentary rocks. The eastern boundary is the drainage divide where water begins to flow to Lake Champlain. The western edge may be arbitrarily taken as where the geologic age of the surface sedimentary rocks change from Cambrian (formed approximately 500 million years ago) to Ordovician (formed approximately 450 million years ago) north of Watertown.

As is the case in most of New York, glacial processes have shaped the geomorphology of the region. The area was buried by glacial ice during the Wisconsin glaciation, which ended approximately 12,500 years ago. During the glaciations and subsequent glacial retreats, glacial ice eroded soil material and bedrock, which were ultimately re-deposited as a mixture of unconsolidated glacial sediment. The surficial glacial sediments in the area of the site have been mapped as a complex pattern of glacial till drumlins and drumlin-like hills surrounded by lacustrine silts and clays or related sands and gravels of beaches, bars, and deltas. Toward the Adirondack Mountains, outwash and ice-contact deposits are found. The ice-laid glacial tills are often extremely stony or bouldery and are very compact in places. The fine sand soils found on some of the large deltas have been moved by wind to form the so-called "blow sand" areas. It is likely that some of the silt and clay deposits in the eastern portion are marine in origin, resulting from a Pleistocene Atlantic invasion up the St. Lawrence Valley (NYSDOT 2013).

3.1.2 Site Geology

Site investigations have identified three principal stratigraphic units beneath and near the site. These units show a sequence of events, from the land surface down (youngest to oldest), specific to the site's geologic and human history:

- fill and the remnants of an assortment of man-made structures, originating from the industrial history of the site area
- postglacial alluvial sand and silt likely deposited by an early version of the Salmon River
- sandstone formed in the mid-to-late Cambrian age (500 million years ago)

These units are described in Table 3.1 below.

Table 3.1 Generalized Geologic Column at and Near the Site

Unit	Thickness (ft)	Stratigraphic Description
Fill	10 to 15: former MGP operations area 12 to 30: northern dumping area	Sand with varying amounts of silt and gravel, cinders, slag, ash, coal, brick, wood, metal, glass, plastic, rubber, leather, and buried utilities are present in areas near the site. These materials, in addition to demolition debris and foundation remnants, are present at the site. Anthropogenic materials are the dominant component of the fill in the former dumping area in the northern half of the site.
Alluvial Silt & Sand	0 to 9	Brown fine to coarse sand interbedded with layers of silt, present only in the western half of the site on the west side of a north-south trending bedrock ridge.
Potsdam Sandstone	> 34	Light buff to light gray orthoquartzitic sandstone. Flat-lying beds that are generally 1 inch to less than 1 ft in thickness. Horizontal fractures occur along weaker bedding planes. Very little vertical jointing. Rock quality designations (RQDs) generally greater than 90%.

The cross-sections on Figures 6 through 9 show the vertical distribution of these units beneath the site. The locations of the cross-sections are shown on Figure 2.

As shown in the cross-sections, the overburden is primarily composed of fill materials that lie on the bedrock surface. The native alluvial silt and sand is found in the western area of the site, on the western side of a bedrock ridge, but appears to have been eroded from the eastern side of the ridge, likely by the Salmon River. The overburden is thickest in the northern approximate half of the site, in the former dumping area. Abundant quantities of cinders, ash, coal, slag, and brick have been observed in this area. Large pieces of rubber resembling soles of footwear and various other fill materials can be seen protruding from the steep embankment of the northern half of the site. The rubber debris is assumed to have been associated with the "Former Malone Rubber Co." located on Mr. Carter's property. The overburden thins rapidly to the east, where it pinches out along the bank of the Salmon River. The thickness of the overburden ranges from approximately 18 to 23 ft in the area of the former MGP and 12 to 30 ft in the former dumping area. The thickness of the overburden along the riverbank is approximately 6 to 12 ft and thins to the north.

The topography of the bedrock surface generally mimics that of the land surface. The bedrock surface elevation is generally highest along Amsden Street and drops approximately 15 to 35 ft to the river (eastward). The bedrock surface elevation also decreases to the north, in the direction of river flow. As

shown in cross-sections A-A' (Figure 6 [SB-5, SB-132]) and B-B' (Figure 7 [SB-114]), a north-south trending bedrock ridge is evident on site. As discussed above, the alluvial silt and sand is present on the west side of the ridge but not the east side.

Figure 3-1 Bedrock ledge located along riverbank adjacent to the site

The bedrock beneath the site is the late Cambrian age Potsdam Sandstone (formed approximately 500 million years ago). The Potsdam Sandstone in the Malone region is composed of a large percentage of quartz (orthoquartzitic), thus producing a light buff to light gray coloration. Intervals approaching 100% quartz were observed in several retrieved rock cores. It is not uncommon for the drilling penetration rates for these intervals to be an hour or more per foot. The high percentage of quartz in the sandstone results in very high hardness and high RQDs. RQDs were generally greater than 90 at each of the four bedrock drilling locations. RQDs were lower at MW-8R, possibly due to groundwater erosion and weathering along bedding planes near the river. The thickness of the sandstone beds at the site ranges from less than 1 inch to several inches, and generally less than 1 ft. Examination of retrieved bedrock cores, and a measurement of the attitude of an exposed bedrock outcrop near the former powerhouse foundation, indicates that the sandstone beds are essentially flat-lying (i.e., no measurable dip direction). Few vertical fractures (joints) were identified during examination of bedrock cores; however, vertical fracturing is generally rarely observed in vertical coreholes.

3.1.3 Pritchard Property Geology

Information regarding the geology of the off-site Pritchard Property is limited due the limited depth of investigation efforts performed on the property. As discussed in Section 2, 18 test pits were excavated on the property, but the test pits were terminated once the water table was reached and tar was delineated. As such, only the upper approximately 6 ft of subsurface materials were investigated on the Pritchard Property. The subsurface materials within this interval (0 to 6 ft bgs) consist of fill mixed with sand and gravel. As discussed in Section 1, it is apparent that the property has been the historical location of uncontrolled dumping by the public. In addition to MGP-related tar, observations documented during the test pit excavations on this property consistently revealed a varying degree of anthropogenic materials, such as glass, wood, brick, plastic, and metal. These anthropogenic materials were imbedded within sand and gravel. It is assumed that, prior to uncontrolled dumping, the ground surface of this area was likely near the level of the river.

3.1.4 Site Hydrogeology

This section discusses site overburden and bedrock hydrogeology and draws from the following sources of information:

- Site-specific hydrogeologic data, including observations and analyses relating to the water-bearing properties of the subsurface soil and bedrock and hydraulic conductivity testing completed at site wells.
- Water-level data measured at monitoring wells/piezometers and staff gauges in the river, as shown on Table 5.
- Well construction information provided in Table 6.
- The water table contours provided on Figure 4.
- The cross-sections included as Figures 6 through 9.

As shown in Table 5 and as observed while drilling borings, the water table is encountered within the overburden and bedrock beneath the site from approximately 1 to 43 ft below grade. As expected, the depth to water is greater where the grade elevation is highest (approximate western two-thirds of the site) and least where the grade elevation is lowest (near the river). As shown in the cross-sections, the water table is within the bedrock beneath most of the site; the exception is in the northeast portion of the site, where the bedrock surface is lowest relative to the river level (i.e., riverbank is comprised of overburden and not bedrock). Perched groundwater is evident within the overburden across much of the site. The perched water layer is generally only a few ft in thickness, but is as much as 14 ft thick on the western side of a north-south bedrock ridge that traverses the site (see cross-sections A-A' [Figure 6] and B-B' [Figure 7]).

As shown on Figure 4, phreatic groundwater flow is toward the river, with a horizontal hydraulic gradient of approximately 0.10 to 0.20 ft along the steep embankment and 0.04 ft closer to the river. Given the anisotropic conditions caused by the predominance of horizontal bedding plane fractures relative to joints (i.e., vertical fractures) within the bedrock, there was very little hydraulic communication between the overburden and bedrock. As such, across much of the site, groundwater in the overburden is perched on the bedrock surface well above the water table (phreatic water surface) that lies further down in the rock. This phenomena creates a relatively "dry" zone of bedrock between the overlying perched water in the overburden and phreatic water surface further down in the bedrock. If a significant number of open joints were present in the bedrock, groundwater would be allowed to leak downward from the overburden into the bedrock, thereby increasing the hydraulic connection between the two units. If this were the case, perched water would not likely be present in the overburden.

Where the water table is present in the overburden (i.e., northeast portion of site, near the base of the slope and closer to the river), groundwater flow is expected to be horizontal and in the direction of the river. As discussed above, where groundwater is perched in the overburden, it also likely moves downward in the overburden and horizontally in the direction of the slope of the bedrock surface, until it reaches a vertical joint in the rock, where it leaks downward. Given the higher number of bedding plane fractures relative to vertical joints, the primary groundwater flow direction in the bedrock is interpreted to be horizontal. Groundwater velocities along the bedding planes are expected to be quite high given the strong horizontal hydraulic gradient along the bedding planes and high hydraulic conductivity (see Table 3.2 below).

As discussed in Section 2, the hydraulic conductivity of the overburden and bedrock was estimated using specific-capacity data obtained during groundwater sampling events. Table 3.2 illustrates the units screened and the hydraulic conductivity values (K) based on specific-capacity testing.

Table 3.2 Overburden and Bedrock Hydraulic Conductivity

Well ID	Screened Interval	K (ft/day)
Overburden		
MW-2	3.5 - 6.3	15
MW-3	7.0 - 12	1.5
MW-4	3.5 - 8.5	7.2
MW-5	14.4 - 19.3	DRY
MW-6	20.7 - 30.0	0.3
MW-7	8.5 - 13.3	37
MW-10	3.3 - 8.1	2.1
Bedrock		
MW-1R	44.1 - 64.1	1.3
MW-5R	30.9 - 50.4	98
MW-8R	20.4 - 40.4	86
MW-9R	20.0 - 39.5	87

As shown in Table 3.2, hydraulic conductivity estimates suggest that the hydraulic conductivity of the bedrock is approximately an order of magnitude higher than that of the overburden. Although the primary porosity of the bedrock is expected to be low due to the crystalline, orthoquartzitic nature of the rock, it is apparent that weathering and erosion has occurred along weaker bedding planes, thereby causing a relatively high secondary porosity. It is reasonable to assume that the majority of the water beneath the site likely moves through these weathered, flat-lying bedding plane fractures. The water moving through these fractures originates from three probable sources:

- Within bedrock hydraulically upgradient (west and southwest) from the site. A small amount of groundwater is also expected to originate from upward vertical flow within the bedrock, but this flow is likely a negligible amount given the scarcity of vertical joints expected in the bedrock, particularly with increased depth.
- Precipitation that falls to the ground surface of the site and infiltrates through the overburden and bedrock joints until reaching the water table. The degree of mounding above the bedrock surface is directly proportional to the degree of vertical joints present in the bedrock for a given area of the site. Substantial mounding likely occurs in areas where joints are either not present or have been filled (i.e., “plugged”) with fine-grained sediment.

As shown on cross-section A-A’ (Figure 6), perched groundwater is also observed in the southern gas holder at an elevation of approximately 687.5 ft (on September 7, 2010). This holder is located in an area where the overburden is otherwise dry. Perched water in this holder suggests that the foundation for this holder is relatively intact and water tight.

3.2 Soil Quality Evaluation – On Site

This section summarizes the soil quality at the site based on observed impacts in soil (Section 3.2.2) and soil analytical results (Section 3.2.3) from the RI field work.

3.2.1 Overview

At MGP sites, two types of gas-production byproducts often account for the majority of affected soils: NAPLs (primarily coal-tar DNAPL) and spent purifier wastes. Principal components of coal tar that are routinely analyzed for at MGP sites are BTEX, which are VOCs, and PAHs, which are SVOCs. Analysis for these two classes of organic compounds is a useful way of identifying the nature and extent of soils affected by coal tar. Because coal tar contains these compounds, soil samples that contain coal tar need not always be analyzed; rather, it may be generally assumed that the levels of BTEX and/or PAHs will likely be above applicable NYSDEC's Part 375 Restricted Use Soil Cleanup Objectives (SCOs). The gas purification process commonly entailed running the unpurified gas through ground limestone or a mixture of wood chips/sawdust and iron filings. The spent purifier wastes were commonly disposed of on site or near the MGP, and these wastes commonly contain cyanide in the form of iron cyanide complexes. The iron cyanide complexes are typically bright blue in color, making it easy to detect (observe) these materials in the field. Although none of the gas purification wastes were observed during the RI, cyanide was detected in soil and groundwater samples.

This remaining sub-sections in Section 3 focus on the distribution of BTEX, PAHs, and/or cyanide in soil, groundwater, and sediment samples. A more detailed evaluation of potential risks these impacted media pose to human health and the environment is presented in Section 4 – Risk Assessment.

3.2.2 Field-Observed Impacts in Soil

This section describes areas of observed impacted soils (i.e., tar, sheen, and staining) encountered during the RI while drilling soil borings, and visually observing the ground surface while walking the site. Figure 10 provides a graphic summary of the areas where impacts have been observed on the site. As demonstrated on Figure 10, tar was primarily observed within the upper 5 ft of overburden in the southern half of the site. Tar was not observed in any bedrock coreholes drilled during the RI. Based on apparent differences in viscosity, the following two types of tar have been observed at the site:

- ***Solid Tar*** – As shown with the pink shading on Figure 10, this type of tar is primarily observed at the land surface and within the upper approximately 5 ft of overburden soils. As its name implies, this tar has a hardened appearance, is somewhat pliable when exposed to heat (i.e., sunlight), and is often crystalline. This type of tar was primarily observed in the southern half of the site, in the area of the former MGP. This type of tar was also observed in a test pit (TP-9) completed on Mr. Carter's property (adjacent to the site), and in soil boring SB-114 (located north of Mr. Carter's property). A small area of this tar was also observed along the edge of the river at the site, near the former powerhouse foundation.

- ***Viscous Tar*** – As shown with the purple shading on Figure 10, this type of tar has been observed primarily within the footprint of the southern gas holder and the tar well. This tar was also observed on the bedrock surface only at MW-4. This tar differs from the solidified tar due to its relatively lower viscosity and taffy-like consistency.

Figure 3-2 Solid tar observed on ground surface of site, looking toward Amsden Street, former MGP building on left

As shown by the yellow shading on Figure 10, sheens and staining were observed in soils on the bedrock surface at several borings across the site. An apparent petroleum odor was also observed at several of these locations, suggesting a source of impacts to the subsurface other than the MGP. As shown by the blue shading at MW-5R on Figure 10 and in Table 7, as much as 0.70 ft of LNAPL has been observed to accumulate in monitoring well MW-5R during NAPL monitoring events. As discussed in Section 1, National Grid has performed a NAPL monitoring program to evaluate the recoverability of this LNAPL. Table 7 summarizes the most recent NAPL monitoring event, and the associated NAPL monitoring report submitted to NYSDEC is included on the attached CD. National Grid submitted a sample of the LNAPL for fingerprinting analysis and provided the results in a June 25, 2012 letter to the NYSDEC (National Grid 2012). As discussed in that letter, the LNAPL in MW-5R was fingerprinted as weathered gasoline. Based on a review of an EDR report (see the attached CD), the property to the south has three closed NYSDEC spill reports (#9506718, #9508013, and #9808391). It is assumed that the source of the gasoline is related to the incidents addressed by the spill reports.

3.2.3 Subsurface Soil Analytical Results

As mentioned in Section 2.2.4, a total of 45 subsurface soil samples were collected for laboratory analysis during the RI. Two sets of criteria were used to evaluate the distribution of BTEX, PAHs, and/or cyanide in subsurface soil samples:

- Soil samples having concentrations of BTEX, PAHs, and/or cyanide exceeding the standards, criteria, and guidance (SCG) contained in Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 Remedial Program Restricted Commercial Soil Cleanup Objectives (CSCOs) (NYSDEC 2006).
- Soil samples having concentrations of BTEX, PAHs, and/or cyanide exceeding the SCGs contained in 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives for Protection of Public Health – Residential Use Soil Cleanup Objectives (RSCOs) (NYSDEC 2006).

These criteria were chosen given the site setting (i.e., mixed industrial/commercial/residential). Subsurface soil analytical results are shown on Figure 11 and presented in Table 2 in comparison to

these criteria. It should be noted that, with the exception of the sample collected at SB-120 (8-10') and samples collected for forensic source evaluation on the Pritchard Property (as discussed in Section 3.3), soil samples were selected based on the presence of staining, sheen, or to provide lateral/vertical delineation. The samples collected from SB-120, and for forensic source evaluation, were the only samples that contained tar. The following observations can be made based on review of this information:

- Benzene was detected in only one sample (SB-120[8-10']) at a concentration (7.3 milligrams per kilogram [mg/kg]) above the RSCO. As noted above, this sample contained solidified tar. No other VOCs were detected in any other samples above either CSCO; however, it is reasonable to assume that tar-containing soil could contain at least one BTEX compound at concentrations above either SCO. As such, the locations shown in pink and purple on Figure 10 likely contain at least one BTEX compound above SCOs.
- At least one PAH compound was detected above either SCO in nine of the 45 subsurface soil samples. The highest total PAH concentration was detected in the sample containing tar at SB-120(8-10') at 22,000 mg/kg. The remaining eight samples exceeding SCOs contained total PAH concentrations between 11 mg/kg and 45 mg/kg. Similar to the assumption for BTEX compounds, it is reasonable to assume that tar-containing soil could contain at least one PAH compound at concentrations above SCOs. As such, the locations shown in pink and purple on Figure 10 likely contain at least one PAH compound above SCOs.
- Total cyanide was detected in 21 of the 45 subsurface soil samples at concentrations ranging between 0.620 mg/kg and 60 mg/kg. Total cyanide was only detected above SCOs in one of these samples – the sample collected at 2 to 4 ft below grade in boring SB-110 at a concentration of 60 mg/kg.
- Free cyanide was only detected in six of the 36 samples analyzed for free cyanide at concentrations between 0.0216 mg/kg and 0.452 mg/kg. None of these samples contain concentrations of free cyanide above SCOs.

3.2.4 Surface Soil Analytical Results

As discussed in Section 2.2.3, a total of 15 surface soil samples were collected for laboratory analysis during the RI. Surface soil analytical results are presented in Table 3 with a comparison to criteria. Figure 12 provides the results for total BTEX, total PAHs, and total cyanide without a comparison to criteria. Section 4 (Risk Assessment) provides a detailed discussion of surface soil sampling results in comparison to appropriate criteria. The following general observations of the BTEX, PAHs, and/or cyanide distribution can be made based on review of the data presented in Table 3 and on Figure 12:

- BTEX compounds were not detected in any of the 15 surface soil samples; however, BTEX compounds are expected to exceed SCOs in the tar observed on the ground surface (Figure 10).
- PAH compounds were detected in all 15 surface soil samples at total PAH concentrations ranging between 1.2 mg/kg and 720 mg/kg. The highest levels of PAHs were detected in samples collected on/near the steep embankment in the southeast corner of the site. These samples were collected to delineate potential impacts to soil resulting from the tar observed on the surface of the embankment

in this area. PAH compounds are expected to exceed SCOs in the tar observed on the ground surface (Figure 10).

- Total cyanide was detected in eight of the 15 surface soil samples at concentrations ranging between 1.3 mg/kg and 56 mg/kg. Similar to PAHs, the highest levels of total cyanide were detected in samples collected on/near the steep embankment in the southeast corner of the site.
- Free cyanide was detected at estimated concentrations in 11 of the 15 samples at concentrations ranging between 0.0194 mg/kg and 2.65 mg/kg.

3.3 Pritchard Property Forensic Evaluation

PAH source evaluations were conducted on two separate occasions to assess whether tar observed on the riverbank of the Pritchard Property could be attributable to the former MGP operations on Amsden Street. The tar was observed in scattered areas on the riverbank of the Prichard Property. The location of the tar pieces are given the prefix "RBT" on Figure 3. Photographs of the tar pieces are provided in the reports included on the attached CD. The PAH source evaluations included the collection of tar pieces from the two Pritchard properties and comparing the compositional signature of the tar pieces to that of tar samples collected from the site on Amsden Street. The results of the PAH evaluations were presented in the following documents submitted to the NYSDEC (which are also included on the attached CD):

Figure 3-3 Tar observed at RBT-4A (see Figure 3)

- March 2, 2011 – Attachment 1 of the Remedial Investigation Data Summary entitled: Forensic Evaluation of PAHs in Tar Samples Collected at the National Grid Former MGP Site and Downstream of the Site in Malone, New York (National Grid 2011a)
- January 7, 2016 – PAH Forensic Evaluation of Tar Samples Collected on Riverbank of Tax Parcel 98.81-1-3.200 (National Grid 2016)

Figure 3-4 Tar encountered in CTP-2 on Pritchard Property

As discussed in both reports, the forensic evaluations found that tar observed on the Pritchard Property had a PAH compositional signature similar to that of the tar observed on the site, and all tar samples were produced by the same process. National Grid concluded that, given the proximity of the MGP site to the Pritchard Property, the former MGP cannot be ruled out as the source of the tar on the Pritchard Property. As discussed in Section 1.4.4, National Grid conducted an IRM on Tax Parcel 98.81.1.4 in September 2014 to remove the tar observed on the riverbank and in two test pits (CTP-1 and CTP-2; Figure 3) further inland from the riverbank. As of the date of this RI Report, the tar observed on Tax Parcel 98.81-1-3.200 remains in place.

3.4 Groundwater Quality Evaluation

This section discusses groundwater quality at and near the site, based on analytical results from two rounds of groundwater samples collected at monitoring wells. This evaluation focuses on the nature and extent of BTEX, PAHs, and cyanide. The analytical results presented in Table 8 and on Figure 13 are compared with standards and guidance values from NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 (NYSDEC 1998) Class GA groundwater standards and guidance values (referred to hereafter as "Class GA Standards and Guidance Values"). Section 4 evaluates the groundwater data with respect to potential risks posed to human health and the environment. The following discussion of groundwater quality is organized based on the constituent group.

3.4.1 BTEX

BTEX compounds were detected in groundwater sampled from seven of the 10 monitoring wells at concentrations exceeding Class GA Standards and Guidance Values. The highest total BTEX concentrations were detected in monitoring wells MW-5R (2,300 micrograms per liter [µg/L]) and MW-6 (1,200 µg/L). BTEX compounds were also detected above Class GA Standards and Guidance Values in the seep sample (SEEP-1) collected at the toe of the slope near MW-2. It is possible that the groundwater exceedances for BTEX may not be related to the MGP, as follows:

1) The background monitoring well (MW-1R) contained 56 µg/L of total BTEX. This well is located hydraulically upgradient from the MGP operations area, and petroleum-like odors were noted on purge water from this well during sampling.

2) Monitoring wells MW-2, MW-6, and MW-10, and seep sample SEEP-1 are all located within the northern area of the site and side-gradient from the former MGP operations. In addition, petroleum-related odors and sheens were noted during drilling at several borings in this area. As evidenced by the various sorts of refuse observed on the ground surface, in soil samples recovered from soil borings, and along the steep eastern embankment of the northern area, there is potential for petroleum impacts to be related to materials that may have been dumped by the public in this area that are not related to the MGP. Methyl tert-butyl-ether (MTBE), a known gasoline additive produced well after the MGP operated, was also detected in each of these wells.

3) The BTEX detected in samples from MW-5R are likely related to LNAPL (fingerprinted as gasoline) that has accumulated in the well. As previously discussed, the LNAPL is likely related to spills on an adjacent, upgradient property. The BTEX exceedances at monitoring wells MW-3 and MW-8R are located hydraulically downgradient from MW-5R, where LNAPL (gasoline) has accumulated. MTBE was also detected at MW-8R. It is reasonable to assume that the exceedances at these wells could also be attributable to background influences and not the former MGP. Although tar is observed in the former southern holder, as discussed in Section 3.1.3, this holder appears to be water tight. This suggests that the tar in the holder may not be attributing dissolved-phase impacts to groundwater.

3.4.2 PAHs

PAHs were detected in groundwater from five (MW-2, MW-3, MW-4, MW-5R, and MW-6) of the ten monitoring wells at concentrations exceeding Class GA Standards and Guidance Values. Groundwater from MW-2, MW-5R, and MW-6 only contained exceedances of naphthalene. Groundwater from MW-3

and MW-4 contained low level exceedances of several PAH compounds (concentrations less than 1 µg/L for each compound), but no naphthalene exceedances. Similar to the reasoning for BTEX exceedances noted above, it is possible that non-MGP sources are also responsible for the naphthalene exceedances at MW-2, MW-5R, and MW-6. Monitoring wells MW-3 and MW-4 are screened in perched groundwater located in fill materials; low level PAH exceedances at these wells are likely related to PAHs present in combustion by-products (e.g., coal, cinders, ash) observed in the fill materials.

3.4.3 Cyanide

Total cyanide was detected in six of the ten monitoring well groundwater samples at concentrations ranging between 13 µg/L and 160 µg/L. These concentrations do not exceed the Class GA Standard of 200 µg/L for total cyanide. The highest concentrations were observed in groundwater sampled from MW-3, MW-4, and MW-7, each having a detection of 160 µg/L during at least one of the sampling events. Cyanide was not detected in groundwater from any of the four bedrock monitoring wells.

3.5 Sediment Investigation

This section describes the results of sediment probing and sampling activities conducted in the Salmon River in November 2011. The following narratives summarize the physical characteristics of the river and a qualitative assessment of the results of sediment samples submitted for laboratory analysis. A discussion of sediment sampling results, with comparison to appropriate screening criteria, is provided in Section 4 (Risk Assessment).

3.5.1 Physical Characterization

The following information is useful for understanding the physical characterization of the investigated reaches of the Salmon River and the sediments that were encountered during the sampling program:

- Figure 5 and Figures 5A through 5C
- Table 6 – Summary of observations made while conducting the sediment sampling
- Photographic log of collected sediment samples (see attached CD)
- Photographic log of the entire investigated reaches of the river (see attached CD)

Located in Franklin County in the northern part of New York State, the Salmon River flows north and discharges into the St. Lawrence River. The Salmon River is designated by the NYSDEC as a Class C(T) water body, which means that the waters are deemed suitable for fish, shellfish, and wildlife propagation and survival and that the water quality shall be suitable for primary and secondary contact recreation. The “T” designation indicates the river may support a trout population. The reaches of river investigated during the sediment sampling program extend from approximately 900 ft upstream to approximately 1,000 ft downstream from the site. Upstream from the site, the river is channelized and is narrower than the

adjacent and downstream reaches. Where channelized, the river tends to be deeper (5 to 10 ft deep), and where the river widens out, it becomes shallower (1 to 2 ft deep).

Throughout all investigated reaches, the riverbed consists of quartz and feldspar-rich unsorted sands and gravels with an armoring of cobbles and boulders underlain by bedrock. Due to the high stream energy within the investigated reaches, very little fine-grained sediment is present. Where finer grained sediment is observed, it is limited to isolated pockets located around obstructions – behind the upstream dam and power-generator building and behind debris, tree roots, and boulders located on the streambed.

Figure 3-5 Channelized section of river immediately upstream from site

The riverbanks immediately upstream from the site and adjacent to the southern portion of the site consist of near vertical bedrock ledges and building foundations (where the river passes below the Main Street bridge). Downstream from the site, the banks are relatively moderate to steeply sloped, moderately wooded, and heavily vegetated. A “floodplain area” exists immediately adjacent to the site (Figure 5B). This area is heavily vegetated and is approximately 30 ft wide by 250 ft long and is elongated parallel with the river. Since the grade in this area is approximately 2 to 3 ft higher than the river level, this area is assumed to be rarely submerged. The soil within the floodplain area consists of boulders and gravel imbedded within finer grained soils. A groundwater seep (SEEP-1; see Section 3.4) exists on the downstream edge of the floodplain area (Figure 5B). The seep originates from the toe of the slope in the northern portion of the site where a historical unregulated public dumping ground existed. The area where the seep discharges to the river was probed and observed for potential impacts, and two sediment samples were collected (NG-SR-SD-24 and NG-SR-SD-25). The probing and sampling results indicated approximately 3 to 6 inches of soft sediment with a slight organic odor and relatively minor PID readings (0.5 to 1.8 parts per million).

Other than the slight organic odor observed in samples collected in the seep area, no impacts (i.e., staining, sheens, tar, PID readings) were observed in any sediment samples collected during the sediment sampling program (the attached CD contains photographs of all collected samples). Possible MGP-related impacts, however, have been observed in the following two areas of the river:

1. Adjacent to the site – A solidified tar patty was observed on the bedrock surface at the base of the slope immediately downslope from the portion of the site where the former MGP structures are located. The edges of the tar patty were delineated during the sediment sampling program. The patty is elongated in the direction of the river, is approximately 30 ft long, and extends approximately 5 ft out from the bottom of the slope and into the river. The tar patty appears to have originated from overland flow of tar down the steep slope of the site. Solidified tar was also observed immediately upstream from the tar patty and within widened horizontal bedrock fractures on the vertical rock face. In addition, solidified tar was observed on the side of the former powerhouse building foundation located along the river's edge in this same area. The photographs on the attached CD show these features.

Figure 3-6 Tar patty located at edge of river adjacent to the site

2. Pritchard Property – The location of the Pritchard Property is shown on Figure 3. As discussed in Sections 1.4.4 and 3.3, solidified pieces of tar have been observed on the western riverbank approximately 300 to 700 ft downriver from the site on two parcels (Tax Parcels 98.81-1-3.200 and 98.81.1.4) owned by Mr. Travis Pritchard. The location of the tar pieces are given the prefix "RBT" on Figure 3. The tar pieces observed on parcel 98.81.1.4 were removed by National Grid during an IRM completed in 2014; however, the tar observed on the riverbank of Tax Parcel 98.81-1-3.200 remains as of the date of this report. Forensic evaluations for each of the parcels concluded that the tar pieces had the same chemical composition as the solidified tar observed at the site. It appears that the area known as the Pritchard Property was the historical location of uncontrolled dumping by the public, as evidenced by various sorts of municipal and construction wastes (in addition to the tar) observed during excavations on the property and on the bank of the river.

A total of 24 outfalls at 12 locations were identified during the sediment sampling program. Outfalls were designated as Outfalls (OF) 1 through 10 (Figure 5). Two of the outfalls (OF-9 and OF-10) were located on the site, and the remainder were located upstream from the site. As shown on Figure 5, multiple outfalls were observed at two locations near the bridge (these are not labeled as "OF" on the site mapping). Four approximately 24-inch-diameter outfall pipes were observed suspended beneath the upstream bridge – these pipes apparently discharge urban street runoff. Another area of multiple 3-inch-diameter outfall pipes (10 to 12 pipes) were observed on the east side of the river, approximately 200 ft upstream from the site – these pipes protrude from a concrete retaining wall.

3.5.2 Chemical Characterization

A total of 25 surface (approximately 0 to 6 inches) sediment samples and 13 subsurface (deeper than approximately 6 inches) sediment samples were collected from 25 locations that fall into the following three categories:

- Upstream/Background – NG-SR-SD-12 through NG-SR-SD-16
- Adjacent to Site – NG-SR-SD-1 through NG-SR-SD-11 and NG-SR-SD-24 through NG-SR-SD-25
- Downstream from Site – NG-SR-SD-17 through NG-SR-SD-23

Analytical results for these samples are presented in Table 9. The sampling locations and total priority pollutant PAH (plus 2-methylnapthalene) concentrations (hereafter referred to as the "Total PAH_{17}") are shown on Figures 5A through 5C. A statistical summary of Total PAH_{17} and TOC analytical results for samples collected from each of the areas is presented below:

Table 3.3 Summary Statistics for Total PAH_{17} and Total Organic Carbon (TOC)

Area	Total PAH_{17} (mg/kg)			TOC (mg/kg)		
	Range	Mean	Median	Range	Mean	Median
Upstream/Background	0.69 - 12.8	4.2	2.9	1,580 - 14,600	6,970	7,080
Adjacent to Site	1.1 - 28.0	10.8	8.5	2,140 - 63,400	14,424	10,600
Downstream from Site*	1.41 - 290.5	48.1	7.9	3,260 - 19,100	8,724	7,280

*Note that the analytical results for NG-SR-SD-19 skew the summary statistics for downstream samples. The sample collected from NG-SR-SD-19 contained 290.5 mg/kg of Total PAH_{17}. The next highest downstream Total PAH_{17} concentration is 14.13 mg/kg.

The following general observations can be made based on the review of analytical data presented in Table 9 and on Figures 5A through 5C:

- 33 of the 38 sediment samples collected from all reaches contained concentrations of Total PAH_{17} between approximately 0.7 and 15 mg/kg.
- Four surface (0 to 4 inches or less) samples collected as delineation samples adjacent to the tar patty (NG-SR-SD-01, NG-SR-SD-04, NG-SR-SD-05, and NG-SR-SD-06) contained concentrations of Total PAH_{17} at a slightly higher level (between approximately 20 and 28 mg/kg) than the majority of the samples.
- One of the downstream samples, NG-SR-SD-19, contained the highest concentration of Total PAH_{17} (290.5 mg/kg). This sample was collected at the toe of the bank adjacent to the Pritchard Property; however, solidified tar pieces were not observed in this sediment sample. As previously mentioned, solidified tar pieces (subsequently removed during the 2014 IRM) were previously observed on the river bank in this area. Taffy-like tar was also observed in one test pit excavated on the Pritchard Property (also removed during the 2014 IRM). Various sorts of municipal and construction waste have also been observed on the riverbank and in the excavations completed on the property.
- The two sediment samples collected from the seep area contained concentrations of Total PAH_{17} within the range of the majority of the other sediment samples. As shown in Table 9, both samples

contained concentrations of VOCs. The total VOC concentration detected in NG-SR-SD-24(0-3") was 1.36 mg/kg, and total VOC concentration detected in NG-SR-SD-25(0-6") was 0.74 mg/kg. Concentrations of 1,2,4,5-tetramethylbenzene comprised the majority of the total VOC concentration in both samples.

3.5.3 Forensic Evaluation

A forensic evaluation was completed to assess the potential source of PAHs in the river sediments. The forensic evaluation is included on the attached CD. The evaluation concludes that all sediment samples contain PAHs with a pyrogenic origin. The PAH composition and concentration of the sediment samples is consistent with background combustion product PAHs typical of urban influenced river sediments (Stout et al., 2004). These background combustion product PAHs may have originated from a variety of sources, such as forest fires, fuel and coal combustion, and anthropogenic burning, and entered the river from general runoff, point discharges, and atmospheric deposition.

Most of the samples with background/upstream PAH compositions have relatively low Total PAH_{17} concentrations (i.e., less than 15 mg/kg). Slightly higher concentrations are observed in the delineation samples collected in the area of the tar patty (between NG-SR-SD-01 and NG-SR-SD-06). The highest Total PAH_{17} concentration in the adjacent site samples is 28 mg/kg, but most samples are less than 15 mg/kg. Sediment samples NG-SR-SD-01, NG-SR-SD-04, NG-SR-SD-05, NG-SR-SD-06, NG-SR-SD-07, and NG-SR-SD-09, collected adjacent to the site, appear to contain some coal tar residual PAHs with a compositional signature similar to that of the site. One downstream sediment sample (NG-SR-SD-19), containing the highest concentration of Total PAH_{17} (290.5 mg/kg), also appears to contain coal tar residual PAHs, but the compositional signature is different than that of the site tar; Given the proximity to the site, it is reasonable to assume the PAHs in the sample are attributable to tar from the site. Some samples upstream (SD-NG-SR-16), adjacent to the site (NG-SR-SD-05 and NG-SR-SD-25), and downstream from the site (NG-SR-SD-22) appear to contain trace levels of petroleum PAHs, as evidenced by the relative slight increase in alkyl groups of the 4-ring PAHs. The potential petroleum contribution is likely a residual mix of heavy oils (e.g., crankcase oil, lube oil).

4 RISK ASSESSMENT

This section discusses the HHEA and FWRIA. The HHEA and FWRIA present a detailed evaluation of soil, groundwater, and sediment quality with respect to potential risks posed to human health and the environment.

4.1 Fish and Wildlife Resource Impact Analysis

This section presents the FWRIA that was conducted as part of the RI. The FWRIA focuses primarily on the former MGP site and associated environmental media. The Pritchard Property, comprised of Tax Parcels 98.81-1-4 and 98.81-11-3.200, located to the north of the site, is evaluated as part of the ecological characterization of off-site areas. The FWRIA was conducted in accordance with the NYSDEC guidance documents entitled *Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites* (NYSDEC 1994) and DER-10 (NYSDEC 2010). The objectives of the FWRIA were to identify fish and wildlife resources that exist on and in the vicinity of the site and to evaluate the potential for exposure of these resources to site-related constituents in environmental media. Results of the FWRIA are generally used to aid in remedial decision making.

In accordance with NYSDEC guidance (1994; 2010), FWRIAs are conducted in a step-wise manner. Specifically, this FWRIA includes Part 1 (Resource Characterization), which consists of the following five steps:

- Identification of fish and wildlife resources, including a covertype map for areas within a 0.5-mile radius of the site
- Identification of contaminant migration pathways and fish and wildlife exposure pathways
- Description of resources at the site and within a 0.25-mile radius of the site
- Identification of contaminants of ecological concern (i.e., comparison of site data to screening benchmarks)
- Conclusions regarding the actual or potential adverse impacts to fish and wildlife resources

If no resources or exposure pathways are present at a site, impacts to resources are considered minimal, and no additional analyses are required (NYSDEC 2010)

4.1.1 Ecological Characterization

This section summarizes the ecological setting of the site and surrounding areas. Habitat covertypes and environmentally sensitive areas were identified based on a review of existing ecological information and databases and qualitative data collected during a site visit in September 2012.

Topographic maps and aerial photographs were reviewed to create a covertype map to identify the general physical and ecological features of the site and surrounding areas within a 0.5-mile radius of the site. A site visit was conducted on September 14, 2012, to aid in the development of the covertype map. The covertype map, shown on Figure 14, classifies these areas into ecological communities based on physical characteristics and vegetation (e.g., residential/commercial/industrial). As specified in DER-10 (NYSDEC 2010) and as part of the ecological characterization, natural resources (i.e., rivers, lakes, and

wetlands) located within a 0.25-mile radius of the site were also identified. This information assisted in evaluating wildlife habitat value and human resource value for the site and surrounding areas.

4.1.1.1 Vegetative Communities

Land use in the site vicinity is primarily a mixture of residential, commercial, and industrial properties. Ecological communities within a 0.5-mile radius of the site were classified according to *Ecological Communities of New York State, Second Edition* (Edinger et al. 2002), as appropriate. The major covertypes identified within a 0.5-mile radius of the site are:

1. Residential/commercial/industrial
2. Riparian fringe forest
3. Successional southern forest
4. Successional old/maintained field
5. Gravel road/cement path
6. Small pool
7. National Wetlands Inventory (NWI) wetland
8. Salmon River

A map depicting the spatial distribution of these covertypes is presented on Figure 14. Individual covertypes are described below. Table 10 presents a list of dominant vegetation observed within each of the vegetated covertypes.

Residential/Commercial/Industrial Covertype — The majority of upland areas surrounding the site are characterized as a mixture of residential, commercial, and industrial properties (Figure 14). This covertype is associated with industrial buildings, commercial businesses, apartment buildings, residences, gravel and asphalt paved roads and parking lots, landscaped lawns, and ornamental vegetation. These areas are generally inhabited by species adapted to urban environments but typically provide little value to wildlife (Edinger et al. 2002).

Riparian Fringe Forest Covertype — A narrow swath of land on the west side of the site bordering the Salmon River is classified as riparian fringe forest (Figure 14). This covertype is associated with areas that have been cleared or otherwise disturbed but still have significant tree cover. Tree and shrub species observed during the site visit included American elm (*Ulmus americana*), box elder (*Acer negundo*), eastern cottonwood (*Populus deltoides*), willows (*Salix spp.*), American basswood (*Tilia americana*), and tartarian honeysuckle (*Lonicera tatarica*). Herbaceous and vine species included Virginia creeper (*Pathenocissus quinquefolia*), goldenrod (*Salidago spp.*), grasses (*Poa spp.*), Joe-Pye-Weed (*Eupatoriadelphus maculatus*), and jewelweed (*Impatiens capensis*).

Successional Southern Forest Covertype — A large section of the site and the Pritchard Property contain relatively dense forests classified as successional southern forest. This hardwood forest type also occurs bordering the Salmon River adjacent to, upstream, and downstream of the site (Figure 14). This covertype typically is associated with areas, or nearby areas, that have been cleared or otherwise disturbed but still have significant tree cover (Edinger et al. 2002). Tree and shrub species observed

during the site visit included American elm, box elder, black cherry (*Prunus serotina*), sugar maple (*Acer saccharum)*, buckthorn (*Rhamnus spp.),* and sumac (*Rhus spp.*). Herbaceous and vine species included river grape (*Vitis riparia*), Virginia creeper, Japanese knotweed (*Fallopia japonica*), Queen Anne's lace (*Daucus carota*), common burdock (*Arctium minus*), and goldenrod.

Successional Old/Maintained Field Covertype — This covertype typically includes areas bordering residential/commercial/industrial property. The successional old/maintained field is present in several areas on site and also in an additional area north of the site, within the eastern portion of the Pritchard Property, adjacent to the Salmon River (Figure 14). As described by Edinger et al. (2002), successional old fields are typically comprised of meadow-like fields that have been cleared in the past and then abandoned and left to revegetate. In the vicinity of the site, this covertype appears to be mowed/maintained at least annually. Herbaceous and vine species observed on site included river grape, Virginia creeper, Japanese knotweed, Queen Anne's lace, common burdock, and goldenrod. The vegetation present within the Pritchard Property is dominated by herbaceous species that tolerate frequent mowing, as well as several shrubs and trees. Tree and shrub species observed include staghorn sumac (*Rhus typhina*), eastern cottonwood, willows, American basswood, black locust (*Robinia pseudoacacia*), honey locust (*Gleditsia tricanthos*), and green ash (*Fraxinus pennsylvanica*). Herbaceous species observed on the Pritchard property included Japanese knotweed, Queen Anne's lace, common burdock, goldenrod, milk thistle (*Silbum marianum*), and grasses.

Gravel Road/Cement Path Covertype — This covertype generally contains two sections: one which includes the site access road that runs perpendicular to the Salmon River, and the other which runs parallel to the Salmon River (Figure 14). This covertype is associated with roads or paths having sparse to moderate vegetation growing through cracks in cement and in the gravel substrate. These covertypes are similar to road/path covertypes and are highly disturbed and have limited wildlife value (Edinger et al. 2002). Herbaceous species observed within and bordering this covertype included Japanese knotweed, grasses, Queen Anne's lace, common burdock, and clover (*Trifolium spp.*).

Small Pool Covertype — At the time of the site visit, a small pool of standing water was located in the northeast part of the site near the Salmon River. This pool coincides with the seep location shown on Figure 2. The shallow pool was about 10 ft by 3 ft, and its edges were vegetated with soft stem bulrush (*Schoenoplectus tabernaemontani*), sensitive fern (*Onoclea sensibilis*), and jewelweed; green frogs (*Rana clamitans*) were observed here.

NWI Wetland Covertype — A pond is located south of the Salmon River, approximately 0.5 mile upstream of the site (Figure 15). This pond is classified as a wetland by the NWI and is characterized as a palustrine, permanently flooded, and impounded/diked wetland (shown as PUBHH on Figure 15). The Salmon River is also identified in the NWI as a lower perennial riverine system south of the site and an upper perennial riverine system north of the site.

Salmon River Covertype — The Salmon River borders the site to the east (Figure 5). The river is characterized as a confined river that is typical of mid-reach streams of the third or fourth stream order, with well-defined pools, runs, and riffles (Edinger et al. 2002). No significant amounts of submerged aquatic or emergent vegetation were observed in the river near the site during the site visit.

4.1.1.2 Surface Waters

The main surface water body in the vicinity of the site is the Salmon River, which is a natural channel that runs from south to north across New York State, originating from the south and extending north, discharging into the St. Lawrence River at Lac Saint-Francois National Wildlife Area in Quebec, Canada. According to the NYCRR, the river is designated by the NYSDEC as a Class C (T) water body. The best usage for Class C (T) waters is fishing; these waters are suitable for fish propagation and survival and have been classified as a trout water. The water quality should be suitable for primary and secondary contact recreation (6 NYCRR Part 910).

4.1.1.3 Wetlands

NWI maps are generated by the U.S. Fish and Wildlife Service (USFWS) using stereoscopic analysis of high altitude aerial photographs. The majority of these mapped wetlands are not field verified. The NWI map for the site (Figure 15) identifies numerous wetlands within a 2-mile radius of the site, consisting primarily of freshwater forested and scrub-shrub wetlands (natural and/or excavated/diked). The Salmon River channel, which runs adjacent to the site, is classified as a R2UBH or R3UBH (riverine [R], lower perennial [2] or upper perennial [3], unconsolidated bottom [UB], permanently flooded [H]) wetland by the NWI and is the only NWI "wetland" that is in close proximity to the site. One other wetland was described in the NWI wetland covertype section previously; this wetland is classified as PUBHH (palustrine [P], unconsolidated bottom [UB], permanently flooded [H], and impounded/diked [H]) and is located approximately 0.5-mile upstream of the site, but does not appear to be hydraulically connected to the Salmon River. As described previously, groundwater at the site generally flows into the Salmon River. There are no other federal wetlands in the immediate vicinity of the site, and no hydraulic connectivity exists between the site and the NWI wetlands, with the exception of the Salmon River.

According to the NYSDEC Freshwater Wetlands Map, there are two state wetlands (M-1 and M-20) within a 2-mile radius of the site (Figure 16). Groundwater at the site generally flows to the east/northeast. Given the direction of groundwater flow and the distance between the site and these state wetlands, it is unlikely that these wetlands are hydraulically connected to the site or the Salmon River.

4.1.2 Fish and Wildlife Resources

Due to the site's location within the Village of Malone and surrounding residential/commercial/industrial land use, wildlife usage at and near the site is expected to be limited to species that are able to adapt to urban environments (e.g., small mammals, passerine birds). The Salmon River is a significant resource to wildlife. Table 11 presents a list of biota that was observed in the vicinity of the site. These species are typical wildlife species that may use the site and/or surrounding areas based on the ecological communities present. The wildlife value of the covertypes observed on the site and Pritchard Property is discussed below.

Residential/Commercial/Industrial Covertype — The residential/commercial/industrial covertype consists of paved surfaces, buildings, and landscaped areas that do not provide any natural wildlife habitat. Land use surrounding the site consists mostly of a mixture of residential, commercial, and industrial properties. Wildlife species that may use these covertypes generally consist of species that are adapted to urban environments. Typical wildlife species that may use these urban areas include, but are

not limited to, avian and small mammal species. The residential/commercial/industrial covertype may offer some limited habitat to these species for foraging, nesting, and/or shelter, but regionally this urban covertype is of low value to wildlife.

Riparian Fringe Forest Covertype — The riparian fringe forest covertype consists of a narrow swath of land along the west bank of the Salmon River, within the site boundary. This covertype most likely provides some habitat for birds and small mammals due to the presence of mature trees and groundcover. Larger mammals, such as whitetail deer, could potentially use this covertype intermittently (e.g., as a travel corridor), but the small size of the covertype limits its ability to wholly support local populations of larger animals.

Successional Southern Forest Covertype — The successional southern upland forest covertype includes portions of the site proper, the Pritchard property, and other densely vegetated, undeveloped areas along the Salmon River. Similar to the riparian fringe forest covertype, this covertype most likely provides some habitat for birds and small mammals due to the presence of mature trees and groundcover. Larger mammals, such as whitetail deer, are likely to use this area for cover, foraging, and as a travel corridor and access point to the river and bordering areas.

Successional Old/Maintained Field Covertype — The successional old/maintained field covertype consists of grasses and herbaceous vegetation with shrubs that have grown in through natural succession. It is found mostly on the western and central portions of the site. A maintained field is located on the eastern portion of the Pritchard Property bordering the Salmon River. The short vegetation and general lack of cover in this field likely limit use of these areas by many species of local wildlife. This covertype provides some shrub cover and limited foraging and nesting habitat for small mammals, reptiles, amphibians, and bird species adapted to the surrounding residential/commercial/industrial environment. The fields may be used by larger mammals, such as whitetail deer, for foraging and bedding. The relatively small size of this covertype and its location likely limit its value to wildlife.

Gravel Road/Cement Path Covertype — The gravel road/cement path covertype consists of sections of hardscape (e.g., gravel, pavement, cement) with vegetation growing through cracks in pavement and gravel substrate. This covertype provides limited habitat to local wildlife due to its small size and lack of natural vegetation and groundcover.

Small Pool Covertype — The small pool covertype (i.e., seep location) may provide a source of water for bathing and drinking for terrestrial animals, as well as limited habitat for local populations of semi-aquatic organisms on an intermittent basis.

NWI Wetland Covertype — The NWI wetland covertype, located southeast of the site, is classified as a palustrine, permanently flooded, and impounded/diked wetland. This wetland may provide habitat for aquatic, semi-aquatic, and terrestrial species and may also serve as a resource for drinking, bathing, and/or foraging.

Salmon River Covertype — The Salmon River covertype, which borders the site to the east, flows from south to north. This covertype may provide habitat for aquatic and terrestrial species, including amphibians, reptiles, and fish, as well as piscivorous bird and mammal species. It may also be used as a resource by terrestrial and semi-aquatic fauna for drinking, bathing, and foraging. During the site visit, osprey and ringbill gulls were observed flying over the river, and signs of raccoon and beaver (e.g., tracks) were observed along the river.

In the spring of 2012, the NYSDEC released stock brown trout and rainbow trout at four locations on the Salmon River in Malone as part of a fish stocking program (NYSDEC, 2012a). In May 2016, the NYSDEC will release stock brown trout and rainbow trout at five locations on the Salmon River in Malone as part of a fish stocking program (NYSDEC 2016a). The purpose of the program is to enhance recreational fishing.

4.1.2.1 Threatened/Endangered Species and Significant Habitat

State Listed Threatened/Endangered Species

A request for threatened/endangered species information was submitted to the NYSDEC Natural Heritage Program (NHP) to inquire about the potential presence of sensitive species or habitats in the vicinity of the site. Based on responses from the NHP dated October 30, 2012 (NYSDEC 2012b), and April 5, 2016 (NYSDEC 2016b), there are no records of rare or state-listed animals, plants, or significant natural communities on or in the immediate vicinity of the site.

Federally Listed Threatened/Endangered Species

The USFWS recommends an online review process and evaluation of site habitat and consultation with the NYSDEC NHP to evaluate the potential presence of threatened/endangered species. Information on federally listed threatened and endangered plants and animals and critical habitat was obtained in an Official Species List, which was created using the USFWS Information, Planning, and Consultation (IPaC) system, following instructions on the online review process available at http://www.fws.gov/northeast/nyfo/es/section7.htm.

The IPac Trust Resource Report identified the threatened Northern Long-eared Bat (*Myotis septentrionalis*) as a species of potential concern for the site. The report indicates that there is no critical habitat within the site vicinity.

According to the Environmental Assessment Final 4(d) Rule for the Northern Long-eared Bat by the USFWS, there are 27 known occupied maternity roost trees and 90 known hibernacula (USFWS 2015a). To protect this vulnerable species, the specific locations of these hibernacula are not available to the general public. The Northern Long-eared Bat is known to spend winters in hibernacula that have constant temperatures, high humidity, and minimal air currents (USFWS 2015a; 2015b). The bats are known to roost singly, or in colonies, underneath bark and/or in cavities and crevices of both live and dead trees. They are somewhat flexible in selecting roosts, though they rarely roost in human structures (USFWS 2015a; 2015b). The Northern Long-eared Bat is also known to be primarily associated with uplands and mature interior forests and tend to avoid woodlands with significant edge habitat (New York Natural Heritage Program [NYNHP] 2015). The Northern Long-eared Bat is forest dependent, generally relying on forest features for both roosting and foraging (Hendersen and Broders 2008). Hendersen and Broders indicate that females prefer deciduous tree stands and, in a Michigan study, most often roost in maples (2008). There are 31 associated and probable associated ecological communities of New York State listed in the NYNHP species profile (NYNHP 2015, Edinger *et al.* 2002). Evidence of the bat was not encountered during the site visit. Due to the small size of the site, the lack of the species' desirable natural habitat at the site (lowland, fragmented), and the absence of signs during the site visit, it is inferred that this rare species does not use the site or surrounding area.

The bald eagle (*Haliaeetus leucocephalus*) was delisted in 2007 and is no longer on the list of threatened and endangered species, but it still receives protection under the Bald and Golden Eagle Protection Act.

Per the response provided by David Stilwell of the USFWS (USFWS 2012), an eagle permit is unnecessary.

Bald eagles prefer areas near large bodies of water, such as bays, large rivers, lakes, and other areas that support large populations of fish and waterfowl, which are their main prey items. Bald eagles tend to avoid areas with human activities and disturbance. During the winter, they may congregate in large numbers at sites with abundant food sources and open water. Nesting usually occurs in tall trees near large bodies of water (NYNHP 2011). No bald eagles or nests were observed during the site visit, and the adjacent habitat is not ideal for bald eagles due to the urban environment. As such, it is unlikely that the site and surrounding area provide habitats for bald eagles.

Bald eagles were not observed during the site visit on the site or in the surrounding area. It is not anticipated that this species would be present on the site.

4.1.2.2 Observations of Stress

During the site visit in September 2012, no evidence of stressed vegetation or negative impacts on wildlife was observed within the site or surrounding areas. At the Pritchard Property (Tax Parcel 98.81-1-4), tar was encountered in small isolated areas on and embedded within the western riverbank. There was no evidence of stress near these isolated locations. The tar on Pritchard Property Tax Parcel 98.81-1-3.200 was not observed during the site visit; however, follow-up visits to this area were conducted by other field staff and stressed vegetation was not observed during the visits.

4.1.2.3 Fish and Wildlife Resources Values

As part of the FWRIA, a qualitative assessment was conducted to determine the general ability of the site and surrounding areas to support fish and wildlife. The sections below provide a qualitative evaluation of the value of the identified covertypes to wildlife and the value of these wildlife resources to humans.

4.1.2.4 Value of Habitat to Associated Fauna

The qualitative assessment of habitat value is based on field observations, research, and professional judgment.

The majority of the site and surrounding area is composed of paved surfaces (roads and parking lots), buildings, and forested areas, the latter of which borders the Salmon River. Wildlife use of the site is expected to be limited due to the site's surrounding residential/commercial/industrial land use and small size. Land use near the site consists primarily of residential, commercial, and industrial properties. These urban landscapes generally do not provide high wildlife value due to the limited vegetation, presence of impervious surfaces (e.g., roads, parking lots), and anthropogenic disturbances. However, common species such as small mammals and passerine birds that are typically adapted to urban environments may use this mixed residential/commercial/industrial covertype. Wildlife value of these developed areas is expected to be low.

The riparian fringe forest covertype and the successional southern forest covertype are characterized by trees, shrubs, and herbaceous vegetation. These covertypes most likely provide wildlife habitat for birds and small mammals and may potentially be used by populations of larger mammals. Wildlife habitat within

the forest covertypes may provide necessary resources for foraging, cover, and breeding. Additionally, due to their location within an urban landscape, these covertypes may serve as a travel corridor for wildlife and as an access point to the river. These covertypes are, therefore, concluded to have moderate value to wildlife.

The successional old/maintained field covertype is characterized by low to high, intermittently maintained grasses and herbaceous vegetation with interspersed trees and shrubs. This covertype may provide cover, nesting, foraging, and breeding habitat for species on a small scale and for species adapted to living in urban environments. The small size of this covertype, its location within a village setting, and the lack of dense groundcover likely limit its value to local wildlife. The successional old/maintained field is concluded to have low to moderate value to wildlife.

The small pool (seep) covertype located on site provides a source of water and may provide limited habitat for a localized population of semi-aquatic organisms, albeit on an intermittent basis. This pool is expected to have low value to wildlife.

The NWI wetland covertype located south of the site may provide habitat to wetland fauna and may be a resource to other terrestrial or semi-aquatic species for drinking, bathing, and foraging. This covertype is generally expected to have moderate to high value to wildlife.

The Salmon River covertype is a confined river that runs south to north through the Village of Malone. In the vicinity of the site, the river is surrounded by an urban setting but contains natural features that likely provides habitat to aquatic, terrestrial, and semi-aquatic fauna. Therefore, the river is concluded to have moderate to high value to wildlife.

The gravel road/cement path covertype is characterized by gravel paths and a cement pad that are mostly devoid of vegetation. This covertype likely does not provide significant habitat to local wildlife due to its small size and lack of vegetation and groundcover and is, therefore, concluded to have low value to wildlife.

4.1.2.5 Value of Resources to Humans

The site is fenced and secured with padlocks. In addition, the site is relatively small and does not offer many natural resources that would encourage recreational use, aside from its potential use as an access point to the Salmon River. Activities would likely be restricted to people trespassing near the river, though steep banks and the fence would make entrance onto the site difficult. Use of the site and surrounding area is most likely limited to walking and commercial activity associated with nearby businesses along Amsden Street. The Salmon River, located at the eastern border of the site, may be used for fishing or other recreational activities, such as canoeing, although steep river banks in the vicinity of the site would make access difficult and would likely limit use. No recreational use of the river was observed during the site visit. Human use of the areas surrounding the site is likely to remain consistent in the future and is not likely to be affected by activities or conditions at the site.

4.1.3 Fish and Wildlife Regulatory Criteria

The following New York State laws, rules, regulations and criteria are relevant to this FWRIA:

- 6 NYCRR
  - Part 608, Use and Protection of Waters
  - Part 664, Freshwater Wetlands Maps and Classifications
  - Part 701, Classifications — Surface Waters and Groundwaters
- Environmental Conservation Law — Chapter 43-B of the Consolidated Laws
  - Article 11, Fish and Wildlife:
    - ✓ §11-0503, Polluting Streams Prohibited
    - ✓ §11-0535, Endangered and Threatened Species
  - Article 15, Water Resources: Title 5, Protection of Water
  - Article 24, Freshwater Wetlands
- Criteria and Guidelines
  - *6 NYCRR Part 375 Soil Cleanup Objectives* for the protection of ecological resources (NYSDEC 2006)
  - Division of Water *Technical and Operational Guidance Series (TOGS) (1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* (NYSDEC 1998)
  - Division of Fish, Wildlife and Marine Resources -Bureau of Habitat *Screening and Assessment of Contaminated Sediment* (NYSDEC, 2014)

4.1.4 Impact Assessment

The FWRIA includes an impact assessment to determine the impacts, if any, on fish and wildlife resources. This impact assessment includes a pathway analysis, which determines if there are complete or potentially complete ecological exposure pathways to site-related constituents, and a criteria-specific analysis, which compares available site data to SCGs.

4.1.4.1 Pathway Analysis

The objective of the pathway analysis is to evaluate potential exposure pathways by which fish and wildlife receptors may be exposed to site-related constituents in environmental media. A complete exposure pathway consists of the following five elements:

1. Contaminant source
2. Contaminant release and transport mechanisms
3. Potential point of exposure

4. Viable route of exposure
5. Receptor population

If any one of these elements is missing, the pathway is not considered to be complete, and exposure cannot occur, irrespective of chemical concentrations in environmental media. Potential media of interest associated with the site include surface soils, subsurface soils, groundwater, sediment, and tar. Potential exposure pathways associated with these media are discussed below.

4.1.4.1.1 Surface Soils

According to DER-10 (NYSDEC 2010), surface soils are defined as 0 to 6 inches below the vegetative cover, and a deeper soil horizon, typically 12 to 24 inches bgs, should be considered for exposure of ecological receptors. For the purposes of this FWRIA, soils collected within the 0 to 2 ft bgs interval are considered to constitute surface soils because they represent the uppermost horizon of soil that would be available for ecological exposure. A total of 15 surface soil samples were collected in 2010. Specifically, depth intervals for surface soil samples included 0 to 0.2 ft bgs and 0 to 1 ft bgs. Surface soils were collected on site and in the immediate vicinity of the existing off-site building (Former Malone Rubber Company). The site and surrounding areas provide low to moderate wildlife value and may be used by common wildlife species, such as passerine birds and small mammals. Therefore, direct contact with surface soils is a potentially complete ecological exposure pathway for the site and surrounding area.

4.1.4.1.2 Subsurface Soils

Subsurface soil samples were collected in 2010. For purposes of this FWRIA, subsurface soils are defined as those soils 2 ft bgs or deeper. A fair portion of the site and surrounding area is covered with impervious surfaces (i.e., pavement, buildings, roads), which would limit wildlife contact with subsurface soils. Additionally, wildlife would not be expected to be exposed to subsurface soils during normal activities, such as foraging or nesting. Based on this information, exposure to subsurface soils is not considered to be a complete ecological exposure pathway.

4.1.4.1.3 Groundwater

Groundwater investigations indicate that depth to groundwater generally ranges from approximately 2 to 40 ft bgs. Groundwater flow below the site moves in an east-northeast direction towards the Salmon River. Exposure of wildlife to groundwater would only occur if an animal were to burrow down to the water table, which is unlikely given the depth to groundwater. One groundwater seep sample (SEEP-1) was collected from a seep in the northeast corner of the site in 2010. This groundwater seep (expressed as surface water) represents a potentially complete ecological exposure pathway.

4.1.4.1.4 Sediment

Sediment samples were collected in 2011. A total of 38 samples from 25 locations were collected upstream of, adjacent to, and downstream of the site at depths generally ranging from 0 to 4 ft bgs. Because the Salmon River likely serves as a significant natural resource to local wildlife, sediment within the river represents a potentially complete exposure pathway.

4.1.4.1.5 Tar

Tar was encountered in surface and subsurface locations on the site and along the riverbank of the site and the Pritchard Property. Tar samples, of varying properties, were collected in 2010 and 2014 from the site and Pritchard Property. Exposure of wildlife to substances, such as tar, on the land surface and riverbank could occur; therefore, direct contact while traversing the site or accessing the river is a potentially complete ecological exposure pathway.

4.1.4.2 Criteria-Specific Analysis

The objective of the criteria-specific analysis is to evaluate potential ecological impacts for those media that represent potentially complete ecological exposure pathways. Specifically, the criteria-specific analysis compares available site data to SCGs to identify COPCs.

4.1.4.2.1 Surface Soils

A total of 15 surface soil samples (0 to 0.2 ft bgs and 0 to 1 ft bgs) were collected in 2010. Samples were analyzed for VOCs, SVOCs, and cyanide. Surface soil sampling locations are shown on Figure 12. Surface soil samples were generally collected from non-paved surfaces on the site. Specifically, soil sampling was primarily concentrated in the southern portion of the site (near the footprints of the former MGP structures), but several samples were also collected from the northern portion of the site.

Surface soil data were compared to 6 NYCRR Part 375 SCOs for the Protection of Ecological Resources (NYSDEC 2006). Table 3 compares surface soil data to ecological SCOs.

Only one VOC was detected (methylene chloride), but concentrations were below its associated ecological SCO of 12 mg/kg. Several SVOCs were detected, but only benzo(a)pyrene exceeded its associated ecological SCO of 2.6 mg/kg. Specifically, eight samples exceeded the benzo(a)pyrene SCO, including SS-101 (8.8 mg/kg), SS-102 (60 mg/kg), SS-A (3.1 mg/kg), SS-B (11 mg/kg), SS-C (7.2 mg/kg), SS-D (6.0 mg/kg), SS-F (2.8 mg/kg), and SS-G (16 mg/kg). All of these samples were collected near the area of solid tar observed at the land surface located in the southeast portion of the site (Figure 10). Sample SS-102 had the highest total PAH concentration (720 mg/kg). Based on the comparison of surface soil data to ecological SCOs, PAHs are the primary COPCs.

4.1.4.2.2 Groundwater Seep

One groundwater seep sample (SEEP-1) was collected from the northeast portion of the site in 2010. Samples were analyzed for VOCs, SVOCs, and cyanide. The seep sampling location is shown on Figures 2 and 13. For purposes of the FWRIA, the groundwater seep data were compared to NYSDEC TOGS 1.1.1 (NYSDEC 1998) guidance values for fish propagation. If these values were not available for a particular constituent, chemical concentrations were conservatively compared to TOGS 1.1.1 (NYSDEC 1998) standards for drinking water. Table 8 presents the comparison of seep data to SCGs. Only a few VOCs and SVOCs were detected in the seep sample, and all concentrations were below their associated SCGs for fish propagation and/or drinking water. Therefore, no COPCs were identified for the groundwater seep.

4.1.4.2.3 Sediment

A total of 25 sediment sampling locations were investigated in 2011 (Figures 5A through 5C), including locations upstream, adjacent to, and downstream of the site. The majority of sediment samples were collected within the 0- to 6-inch depth interval, but deeper depths up to 4 ft were also sampled at some locations. Sediment samples were analyzed for VOCs, SVOCs (primarily PAHs), and TOC. Sediment data were compared to NYSDEC Class A, Class C Sediment Guidance Values (SGVs), and SGVs for PAHs (NYSDEC 2014), which were adjusted on a sample-specific basis for TOC (Table 9). The SGVs are derived for protection of aquatic life (growth and reproductive impacts) from chronic toxicity of contaminants. SGVs for PAHs are equilibrium partitioning-based values. Exceedances of the Class A SGVs indicate slightly to moderately contaminated sediments that may indicate potential treat to aquatic life. Exceedances of the Class C SGVs indicate highly contaminated sediments that are likely to pose a risk to aquatic life. The SGVs for PAHs include values for individual PAHs, whereas Class A and C SGVs only include values for total PAHs.

VOCs were detected at concentrations below available screening criteria. The Class A SGVs were exceeded by 24 samples; whereas, the Class A and C SGVs were exceeded by 24 samples and only 1 sample, respectively. Several PAHs exceeded their associated SGVs, including anthracene (one sample), benzo(a)pyrene (one sample), benzo(e)pyrene (two samples), benzo(k)fluoranthene (two samples), chrysene (one sample), fluoranthene (six samples), and phenanthrene (two samples). Total PAH concentrations ranged from 0.69 mg/kg (sample NG-SR-SD-16, 24 to 36 inches) to 291 mg/kg (sample NG-SR-SD-19, 0 to 5 inches). Sample NG-SR-SD-19 was collected approximately 400 ft downstream of the site along the western shoreline. However, the total PAH concentration in this sample was significantly higher than the PAH concentrations in other downstream samples, which ranged from 1.4 mg/kg (sample NG-SR-SD-22, 0 to 4 inches) to 14 mg/kg (sample NG-SR-SD-17, 0 to 7 inches). The majority of the samples (24, including several upstream locations) exceeded the Class A SGV for total PAHs (4 mg/kg). Only one sample (NG-SR-SD-19) exceeded the Class C SGV for total PAHs (35 mg/kg). PAHs are the primary COPCs for sediment.

4.1.4.2.4 Tar

Tar has been observed on the ground surface and subsurface at the site and the Pritchard Property. In addition, as discussed in Section 3.3, tar samples were collected in 2010 and 2014 from the site and Pritchard Property (Figure 3) to facilitate PAH source evaluations. The forensic evaluations found that tar observed on both of the Pritchard parcels had a PAH compositional signature similar to that of the tar observed on the site, and all tar samples were produced by the same process (i.e., MGP process). National Grid concluded that, given the proximity of the MGP site to the Pritchard Property, the former MGP cannot be ruled out as the source of the tar on the Pritchard Property. As discussed in Section 1.4.4, National Grid conducted an IRM on Tax Parcel 98.81.1.4 in September 2014 to remove the tar observed on the riverbank and in the subsurface soil, further inland from the riverbank. As of the date of this RI Report, the tar observed on the riverbank of Tax Parcel 98.81-1-3.200 remains in place. Exposed tar at the ground surface on the site and Pritchard Property is a medium that wildlife could be exposed to during normal activities. Tar analytical data were not compared to SCGs; however, it is expected that locations where tar occurs at ground surface on the site and Pritchard Property represent BTEX and/or PAHs as COPCs.

4.1.5 Summary

The FWRIA for the site was conducted in accordance with NYSDEC guidance (1994; 2010). The majority of the site and surrounding areas are characterized as successional southern forest covertype and successional old/maintained field covertype. The site also contains a small strip of the riparian fringe forest covertype bordering the Salmon River, as well as a gravel road/cement path covertype. A groundwater seep was identified in the northeast portion of the site, which consists of a small pool of standing water. Based on its small size, the groundwater seep is not expected to be a significant resource to local fauna. The surrounding area is generally characterized as a mixture of residential, commercial, and industrial properties. The Salmon River flows in a northern direction along the eastern boundary of the site. The residential/commercial/industrial and successional old/maintained field covertypes provide limited wildlife habitat for foraging, nesting, and/or cover; as such, these areas are concluded to have low to moderate wildlife value. The Salmon River, riparian fringe forest, successional southern forest, and NWI wetlands covertypes provide wildlife habitat for drinking, bathing, foraging, cover, nesting, and/or breeding; as such, these areas are concluded to provide moderate to high value wildlife habitat.

Surface soils, groundwater (expressed as surface water in the seep location), sediment, and surface tar deposits were identified as potentially complete ecological exposure pathways. PAHs were identified as the primary COPCs for surface soils and sediment. No COPCs were identified for the groundwater seep. Subsurface soils and groundwater do not present potentially complete ecological exposure pathways because ecological receptors would not be expected to contact these media during normal activities, such as foraging and nesting (depth to groundwater at the site ranges from 2 to 40 ft bgs). Tar existing on the ground surface and riverbank at the site and on the Pritchard Property presents a potentially complete ecological exposure pathway for BTEX and/or PAH compounds.

In surface soils, benzo(a)pyrene exceeded its associated ecological SCO of 2.6 mg/kg. Specifically, eight samples exceeded the benzo(a)pyrene SCO, including SS-101 (8.8 mg/kg), SS-102 (60 mg/kg), SS-A (3.1 mg/kg), SS-B (11 mg/kg), SS-C (7.2 mg/kg), SS-D (6.0 mg/kg), SS-F (2.8 mg/kg), and SS-G (16 mg/kg). All of these samples were collected near the area of solid tar observed at the land surface located in the southeast portion of the site. In this portion of the site, wildlife habitat is fragmented by the road/path, and the slope of the ground surface is very steep. These factors, as well as the site's location within the village limits, most likely discourage wildlife usage of this area.

The majority of the sediment samples (including several upstream locations) exceeded the Class A SGV for total PAHs (4 mg/kg). Only one sample (NG-SR-SD-19) exceeded the Class C SGV for total PAHs (35 mg/kg). Total PAH concentrations ranged from 0.69 mg/kg (sample NG-SR-SD-16, 24 to 36 inches) to 291 mg/kg (sample NG-SR-SD-19, 0 to 5 inches). Sample NG-SR-SD-19 was collected approximately 400 ft downstream of the site along the western shoreline and adjacent to the Pritchard Property. However, the total PAH concentration in this sample was significantly higher than the PAH concentrations in other downstream samples, which ranged from 1.4 mg/kg (sample NG-SR-SD-22, 0 to 4 inches) to 14 mg/kg (sample NG-SR-SD-17, 0 to 7 inches).

Because of its location within the Village of Malone and other physical factors (e.g., habitat fragmentation, steep topography), the site provides only limited value to local wildlife. The exceedances of SCOs are concentrated in a relatively small area of the site near the observed tar patty, which indicates that exposure of ecological receptors to PAHs in surface soils is expected to be limited. Sediment samples

collected within all investigated reaches (upstream, adjacent, and downstream) of the Salmon River had PAH concentrations that exceeded associated screening criteria.

4.2 Human Health Exposure Evaluation

This section presents a qualitative HHEA that describes the potential for human exposure to site-related constituents. The HHEA focuses on the former MGP site and Pritchard Property and associated environmental media. This HHEA is conducted consistent with the NYSDOH guidance presented in DER-10 (NYSDEC 2010) and uses information regarding current and foreseeable land uses and available site data to evaluate the potential for exposure of human receptors. The HHEA characterizes the environmental setting of the site and surrounding area, identifies constituents of interest and complete exposure pathways, and evaluates contaminant fate and transport. The results of this qualitative HHEA will be used, in part, to help evaluate proposed remedial actions for the site.

The media of interest at the site and surrounding area, including the off-site Pritchard Property, includes surface soil (defined herein as 0 to 0.2 ft and 0 to 1 ft bgs for the purposes of the HHEA), subsurface soil (defined herein as 2 to 15 ft bgs), groundwater from overburden and bedrock monitoring wells and a groundwater seep, and sediment from the Salmon River. Tar was also encountered on the ground surface and on riverbanks located on and off site (Pritchard Property).

4.2.1 Data Evaluation

Surface soil, subsurface soil, groundwater, and sediment data are evaluated in the HHEA. Data used in this evaluation were collected in 2010 and 2011. The soil and groundwater samples were analyzed for VOCs, SVOCs, and cyanide. Sediment samples were analyzed for VOCs, SVOCs (primarily PAHs), and TOC. The following subsections briefly discuss the analytical data for each medium and compare these data to screening criteria to identify COPCs. Specifically, the following criteria were used to identify COPCs in soil, groundwater, sediment, and tar:

- Surface soil – 6 NYCRR Part 375 SCOs for restricted commercial and residential land use (NYSDEC 2006). The commercial SCOs are risk-based values for adult workers and child visitors and consider soil ingestion, inhalation of particulates and vapors, and dermal contact with soils. The restricted residential SCOs are risk-based values for adult and child residents and consider soil ingestion, inhalation of particulates and vapors, and dermal contact with soils.
- Subsurface soil – 6 NYCRR Part 375 SCOs for restricted commercial and residential land use (NYSDEC 2006). The commercial SCOs are risk-based values for adult workers and child visitors and consider soil ingestion, inhalation of particulates and vapors, and dermal contact with soils. The restricted residential SCOs are risk-based values for adult and child residents and consider soil ingestion, inhalation of particulates and vapors, and dermal contact with soils.
- Groundwater – NYSDEC TOGS 1.1.1, *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* standards and guidance values (NYSDEC 1998). Standards are promulgated values that have been placed into regulation. Guidance values are used for constituents that lack promulgated standards. Class GA standards/guidance values are used in this HHEA; these values are considered to be protective of drinking water sources. The use of these

standards/guidance values is considered to be conservative given that site groundwater is not used as a potable source.

- Sediment – Human health bioaccumulation criteria from NYSDEC Screening and Assessment of Contaminated Sediment (NYSDEC, 2014). These bioaccumulation-based SGVs are derived from water quality criteria and consider bioaccumulation factors and human fish consumption (NYSDEC 2014). Organic screening criteria are only available for benzo(a)pyrene and dibenzo(a,h)anthracene; these are based on 2% TOC.
- Tar – There are no SCGs available for this medium to screen for potential risk to human health; however, it is expected that BTEX and/or PAHs in tar located on the ground surface and subsurface at the site and ground surface at the Pritchard Property are COPCs.

4.2.1.1 Surface Soil

A total of 15 surface soil samples were collected across the site in 2010. Samples were analyzed for VOCs, SVOCs, and cyanide. Surface soil sampling locations are shown on Figure 12. Surface soil samples were generally collected from non-paved surfaces on the site. The majority of soil samples were collected from the southern portion of the site near the observed tar patty, but several samples were also collected from the northern portion of the site to facilitate a site-wide evaluation. Surface soils data were compared to 6 NYCRR Part 375 SCOs for restricted commercial and residential land use (NYSDEC 2006). These SCOs were deemed to be conservatively appropriate based on current and potential future land use on or in the vicinity of the site. Table 3 and Figure 12 compare surface soil data to commercial and residential SCOs.

No VOCs exceeded their associated SCOs for residential and commercial land use. However, nine PAHs were detected at concentrations exceeding their SCOs. These PAHs included benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, fluoranthene, and pyrene. Sample locations with exceedances included SS-101, SS-102, SS-103, SS-106, SS-A, SS-B, SS-C, SS-D, SS-E, SS-F, and SS-G; the majority of these samples were collected near the tar patty in the southeastern corner of the site. Total PAH concentrations ranged from 1.2 mg/kg (sample SS-105) to 720 mg/kg (sample SS-102).

Cyanide concentrations were below the SCO of 27 mg/kg, with the exception of sample SS-D (56 mg/kg). This sample was collected near the observed tar patty in the southeastern corner of the site.

Based on SCO exceedances, the surface soil COPCs are PAHs and cyanide.

4.2.1.2 Subsurface Soil

Subsurface soil samples were collected from the site in 2010 and 2011. For the purposes of the HHEA, it is assumed that future development would not occur at a depth below 15 ft bgs. Therefore, subsurface soils are defined as those soils ranging from 2 to15 ft bgs. Consequently, 17 soil samples ranging in depth from 2 to15 ft bgs were evaluated in this HHEA. Generally, 2-ft depth intervals were sampled. Subsurface soil sample locations are shown on Figure 11. Samples were analyzed for VOCs, SVOCs, and cyanide. Subsurface soil data were compared to 6 NYCRR Part 375 SCOs for commercial land use and residential land use (NYSDEC 2006). These SCOs were deemed to be conservatively appropriate

based on current and potential future land use on or in the vicinity of the site. Table 2 and Figure 11 compare subsurface soils data to commercial and residential SCOs.

No VOCs exceeded their associated SCOs for residential and commercial land use. Cyanide concentrations exceeded the SCO of 27 mg/kg in only one sample (SB-110, 2 to 4 ft bgs). Detected total PAH concentrations ranged from 0.31 mg/kg (sample SB-104, 8 to 10 ft bgs) to 21,000 mg/kg (sample SB-120, 8 to 10 ft bgs). Five sampling locations had exceedances of at least one PAH SCO, including SB-110 (2 to 4 ft bgs), SB-123 (4 to 6 ft bgs), SB-122 (6 to 7.7 ft bgs), SB-121 (8 to 9.4 ft bgs), and SB-120 (8 to 10 ft bgs). With the exception of sample SB-120, exceedances were in the same order of magnitude as the SCOs. Sheen/staining and/or solid tar were observed at four of the five locations. At sample location SB-120, solid tar was observed below 5 ft bgs, which explains the high PAH concentrations observed at this location.

Based on SCO exceedances, subsurface soil COPCs are PAHs and cyanide.

4.2.1.3 Groundwater

Ten groundwater monitoring wells and one groundwater seep (SEEP-1) were sampled in 2010 and 2011. The majority of the groundwater wells were sampled in September/October 2010 and November 2011. The groundwater seep was sampled once in October 2010. Groundwater samples were analyzed for VOCs, SVOCs, and cyanide. For purposes of the HHEA, groundwater data were compared to Class GA Standards and Guidance Values from NYSDEC TOGS 1.1.1 (NYSDEC 1998). Table 8 and Figure 13 present the comparison of these data to standards and guidance values. The use of these standards and guidance values is conservative given that site groundwater is not used as a potable source.

Several VOCs were detected in groundwater above their associated drinking water standard or guidance value, including 1,2,4,5-tetramethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, benzene, ethylbenzene, isopropylbenzene, m&p-xylene, n-butylbenzene, n-propylbenzene, o-xylene, p/m-xylene, sec-butylbenzene, toluene, and naphthalene. Benzene, ethylbenzene, isopropylbenzene, m&p-xylene, and o-xylene had the most exceedances. Monitoring wells with VOC concentrations above standards/guidance values are MW-1R, MW-2, MW-3, MW-5R, MW-6, MW-8R, MW-10, and SEEP-1. Detected BTEX concentrations ranged from 5.6 µg/L (well MW-3 in 2010) to 2,300 µg/L (well MW-5R in 2010). BTEX concentrations in well MW-3 were non-detect in 2011. Likewise, all wells that were sampled in both 2010 and 2011 showed lower BTEX concentrations.

PAHs were detected in several groundwater wells. Seven PAHs were detected at concentrations above their associated drinking water standards or guidance values; these include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, indeno(1,2,3-cd)pyrene, and naphthalene. Except for naphthalene, these exceedances were primarily observed in wells MW-3 and MW-4 in 2011. Naphthalene exceeded its standard/guidance value in wells MW-2, MW-5, and MW-6. Naphthalene concentrations in well MW-6 decreased from 67 µg/L in 2010 to 40 µg/L in 2011.

Cyanide was not detected in any monitoring wells at concentrations exceeding the drinking water standard/guidance value.

Based on exceedances of drinking water standards and/or guidance values, groundwater COPCs include VOCs and PAHs. Because the screening values for groundwater are conservatively based on drinking water exposure, and site groundwater is not used as a potable source, exceedance of these screening

values does not necessarily indicate risk. To put these exceedances into perspective, only a small percentage of these COPCs exceed standards/guidance values by two orders of magnitude, including 1,2,4,5-tetramethylbenzene, 1,2,4-trimethylbenzene, benzene, ethylbenzene, isopropylbenzene, n-propylbenzene, m&p-xylene, p/m-xylene, and benzo(a)pyrene.

4.2.1.4 Sediment

A total of 38 sediment samples were collected from 25 locations upstream, adjacent to, and downstream of the site at depths generally ranging from 0 to 4 ft bgs. Sediment samples were analyzed for VOCs, SVOCs (primarily PAHs), and TOC. For purposes of the HHEA, sediment data were compared to human health bioaccumulation criteria (NYSDEC 1999), as shown on Table 9 and Figures 5A through 5C.

Several VOCs and PAHs were detected in sediment. However, bioaccumulation-based screening criteria are only available for two PAHs, benzo(a)pyrene and dibenzo(a,h)anthracene. None of the sediment samples exceeded the bioaccumulation-based human health SGV.

4.2.1.5 Tar

Tar has been observed on the ground surface and in the subsurface at the site. In addition, as discussed in Section 3.3, tar samples were collected in 2010 and 2014 from the site and Pritchard Property (Figure 3) to facilitate PAH source evaluations. The forensic evaluations found that tar observed on both of the Pritchard parcels had a PAH compositional signature similar to that of the tar observed on the site, and all tar samples were produced by the same process (i.e., MGP process). National Grid concluded that, given the proximity of the MGP site to the Pritchard Property, the former MGP cannot be ruled out as the source of the tar on the Pritchard Property. As discussed in Section 1.4.4, National Grid conducted an IRM on Tax Parcel 98.81.1.4 in September 2014 to remove the tar observed on the riverbank and in the subsurface soil, further inland from the riverbank. As of the date of this RI Report, the tar observed on Tax Parcel 98.81-1-3.200 remains in place. There are no SCGs available for this medium to screen for potential risk to human health; however, it is expected that BTEX and/or PAHs in tar located on the ground surface and subsurface at the site and ground surface at the Pritchard Property are COPCs.

4.2.2 Contaminant Fate and Transport

This section discusses general environmental fate and transport characteristics for identified COPCs in respective media, with information from toxicological profiles by the Agency for Toxic Substances and Disease Registry (ATSDR) and the Hazardous Substances Data Bank (HSDB).

4.2.2.1 1,2,4-Trimethylbenzene, 1,2,4,5-Tetramethylbenzene, and Propylbenzene

Generally, the VOCs propylbenzene (iso- and n-), 1,2,4-trimethylbenzene, and 1,2,4,5-tetramethylbenzene act similarly in the environment and are all components of coal tar and/or refined fuels. These three constituents were identified as groundwater COPCs. These COPCs have low mobility and high volatilization from soils. Aerobic biodegradation also plays a role in removal from soils. In aquatic systems, these COPCs sorb to organic particulates and sediment and volatilize from water surfaces. Bioconcentration in fish is moderate to high. Degradation in the atmosphere occurs through reactions with photochemically produced hydroxyl radicals (HSDB 2013a; 2013b; 2013c).

4.2.2.2 Benzene

Benzene was identified as a COPC for groundwater and tar. The environmental fate and transport of benzene is primarily attributed to its high volatility. In soil, benzene partitions to the atmosphere through volatilization, to surface water through runoff, and to groundwater via leaching mechanisms. There is no scientific evidence to conclude that bioaccumulation and/or biomagnification of benzene in food chains occurs. Aerobic biodegradation is the primary mechanism for degradation of benzene in soils, surface water, and groundwater (ATSDR 2007a).

4.2.2.3 Ethylbenzene

Ethylbenzene was identified as a COPC for groundwater and tar. Ethylbenzene has a high vapor pressure and will partition into the atmosphere from surface soils and surface water. Subsurface soil infiltration and leaching to groundwater may also occur. This chemical has a relatively high mobility in soils because sorption is not significant enough to prevent migration. Ethylbenzene will leach into groundwater, particularly in soils with low organic carbon content. Significant bioaccumulation does not occur in aquatic food chains. In surface water, ethylbenzene can be transformed via photo oxidation and biodegradation. In soils, aerobic soil microbes are responsible for biodegradation (ATSDR 2010).

4.2.2.4 Xylenes

Xylenes were identified as COPCs for groundwater and tar. Xylenes are highly volatile and readily partition into the atmosphere from surface water. In soils, xylenes tend to adsorb to organic matter and will leach into groundwater from subsurface soils with low organic carbon content. Volatilization and photo oxidation are the primary removal mechanisms in surface soil and surface water. Biodegradation is the primary removal mechanism in subsurface soils (ATSDR 2007b).

4.2.2.5 Cyanide

Cyanide was identified as a COPC for surface and subsurface soils. Most cyanide in the atmosphere is in the form of hydrogen cyanide gas. Removal of hydrogen cyanide from air by precipitation or by dry deposition is negligible. Cyanide also occurs most commonly as hydrogen cyanide in water, although it can also occur as other forms. Oxidation, hydrolysis, and photolysis are the three predominant chemical processes that may cause loss of simple cyanides in aquatic media. Biodegradation is an important transformation process for cyanide in surface waters and soil; this is dependent on cyanide concentrations, pH, temperature, nutrient availability, and concentration and acclimation of microbes. Cyanides are fairly mobile in soil and volatize from soil surfaces at a pH less than 9.2. Cyanide presents at low concentrations and biodegrades under aerobic conditions. Cyanides adsorb to various natural media, including clays, biological solids, and sediments. Hydrogen cyanide and alkali metal cyanides are not likely to be strongly sorbed onto sediments and suspended solids. Studies do not indicate that simple metal cyanides and hydrogen cyanide bioconcentrate in aquatic organisms. Bioaccumulation of cyanide in food webs is not expected, considering the rapid detoxification of cyanide by most species and the lethal effects of large doses of cyanide (ATSDR 2006).

4.2.2.6 PAHs

PAHs were identified as COPCs for surface and subsurface soils, groundwater, and also tar on the ground surface. In soils, PAHs can volatilize, undergo abiotic degradation, and biodegrade or bioaccumulate in plants. Some PAHs may leach into groundwater from subsurface soils. The transport and partitioning of PAHs in the environment are dependent on several chemical factors, such as water solubility, vapor pressure, Henry's law constant, octanol-water partition coefficient, and organic carbon partition coefficient. Due to their low solubility and high affinity for organic carbon, PAHs in aquatic systems are generally sorbed to bottom sediments or particulate matter suspended in the water column. In surface waters, PAHs can volatilize, photolyze, oxidize, biodegrade, bind to particulate matter or sediments, or accumulate in aquatic organisms, although biomagnification of PAHs generally does not occur because many aquatic organisms are able to readily metabolize (and eliminate) these compounds. Biodegradation is the primary mechanism for removal in sediments (ATSDR 1995).

4.2.3 Potential Exposure Points, Receptors and Route of Exposure

An initial step in the evaluation of potential human exposures is to identify potentially complete exposure pathways. For an exposure pathway to be complete, the following five elements must exist:

- contaminant source
- contaminant release and transport mechanisms
- point of exposure
- route of exposure
- receptor population

If all five elements exist, then that exposure pathway is considered to be potentially complete. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an exposure pathway has not existed in the past, does not exist in the present, and can reasonably be anticipated to not exist in the future (NYSDEC 2010).

This section evaluates the potential exposure points, receptors, and routes of exposure. The magnitude of exposure to COPCs is dependent upon the type of activity, specific areas of the site used in daily activities, and the frequency and length of time spent at each area.

As previously described, COPCs for site surface and subsurface soil include BTEX, PAHs, and cyanide. Groundwater COPCs include VOCs and PAHs. Sediment COPCs include PAHs. The most likely current and future receptors at the site include commercial workers (e.g., at nearby properties), maintenance workers (e.g., individuals responsible for lawn mowing), and construction workers that may be involved in future site development. Recreational users, such as canoeists, kayakers, and fisherman, may enter the site and surrounding areas from the Salmon River and represent another potential receptor group for the site. Nearby residents and adolescent trespassers may enter the site occasionally and are also included in the recreational receptor group.

Potentially complete human exposure pathways for the site are evaluated below.

Potential direct contact with surface soils and tar — The site perimeter is fenced, with the exception of the east boundary, which is flanked by the Salmon River. This fencing restricts site access. Based on current and anticipated future land use, commercial workers, maintenance workers, recreational users (e.g., kayakers and fisherman), and/or trespassers may be exposed to surface soils during non-intrusive, routine, or occasional activities at the site and surrounding area. Commercial workers primarily represent indoor workers employed at surrounding businesses and would not be expected to engage in outdoor activities at the site. Maintenance workers would only be expected to mow the grassy areas on a seasonal basis. Recreational users/trespassers that may intermittently enter the site from the Salmon River would not be expected to use the site on a frequent basis due to its lack of attractive features.

Surface soil samples with concentrations that exceeded SCOs were primarily located near the area of solid tar observed at the land surface in the southeast portion of the site. COPCs, primarily PAHs and/or BTEX, in exposed tar on the ground surface near the concrete tank foundation, riffraff wall, and river bank could pose a risk to receptors on the site and along the river bank bordering the site. Sample locations where tar was encountered also present potential exposure points for receptors on site. Several other surface soil samples across the site exceeded SCOs. Of these locations, samples SS-101 and SS-103 are located in close proximity to commercial buildings, although the site is fenced, which would likely mitigate potential exposures. Location SS-106 is located near the Salmon River and could be a potential exposure point for recreational users (or trespassers) landing on or traversing the riverbank. Sample locations SS-A, SS-D, and SS-B are located outside the boundary of the National Grid property and were collected from an area with a steep slope. Potential exposure of commercial workers, maintenance workers, and recreational users/trespassers to COPCs in surface soil is limited to several exposure points located in vegetated areas that lack impervious cover. Receptors could be exposed to COPCs in surface soils with exposed tar from these areas via incidental ingestion and dermal contact, although use of these areas is expected to be limited due to their general lack of attractive features and surrounding land use. Additionally, site access from the river would be difficult due to the presence of steep banks. Therefore, the exposure potential for these receptor groups is expected to be limited.

Potential direct contact with subsurface soils and tar — Based on current and anticipated future land use, utility and/or construction workers may be exposed to subsurface soils and tar if these receptors are involved in intrusive activities (e.g., utility maintenance/repair, site development). Underground utility lines and outfall pipes are present in the vicinity of the site. Subsurface soil samples with concentrations that exceeded PAH SCOs for commercial land use were mostly located near the footprint of the former gas holders in the southeastern portion of the site. Samples with the highest PAH concentrations were generally associated with the presence of solid tar or sheen and staining. Exposure of construction and/or utility workers to subsurface soils and tar may occur during possible future intrusive activities. However, it is assumed that these workers would follow appropriate health and safety plans (HASPs) (e.g., use of PPE), which would mitigate potential exposures to PAHs and/or BTEX in subsurface soils and/or tar.

Potential inhalation of vapors and/or particulates — PAHs and cyanide are the primary surface soil COPCs. PAHs are primarily nonvolatile, and cyanide is volatile in surface soils with pH less than 9.2 (ATSDR 2006). Commercial workers, maintenance workers, and recreational users/trespassers may be exposed to COPCs in surface soils via the inhalation of volatiles and particulates from areas of exposed soil (i.e., wind transport). However, the majority of unpaved soils are covered by gravel, cement, and/or vegetation, which mitigates the potential for generation of fugitive dust. Based on this information, the inhalation exposure route is not anticipated to be a significant exposure pathway for receptors exposed to

surface soils. Construction and/or utility workers may be exposed to PAHs in subsurface soils via inhalation during intrusive activities. However, as stated previously, these workers would be expected to follow appropriate HASPs, which would mitigate the potential for exposure.

Direct contact with groundwater — The water table beneath the site and surrounding area ranges from approximately 2 to 40 ft bgs, and groundwater generally flows in an east-northeast direction towards the Salmon River. Groundwater is not used as a potable source at or near the site, and the depth to groundwater precludes potential direct exposures of receptor groups that would not be involved in intrusive activities (i.e., commercial workers, maintenance workers, recreational users/trespassers). Construction and/or utility workers could potentially be exposed to site groundwater during intrusive activities if groundwater was encountered. However, it is expected that intrusive activities would generally take place above the water table, and additionally, potential exposures for construction and/or utility workers would likely be mitigated with the use of PPE.

Potential direct contact with solid tar on Pritchard Property — PAHs and/or BTEX are COPCs for tar on the riverbank at the Pritchard Property. Tar existing on the riverbank presents a potentially complete exposure pathway for some receptors. Recreational users or trespassers participating in fishing and/or kayaking/canoeing activities could become exposed to tar at the riverbank. Recreational users/trespassers may intermittently enter the property from the Salmon River and be exposed to tar on the riverbank. Receptors could be exposed to COPCs in tar exposed on the riverbank via incidental ingestion and dermal contact. Any receptor accessing the property would not be expected on a frequent basis due to its lack of attractive features (e.g., boat access, amenities). In addition, potential exposure to the tar could be limited given the solid nature of the tar.

4.2.4 Summary

Analytical data indicate that BTEX, PAHs, and/or cyanide are the primary COPCs in soils and tar on and near the site. Surface soils and tar were identified as a potentially complete exposure pathway for commercial workers, maintenance workers, and recreational users/trespassers. However, surface soils/tar are not expected to represent a significant exposure pathway for these receptors based on behavior patterns (e.g., infrequent exposure), a general lack of attractive features at the site and in the exposed media, and limited site access (i.e., fencing and steep river banks). Subsurface soils and tar do not represent a complete exposure pathway for commercial workers, maintenance workers, or recreational users/trespassers because these receptors would not be involved in intrusive activities. The potential for exposure to COPCs in subsurface soils/tar is most likely limited to construction and/or utility workers that may be engaged in future intrusive activities, although potential exposures would likely be mitigated through the use of appropriate HASPs (e.g., use of PPE).

VOCs and PAHs were identified as COPCs in groundwater. However, groundwater beneath the site and surrounding areas is not used as a potable source and, therefore, direct contact with groundwater is not a complete exposure pathway for most receptors (i.e., commercial workers, maintenance workers, or recreational users/trespassers). Depth to groundwater across the site ranges from 2 to 40 ft bgs. Exposure of construction and/or utility workers to site groundwater would not be expected due to the depth of groundwater. Specifically, monitoring wells with shallow groundwater are located outside utility right-of-ways and close to the river where future development is not expected to occur. Furthermore,

potential exposures to these receptors during future intrusive activities would likely be mitigated with the use of appropriate HASPs (e.g., use of PPE).

Exposure to sediment from the Salmon River via dermal contact or ingestion is not expected to be a significant exposure pathway due to the general lack of fine-grained sediments within the river channel. Food chain exposure (i.e., ingestion of fish) is not expected to be a significant exposure pathway because PAHs are generally not bioaccumulative, and were not identified as COPCs.

PAHs and/or BTEX in tar on the riverbank of the Pritchard Property is a potential exposure for recreational users and trespassers, although the exposure could be limited due to the solid nature of the tar.

5 SUMMARY AND CONCLUSIONS

This RI Report discusses the findings of an RI completed at the site from 2010 to 2015. During the RI, 10 monitoring wells were installed, 43 soil borings were drilled, 18 test pits were excavated, a Salmon River sediment investigation was performed, and approximately 120 samples of environmental media were analyzed. The primary objectives of this work were to characterize the nature and extent of site-related impacts to the environment and to evaluate the risk posed to human health and the environment by those impacts. These objectives have been satisfied by the work performed during these investigations, and the information gathered will enable an evaluation of remedial alternatives for the site.

This section summarizes the findings of the RI and presents relevant conclusions.

5.1 Site Setting

The site is located at 25 Amsden Street in a mixed commercial and residential portion of the Village of Malone, New York. The site comprises approximately 2.6 acres and is bound by Amsden Street to the west and the Salmon River to the east. The former MGP is located in the southern approximately half of the site (Figure 2). Relief of the site is significant, with a sharp drop of approximately of 50 ft from Amsden Street to the Salmon River. The river flows to the north in the vicinity of the site. Much of the site to the east and north is heavily forested, with frequent signs of fill debris noted along the embankment.

The MGP was used to manufacture coal gas from the 1880s to the 1940s. At its peak of operation, the MGP consisted of a retort house, purifier house, tar tank, coal storage facilities, coke storage building, two gas holders (one above- and one below-grade construction), power house, and a substation building. The power house was constructed in the mid to late1890s and operated for approximately 10 years before being converted to a transformer house for an undetermined period of time. Following cessation of gas production in the 1940s, the site was used for storage and distribution of propane gas until it was sold. The property was subsequently repurchased by Niagara Mohawk Power Corporation (now National Grid) in 2001. More recent site use was for warehousing of carpeting and other home furnishings; however, the site has not been used or occupied since its repurchase in 2001.

There is no localized groundwater usage in the immediate area of the site; all businesses and residences near the site are supplied by Village water.

5.2 Geology and Hydrogeology

The regional and site geology was evaluated by reviewing available literature sources and analyzing hydraulic and geologic data collected during the RI. This section summarizes the major findings of the evaluation and presents relevant conclusions regarding groundwater movement at and around the site.

5.2.1 Geologic Units

The site elevation ranges from approximately 645 ft AMSL near the river to 692 ft AMSL near Amsden Street, with the ground surface sloping steeply downward to the river. Investigations have identified three main geologic units at the site. These units include:

- **Fill**. The fill unit comprises the uppermost unit. This unit is approximately 10 to 15 ft thick in the southern portion of the site in the area of the former MGP and is as much as 30 ft thick in the northern area of the site, where apparent uncontrolled dumping has occurred. The fill consists of reworked alluvial deposits (sands, gravels, silts) and anthropogenic materials (e.g., cinders, slag, ash, coal, brick, wood, metal, glass, plastic, rubber, leather, utilities, and foundations). This unit contains perched groundwater in several areas of the site, likely resulting from the inability of the underlying bedrock to efficiently drain water from the fill. The water table is encountered in the fill in the northeast area of the site.
- **Post glacial alluvial sand and silt**. This unit is as much as 9 ft in thickness and is only observed in the western half of the site. The unit is comprised of fine to coarse sand interbedded with silt, and similar to the fill, this unit also contains perched groundwater.
- **Potsdam Sandstone** (formed 500 million years ago). As much as 34 ft of this unit was cored during the RI. This sandstone is light buff to light gray and contains a high percentage of crystallized quartz (i.e., orthoquartzitic). The beds are flat-lying beds and are generally 1 inch to less than 1 ft in thickness. Horizontal fractures occur along the weaker bedding planes, and very little vertical jointing occurs. The RQDs are generally greater than 90%, suggesting that the rock is competent and not very weathered. The water table lies within this unit across most of the site, and as such, the upper several ft of the rock are “dry”. The majority of groundwater beneath the site is expected to flow through this unit. Field tests suggest that the hydraulic conductivity of this unit ranges from 1 to 100 ft per day.

Information regarding the geology of the off-site Pritchard Property is limited since only the upper approximately 6 ft of soils were investigated on this property. The subsurface materials within this interval (0 to 6 ft bgs) consists of fill intermixed with sand and gravel. It is apparent that the property has been the historical location of uncontrolled dumping by the public. In addition to the relatively small amount of MGP-related tar, the fill contains a varying degree of anthropogenic materials, such as glass, wood, brick, plastic, and metal. It is assumed that, prior to uncontrolled dumping, the ground surface of this area was likely near the level of the river.

5.2.2 Groundwater Flow

The Salmon River is a major regional groundwater discharge location. Given the site’s proximity to the river, groundwater on and near the site in every geologic unit will eventually flow to the river. Perched groundwater is encountered in the fill and alluvial sand and silt above the bedrock surface across much of the site. The perched groundwater is interpreted to leak downward through the unsaturated portion of Potsdam Sandstone until it reaches the water table, which is located several feet below the rock surface (depending on location). The downward movement of groundwater through the sandstone is impeded by the lack of vertical jointing in the rock and infilling of the joints with sediment. Once groundwater reaches the saturated Potsdam Sandstone, it moves predominately horizontally through bedding plane fractures toward the Salmon River. Depending on the degree of fracturing and fracture characteristics, the routes of flow can be quite tortuous. Once near the river, groundwater either discharges directly to the river from the bedding planes or moves from the bedding planes through a thin layer of soil/sediment until it reaches the river.

5.3 Soil Quality

The soil investigation delineated the region of soils that contain concentrations of COPCs exceeding 6 NYCRR CSCOs and RSCOs (NYSDEC 2006). The COPCs include BTEX, PAH, and cyanide compounds. The distribution of soils exceeding CSCOs and RSCOs is shown on Figure 11. A summary of the soil quality data is provided below based on impacts observed in subsurface and surface soil.

5.3.1 Subsurface Soil

Tar is observed within the upper 5 ft of overburden in the southern half of the site. Tar was not observed in any bedrock corehole drilled during the RI. The following two types of tar have been observed at the site:

- ***Solidified Tar*** — As shown with pink shading on Figure 10, this type of tar is primarily observed at the land surface and within the upper approximately 5 ft of overburden soils in the southern half of the site, in the area of the former MGP. This type of tar was also observed in a test pit completed on Mr. Carter's property (adjacent to the site). A small area of this tar was also observed along the edge of the river, near the former powerhouse foundation.
- ***Viscous Tar*** — As shown with the purple shading on Figure 10, this type of tar has been observed primarily within the footprint of the southern gas holder and the tar well. This tar was also observed on the bedrock surface only at MW-4. This tar differs from the solidified tar due to its relatively lower viscosity and taffy-like consistency.

Sheens and staining were observed in soils on the bedrock surface at several borings across the site. An apparent petroleum odor was also observed at several of these locations, suggesting a different source of impacts to the subsurface other than the MGP. As shown by the blue shading at MW-5R (Figure 10), LNAPL has been observed to accumulate in monitoring well MW-5R. Fingerprinting analysis indicates that the LNAPL is a weathered gasoline. NYSDEC records indicate that the property south of the site is a possible source of the gasoline.

Benzene was detected in only one sample (SB-120[8-10']) of 45 samples above the RSCO. This sample also contained solidified tar. No BTEX compounds were detected in any samples above CSCOs; however, it is reasonable to assume that tar-containing soil could contain at least one BTEX compound at concentrations above either SCO. As such, the locations shown in pink and purple on Figure 10 likely contain at least one BTEX compound above SCOs.

At least one PAH compound was detected above either SCO in nine of the 45 subsurface soil samples. The highest total PAH concentration was detected in the sample containing tar at SB-120(8-10'). Similar to the assumption for BTEX compounds, it is reasonable to assume that tar-containing soil could contain at least one PAH compound at concentrations above SCOs. As such, the locations shown in pink and purple on Figure 10 likely contain at least one PAH compound above SCOs.

Total cyanide was detected in 21 of the 45 subsurface soil samples. Total cyanide was only detected above SCOs in one of these samples – the sample collected at 2 to 4 ft below grade in boring SB-110. Free cyanide was only detected in six of the 36 samples analyzed for free cyanide. None of these samples contain concentrations of free cyanide above SCOs.

5.3.2 Surface Soil

Fifteen surface soil samples were collected in areas where tar was not observed at the surface. The following general observations of the BTEX, PAHs, and/or cyanide distribution can be made based on review of the surface soil data:

- BTEX compounds were not detected in any of the 15 surface soil samples; however, BTEX compounds are expected to exceed SCOs in the tar observed on the ground surface (Figure 10).
- PAH compounds were detected in all 15 surface soil samples. The highest levels of PAHs were detected in samples collected on or near the steep embankment in the southeast corner of the site. These samples were collected to delineate potential impacts to soil resulting from the tar observed on the surface of the embankment in this area. It is expected that PAH compounds likely exceed SCOs in the tar observed on the ground surface (Figure 10).
- Total cyanide was detected in eight of the 15 surface soil samples. Similar to the trend observed for PAHs, the highest levels of total cyanide were detected in samples collected on or near the steep embankment in the southeast corner of the site.
- Free cyanide was detected at estimated concentrations in 11 of the 15 samples.

5.3.3 Pritchard Property

PAH source evaluations were conducted on two separate occasions to assess whether tar observed on the riverbank of the Pritchard Property could be attributable to the former MGP operations. The tar was observed on the riverbank of Tax Parcels 98.81-1-3.200 and 98.81.1.4 (Figure 3). The PAH source evaluations included the collection of tar pieces from the two Pritchard properties and comparing the compositional signature of the tar pieces to that of tar samples collected from the site on Amsden Street. The forensic evaluations found that tar observed on both of the Pritchard parcels had a PAH compositional signature similar to that of the tar observed on the site, and all tar samples were produced by the same process. National Grid concluded that, given the proximity of the MGP site to the Pritchard Property, the former MGP cannot be ruled out as the source of the tar on the Pritchard Property. National Grid conducted an IRM on Tax Parcel 98.81.1.4 in September 2014 to remove the tar observed on the riverbank and in the subsurface soil, further inland from the riverbank. As of the date of this RI Report, the tar observed on Tax Parcel 98.81-1-3.200 remains in place. It is reasonable to assume that the remaining tar contains concentrations of BTEX and/or PAHs exceeding CSCOs and/or RSCOs.

5.4 Groundwater Quality

Groundwater quality was evaluated by comparing analytical results from data collected during the RI to Class GA Standards and Guidance Values. BTEX, PAHs, and total cyanide were identified as the potential MGP-related constituents in groundwater. Groundwater samples exceeding Standards and Guidance Values for these compounds are shown on Figure 13. Results of the groundwater investigations are presented below:

- BTEX compounds were detected in groundwater sampled from seven of the 10 monitoring wells at concentrations exceeding Class GA Standards or Guidance Values. The highest total BTEX concentrations were detected in monitoring wells MW-5R and MW-6. BTEX compounds were also detected above Standards/Guidance Values in the seep sample (SEEP-1) collected at the toe of the slope near MW-2. It is probable that the groundwater exceedances for BTEX are not be related to the MGP.
- PAHs were detected in groundwater from five of the 10 monitoring wells at concentrations exceeding Class GA Standards and/or Guidance Values. Groundwater from MW-2, MW-5R, and MW-6 only contained exceedances of naphthalene. Groundwater from MW-3 and MW-4 contained low level exceedances of several PAH compounds but no naphthalene exceedances. It is possible that non-MGP sources are also responsible for the naphthalene exceedances at MW-2, MW-5R, and MW-6. Monitoring wells MW-3 and MW-4 are screened in perched groundwater located in fill materials – low level PAH exceedances at these wells are likely related to PAHs present in combustion by-products (e.g., coal, cinders, ash) observed in the fill materials.
- Total cyanide was detected in six of the 10 monitoring well groundwater samples at concentrations that do not exceed the Class GA Standard of 200 µg/L for total cyanide. The highest concentrations were observed in groundwater sampled from MW-3, MW-4, and MW-7, screened in the fill materials. Cyanide was not detected in groundwater from any of the four bedrock monitoring wells.

5.5 Sediment Quality

Sediment probing and sampling of data collected in 2011 were evaluated to assess the characteristics of the river and distribution of impacts to sediments in the Salmon River. The reaches of river investigated during the sediment sampling program extend from approximately 900 ft upstream to approximately 1,000 ft downstream from the site (Figure 5). The summary and conclusions of this evaluation are provided below:

- Upstream from the site, the river is channelized and is narrower than the adjacent and downstream reaches. Where channelized, the river tends to be deeper (5 to 10 ft deep), and where the river widens out, it becomes shallower (1 to 2 ft deep).
- Throughout all investigated reaches, the riverbed consists of quartz and feldspar-rich unsorted sands and gravels with an armoring of cobbles and boulders underlain by bedrock. Due to the high stream energy within the investigated reaches, very little fine-grained sediment is present. Where finer grained sediment is observed, it is limited to isolated pockets located around obstructions – behind the upstream dam and power-generator building and behind debris, tree roots, and boulders located on the streambed.
- The riverbanks immediately upstream from the site and adjacent to southern portion of the site consist of near vertical bedrock ledges and building foundations (where the river passes below the Main Street bridge). Downstream from the site, the banks are relatively moderate to steeply sloped, moderately wooded, and heavily vegetated. A “floodplain area” exists immediately adjacent to the site (Figure 5B).

- A groundwater seep exists on the downstream edge of the floodplain area (Figure 5B). The seep originates from the toe of the slope in the northern portion of the site, where a historical unregulated public dumping ground existed. The area where the seep discharges to the river was probed and observed for potential impacts, and two sediment samples were collected. The probing and sampling results indicated approximately 3 to 6 inches of soft sediment with a slight organic odor and relatively minor PID readings.
- A total of 24 outfalls at 12 locations were identified during the sediment sampling program. Two of the outfalls were located on the site, and the remainder were located upstream from the site.
- MGP impacts (e.g., tar material) were not observed in any sediment samples collected for laboratory analysis.
- Background Total PAH_{17} concentrations in sediments ranged from 0.69 to 12.8 mg/kg, Total PAH_{17} concentrations in adjacent site samples ranged from 1.1 to 28.0 mg/kg, and Total PAH_{17} concentrations in downstream samples ranged from1.41 to 290.5 mg/kg.
- Most sediment samples in the sampled river reaches had Total PAH_{17} concentrations less than 15 mg/kg, with the exception of four samples adjacent to the site that had concentrations ranging from 20 to 28 mg/kg and one downstream sample (NG-SR-SD-19; 290.5 mg/kg) collected near the Pritchard Property.
- Possible MGP-related impacts have been observed in two areas of the river:
    1. A 30-ft long by 5-ft wide hardened tar deposit at the river level and tar on a bedrock face/within fractures along the river's edge adjacent to the site (these areas are adjacent to each other).
    2. Solidified pieces of tar on and embedded within the western bank of the Salmon River along the Pritchard Property (Parcel 98.81-1-3.200[1]), approximately 700 ft downriver from the site.
- A forensic PAH evaluation found that all samples have a PAH composition and concentration that is typical of an urban setting. The evaluation also found low levels of coal tar residual PAHs in six samples collected adjacent to the site with compositions similar to tar sampled on the former MGP site. Minor levels of petroleum-related PAHs were also found in upstream, adjacent, and downstream samples.
- The sample collected at NG-SR-SD-19 (Figure 5C) had the highest Total PAH_{17} concentration – 290.5 mg/kg. Although PAHs in this sample have a compositional signature resembling coal tar, the signature does not match that of the site-related tar. Nonetheless, given the proximity to the site, it is reasonable to assume the PAHs in the sample are attributable to the site.
- Exceedances of NYSDEC's screening criteria for contaminated sediments (NYSDEC 2014) were observed throughout the sampled reaches of the river (upstream, adjacent to the site, and downstream).

[1] Tar pieces were also observed in Tax Parcel 98.81.1.4 but were removed by National Grid during an IRM completed in 2014.

In summary, minor levels (less than 28 mg/kg) of site-related coal tar residual PAHs appear to be present in a few shallow sediment deposits adjacent to the site; however, with the exception of one sample collected near the Pritchard Property, site-related PAHs do not appear to be present in sediments downstream from the site.

5.6 Risk Assessment

A risk assessment was conducted to assess potential risks posed to humans and the environment by constituents detected in soil, groundwater, and sediment on and near the site. The assessment found that there is potential for human and wildlife exposure to surface soils and tar observed on the ground surface and riverbank of the site and the riverbank of the Pritchard Property. Exposure to impacts in subsurface soil and groundwater is limited to construction and/or utility workers engaged in potential intrusive activities. However, these potential exposures would likely be mitigated through implementation of a HASP requiring the use of PPE that would mitigate potential exposures to subsurface impacts. Exposure of wildlife to impacts in subsurface soil and groundwater is not expected because the depth to the impacts is below the foraging and nesting depth. Exposure of humans and wildlife to sediment in the Salmon River is not expected to be a significant exposure pathway due to the general lack of fine-grained sediments within the riverbed and because PAHs are generally not bioaccumulative.

The evaluation also determined that the site itself does not have value to wildlife because of its location within the Village of Malone and other physical factors (e.g., habitat fragmentation, steep topography) and because access to the site is restricted by a fenced perimeter.

5.7 Conclusion

With the findings presented in this RI Report, National Grid has adequately characterized the nature and extent of site-related impacts to the environment and evaluated risks posed to human health and the environment by those impacts, thereby fulfilling the applicable requirements of the VCO. Based on the findings of the RI, no imminent threat to human health or the environment has been identified. Following approval of this RI Report by the NYSDEC, National Grid will prepare an Alternatives Analysis Report to identify remedial action objectives and evaluate appropriate remedial measures for the site.

6 REFERENCES

Agency for Toxic Substances and Disease Registry (ATSDR). 2010. Toxicological Profile for Ethylbenzene. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service. November.

Arcadis. 2015. Draft IRM Construction Completion Report, submitted to the NYSDEC on December 7, 2015.

Arcadis. 2013. Interim Remedial Measure Work Plan, Malone (Amsden Street) Former MGP Site, Site No. #V00469, Tax Parcel 98.81-1-4, City of Malone, Franklin County. November 2013.

ATSDR. 2007a. Toxicological Profile for Benzene. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service. August.

ATSDR. 2007b. Toxicological Profile for Xylenes. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service. August.

ATSDR. 2006. Toxicological Profile for Cyanide. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service. July.

Driscoll, F.G. 1986. Groundwater and Wells. Johnson Filtration Systems, Inc., St. Paul, Minnesota, 1089 p.

Edinger, G.J., D.J. Evans, S. Gebauer, T.G. Howard, D.M. Hunt, and A.M. Olivero (editors). 2002. Ecological Communities of New York State. Second Edition. A revised and expanded edition of Carol Reschke's Ecological Communities of New York State. (Draft for review). New York Natural Heritage Program, New York State Department of Environmental Conservation, Albany, NY. January 2002.

Hazardous Substances Data Bank (HSDB). 2013a. 1,2,4-Trimethylbenzene. A database of the National Library of Medicine's TOXNET system. Available at http://toxnet.nlm.nih.gov. Accessed on January 18, 2013.

HSDB. 2013b.Cumene (Isopropylbenzene). A database of the National Library of Medicine's TOXNET system. Available at http://toxnet.nlm.nih.gov. Accessed on January 18, 2013.

HSDB. 2013c. N-propylbenzene. A database of the National Library of Medicine's TOXNET system. Available at http://toxnet.nlm.nih.gov. Accessed on January 18, 2013.

Henderson, L.E., H.G. Broders. 2008. Movements and Resource Selection of the Northern Long-eared Myotis (Myotis septentrionalis) in a Forest-Agriculture Landscape. Journal of Mammology, 89(2):952-963.

National Grid. 2016. PAH Forensic Evaluation of Tar Samples Collected on Riverbank of Tax Parcel 98.81-1-3.200. Letter to Scott Deyette, NYSDEC, from Julia Ispentchian, National Grid. Dated January 7, 2016.

National Grid. 2013. IRM Pre-Design Investigation for Tax Parcel 98.81-1-4 (Former Carter Property, property now owned by Travis Pritchard). Letter to Scott Deyette, NYSDEC, from Steven Stucker, National Grid. Dated August 30, 2013.

National Grid. 2012. November 2011 Groundwater Sampling Results. Letter to Scott Deyette, NYSDEC, from Steven Stucker, National Grid. Dated June 25, 2012.

National Grid. 2011a. Remedial Investigation Data Summary. Letter to Scott Deyette, NYSDEC, from Steven Stucker, National Grid. Dated March 2, 2011.

National Grid. 2011b. Results for Off-Site Investigation on Carter Property. Letter to Scott Deyette, NYSDEC, from Steven Stucker, National Grid. Dated August 30, 2011.

National Grid. 2011c. Salmon River Sediment Investigation – Final Scope of Work. Letter to Scott Deyette, NYSDEC, from Steven Stucker, National Grid. Dated November 4, 2011.

National Grid. 2012. Quarterly NAPL Monitoring Program. Letter to Scott Deyette, NYSDEC, from Steven Stucker, National Grid. Dated October 22, 2012.

National Grid. 2002. Generic Site Characterization/IRM Work Plan for Site Investigations at Non-Owned Former MGP Sites. November 2002.

New York Natural Heritage Program (NYNHP). 2015. Northern Long-eared Bat Species Profile. October 30, 2015.

NYNHP. 2011. NYNHP Conservation Guide – Bald Eagle (Haliaeetus leucocephalus). October 6, 2011.

New York State Department of Environmental Conservation (NYSDEC). 2016a. Spring 2016 Trout Stocking for Franklin County. Available at http://www.dec.ny.gov/outdoor/23323.html. Accessed 03/11/16.

NYSDEC. 2016b. Letter to Gretchen Miles, ARCADIS, from Nicholas Conrad, Information Resources Coordinator. Remedial investigation of National Grid former MGP Site, Amsden Street, Town/City: Malone County: Franklin. Dated April 5, 2016.

NYSDEC. 2014. Division of Fish, Wildlife and Marine Resources Bureau of Habitat. Screening and Assessment of Contaminated Sediment. June 24, 2014.

NYSDEC 2012a. Spring 2012 Trout Stocking for Franklin County. Available at http://www.dec.ny.gov/outdoor/23323.html. Accessed 11/09/2012.

NYSDEC. 2012b. Letter to Gretchen Miles, ARCADIS, from Jean Pietrusiak, Information Services. Threatened/endangered species information response. Dated October 30, 2012.

NYSDEC. 2010. Final DER-10 Technical Guidance for Site Investigation and Remediation. May 3, 2010.

NYSDEC. 2006. 6 NYCRR Subpart 375-6, Remedial Program Soil Cleanup Objectives. December 14, 2006.

NYSDEC. 1999. Division of Fish, Wildlife and Marine Resources. Technical Guidance for Screening Contaminated Sediments. January 1999.

NYSDEC. 1998. Division of Water Technical and Operational Guidance Series (1.1.1): Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998.

NYSDEC. 1994. Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites. October 1994.

New York State Department of Transportation (NYSDOT). 2013. Geotechnical Design Manual, Ch 3. Geology of New York State. June 17, 2013.

Robbins, 2009. Determining Hydraulic Conductivity Using Pumping Data from Low-Flow Sampling, Ground Water, v. 47, no. 2, March–April 2009, p 271–276.

Stout, S. A., Uhler, A.D., and Emsbo-Mattingly, S.D. 2004. Comparative evaluation of background anthropogenic hydrocarbons in surficial sediments from nine urban waterways. Environ. Sci. Technol. 38:2987-2994.

TRC. 2009. Sewer Access Road Interim Remedial Measures Construction Completion Report, Former Malone (Amsden Street) Manufactured Gas Plant Site, Malone, New York. April 2009.

TRC. 2005a. Site Characterization Investigation Summary, Malone Former MGP Site. February 2004.

TRC. 2005b. Interim Remedial Measures Construction Completion Report, Former Malone (Amsden Street) Manufactured Gas Plant Site, Malone, New York. December 2005.

U.S. Fish and Wildlife Service (USFWS) 2015a. Final Environmental Assessment Final 4(d) Rule for the Northern Long-eared Bat USFWS Midwest Regional Office December 2015.

USFWS 2015b. Northern Long-Eared Bat Myotis septentrionalis Fact Sheet. April 2015.

USFWS. 2012. Letter to Gretchen Miles, ARCADIS, from David A. Stilwell, Field Supervisor. Threatened/endangered species information response. Dated November 13, 2012.

Walton, W.C. 1962. Selected analytical Methods for Well and Aquifer Evaluation. Illinois State Water Survey Bulletin, No. 49; 81 pp.

TABLES

Table 1
Sample Summary

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Tab	Location	Date Collected	Depth Start	Depth End	VOCs	SVOCs	Cyanide	Alkylated PAHs	GRO	TOC	TPH
Groundwater	MW-1R	9/9/2010	44.1	64.1	X	X	X				
	MW-1R	11/16/2011	44.1	64.1	X	X	X				
	MW-2	9/9/2010	3.5	6.3	X	X	X				
	MW-2	11/15/2011	3.5	6.3	X	X	X				
	MW-3	9/8/2010	7.0	12.0	X	X	X				
	MW-3	11/15/2011	7.0	12.0	X	X	X				
	MW-4	10/14/2010	3.5	8.5	X	X	X				
	MW-4	11/15/2011	3.5	8.5	X	X	X				
	MW-5R	10/14/2010	30.9	50.4	X	X	X				
	MW-6	10/14/2010	20.7	30.0	X	X	X				
	MW-6	11/16/2011	20.7	30.0	X	X	X				
	MW-7	10/14/2010	8.5	13.3	X	X	X				
	MW-7	11/15/2011	8.5	13.3	X	X	X				
	MW-8R	10/14/2010	20.4	40.4	X	X	X				
	MW-8R	11/15/2011	20.4	40.4	X	X	X				
	MW-9R	10/14/2010	20.0	39.5	X	X	X				
	MW-9R	11/14/2011	20.0	39.5	X	X	X				
	MW-10	9/9/2010	3.3	8.1	X	X	X				
	MW-10	11/15/2011	3.3	8.1	X	X	X				
	SEEP-1	10/14/2010	NA	NA	X	X	X				
LNAPL	MW-5R	11/16/2011	30.9	50.4					X		X
Sediment	NG-SR-SD-01	11/8/2011	0	3				X		X	
	NG-SR-SD-02	11/8/2011	0	3				X		X	
	NG-SR-SD-03	11/8/2011	0	7				X		X	
	NG-SR-SD-04	11/8/2011	0	4				X		X	
	NG-SR-SD-05	11/8/2011	0	4				X		X	
	NG-SR-SD-06	11/8/2011	0	7				X		X	
	NG-SR-SD-07	11/8/2011	0	6				X		X	
	NG-SR-SD-07	11/8/2011	6	10				X		X	
	NG-SR-SD-08	11/8/2011	0	6				X		X	
	NG-SR-SD-08	11/8/2011	6	11				X		X	
	NG-SR-SD-09	11/8/2011	0	6				X		X	
	NG-SR-SD-09	11/8/2011	0	6				X		X	
	NG-SR-SD-09	11/8/2011	6	12				X		X	
	NG-SR-SD-09	11/8/2011	12	14				X		X	
	NG-SR-SD-10	11/8/2011	0	6				X		X	
	NG-SR-SD-11	11/8/2011	0	7				X		X	
	NG-SR-SD-12	11/9/2011	6	12				X		X	
	NG-SR-SD-12	11/9/2011	0	6				X		X	
	NG-SR-SD-12	11/9/2011	6	12				X		X	
	NG-SR-SD-12	11/9/2011	12	20				X		X	
	NG-SR-SD-13	11/9/2011	0	7				X		X	
	NG-SR-SD-14	11/9/2011	12	24				X		X	
	NG-SR-SD-14	11/9/2011	0	6				X		X	
	NG-SR-SD-14	11/9/2011	6	12				X		X	
	NG-SR-SD-14	11/9/2011	12	24				X		X	
	NG-SR-SD-14	11/9/2011	24	36				X		X	
	NG-SR-SD-15	11/9/2011	0	6				X		X	
	NG-SR-SD-16	11/9/2011	0	6				X		X	
	NG-SR-SD-16	11/9/2011	6	12				X		X	
	NG-SR-SD-16	11/9/2011	12	24				X		X	
	NG-SR-SD-16	11/9/2011	24	36				X		X	
	NG-SR-SD-16	11/9/2011	36	48				X		X	
	NG-SR-SD-17	11/9/2011	0	7				X		X	
	NG-SR-SD-18	11/9/2011	0	5				X		X	
	NG-SR-SD-19	11/9/2011	0	5				X		X	
	NG-SR-SD-20	11/9/2011	0	4				X		X	
	NG-SR-SD-21	11/9/2011	0	6				X		X	
	NG-SR-SD-22	11/10/2011	0	4				X		X	
	NG-SR-SD-23	11/10/2011	0	3				X		X	
	NG-SR-SD-24	11/10/2011	0	3	X			X		X	
	NG-SR-SD-25	11/10/2011	0	6	X			X		X	
Soil	SB-100	8/18/2010	20.4	22.4	X	X	X				
	SB-101	7/21/2010	16.3	18.3	X	X	X				
	SB-102A	8/18/2010	10	12	X	X	X				
	SB-102A	8/18/2010	26	28	X	X	X				
	SB-103	7/30/2010	21	23	X	X	X				

See Notes on Page 2.

Table 1
Sample Summary

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Tab	Location	Date Collected	Depth Start	Depth End	VOCs	SVOCs	Cyanide	Alkylated PAHs	GRO	TOC	TPH
Soil (Cont.)	SB-104	7/21/2010	8	10	X	X	X				
	SB-104	7/21/2010	22	23.5	X	X	X				
	SB-105/MW-1R	8/10/2010	18	18.9	X	X	X				
	SB-105/MW-1R	8/10/2010	28	28.5	X	X	X				
	SB-106	8/20/2010	20	21.5	X	X	X				
	SB-107A	8/19/2010	20	21	X	X	X				
	SB-108	8/23/2010	20.7	22.7	X	X	X				
	SB-109	7/20/2010	22	24	X	X	X				
	SB-109	7/20/2010	26	26.5	X	X	X				
	SB-110	7/26/2010	2	4	X	X	X				
	SB-110	7/26/2010	12	14	X	X	X				
	SB-111	7/19/2010	8	10	X	X	X				
	SB-112	7/20/2010	16.8	17.6	X	X	X				
	SB-112	7/20/2010	18	18.1	X	X	X				
	SB-113	7/22/2010	6	7.6	X	X	X				
	SB-115	8/25/2010	26	28	X	X	X				
	SB-116	8/3/2010	20	22	X	X	X				
	SB-117	8/24/2010	21	23	X	X	X				
	SB-117	8/24/2010	21	23	X	X	X				
	SB-118	7/29/2010	12	13.5	X	X	X				
	SB-119	7/22/2010	8	9.4	X	X	X				
	SB-120	8/3/2010	8	10	X	X	X				
	SB-121	7/22/2010	8	9.4	X	X	X				
	SB-122	8/4/2010	6	7.7	X	X	X				
	SB-123	7/22/2010	4	6	X	X	X				
	SB-124	7/29/2010	4	6	X	X	X				
	SB-125	7/29/2010	4.5	6.5	X	X	X				
	SB-126	7/23/2010	23	25	X	X	X				
	SB-126	7/23/2010	29.4	30.6	X	X	X				
	SB-127	8/24/2010	21	23	X	X	X				
	SB-127	8/24/2010	10	12	X	X	X				
	SB-127	8/24/2010	21	23	X	X	X				
	SB-128	8/24/2010	18.4	20.4	X	X	X				
	SB-129	8/18/2010	10	12	X	X	X				
	SB-129	8/18/2010	18.3	20.3	X	X	X				
	SB-130	8/17/2010	28	29.4	X	X	X				
	SB-131	8/17/2010	30.2	32.2	X	X	X				
	SB-132	8/19/2010	16	18	X	X	X				
	SB-133	7/22/2010	6.3	7.3	X	X	X				
	SB-133	7/22/2010	24.4	26.4	X	X	X				
	SB-134	8/10/2010	22	23.5	X	X	X				
	SB-135	8/12/2010	30	31.5	X	X	X				
	SS-100	9/2/2010	0	0.2	X	X	X				
	SS-101	9/2/2010	0	0.2	X	X	X				
	SS-102	9/2/2010	0	0.2	X	X	X				
	SS-103	9/2/2010	0	0.2	X	X	X				
	SS-104	9/2/2010	0	0.2	X	X	X				
	SS-105	9/2/2010	0	0.2	X	X	X				
	SS-106	9/2/2010	0	0.2	X	X	X				
	SS-107	9/2/2010	0	0.2	X	X	X				
	SS-A	8/31/2010	0	1	X	X	X				
	SS-B	8/31/2010	0	1	X	X	X				
	SS-C	8/31/2010	0	1	X	X	X				
	SS-D	8/31/2010	0	1	X	X	X				
	SS-E	9/1/2010	0	1	X	X	X				
	SS-F	9/1/2010	0	1	X	X	X				
	SS-G	9/1/2010	0	1	X	X	X				

Notes:
PCBs = Polychlorinated biphenyls.
VOCs = Volatile organic compounds.
SVOCs = Semi-volatile organic compounds.
PAH = Polycyclic aromatic hydrocarbon
GRO = Gasoline range organics.
TOC = Total organic carbon.
TPH = Total petroleum hydrocarbons.
Depths for soil, groundwater, and NAPL samples given in feet below grade; depths for sediment samples given in inches.

Table 2
Subsurface Soil Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID: / Sample Depth(Feet): / Date Collected:	Restricted Use SCOs Residential	Restricted Use SCOs Commercial	Units	SB-110 2 - 4 07/26/10	SB-123 4 - 6 07/22/10	SB-124 4 - 6 07/29/10	SB-125 4.5 - 6.5 07/29/10	SB-113 6 - 7.6 07/22/10	SB-122 6 - 7.7 08/04/10	SB-133 6.3 - 7.3 07/22/10	SB-119 8 - 9.4 07/22/10	SB-121 8 - 9.4 07/22/10	SB-104 8 - 10 07/21/10	SB-111 8 - 10 07/19/10	SB-120 8 - 10 08/03/10
Detected Volatile Organics															
2-Butanone	100	500	mg/kg	0.0055 U	0.0070 U	2.2	0.0059 U	0.0056 U	0.0062 U	0.0059 U	0.0056 U	0.0057 U	0.0064 U	0.0054 U	1.2 U
4-Methyl-2-pentanone	- -	- -	mg/kg	0.0055 U	0.0070 U	0.13 UJ	0.0059 U	0.0056 U	0.0062 U	0.0059 U	0.0056 U	0.0057 U	0.0064 U	0.0054 U	1.2 UJ
Acetone	100	500	mg/kg	0.027 U	0.093	3.4 U	0.087	0.028 U	0.031 U	0.048	0.028 U	0.029 U	0.032 U	0.032	29 U
Benzene	2.9	44	mg/kg	0.0011 U	0.0014 U	0.067 U	0.0023	0.0011 U	0.0012 U	0.0012 U	0.0011 U	0.0065	0.0013 U	0.0011 U	**7.3**
Ethylbenzene	30	390	mg/kg	0.0011 U	0.0014 U	0.28	0.013	0.0011 U	0.0012 U	0.0012 U	0.0011 U	0.0042	0.0013 U	0.0011 U	1.2 U
Isopropylbenzene	- -	- -	mg/kg	0.0011 U	0.0014 U	0.29	0.0069	0.0011 U	0.0012 U	0.0012 U	0.0011 U	0.0022	0.0013 U	0.0011 U	1.2 U
m&p-Xylene	- -	- -	mg/kg	0.0011 U	0.0014 U	0.16	0.0034	0.0011 U	0.0012 U	0.0012 U	0.0011 U	0.018	0.0013 U	0.0011 U	8.6
Methylcyclohexane	- -	- -	mg/kg	0.0055 U	0.0070 U	0.13 U	0.018	0.0056 U	0.0062 U	0.0059 U	0.0056 U	0.0057 U	0.0064 U	0.0054 U	1.2 U
Methylene Chloride	51	500	mg/kg	0.0055 U	0.0070 U	0.13 U	0.011	0.0056 U	0.0062 U	0.010	0.0056 U	0.0057 U	0.0064 U	0.0054 U	1.2 U
o-Xylene	- -	- -	mg/kg	0.0011 U	0.0014 U	0.13 U	0.0012 U	0.0011 U	0.0012 U	0.0012 U	0.0011 U	0.010	0.0013 U	0.0011 U	3.3
Styrene	- -	- -	mg/kg	0.0055 U	0.0070 U	0.13 U	0.0059 U	0.0056 U	0.0062 U	0.0059 U	0.0056 U	0.0057 U	0.0064 U	0.0054 U	1.5
Toluene	100	500	mg/kg	0.0011 U	0.0014 U	0.13 U	0.0012 U	0.0011 U	0.0012 U	0.0012 U	0.0011 U	0.0031	0.0013 U	0.0011 U	7.1
Xylenes (total)	100	500	mg/kg	0.0011 U	0.0014 U	0.16	0.0034	0.0011 U	0.0012 U	0.0012 U	0.0011 U	0.028	0.0013 U	0.0011 U	12
Total BTEX	- -	- -	mg/kg	ND	ND	0.60	0.022	ND	ND	ND	ND	0.060	ND	ND	35
Detected Semivolatile Organics															
1,1'-Biphenyl	- -	- -	mg/kg	0.073 U	0.094 U	0.090 U	0.078 U	0.078 U	0.090 U	0.084 U	0.076 U	0.33	0.085 U	0.077 U	190 J
2,4-Dimethylphenol	- -	- -	mg/kg	0.073 U	0.094 U	0.090 U	0.078 U	0.078 U	0.090 U	0.084 U	0.076 U	0.23 U	0.085 U	0.077 U	65 J
2-Methylphenol	100	500	mg/kg	0.073 U	0.094 U	0.090 U	0.078 U	0.078 U	0.090 U	0.084 U	0.076 U	0.23 U	0.085 U	0.077 U	40 J
3&4-Methylphenol	- -	- -	mg/kg	0.073 U	0.094 U	0.090 U	0.078 U	0.078 U	0.090 U	0.084 U	0.076 U	0.23 U	0.085 U	0.077 U	89 J
bis(2-Ethylhexyl)phthalate	- -	- -	mg/kg	0.14	0.31	0.44	1.1	0.54	0.52	0.12	0.11	1.0	0.097	2.0	3.9 UJ
Carbazole	- -	- -	mg/kg	0.10	0.094 U	0.090 U	0.084	0.078 U	0.094	0.084 U	0.076 U	0.27	0.085 U	0.077 U	450 DJ
Dibenzofuran	14	350	mg/kg	0.073 U	0.094 U	0.090 U	0.078 U	0.078 U	0.19	0.084 U	0.076 U	0.46	0.085 U	0.077 U	**760 DJ**
Di-n-Butylphthalate	- -	- -	mg/kg	0.073 U	0.094 U	1.4	0.078 U	0.078 U	0.090 U	0.084 U	0.076 U	0.23 U	0.085 U	0.077 U	3.9 UJ
2-Methylnaphthalene	- -	- -	mg/kg	0.073 U	0.094 U	0.34	0.078 U	0.078 U	0.090 U	0.084 U	0.076 U	2.6	0.085 U	0.077 U	680 DJ
Acenaphthene	100	500	mg/kg	0.073 U	0.094 U	0.090 U	0.10	0.078 U	0.090 U	0.084 U	0.076 U	0.26	0.085 U	0.077 U	**150 J**
Acenaphthylene	100	500	mg/kg	0.073 U	0.24	0.090 U	0.078 U	0.078 U	0.30	0.084 U	0.076 U	2.7	0.085 U	0.077 U	**730 DJ**
Anthracene	100	500	mg/kg	0.22	0.28	0.12	0.25	0.078 U	0.79	0.084 U	0.19	1.6	0.085 U	0.077 U	**840 DJ**
Benzo(a)anthracene	1	5.6	mg/kg	**1.1**	**1.8**	0.19	0.52	0.078 U	**2.2**	0.084 U	0.24	**2.1**	0.085 U	0.077 U	**850 DJ**
Benzo(a)pyrene	1	1	mg/kg	**1.5**	**2.4**	0.18	0.49	0.078 U	**2.4**	0.084 U	0.25	**4.1**	0.085 U	0.077 U	**810 DJ**
Benzo(b)fluoranthene	1	5.6	mg/kg	**1.6**	**2.8**	0.26	0.67	0.078 U	**2.8**	0.084 U	0.27	**4.5**	0.085 U	0.077 U	**890 DJ**
Benzo(g,h,i)perylene	100	500	mg/kg	0.88	2.6	0.15	0.31	0.078 U	2.0	0.084 U	0.22	4.4	0.085 U	0.077 U	**570 DJ**
Benzo(k)fluoranthene	1	56	mg/kg	0.71	1.0	0.090 U	0.22	0.078 U	0.92	0.084 U	0.10	**1.3**	0.085 U	0.077 U	**190 J**
Chrysene	1	56	mg/kg	0.93	**1.5**	0.20	0.50	0.078 U	**1.9**	0.084 U	0.22	**2.1**	0.085 U	0.077 U	**690 DJ**
Dibenzo(a,h)anthracene	0.33	0.56	mg/kg	0.28	**0.44**	0.090 U	0.096	0.078 U	**0.37**	0.084 U	0.076 U	**0.98**	0.085 U	0.077 U	**110 J**
Fluoranthene	100	500	mg/kg	1.2	3.5	0.66	1.1	0.078 U	3.9	0.084 U	0.73	4.7	0.091	0.077 U	**2,800 DJ**
Fluorene	100	500	mg/kg	0.073 U	0.094 U	0.12	0.14	0.078 U	0.25	0.084 U	0.076 U	1.0	0.085 U	0.077 U	**800 DJ**
Indeno(1,2,3-cd)pyrene	0.5	5.6	mg/kg	**0.82**	**2.0**	0.12	0.26	0.078 U	**1.6**	0.084 U	0.17	**3.1**	0.085 U	0.077 U	**480 DJ**
Naphthalene	100	500	mg/kg	0.073 U	0.24	0.13	0.078 U	0.078 U	0.13	0.084 U	0.076 U	0.78	0.085 U	0.077 U	**4,900 DJ**
Phenanthrene	100	500	mg/kg	0.63	0.61	0.67	0.86	0.078 U	1.8	0.084 U	0.74	4.4	0.13	0.077 U	**4,000 DJ**
Pyrene	100	500	mg/kg	1.0	2.9	0.51	0.89	0.078 U	4.3	0.084 U	0.64	4.8	0.091	0.077 U	**2,400 DJ**
Total PAHs	- -	- -	mg/kg	11	22	3.3	6.4	ND	26	ND	3.8	43	0.31	ND	21,000 J
Detected Cyanide															
Cyanide	27	27	mg/kg	**60.0**	0.350 U	3.90	0.290 U	1.00	4.50	11.0	2.50	18.0	0.840	0.290 U	5.90
Cyanide (Free)	- -	- -	mg/kg	0.452 J	0.0836 U	0.0772 UJ	0.0743 UJ	NA	0.0239 J	0.0650 U	0.0216 J	0.0693 U	0.0795 U	0.0659 U	0.0843

See Notes on Page 5.

Table 2
Subsurface Soil Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID: / Sample Depth(Feet): / Date Collected:	Restricted Use SCOs Residential	Restricted Use SCOs Commercial	Units	SB-102A 10 - 12 08/18/10	SB-127 10 - 12 08/24/10	SB-129 10 - 12 08/18/10	SB-118 12 - 13.5 07/29/10	SB-110 12 - 14 07/26/10	SB-132 16 - 18 08/19/10	SB-101 16.3 - 18.3 07/21/10	SB-112 16.8 - 17.6 07/20/10	SB-112 18 - 18.1 07/20/10	SB-105/MW-1R 18 - 18.9 08/10/10	SB-129 18.3 - 20.3 08/18/10	SB-128 18.4 - 20.4 08/24/10
Detected Volatile Organics															
2-Butanone	100	500	mg/kg	0.0057 U	0.0059 U	0.0057 U	0.0062 U	0.0059 U	0.0055 U	0.0062 U	0.028 U	0.0056 U	0.0058 U	0.0057 U	0.0058 U
4-Methyl-2-pentanone	- -	- -	mg/kg	0.0057 UJ	0.0059 U	0.0057 U	0.0062 U	0.0059 U	0.0055 U	0.0062 U	0.028 U	0.0056 U	0.0058 U	0.0057 U	0.0058 U
Acetone	100	500	mg/kg	0.029 U	0.030 U	0.029	0.031 U	0.029 U	0.027 U	0.055	0.14 U	0.077	0.14	0.028 U	0.029 U
Benzene	2.9	44	mg/kg	0.0011 U	0.0012 U	0.0011 U	0.0012 U	0.0012 U	0.0011 U	0.0012 U	0.0057 U	0.0011 U	0.0012 U	0.0011 U	0.0012 U
Ethylbenzene	30	390	mg/kg	0.00057 U	0.0012 U	0.0015	0.0012 U	0.0012 U	0.00055 U	0.0012 U	0.0057 U	0.014	0.0012 U	0.0011 U	0.00058 U
Isopropylbenzene	- -	- -	mg/kg	0.0011 U	0.0012 U	0.0011 U	0.0012 U	0.0012 U	0.0011 U	0.0012 U	0.0057 U	0.012	0.0012 U	0.0011 U	0.0012 U
m&p-Xylene	- -	- -	mg/kg	0.0011 U	0.0012 U	0.0033	0.0012 U	0.0012 U	0.0011 U	0.0012 U	0.0057 U	0.047	0.0012 U	0.0012	0.0012 U
Methylcyclohexane	- -	- -	mg/kg	0.0057 U	0.0059 U	0.0057 U	0.0062 U	0.0059 U	0.0055 U	0.0062 U	0.028 U	0.071	0.0058 U	0.0057 U	0.0058 U
Methylene Chloride	51	500	mg/kg	0.0057 U	0.0061	0.0057 U	0.0062 U	0.0059 U	0.0055 U	0.0062 U	0.028 U	0.0056 U	0.0058 U	0.0057 U	0.0058 U
o-Xylene	- -	- -	mg/kg	0.0011 U	0.0012 U	0.0022	0.0012 U	0.0012 U	0.0011 U	0.0012 U	0.0057 U	0.0025	0.0012 U	0.0011 U	0.0012 U
Styrene	- -	- -	mg/kg	0.0057 U	0.0059 U	0.0057 U	0.0062 U	0.0059 U	0.0055 U	0.0062 U	0.028 U	0.0056 U	0.0058 U	0.0057 U	0.0058 U
Toluene	100	500	mg/kg	0.0011 U	0.0012 U	0.0011 U	0.0012 U	0.0012 U	0.0011 U	0.0012 U	0.0057 U	0.0011 U	0.0012 U	0.0011 U	0.0012 U
Xylenes (total)	100	500	mg/kg	0.0011 U	0.0012 U	0.0055	0.0012 U	0.0012 U	0.0011 U	0.0012 U	0.0057 U	0.050	0.0012 U	0.0012	0.0012 U
Total BTEX	- -	- -	mg/kg	ND	ND	0.010	ND	ND	ND	ND	ND	0.11	ND	0.0024	ND
Detected Semivolatile Organics															
1,1'-Biphenyl	- -	- -	mg/kg	0.078 U	0.080 U	0.076 U	0.082 U	0.082 U	0.073 U	0.087 U	0.076 U	0.076 U	0.078 U	0.075 U	0.079 U
2,4-Dimethylphenol	- -	- -	mg/kg	0.078 U	0.080 U	0.076 U	0.082 U	0.082 U	0.073 U	0.087 U	0.076 U	0.076 U	0.078 U	0.075 U	0.079 U
2-Methylphenol	100	500	mg/kg	0.078 U	0.080 U	0.076 U	0.082 U	0.082 U	0.073 U	0.087 U	0.076 U	0.076 U	0.078 U	0.075 U	0.079 U
3&4-Methylphenol	- -	- -	mg/kg	0.078 U	0.080 U	0.076 U	0.082 U	0.082 U	0.073 U	0.087 U	0.076 U	0.076 U	0.078 U	0.075 U	0.079 U
bis(2-Ethylhexyl)phthalate	- -	- -	mg/kg	0.95	0.11	0.14	0.082 U	0.082 U	0.87	0.12	0.076 U	0.57	2.1	0.82 J	0.15
Carbazole	- -	- -	mg/kg	0.081	0.080 U	0.076 U	0.082 U	0.082 U	0.073 U	0.18	0.076 U	0.13	0.078 U	0.075 U	0.079 U
Dibenzofuran	14	350	mg/kg	0.14	0.087	0.076 U	0.082 U	0.082 U	0.073 U	0.19	0.076 U	0.22	0.078 U	0.075 U	0.079 U
Di-n-Butylphthalate	- -	- -	mg/kg	0.078 U	0.080 U	0.076 U	0.082 U	0.082 U	0.073 U	0.087 U	0.076 U	0.076 U	0.078 U	0.075 U	0.079 U
2-Methylnaphthalene	- -	- -	mg/kg	0.078 U	0.16	0.076 U	0.082 U	0.082 U	0.073 U	0.087 U	0.076 U	0.13	0.078 U	0.075 U	0.079 U
Acenaphthene	100	500	mg/kg	0.078 U	0.080 U	0.076	0.082 U	0.082 U	0.073 U	0.087 U	0.076 U	0.076 U	0.078 U	0.075 U	0.079 U
Acenaphthylene	100	500	mg/kg	0.13	0.088	0.10	0.082 U	0.082 U	0.073 U	0.15	0.076 U	0.27	0.078 U	0.075 U	0.079 U
Anthracene	100	500	mg/kg	0.31	0.10	0.27	0.082 U	0.082 U	0.073 U	0.46	0.076 U	0.41	0.078 U	0.075 U	0.079 U
Benzo(a)anthracene	1	5.6	mg/kg	0.64	0.32	0.59	0.082 U	0.082 U	0.11	0.56	0.076 U	0.79	0.078 U	0.11 J	0.23
Benzo(a)pyrene	1	1	mg/kg	0.45	0.33	0.56	0.082 U	0.082 U	0.11	0.49	0.076 U	0.81	0.078 U	0.098 J	0.26
Benzo(b)fluoranthene	1	5.6	mg/kg	0.63	0.45	0.51	0.082 U	0.082 U	0.10	0.61	0.076 U	1.0	0.078 U	0.12 J	0.33
Benzo(g,h,i)perylene	100	500	mg/kg	0.27	0.34	0.34	0.082 U	0.082 U	0.087	0.32	0.076 U	0.62	0.078 U	0.075 UJ	0.20
Benzo(k)fluoranthene	1	56	mg/kg	0.16	0.16	0.21	0.082 U	0.082 U	0.073 U	0.19	0.076 U	0.33	0.078 U	0.075 UJ	0.12
Chrysene	1	56	mg/kg	0.52	0.37	0.46	0.082 U	0.082 U	0.095	0.49	0.076 U	0.69	0.078 U	0.088 J	0.23
Dibenzo(a,h)anthracene	0.33	0.56	mg/kg	0.10	0.080 U	0.082	0.082 U	0.082 U	0.073 U	0.087 U	0.076 U	0.12	0.078 U	0.075 UJ	0.079 U
Fluoranthene	100	500	mg/kg	1.1	0.66	1.0	0.082 U	0.082 U	0.27	1.6	0.076 U	2.2	0.078 U	0.16	0.43
Fluorene	100	500	mg/kg	0.18	0.080 U	0.16	0.082 U	0.082 U	0.073 U	0.26	0.076 U	0.30	0.078 U	0.075 U	0.079 U
Indeno(1,2,3-cd)pyrene	0.5	5.6	mg/kg	0.25	0.27	0.24	0.082 U	0.082 U	0.073 U	0.29	0.076 U	**0.52**	0.078 U	0.075 UJ	0.17
Naphthalene	100	500	mg/kg	0.078 U	0.19	0.076 U	0.082 U	0.082 U	0.073 U	0.10	0.076 U	0.32	0.078 U	0.075 U	0.079 U
Phenanthrene	100	500	mg/kg	0.90	0.60	0.59	0.082 U	0.082 U	0.30	1.8	0.076 U	1.9	0.078 U	0.075 U	0.18
Pyrene	100	500	mg/kg	1.1	0.68	1.8	0.082 U	0.082 U	0.31	1.2	0.076 U	1.8	0.078 U	0.20 J	0.39
Total PAHs	- -	- -	mg/kg	6.7	4.6	7.0	ND	ND	1.4	8.5	ND	12	ND	0.78 J	2.5
Detected Cyanide															
Cyanide	27	27	mg/kg	0.740	13.0	1.10	6.90	0.990	7.40	0.320 U	1.40	2.50	0.290 U	0.280 U	0.300 U
Cyanide (Free)	- -	- -	mg/kg	NA	0.0530 J	0.0675 U	0.0763 U	NA	0.0198 J	0.0767 U	NA	NA	0.0719 U	NA	0.0700 U

See Notes on Page 5.

Table 2
Subsurface Soil Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID: / Sample Depth(Feet): / Date Collected:	Restricted Use SCOs Residential	Restricted Use SCOs Commercial	Units	SB-107A 20 - 21 08/19/10	SB-106 20 - 21.5 08/20/10	SB-116 20 - 22 08/03/10	SB-100 20.4 - 22.4 08/18/10	SB-108 20.7 - 22.7 08/23/10	SB-103 21 - 23 07/30/10	SB-117 21 - 23 08/24/10	SB-127 21 - 23 08/24/10	SB-104 22 - 23.5 07/21/10	SB-134 22 - 23.5 08/10/10
Detected Volatile Organics													
2-Butanone	100	500	mg/kg	0.0051 U	0.0055 U	0.0054 U	0.0054 U	0.0057 U	0.0058 U	0.0053 U [0.0053 U]	0.0057 U [0.0056 U]	0.0055 U	0.0052 U
4-Methyl-2-pentanone	- -	- -	mg/kg	0.0051 UJ	0.0055 U	0.017	0.0054 U	0.0057 U	0.0058 U	0.0053 U [0.0053 U]	0.0057 U [0.0056 U]	0.0055 U	0.0052 U
Acetone	100	500	mg/kg	0.025 U	0.027 U	0.032	0.027 U	0.037	0.048 J	0.056 [0.026 U]	0.028 U [0.028 U]	0.049	0.029
Benzene	2.9	44	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U [0.0011 U]	0.0011 U [0.0011 U]	0.0011 U	0.0010 U
Ethylbenzene	30	390	mg/kg	0.00051 U	0.00055 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U [0.0011 U]	0.0011 U [0.00056 U]	0.0011 U	0.0010 U
Isopropylbenzene	- -	- -	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U [0.0011 U]	0.0011 U [0.0011 U]	0.0011 U	0.0010 U
m&p-Xylene	- -	- -	mg/kg	0.0010 U	0.0011 U	0.0014	0.0011 U	0.0011 U	0.0012 U	0.0011 U [0.0011 U]	0.0011 U [0.0011 U]	0.0011 U	0.0010 U
Methylcyclohexane	- -	- -	mg/kg	0.0051 U	0.0055 U	0.0054 U	0.0054 U	0.0057 U	0.0058 U	0.0053 U [0.0053 U]	0.0057 U [0.0056 U]	0.0055 U	0.0052 U
Methylene Chloride	51	500	mg/kg	0.0051 U	0.0055 U	0.0054 U	0.0054 U	0.0057 U	0.0058 UJ	0.0053 U [0.0053 U]	0.0057 U [0.0056 U]	0.0055 U	0.0052 U
o-Xylene	- -	- -	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U [0.0011 U]	0.0011 U [0.0011 U]	0.0011 U	0.0010 U
Styrene	- -	- -	mg/kg	0.0051 U	0.0055 U	0.0054 U	0.0054 U	0.0057 U	0.0058 U	0.0053 U [0.0053 U]	0.0057 U [0.0056 U]	0.0055 U	0.0052 U
Toluene	100	500	mg/kg	0.0010 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U [0.0011 U]	0.0011 U [0.0011 U]	0.0011 U	0.0010 U
Xylenes (total)	100	500	mg/kg	0.0010 U	0.0011 U	0.0014	0.0011 U	0.0011 U	0.0012 U	0.0011 U [0.0011 U]	0.0011 U [0.0011 U]	0.0011 U	0.0010 U
Total BTEX	- -	- -	mg/kg	ND	ND	0.0028	ND	ND	ND	ND [ND]	ND [ND]	ND	ND
Detected Semivolatile Organics													
1,1'-Biphenyl	- -	- -	mg/kg	0.074 U	0.074 U	0.078 U	0.075 U	0.075 U	0.078 U	0.072 U [0.072 U]	0.076 U [0.075 U]	0.075 U	0.074 U
2,4-Dimethylphenol	- -	- -	mg/kg	0.074 U	0.074 U	0.078 U	0.075 U	0.075 U	0.078 U	0.072 U [0.072 U]	0.076 U [0.075 U]	0.075 U	0.074 U
2-Methylphenol	100	500	mg/kg	0.074 U	0.074 U	0.078 U	0.075 U	0.075 U	0.078 U	0.072 U [0.072 U]	0.076 U [0.075 U]	0.075 U	0.074 U
3&4-Methylphenol	- -	- -	mg/kg	0.074 U	0.074 U	0.078 U	0.075 U	0.075 U	0.078 U	0.072 U [0.072 U]	0.076 U [0.075 U]	0.075 U	0.074 U
bis(2-Ethylhexyl)phthalate	- -	- -	mg/kg	1.2	1.3	0.81	0.39	0.24	0.56	0.22 [0.27]	0.15 [0.20]	0.20	0.25
Carbazole	- -	- -	mg/kg	0.074 U	0.29	0.078 U	0.075 U	0.075 U	0.078 U	0.17 [0.30]	0.076 U [0.075 U]	0.075 U	0.074 U
Dibenzofuran	14	350	mg/kg	0.074 U	0.20	0.11	0.075 U	0.075 U	0.078 U	0.18 [0.32]	0.076 U [0.075 U]	0.075 U	0.074 U
Di-n-Butylphthalate	- -	- -	mg/kg	0.074 U	0.074 U	0.078 U	0.075 U	0.075 U	0.078 U	0.072 U [0.072 U]	0.076 U [0.075 U]	0.075 U	0.074 U
2-Methylnaphthalene	- -	- -	mg/kg	0.074 U	0.074 U	0.078 U	0.075 U	0.075 U	0.078 U	0.072 U [0.10]	0.076 U [0.075 U]	0.075 U	0.074 U
Acenaphthene	100	500	mg/kg	0.074 U	0.074 U	0.078 U	0.075 U	0.075 U	0.078 U	0.20 [0.36]	0.076 U [0.075 U]	0.075 U	0.074 U
Acenaphthylene	100	500	mg/kg	0.074 U	0.38	0.29	0.075 U	0.075 U	0.078 U	0.14 [0.18]	0.076 U [0.075 U]	0.075 U	0.074 U
Anthracene	100	500	mg/kg	0.074 U	0.69	0.67	0.075 U	0.075 U	0.078 U	0.62 [1.1]	0.076 U [0.075 U]	0.075 U	0.074 U
Benzo(a)anthracene	1	5.6	mg/kg	0.074 U	**1.7**	**1.1**	0.075 U	0.075 U	0.078 U	**1.0 [1.8]**	0.076 U [0.075 U]	0.075 U	0.074 U
Benzo(a)pyrene	1	1	mg/kg	0.074 U	**1.1**	**1.1**	0.075 U	0.075 U	0.078 U	**0.85 [1.5]**	0.076 U [0.075 U]	0.075 U	0.074 U
Benzo(b)fluoranthene	1	5.6	mg/kg	0.074 U	**1.7**	**1.3**	0.075 U	0.075 U	0.078 U	**1.1 [1.8]**	0.076 U [0.075 U]	0.075 U	0.074 U
Benzo(g,h,i)perylene	100	500	mg/kg	0.074 U	0.55	0.78	0.075 U	0.075 U	0.078 U	0.50 [0.84]	0.076 U [0.075 U]	0.075 U	0.074 U
Benzo(k)fluoranthene	1	56	mg/kg	0.074 U	0.59	0.41	0.075 U	0.075 U	0.078 U	0.38 [0.64]	0.076 U [0.075 U]	0.075 U	0.074 U
Chrysene	1	56	mg/kg	0.074 U	**1.3**	1.0	0.075 U	0.075 U	0.078 U	**0.98 [1.6]**	0.076 U [0.075 U]	0.075 U	0.074 U
Dibenzo(a,h)anthracene	0.33	0.56	mg/kg	0.074 U	0.22	0.17	0.075 U	0.075 U	0.078 U	0.12 [0.20]	0.076 U [0.075 U]	0.075 U	0.074 U
Fluoranthene	100	500	mg/kg	0.074 U	3.8	3.3	0.075 U	0.11	0.078 U	2.4 [4.0]	0.076 U [0.075 U]	0.075 U	0.074 U
Fluorene	100	500	mg/kg	0.074 U	0.40	0.20	0.075 U	0.075 U	0.078 U	0.23 [0.42]	0.076 U [0.075 U]	0.075 U	0.074 U
Indeno(1,2,3-cd)pyrene	0.5	5.6	mg/kg	0.074 U	**0.60**	**0.65**	0.075 U	0.075 U	0.078 U	**0.46 [0.78]**	0.076 U [0.075 U]	0.075 U	0.074 U
Naphthalene	100	500	mg/kg	0.074 U	0.074 U	0.078 U	0.075 U	0.075 U	0.078 U	0.085 [0.15]	0.076 U [0.075 U]	0.075 U	0.074 U
Phenanthrene	100	500	mg/kg	0.074 U	3.7	1.8	0.075 U	0.088	0.078 U	2.4 [4.2]	0.076 U [0.075 U]	0.075 U	0.074 U
Pyrene	100	500	mg/kg	0.074 U	2.9	2.6	0.075 U	0.097	0.078 U	2.2 [3.7]	0.076 U [0.075 U]	0.10	0.074 U
Total PAHs	- -	- -	mg/kg	ND	20	15	ND	0.30	ND	14 [23]	ND [ND]	0.10	ND
Detected Cyanide													
Cyanide	27	27	mg/kg	0.280 U	0.280 U	0.290 U	0.280 U	0.280 U	0.290 U	0.270 U [0.270 U]	0.280 U [0.280 U]	0.280 U	0.280 U
Cyanide (Free)	- -	- -	mg/kg	0.0662 U	0.0664 U	0.0655 U	0.0705 U	0.0670 U	0.0679 U	0.0650 U	NA	NA	0.0711 U

See Notes on Page 5.

Table 2
Subsurface Soil Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID: / Sample Depth(Feet): / Date Collected:	Restricted Use SCOs Residential	Restricted Use SCOs Commercial	Units	SB-109 22 - 24 07/20/10	SB-126 23 - 25 07/23/10	SB-133 24.4 - 26.4 07/22/10	SB-109 26 - 26.5 07/20/10	SB-102A 26 - 28 08/18/10	SB-115 26 - 28 08/25/10	SB-105/MW-1R 28 - 28.5 08/10/10	SB-130 28 - 29.4 08/17/10	SB-126 29.4 - 30.6 07/23/10	SB-135 30 - 31.5 08/12/10	SB-131 30.2 - 32.2 08/17/10
Detected Volatile Organics														
2-Butanone	100	500	mg/kg	0.0057 U	0.0061 U	0.0058 U	0.0054 U	0.0055 U	0.022 U	0.0054 U	0.0055 U	0.0054 U	0.0058 U	0.0057 U
4-Methyl-2-pentanone	- -	- -	mg/kg	0.0057 U	0.0061 U	0.0058 U	0.0054 U	0.0055 U	0.022 U	0.020	0.0055 U	0.0054 U	0.0058 U	0.0057 UJ
Acetone	100	500	mg/kg	0.029 U	0.036	0.071	0.027 U	0.027 U	0.11 U	0.035	0.028 U	0.051	0.037	0.028 U
Benzene	2.9	44	mg/kg	0.0011 U	0.0091	0.0012 U	0.0011 U	0.0011 U	0.0044 U	0.0011 U	0.0011 U	0.0040	0.0012 U	0.0011 U
Ethylbenzene	30	390	mg/kg	0.0011 U	0.027	0.0012 U	0.0011 U	0.0011 U	0.44	0.0011 U	0.0011 U	0.065	0.0012 U	0.00057 U
Isopropylbenzene	- -	- -	mg/kg	0.0011 U	0.0048	0.0012 U	0.0011 U	0.0011 U	0.37	0.0011 U	0.0011 U	0.035	0.0012 U	0.0011 U
m&p-Xylene	- -	- -	mg/kg	0.0011 U	0.014	0.0012 U	0.0011 U	0.0011 U	0.58	0.0023	0.0011 U	0.072	0.0012 U	0.0011 U
Methylcyclohexane	- -	- -	mg/kg	0.0057 U	0.0061 U	0.0058 U	0.0054 U	0.0055 U	0.022 U	0.0054 U	0.0055 U	0.0054 U	0.0058 U	0.0057 U
Methylene Chloride	51	500	mg/kg	0.0057 U	0.0061 U	0.0097	0.0054 U	0.0055 U	0.022 U	0.0054 U	0.0055 U	0.0054 U	0.0058 U	0.0057 U
o-Xylene	- -	- -	mg/kg	0.0011 U	0.0015	0.0012 U	0.0011 U	0.0011 U	0.045	0.0011 U	0.0011 U	0.0059	0.0012 U	0.0011 U
Styrene	- -	- -	mg/kg	0.0057 U	0.0061 U	0.0058 U	0.0054 U	0.0055 U	0.022 U	0.0054 U	0.0055 U	0.0054 U	0.0058 U	0.0057 U
Toluene	100	500	mg/kg	0.0011 U	0.0023	0.0012 U	0.0011 U	0.0011 U	0.014	0.0011 U	0.0011 U	0.0027	0.0012 U	0.0011 U
Xylenes (total)	100	500	mg/kg	0.0011 U	0.016	0.0012 U	0.0011 U	0.0011 U	0.63	0.0023	0.0011 U	0.078	0.0012 U	0.0011 U
Total BTEX	- -	- -	mg/kg	ND	0.068	ND	ND	ND	1.7	0.0046	ND	0.22	ND	ND
Detected Semivolatile Organics														
1,1'-Biphenyl	- -	- -	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
2,4-Dimethylphenol	- -	- -	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
2-Methylphenol	100	500	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
3&4-Methylphenol	- -	- -	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
bis(2-Ethylhexyl)phthalate	- -	- -	mg/kg	0.11	0.082 U	0.28	0.095	0.25	0.082	0.75	0.25	0.32	0.15	0.081 U
Carbazole	- -	- -	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Dibenzofuran	14	350	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Di-n-Butylphthalate	- -	- -	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
2-Methylnaphthalene	- -	- -	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.089	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Acenaphthene	100	500	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Acenaphthylene	100	500	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Anthracene	100	500	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Benzo(a)anthracene	1	5.6	mg/kg	0.078 U	0.082 U	0.099	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Benzo(a)pyrene	1	1	mg/kg	0.078 U	0.082 U	0.096	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Benzo(b)fluoranthene	1	5.6	mg/kg	0.078 U	0.082 U	0.12	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Benzo(g,h,i)perylene	100	500	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Benzo(k)fluoranthene	1	56	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Chrysene	1	56	mg/kg	0.078 U	0.082 U	0.079	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Dibenzo(a,h)anthracene	0.33	0.56	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Fluoranthene	100	500	mg/kg	0.078 U	0.082 U	0.22	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.13	0.078 U	0.081 U
Fluorene	100	500	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Indeno(1,2,3-cd)pyrene	0.5	5.6	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Naphthalene	100	500	mg/kg	0.078 U	0.082 U	0.079 U	0.072 U	0.078 U	0.075	0.075 U	0.075 U	0.078 U	0.078 U	0.081 U
Phenanthrene	100	500	mg/kg	0.078 U	0.082 U	0.13	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.13	0.078 U	0.081 U
Pyrene	100	500	mg/kg	0.078 U	0.082 U	0.19	0.072 U	0.078 U	0.073 U	0.075 U	0.075 U	0.12	0.078 U	0.081 U
Total PAHs	- -	- -	mg/kg	ND	ND	0.93	ND	ND	0.075	ND	ND	0.38	ND	ND
Detected Cyanide														
Cyanide	27	27	mg/kg	2.70	0.310 U	1.20	1.20	0.290 U	0.270 U	0.280 U	0.280 U	0.620	0.290 U	0.300 U
Cyanide (Free)	- -	- -	mg/kg	0.0733 U	NA	0.0674 U	0.0652 U	0.0693 U	0.0680 U	0.0677 U	0.0673 U	0.0701 U	0.0689 U	0.0719 U

See Notes on Page 5.

Table 2
Subsurface Soil Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Notes:
Duplicate samples are in brackets [ ].
Soil Cleanup Objectives (SCOs) are from 6 NYCRR Part 375 Soil Cleanup Objectives (2006).
Exceedances of the Restricted Use SCO for the Protection of Public Health Residential are **bold**.
Exceedances of the Restricted Use SCO for the Protection of Public Health Commercial are shaded.
- - = Not available.
J - Indicates an estimated value.
mg/kg - milligrams per kilogram.
NA - Not analyzed/Not available.
ND - None detected.
U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

Table 3
Surface Soil Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID: / Sample Depth(Feet): / Date Collected:	Restricted Use SCOs Ecological	Restricted Use SCOs Residential	Restricted Use SCOs Commercial	Units	SS-100 0 - 0.2 09/02/10	SS-101 0 - 0.2 09/02/10	SS-102 0 - 0.2 09/02/10	SS-103 0 - 0.2 09/02/10	SS-104 0 - 0.2 09/02/10	SS-105 0 - 0.2 09/02/10	SS-106 0 - 0.2 09/02/10	SS-107 0 - 0.2 09/02/10	SS-A 0 - 1 08/31/10	SS-B 0 - 1 08/31/10	SS-C 0 - 1 08/31/10	SS-D 0 - 1 08/31/10	SS-E 0 - 1 09/01/10	SS-F 0 - 1 09/01/10	SS-G 0 - 1 09/01/10
Detected Volatile Organics																			
Methylene Chloride	12	51	500	mg/kg	0.0056 U	0.0068 U	0.0064 U	0.0054 U	0.0061 U	0.0076 U	0.0067 U	0.0061 U	0.0055 U	0.0056 U	0.0065	0.0058 U	0.0060 U	0.0073	0.0055 U
Detected Semivolatile Organics																			
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	0.090	0.19	1.7 U	0.59	0.081 U	0.10 U	0.090 U	0.082 U	0.074 U	0.75 U	0.83 U	0.39 U	0.080 U	0.071 U	0.74 U
Carbazole	- -	- -	- -	mg/kg	0.075 U	0.32	1.7 U	0.14 U	0.081 U	0.10 U	0.090 U	0.082 U	0.34	0.82	0.83 U	0.39 U	0.13	0.35	1.0
Dibenzofuran	- -	14	350	mg/kg	0.075 U	0.18 U	1.7 U	0.14 U	0.081 U	0.10 U	0.090 U	0.082 U	0.24	0.75 U	0.83 U	0.39 U	0.17	0.19	0.83
2-Methylnaphthalene	- -	- -	- -	mg/kg	0.075 U	0.18 U	1.7 U	0.14 U	0.081 U	0.10 U	0.090 U	0.082 U	0.086	0.75 U	0.83 U	0.39 U	0.080 U	0.20	0.74 U
Acenaphthene	20	100	500	mg/kg	0.075 U	0.18 U	1.7 U	0.14 U	0.081 U	0.10 U	0.090 U	0.082 U	0.10	0.75 U	0.83 U	0.39 U	0.080 U	0.071 U	0.74 U
Acenaphthylene	- -	100	500	mg/kg	0.075 U	2.0	4.4	0.31	0.081 U	0.10 U	0.090 U	0.082 U	0.58	0.83	1.6	1.3	0.40	0.51	2.7
Anthracene	- -	100	500	mg/kg	0.075 U	1.5	20	0.38	0.090	0.10 U	0.38	0.082 U	1.1	3.3	1.2	1.3	0.38	0.69	3.5
Benzo(a)anthracene	- -	1	5.6	mg/kg	0.33	***9.0***	***72***	**1.7**	0.55	0.12	**1.3**	0.41	**3.3**	***14***	***11***	***7.0***	**1.6**	**2.7**	***17***
Benzo(a)pyrene	2.6	1	1	mg/kg	0.42	***8.8***	***60***	***1.8***	0.57	0.14	***1.1***	0.50	***3.1***	***11***	***7.2***	***6.0***	***1.1***	***2.8***	***16***
Benzo(b)fluoranthene	- -	1	5.6	mg/kg	0.60	***12***	***80***	**2.4**	0.80	0.20	**1.3**	0.62	**5.0**	***15***	***19***	***12***	**2.0**	**4.1**	***21***
Benzo(g,h,i)perylene	- -	100	500	mg/kg	0.48	5.3	34	1.5	0.45	0.12	0.68	0.57	3.2	6.3	12	8.2	1.1	3.2	11
Benzo(k)fluoranthene	- -	1	56	mg/kg	0.20	**4.5**	**25**	0.80	0.24	0.10 U	0.49	0.19	**1.3**	**5.4**	**5.7**	**4.1**	0.67	**1.4**	**7.3**
Chrysene	- -	1	56	mg/kg	0.34	**7.5**	**55**	**1.5**	0.53	0.15	**1.1**	0.35	**2.9**	**12**	**12**	**6.3**	**1.4**	**2.6**	**14**
Dibenzo(a,h)anthracene	- -	0.33	0.56	mg/kg	0.10	***1.8***	***11***	**0.35**	0.12	0.10 U	0.18	0.098	***0.66***	***2.0***	***2.5***	***1.8***	0.27	***0.57***	***3.4***
Fluoranthene	- -	100	500	mg/kg	0.50	15	**150**	3.1	1.0	0.23	2.2	0.74	6.0	24	23	10	3.3	6.3	29
Fluorene	30	100	500	mg/kg	0.075 U	0.35	4.5	0.14 U	0.081 U	0.10 U	0.090 U	0.082 U	0.38	1.1	0.83 U	0.39 U	0.11	0.19	1.4
Indeno(1,2,3-cd)pyrene	- -	0.5	5.6	mg/kg	0.38	**5.2**	***33***	**1.2**	0.36	0.10 U	**0.62**	0.40	**2.8**	***5.9***	***10***	***7.0***	**0.95**	**2.6**	***9.8***
Naphthalene	- -	100	500	mg/kg	0.075 U	0.18 U	1.7 U	0.14 U	0.081 U	0.10 U	0.090 U	0.082 U	0.13	0.75 U	1.4	0.39 U	0.080 U	0.33	0.78
Phenanthrene	- -	100	500	mg/kg	0.18	3.6	47	1.0	0.44	0.10 U	0.84	0.16	3.3	12	9.4	2.7	2.1	3.7	13
Pyrene	- -	100	500	mg/kg	0.53	13	**120**	2.8	0.83	0.22	2.0	0.73	5.5	20	20	10	3.1	5.9	23
Total PAHs	- -	- -	- -	mg/kg	4.1	90	720	19	6.0	1.2	12	4.8	39	130	140	78	18	38	170
Detected Cyanide																			
Cyanide	- -	27	27	mg/kg	0.280 U	0.340 U	13.0	0.270 U	0.300 U	0.380 U	0.340 U	0.310 U	4.20	11.0	22.0	***56.0***	4.40	6.70	1.30
Cyanide (Free)	- -	- -	- -	mg/kg	0.0679 UJ	0.0249 J	0.0313 J	0.0199 J	0.0218 J	0.0365 J	0.0809 UJ	0.0741 UJ	0.126 J	0.0635 J	2.65 J	0.238 J	0.0703 J	0.0194 J	0.0662 UJ

Notes:
Duplicate samples are in brackets [ ].
Soil Cleanup Objectives (SCOs) are from 6 NYCRR Part 375 Soil Cleanup Objectives (2006).
Exceedances of the Restricted Use SCO for the Protection of Ecological Resources are shaded.
Exceedances of the Restricted Use SCO for the Protection of Public Health Residential are **bold**.
Exceedances of the Restricted Use SCO for the Protection of Public Health Commercial are *italic* .
- - = Not available.
J - Indicates an estimated value.
mg/kg - milligrams per kilogram.
ND - None detected.
U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

Table 4
Monitoring Well Construction Details

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID	Date Completed	Well Diameter (in.)	Casing/ Screen Type	Screen Slot Size (in.)	Screen Length (ft.)	Sump Length (ft.)	Depth to Screened Interval (ft. bgs)		Total Well Depth ft. bgs
							Top	Bottom	
MW-1R	8/17/10	2	PVC	0.02	20.0	0.6	44.1	64.1	64.7
MW-2	7/29/10	2	PVC	0.02	2.8	0.2	3.5	6.3	6.5
MW-3	7/28/03	2	PVC	0.01	5.0	0.5	7.0	12.0	12.5
MW-4	7/28/03	2	PVC	0.01	5.0	0.0	3.5	8.5	8.5
MW-5	8/20/10	2	PVC	0.02	4.9	0.2	14.4	19.3	19.4
MW-5R	7/28/10	2	PVC	0.02	19.5	0.4	30.9	50.4	50.8
MW-6	8/25/10	2	PVC	0.02	9.3	0.5	20.7	30.0	30.5
MW-7	7/30/10	2	PVC	0.02	4.8	0.2	8.5	13.3	13.5
MW-8R	8/9/10	2	PVC	0.02	20.0	0.5	20.4	40.4	40.9
MW-9R	8/6/10	2	PVC	0.02	19.5	0.5	20.0	39.5	40.0
MW-10	7/29/10	2	PVC	0.02	4.8	0.2	3.3	8.1	8.3
PZ-110	8/19/10	2	PVC	0.02	9.3	0.6	6.0	15.3	15.9

Notes:
in. = inches.
Depths given in feet below ground surface (ft. bgs).
Monitoring wells MW-3 and MW-4 were installed by TRC during the Site Characterization.

Table 5
Summary of Water Elevations

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Well ID	Ref. Point Elevation (ft AMSL)	Depth to Water (ft below TIC)			Groundwater Elevation (ft AMSL)		
		8/31/10-9/3/10	9/7/2010	10/20/2015	8/31/10-9/3/10	9/7/2010	10/20/2015
MW-1R	705.60	42.35	41.85	38.21	663.25	663.75	667.39
MW-2	642.40	4.20	4.32	4.06	638.20	638.08	638.34
MW-3	661.60	NA	10.65	10.92	NA	650.95	650.68
MW-4	652.20	NA	7.68	7.95	NA	644.52	644.25
MW-5	696.10	DRY	DRY	DRY	NA	NA	NA
MW-5R	675.30	34.62	36.36	30.09	640.68	638.94	645.21
MW-6	680.20	27.05	27.01	26.98	653.15	653.19	653.22
MW-7	664.60	13.29	13.35	13.45	651.31	651.25	651.15
MW-8R	655.60	17.95	18.08	18.58	637.65	637.52	637.02
MW-9R	646.90	9.03	9.19	10.05	637.87	637.71	636.85
MW-10	647.00	4.71	4.66	3.63	642.29	642.34	643.37
PZ-110	696.01	NA	8.56	9.51	NA	687.45	686.50
SG-1	695.8	NA	56.73	NA	NA	639.07	NA
SG-2*	636.1	NA	NA	NA	NA	635.20	NA

Notes:
AMSL = above mean sea level.
ft = feet.
NA = Not available.
TIC = Top of Inner Casing.
* = Reference point elevation for SG-2 is ground surface. Surface water elevation at SG-2 is based on field observations, not an actual measurement.
Reference point for all wells is the top of inner casing, referenced to NGVD 1988.

Table 6
Sediment Probing and Sampling Observations

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID	Date	Location Description	Collection Method	Analysis	Interval	Sediment/Soil Descriptions	Comments	Photo IDs
NG-SR-SD-01	11/8/11	2' diameter sand deposit on downstream side of rock. Location is about 5' into river from survey spike at bedrock face.	Macrocore	Alkylated PAH, TOC	0 - 0.3'	Gray brown fine to coarse sand, with little fine gravel. Water depth approximately 1.8'.	Could only penetrate 0.3' feet of for the sample recovery. Multiple cobbles and large rocks with fast moving river water caused for limited areas to probe and sample.	SD-01, GP-07
				-	0.3'	Bedrock.	Exposed Bedrock at edge of water.	
NG-SR-SD-02	11/8/11	1' diameter sand/gravel deposit on downstream of side of exposed rock. Location point is 4' out form survey spike at waters/bedrock edge.	Macrocore	Alkylated PAH, TOC	0 - 0.3'	Gray brown fine to coarse sand, with little/some fine to coarse gravel. Water depth approximately 1.9'.	Could only penetrate 0.6' feet for the 0.3' sample recovery. Multiple cobbles and large rocks with fast moving river water caused for limited areas to probe and sample. Made several attempts to recover more.	SD-02, GP-04, GP-07
				-	0.3'	Bedrock.	Exposed Bedrock at edge of water.	
NG-SR-SD-03	11/8/11	Moved rocks to expose underlying sand and gravel area. Location is 5' into river from survey spike at bedrock face. Upstream about 5-6' from upstream extent of exposed tar patty.	Macrocore	Alkylated PAH, TOC	0 - 0.7'	Gray brown fine sand, trace coarse sand, with trace fine to coarse gravel. Water depth approximately 0.8'.	Able to penetrate 1.9', but due to the water flow and the sediment consistency, only able to recover 0.7'.	SD-03
				-	1.9'	Bedrock.	Exposed Bedrock at edge of water.	
NG-SR-SD-04	11/8/11	Moved rocks to expose underlying sand and gravel area. Location is at survey spike.	Macrocore	Alkylated PAH, TOC	0 - 0.4'	Gray brown fine to medium sand, trace coarse sand, trace fine to coarse gravel. Water depth approximately 0.8'.	Sample penetration was 1.3' over several attempts in order to create enough sample volume.	SD-04
				-	1.3'	Bedrock.	Exposed Bedrock at edge of water.	
NG-SR-SD-05	11/8/11	Moved rocks to expose underlying sand and gravel area. Location is at survey spike along bedrock face. Downstream about 8-10' from downstream extent of exposed tar patty.	Macrocore	Alkylated PAH, TOC	0 - 0.4'	Dark gray brown fine to coarse sand, trace fine to coarse gravel, trace silt. Water depth approximately 0.1'.	Able to penetrate 1.8', but due to sediment consistency and several attempts, only able to recover 0.4'	SD-05, GP-01
				-	1.8'	Bedrock.	Exposed Bedrock at edge of water.	
NG-SR-SD-06	11/8/11	Floodplain area. Downgradient of outfall and close to where municipal pipe goes underground.	Macrocore	Alkylated PAH, TOC	0 - 0.7'	Brown fine sand, trace medium to coarse sand, trace fine to coarse gravel. Water depth approximately 0.0'.	Limited probing and penetrating depth due to potential bedrock at bottom.	SD-06
				-	0.9'	Bedrock (assumed).		
NG-SR-SD-07	11/8/11	Floodplain area. Downgradient of outfall and about 20' downstream of SD-06 along river edge.	Macrocore	Alkylated PAH, TOC	[0 - 0.5' 0.5 - 0.8']	Brown fine sand, trace medium to coarse sand. Water depth approximately 0.0'.	Refusal.	SD-07
NG-SR-SD-08	11/8/11	Floodplain area. About 10-12' downstream of SD-07, and about 3-5' inland from rivers edge.	Macrocore	Alkylated PAH, TOC	0 - 0.5'	Dark brown fine sand, trace silt, trace organics (roots). Water depth approximately 0.0'.	Refusal. Due to red brick possible landfill area.	SD-08
					0.5' - 0.9'	Dark Brown fine sand, trace silt, trace brick.		SD-08
NG-SR-SD-09	11/8/11	Floodplain area. About 5-10' downstream of SD-08, and about 3' inland from rivers edge.	Macrocore	Alkylated PAH, TOC	0 - 0.5'	Dark brown fine sand, trace silt, trace organics (roots). Water depth approximately 0.0'.	Refusal.	SD-09
					0.5 - 1.0'	Dark brown fine sand, trace silt, trace organics (roots).		SD-09
					1.0 - 1.3'	Dark brown fine sand, trace silt, trace organics (wood).		SD-09

See Notes on Page 3.

Table 6
Sediment Probing and Sampling Observations

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID	Date	Location Description	Collection Method	Analysis	Interval	Sediment/Soil Descriptions	Comments	Photo IDs
NG-SR-SD-10	11/8/11	Floodplain Sampling. About 4' east (out) of survey stake near sand and gravel deposition beyond downstream side of rock.	Macrocore	Alkylated PAH, TOC	0 - 0.5'	Brown fine to medium sand, little coarse sand, little fine to coarse gravel. Water depth approximately 0.9'.	Sampling is between the floodplain and the seep. Several attempts were made to produce enough volume but could only penetrate about 0.7'.	SD-10
NG-SR-SD-11	11/8/11	Floodplain Sampling. About 3' east (out) of survey stake near sand and gravel deposition adjacent to river bank.	Macrocore	Alkylated PAH, TOC	0 - 0.7'	Dark brown fine to medium sand, little coarse sand, little fine to coarse gravel. Water depth approximately 0.8'.	Sampling is between the floodplain and the seep.	SD-11
NG-SR-SD-12	11/9/11	Background Sediment Sampling. East side of river, most upstream, just above dam. Surrounding area is of fine sand deposits, wood debris and other organics.	3" Lexan®	Alkylated PAH, TOC	0 - 0.5'	Brown fine sand, trace organics (roots). Water depth approximately 0.15'.	Refusal caused by wood at bottom.	SD-12
					0.5 - 1.0'	Brown fine sand, trace organics (leaf litter).		SD-12
					1.0 - 1.7'	Brown fine sand, trace organics (leaf litter).		SD-12
NG-SR-SD-13	11/9/11	Background Sediment Sampling. East side of river, just below dam near concrete saddle, under large municipal pipe. Surrounding area is of fine sand deposits over gravel/rock.	3" Lexan® / Macrocore	Alkylated PAH, TOC	0 - 0.7'	Brown fine sand, trace organics (twigs), trace brick. Water depth approximately 0.4'.	Refusal due to river bottom.	SD-13
NG-SR-SD-14	11/9/11	Background Sediment Sampling. West side of river, just upstream of dam, adjacent to bank with about a 30 degree slope into river.	3" Lexan®	Alkylated PAH, TOC	0 - 0.5'	Brown fine sand, trace organics (roots). Water depth approximately 0.5'.	Refusal. Silts over hard river bottom.	SD-14
					0.5 - 1.0'	Brown fine sand, trace organics (roots).		SD-14
					1.0 - 2.0'	Brown fine sand, trace organics (roots), trace silt.		SD-14
					2.0 - 3.0'	Brown fine sand, trace organics (roots), trace silt.		SD-14
NG-SR-SD-15	11/9/11	Background Sediment Sampling. West side of river, about 200' upstream of bridge. Surrounding area is sandgravel deposits between rock.	Macrocore/ grab sample	Alkylated PAH, TOC	0 - 0.5'	Brown fine to coarse sand, little fine to coarse gravel. Water depth approximately 0.7'.	Refusal due to river bottom and reason necessary for grab sample.	SD-15
NG-SR-SD-16	11/9/11	Background Sediment Sampling. East side of river, just upstream of power generator. Surrounding area is of sand deposition downstream side of power generator and west side of river.	3" Lexan®	Alkylated PAH, TOC	0 - 0.5'	Brown fine sand, trace organics (roots). Water depth approximately 0.2'.	Exposed bedrock at edge of water. River rubbish and other debris present. Multiple outfalls in the area in retaining wall above sample area.	SD-16, OF-05,
					0.5 - 1.0'	Brown fine sand, trace organics (roots).		SD-16
					1.0 - 2.0'	Brown fine sand.		SD-16
					2.0 - 3.0'	Brown fine sand, trace organics (wood).		SD-16
					3.0 - 4.0'	Brown fine sand, trace organics (wood).		SD-16
NG-SR-SD-17	11/9/11	Downstream Sampling. West side of river adjacent to Coffee Street, house. About a 2' diameter sand deposit.	Macrocore	Alkylated PAH, TOC	0 - 0.7'	Brown fine sand, little coarse sand, trace fine to coarse gravel. Water depth approximately 0.5'.	Slight non-MGP odor; 0.0 ppm on PID. Refusal due to river bottom.	SD-17
NG-SR-SD-18	11/9/11	Downstream Sampling. West side of river adjacent to Coffee Street turn around. Sand deposits behind logs in river.	Macrocore	Alkylated PAH, TOC	0 - 0.5'	Brown fine sand, little coarse sand, trace fine to coarse gravel. Water depth approximately 0.2'.	Refusal. Two attempts to achieve appropriate volume.	SD-18

See Notes on Page 3.

Table 6
Sediment Probing and Sampling Observations

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID	Date	Location Description	Collection Method	Analysis	Interval	Sediment/Soil Descriptions	Comments	Photo IDs
NG-SR-SD-19	11/9/11	Downstream Sampling. West side of river adjacent to TP-2.	Macrocore	Alkylated PAH, TOC	0 - 0.5'	Brown fine to coarse sand, little/some fine to coarse gravel. Water depth approximately 0.5'.	Several attempts made for volume. No natural sediment deposition; sample position taken at the request of NYSDEC.	SD-19
NG-SR-SD-20	11/9/11	Downstream Sampling. West side of river, northern end of Carter property. Sand deposition on edge of river.	Macrocore	Alkylated PAH, TOC	0 - 0.4'	Dark brown fine sand, trace silt, trace fine to coarse gravel. Water depth approximately 0.2'.	Several attempts made for volume.	SD-20
NG-SR-SD-21	11/9/11	Downstream Sampling. West side of river, most downstream extent of downstream sampling.	Macrocore/ grab sample	Alkylated PAH, TOC	0 - 0.5'	Dark brown fine sand, trace organics (wood), trace fine to medium gravel. Water depth approximately 0.2'.	Several attempts made for volume; necessary grab samples.	SD-21
NG-SR-SD-22	11/10/11	Downstream Sampling. East side of river, small sand/gravel deposition along river bank.	Macrocore/ grab sample	Alkylated PAH, TOC	0 - 0.4'	Brown fine to coarse sand, fine to coarse gravel. Water depth approximately 0.2'.	Several attempts made for volume; necessary grab samples.	SD-22
NG-SR-SD-23	11/10/11	Downstream Sampling. East side of river, small sand/gravel deposition about 1' out from river bank.	Macrocore/ grab sample	Alkylated PAH, TOC	0 - 0.3'	Brown fine to coarse sand, fine to medium gravel, trace organics (twigs/vegetation). Water depth approximately 0.6'.	Several attempts made for volume; necessary grab samples.	SD-23
NG-SR-SD-24	11/10/11	Seep Sampling. Sample collected east side of access road, immediately where seep comes out from under road.	Macrocore/ grab sample	Alkylated PAH, TOC, TCL VOCs, Total Solids	0 - 0.3'	Dark brown silt, little organics (roots), trace fine to coarse sand, trace fine to medium gravel, slight odor. Water depth approximately 0.1'.	Several attempts made for volume; necessary grab samples. PID read 1.8 ppm for odor area.	SD-24
NG-SR-SD-25	11/10/11	Seep Sampling. Sample collected east side of access road, where seep returns from being underground prior to flow from river.	Macrocore/ grab sample	Alkylated PAH, TOC, TCL VOCs, Total Solids	0 - 0.5'	Dark brown silt, trace fine sand, little organics (leaf litter/roots), slight odor. Water depth approximately 0.2'.	Several attempts made for volume; necessary grab samples. PID read 0.5 ppm for odor area.	SD-25

Notes:
Macrocore = Two-foot long solid barrel sampler encasing two-foot Lexan® tube to acquire and hold soil sample when pushing into ground.
PAH = Polycyclic Aromatic Hydrocarbons.
TCL VOC = Target Compound List Volatile Organic Compounds.
TOC = Total Organic Compounds.
Depths/Intervals given in feet (').
OF = Out-Fall.
GP = General Photo(s).
(') = Feet.
PID = Photo Ionization Detector.
NYSDEC = New York State Department of Environmental Conservation.
Photographs can be found in a March 30, 2012 letter to the NYSDEC titled *Salmon River Sediment Sampling Results*. The letter is provided on the attached CD.

Table 7
NAPL Monitoring and Removal Summary

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Well ID	Depth to Water (ft)	Depth to NAPL (ft)	Well Depth (ft)	Thickness (ft)/Volume of NAPL Removed (mL)					Cumulative Volume of NAPL Removed (mL)
	10/20/2015			12/4/2012	4/2/2013	12/17/2013	9/16/2014	10/20/2015	
MW-1R	38.21	NP	65.15	NA	NA	NA	NA	NA	NA
MW-2	4.06	NP	8.06	NA	NA	NA	NA	NA	NA
MW-3	10.92	NP	14.98	NA	NA	NA	NA	NA	NA
MW-4	7.95	NP	11.01	NA	NA	NA	NA	NA	NA
MW-5	DRY	NP	20.21	NA	NA	NA	NA	NA	NA
MW-5R	30.09	30.02	52.72	0.23 / 110	0.70 / 560	0.13 / 400	0.05 / 100	0.07 / 100	1270
MW-6	26.98	NP	32.49	NA	NA	NA	NA	NA	NA
MW-7	13.45	NP	15.55	NA	NA	NA	NA	NA	NA
MW-8R	18.58	NP	40.90	NA	NA	NA	NA	NA	NA
MW-9R	10.05	NP	42.00	NA	NA	NA	NA	NA	NA
MW-10	3.63	NP	10.42	NA	NA	NA	NA	NA	NA
PZ-110	9.51	NP	17.52	NA	NA	NA	NA	NA	NA

Notes:
Depths given in feet (ft) below measuring point.
mL = milliliters.
NP = Not present.
NA = Not applicable.

Table 8
Groundwater Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID: / Date Collected:	NYSDEC TOGS 1.1.1 SGC-1 Drinking Water	1.1.1 SGC-2 Fish Propagation	Units	MW-1R 09/09/10	MW-1R 11/16/11	MW-2 09/09/10	MW-2 11/15/11	MW-3 09/08/10	MW-3 11/15/11	MW-4 10/14/10	MW-4 11/15/11	MW-5R 10/14/10	MW-6 10/14/10
Detected Volatile Organics													
1,2,4,5-Tetramethylbenzene	5	- -	ug/L	NA	4.6	NA	80 [79]	NA	2.0 U	NA	2.0 U	NA	NA
1,2,4-Trimethylbenzene	5	33	ug/L	NA	38	NA	84 [86]	NA	2.5 U	NA	2.5 U	NA	NA
1,3,5-Trimethylbenzene	5	- -	ug/L	NA	8.6	NA	10 U [12 U]	NA	2.5 U	NA	2.5 U	NA	NA
1,4-Diethylbenzene	- -	- -	ug/L	NA	7.1	NA	23 [25]	NA	2.0 U	NA	2.0 U	NA	NA
2-Butanone	50	- -	ug/L	1.0 U	5.0 U	1.0 U	20 U [25 U]	1.0 U	5.0 U	1.0 U	5.0 U	10 U	10 U
4-Ethyltoluene	- -	- -	ug/L	NA	16	NA	36 [37]	NA	2.0 U	NA	2.0 U	NA	NA
Benzene	1	210	ug/L	0.50 U	0.50 U	48	18 [18]	1.4	0.50 U	0.50 U	0.50 U	26	96
Chloroform	7	- -	ug/L	1.0 U	0.75 U	1.0 U	3.0 U [3.8 U]	1.0 U	0.75 U	1.0 U	0.75 U	10 U	10 U
Cyclohexane	- -	- -	ug/L	3.8	NA	1.0 U	NA	1.0 U	NA	1.0 U	NA	10 U	110
Ethylbenzene	5	17	ug/L	3.5	7.5	100	83 [81]	1.0 U	0.50 U	1.0 U	0.50 U	360	270
Isopropylbenzene	5	2.6	ug/L	1.0 U	2.3	23	23 [24]	1.0 U	0.50 U	1.0 U	0.50 U	96	57
m&p-Xylene	5	- -	ug/L	23	NA	46	NA	1.4	NA	1.0 U	NA	850	370
Methyl tert-butyl ether	10	- -	ug/L	0.50 U	1.0 U	13	4.2 [4.0 J]	0.50 U	1.0 U	0.50 U	1.0 U	5.0 U	18
Methylcyclohexane	- -	- -	ug/L	3.9	NA	55	NA	1.0 U	NA	1.0 U	NA	190	110
n-Butylbenzene	5	- -	ug/L	NA	2.2	NA	15 [16]	NA	0.50 U	NA	0.50 U	NA	NA
n-Propylbenzene	5	- -	ug/L	NA	7.2	NA	77 [78]	NA	0.50 U	NA	0.50 U	NA	NA
o-Xylene	5	- -	ug/L	4.5	2.1	5.9	6.0 [5.8]	1.4	1.0 U	1.0 U	1.0 U	89	24
p/m-Xylene	5	- -	ug/L	NA	14	NA	15 [15]	NA	1.0 U	NA	1.0 U	NA	NA
p-Isopropyltoluene	5	- -	ug/L	NA	0.37 J	NA	2.0 U [2.5 U]	NA	0.50 U	NA	0.50 U	NA	NA
sec-Butylbenzene	5	- -	ug/L	NA	0.68	NA	8.1 [8.4]	NA	0.50 U	NA	0.50 U	NA	NA
Tetrachloroethene	5	- -	ug/L	1.0 U	0.50 U	1.0 U	2.0 U [2.5 U]	1.0 U	0.50 U	1.0 U	0.50 U	10 U	10 U
Toluene	5	100	ug/L	1.8	2.4	3.8	4.5 [4.4]	1.0 U	0.75 U	1.0 U	0.75 U	83	39
Xylenes (total)	- -	65	ug/L	28	NA	52	NA	2.8	NA	1.0 U	NA	940	390
Naphthalene	10	13	ug/L	NA	2.9	NA	16 [15]	NA	2.5 U	NA	2.5 U	NA	NA
Total BTEX	- -	- -	ug/L	56	12	250	110 [110]	5.6	ND	ND	ND	2,300	1,200
Detected Semivolatile Organics													
2-Methylnaphthalene	- -	4.7	ug/L	2.0 U	1.6	17	0.11 J [0.12 J]	2.0 U	0.20 U	2.1 U	0.11 J	800	25
3&4-Methylphenol	- -	- -	ug/L	2.0 U	NA	7.2	NA	2.0 U	NA	0.52 U	NA	5.3 U	0.52 U
Acenaphthene	20	5.3	ug/L	2.0 U	0.20 U	2.0 U	0.17 J [0.19 J]	2.0 U	0.20 U	2.1 U	0.20 U	21 U	2.1 U
Acenaphthylene	- -	- -	ug/L	2.0 U	0.20 U	2.0 U	0.20 U [0.20 U]	3.0	0.26 J	2.1 U	0.42	21 U	2.1 U
Anthracene	50	3.8	ug/L	2.0 U	0.20 U	2.0 U	0.20 U [0.20 U]	2.0 U	0.38 J	2.1 U	0.44	21 U	2.1 U
Benzo(a)anthracene	0.002	0.03	ug/L	2.0 U	0.20 U	2.0 U	0.20 U [0.20 U]	2.0 U	0.8 J	2.1 U	0.51	21 U	2.1 U
Benzo(a)pyrene	ND	- -	ug/L	2.0 U	0.20 U	2.0 U	0.20 U [0.20 U]	2.0 U	0.76 J	2.1 U	0.71	21 U	2.1 U
Benzo(b)fluoranthene	0.002	- -	ug/L	2.0 U	0.20 U	2.0 U	0.20 U [0.20 U]	2.0 U	0.81 J	2.1 U	0.66	21 U	2.1 U
Benzo(g,h,i)perylene	- -	- -	ug/L	2.0 U	0.20 U	2.0 U	0.20 U [0.20 U]	2.0 U	0.29 J	2.1 U	0.33	21 U	2.1 U
Benzo(k)fluoranthene	0.002	- -	ug/L	2.0 U	0.20 U	2.0 U	0.20 U [0.20 U]	2.0 U	0.58 J	2.1 U	0.48	21 U	2.1 U
Chrysene	0.002	- -	ug/L	2.0 U	0.20 U	2.0 U	0.20 U [0.20 U]	2.0 U	0.65 J	2.1 U	0.55	21 U	2.1 U
Dibenzo(a,h)anthracene	- -	- -	ug/L	2.0 U	0.20 U	2.0 U	0.20 U [0.20 U]	2.0 U	0.10 J	2.1 U	0.10 J	21 U	2.1 U
Fluoranthene	50	- -	ug/L	2.0 U	0.20 U	2.0 U	0.20 U [0.20 U]	2.0 U	1.5 J	2.1 U	1.1	21 U	2.1 U
Fluorene	50	0.54	ug/L	2.0 U	0.20 U	2.0 U	0.20 [0.18 J]	2.0 U	0.17 J	2.1 U	0.22	21 U	2.1 U
Indeno(1,2,3-cd)pyrene	0.002	- -	ug/L	2.0 U	0.20 U	2.0 U	0.20 U [0.20 U]	2.0 U	0.34 J	2.1 U	0.37	21 U	2.1 U
Naphthalene	10	13	ug/L	2.0 U	2.7	10	10 [11 J]	2.0 U	0.09 J	0.52 U	0.24	320	67
Phenanthrene	50	5	ug/L	2.0 U	0.20 U	2.0 U	0.14 J [0.16 J]	2.0 U	0.82 J	2.1 U	0.95	21 U	2.1 U
Pyrene	50	4.6	ug/L	2.0 U	0.20 U	2.0 U	0.20 U [0.20 U]	2.0 U	1.2 J	2.1 U	0.84	21 U	2.1 U
Total PAHs	- -	- -	ug/L	ND	2.7	10	11 J [12 J]	3.0	8.8 J	ND	7.9 J	320	67
Detected Cyanide													
Cyanide	200	5.2	ug/L	10.0 U	5.00 UB	10.0 U	21.0 [24.0]	100	126	160	44.0	10.0 U	10.0 U

See Notes on Page 3.

Table 8
Groundwater Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID: / Date Collected:	NYSDEC TOGS 1.1.1 SGC-1 Drinking Water	1.1.1 SGC-2 Fish Propagation	Units	MW-6 11/16/11	MW-7 10/14/10	MW-7 11/15/11	MW-8R 10/14/10	MW-8R 11/15/11	MW-9R 10/14/10	MW-9R 11/14/11	MW-10 09/09/10	MW-10 11/15/11	SEEP-1 10/14/10
Detected Volatile Organics													
1,2,4,5-Tetramethylbenzene	5	- -	ug/L	100	NA	2.0 U	NA	2.0 U	NA	2.0 U	NA	56	NA
1,2,4-Trimethylbenzene	5	33	ug/L	880	NA	2.5 U	NA	2.5 U	NA	2.5 U	NA	54	NA
1,3,5-Trimethylbenzene	5	- -	ug/L	60	NA	2.5 U	NA	2.5 U	NA	2.5 U	NA	8.5 J	NA
1,4-Diethylbenzene	- -	- -	ug/L	72	NA	2.0 U	NA	2.0 U	NA	2.0 U	NA	30	NA
2-Butanone	50	- -	ug/L	100 U	1.0 U	5.0 U	17	5.0 U	1.0 U [1.0 U]	5.0 U	1.0 U	25 U	1.0 U
4-Ethyltoluene	- -	- -	ug/L	480	NA	2.0 U	NA	2.0 U	NA	2.0 U	NA	39	NA
Benzene	1	210	ug/L	40	0.50 U	0.50 U	1.1	0.50 U	0.50 U [0.50 U]	0.50 U	21	12	7.5
Chloroform	7	- -	ug/L	15 U	1.0 U	0.75 U	1.0 U	1.6	1.1 [1.1]	1.3	1.0 U	3.8 U	1.0 U
Cyclohexane	- -	- -	ug/L	NA	1.0 U	NA	21	NA	1.0 U [1.0 U]	NA	1.0 U	NA	1.0 U
Ethylbenzene	5	17	ug/L	200	1.0 U	0.50 U	1.0 U	0.50 U	1.0 U [1.0 U]	0.50 U	34	19	7.4
Isopropylbenzene	5	2.6	ug/L	46	1.0 U	0.50 U	1.0 U	0.50 U	1.0 U [1.0 U]	0.50 U	12	9.5	2.0
m&p-Xylene	5	- -	ug/L	NA	1.0 U	NA	14	NA	1.0 U [1.0 U]	NA	24	NA	2.0
Methyl tert-butyl ether	10	- -	ug/L	20 U	0.50 U	1.0 U	2.6	1.0 U	0.50 U [0.50 U]	1.0 U	8.8	2.7 J	4.7
Methylcyclohexane	- -	- -	ug/L	NA	1.0 U	NA	10	NA	1.0 U [1.0 U]	NA	51	NA	6.2
n-Butylbenzene	5	- -	ug/L	32	NA	0.50 U	NA	0.50 U	NA	0.50 U	NA	12	NA
n-Propylbenzene	5	- -	ug/L	160	NA	0.50 U	NA	0.50 U	NA	0.50 U	NA	30	NA
o-Xylene	5	- -	ug/L	18 J	1.0 U	1.0 U	8.2	1.0 U	1.0 U [1.0 U]	1.0 U	4.0	2.9 J	1.0 U
p/m-Xylene	5	- -	ug/L	220	NA	1.0 U	NA	1.0 U	NA	1.0 U	NA	12	NA
p-Isopropyltoluene	5	- -	ug/L	10 U	NA	0.50 U	NA	0.50 U	NA	0.50 U	NA	2.5 U	NA
sec-Butylbenzene	5	- -	ug/L	10	NA	0.50 U	NA	0.50 U	NA	0.50 U	NA	4.6	NA
Tetrachloroethene	5	- -	ug/L	10 U	1.0 U	0.50 U	1.0 U	0.36 J	1.0 U [1.0 U]	0.38 J	1.0 U	2.5 U	1.0 U
Toluene	5	100	ug/L	22	1.0 U	0.75 U	1.6	0.75 U	1.0 U [1.0 U]	0.75 U	3.2	2.7 J	1.0 U
Xylenes (total)	- -	65	ug/L	NA	1.0 U	NA	22	NA	1.0 U [1.0 U]	NA	28	NA	2.0
Naphthalene	10	13	ug/L	57	NA	2.5 U	NA	2.5 U	NA	2.5 U	NA	7.0 J	NA
Total BTEX	- -	- -	ug/L	280 J	ND	ND	39	ND	ND [ND]	ND	110	37 J	19
Detected Semivolatile Organics													
2-Methylnaphthalene	- -	4.7	ug/L	19	2.1 U	0.20 U	2.6	0.20 U	2.1 U [2.1 U]	0.20 U	6.0	1.5 J	2.1
3&4-Methylphenol	- -	- -	ug/L	NA	0.53 U	NA	0.50 U	NA	0.52 U [0.52 U]	NA	2.0 U	NA	14
Acenaphthene	20	5.3	ug/L	0.23	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.28 J	2.1 U
Acenaphthylene	- -	- -	ug/L	0.20 U	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.20 U	2.1 U
Anthracene	50	3.8	ug/L	0.20 U	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.15 J	2.1 U
Benzo(a)anthracene	0.002	0.03	ug/L	0.20 U	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.20 U	2.1 U
Benzo(a)pyrene	ND	- -	ug/L	0.20 U	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.20 U	2.1 U
Benzo(b)fluoranthene	0.002	- -	ug/L	0.20 U	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.20 U	2.1 U
Benzo(g,h,i)perylene	- -	- -	ug/L	0.20 U	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.20 U	2.1 U
Benzo(k)fluoranthene	0.002	- -	ug/L	0.20 U	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.20 U	2.1 U
Chrysene	0.002	- -	ug/L	0.20 U	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.20 U	2.1 U
Dibenzo(a,h)anthracene	- -	- -	ug/L	0.20 U	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.20 U	2.1 U
Fluoranthene	50	- -	ug/L	0.20 U	2.2	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.53 J	2.1 U
Fluorene	50	0.54	ug/L	0.28	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.56 J	2.1 U
Indeno(1,2,3-cd)pyrene	0.002	- -	ug/L	0.20 U	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.2 UJ	2.1 U
Naphthalene	10	13	ug/L	40	0.53 U	0.20 U	5.3	0.20 U	0.52 U [0.52 U]	0.20 U	8.9	3.8 J	0.52 U
Phenanthrene	50	5	ug/L	0.26	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	1.4	2.1 U
Pyrene	50	4.6	ug/L	0.20 U	2.1 U	0.20 U	2.0 U	0.20 U	2.1 U [2.1 U]	0.20 U	2.0 U	0.35 J	2.1 U
Total PAHs	- -	- -	ug/L	41	2.2	ND	5.3	ND	ND [ND]	ND	8.9	7.1 J	ND
Detected Cyanide													
Cyanide	200	5.2	ug/L	13.0	160	41.0	10.0 U	5.00 U	10.0 U [10.0 U]	5.00 UB	10.0 U	24.0	10.0 U

See Notes on Page 3.

Table 8
Groundwater Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Notes:
Duplicate samples are in brackets [ ].
NYSDEC TOGS 1.1.1 SGC-1 are for Protection of Source of Drinking Water (applies to all Groundwater monitoring well samples).
NYSDEC TOGS 1.1.1 SCG-2 are for Protection of Fish Propagation (applies only to seep sample for FWRIA).
Water Standards and Guidance Values are from NYSDEC TOGS (1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (1998).
Exceedances of the NYSDEC TOGS 1.1.1 Protection of Drinking Water are shaded.
Exceedances of the NYSDEC TOGS 1.1.1 Protection of Fish Propagation are **bold**.
- - = Not available.
B - Compound detected in blank.
FWRIA - Fish and Wildlife Resource Impact Analysis.
J - Indicates an estimated value.
NA - Not analyzed/Not available.
ND - None detected.
NYSDEC - New York State Department of Environmental Conservation.
SGC - Standards, Guidances, Criteria.
TOGS - Division of Water Technical and Operational Guidance Series.
U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
ug/L - micrograms per liter.

Table 9
Sediment Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID:	NYSDEC Sediment Guidance Values				NG-SR-SD-01		NG-SR-SD-02		NG-SR-SD-03		NG-SR-SD-04		NG-SR-SD-05		NG-SR-SD-06		NG-SR-SD-07	
Sample Depth(Inches):				PAHs	0 - 3		0 - 3		0 - 7		0 - 4		0 - 4		0 - 7		0 - 6	
Date Collected:	Class A	Class C	BHH	mg/kg	11/08/11		11/08/11		11/08/11		11/08/11		11/08/11		11/08/11		11/08/11	
Units:	mg/kg	mg/kg	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC
Detected Volatile Organics																		
1,2,4,5-Tetramethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
1,2,4-Trimethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
1,4-Diethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
Ethylbenzene	0.43	3.7	- -	- -	NA		NA		NA		NA		NA		NA		NA	
n-Butylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
n-Propylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
p-Isopropyltoluene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
sec-Butylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
Total BTEX	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
Detected PAHs																		
1,1'-Biphenyl	- -	- -	- -	- -	0.0077		0.0031		0.014		0.061		0.083		0.0088		0.0047	
1-Methyldibenzothiophene(1MDT)	- -	- -	- -	- -	0.014		0.0012		0.0055		0.012		0.025		0.014		0.0041	
1-Methylnaphthalene	- -	- -	- -	- -	0.025		0.0038		0.020		0.066		0.16		0.015		0.011	
1-Methylphenanthrene (1MP)	- -	- -	- -	- -	0.17		0.012		0.073		0.14		0.32		0.19		0.057	
2,3,5-Trimethylnaphthalene	- -	- -	- -	- -	0.015		0.0015		0.013		0.040		0.10		0.032		0.0084	
2,6-Dimethylnaphthalene	- -	- -	- -	- -	0.031		0.0042		0.022		0.11		0.18		0.035		0.010	
2/3-Methyldibenzothiophene(2MDT)	- -	- -	- -	- -	0.043		0.0035		0.017		0.035		0.080		0.043		0.013	
2/4-Methylphenanthrene (2MP)	- -	- -	- -	- -	0.39		0.025		0.14		0.32		0.66		0.37		0.11	
2-Methylanthracene (2MA)	- -	- -	- -	- -	0.22		0.0097		0.086		0.23		0.62		0.25		0.069	
3-Methylphenanthrene (3MP)	- -	- -	- -	- -	0.29		0.018		0.10		0.24		0.46		0.25		0.066	
4-Methyldibenzothiophene(4MDT)	- -	- -	- -	- -	0.030		0.0031		0.010		0.021		0.047		0.028		0.0093	
9-Methylphenanthrene (9MP)	- -	- -	- -	- -	0.24		0.015		0.10		0.24		0.50		0.29		0.084	
Benzo(a)fluoranthene	- -	- -	- -	- -	0.46		0.033		0.19		0.40		0.64		0.52		0.20	
Benzo(b)fluorene	- -	- -	- -	491	0.82	383	0.043	9	0.23	12	0.55	52	1.0	16	0.48	74	0.20	23
Benzo(e)Pyrene	- -	- -	- -	452	1.2	561	0.13	27	0.51	26	0.95	90	1.2	19	1.2	186	0.50	56
Benzothiophene	- -	- -	- -	594	0.0016 U		0.00076 U		0.010	1	0.020	2	0.075	1	0.0065	1	0.0031	0.4
C1-Benzo(b)thiophenes	- -	- -	- -	841	0.0016 U		0.00076 U		0.0033	0.2	0.0079	1	0.017	0.3	0.0029	0.4	0.0015	0.2
C1-Chrysenes	- -	- -	- -	- -	0.85		0.072		0.41		0.76		1.5		1.2		0.37	
C1-Decalins	- -	- -	- -	964	0.0016 U		0.0020	0.4	0.0011	0.1	0.0016	0.2	0.017	0.3	0.018	3	0.0012	0.1
C1-Dibenzothiophenes	- -	- -	- -	979	0.11	51	0.0098	2	0.043	2	0.092	9	0.20	3	0.12	19	0.035	4
C1-Fluoranthenes/Pyrenes	- -	- -	- -	- -	2.3		0.16		0.89		1.8		3.6		2.1		0.77	
C1-Fluorenes	- -	- -	- -	967	0.13	61	0.0077	2	0.050	3	0.17	16	0.33	5	0.15	23	0.046	5
C1-Naphthalenes	- -	- -	- -	1095	0.026	12	0.0052	1	0.034	2	0.092	9	0.21	3	0.024	4	0.014	2
C1-Naphthobenzothiophenes	- -	- -	- -	980	0.24	112	0.028	6	0.11	6	0.17	16	0.39	6	0.23	36	0.081	9
C1-Phenanthrenes/Anthracenes	- -	- -	- -	- -	1.3		0.082		0.51		1.2		2.6		1.4		0.39	
C2-Benzo(b)thiophenes	- -	- -	- -	- -	0.0038		0.0013		0.0030		0.011		0.018		0.0041		0.0018	
C2-Chrysenes	- -	- -	- -	930	0.34	159	0.043	9	0.22	11	0.42	40	0.90	14	0.58	90	0.18	20
C2-Decalins	- -	- -	- -	- -	0.0016 U		0.0020		0.0015		0.0031		0.018		0.0025		0.0019	
C2-Dibenzothiophenes	- -	- -	- -	- -	0.076		0.011		0.040		0.073		0.17		0.11		0.034	
C2-Fluoranthenes/Pyrenes	- -	- -	- -	769	0.79	369	0.075	15	0.48	24	0.79	75	1.7	27	1.2	186	0.38	43
C2-Fluorenes	- -	- -	- -	611	0.083	39	0.0070	1	0.065	3	0.16	15	0.38	6	0.18	28	0.049	6
C2-Naphthalenes	- -	- -	- -	445	0.077	36	0.0088	2	0.050	3	0.21	20	0.40	6	0.080	12	0.026	3
C2-Naphthobenzothiophenes	- -	- -	- -	- -	0.15		0.028		0.065		0.096		0.24		0.12		0.040	
C2-Phenanthrenes/Anthracenes	- -	- -	- -	670	0.55	257	0.048	10	0.32	16	0.70	66	1.6	25	0.90	140	0.27	31

See Notes on Page 13.

Table 9
Sediment Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID:	NYSDEC Sediment Guidance Values				NG-SR-SD-07		NG-SR-SD-08		NG-SR-SD-08		NG-SR-SD-09		NG-SR-SD-09		NG-SR-SD-09	
Sample Depth(Inches):				PAHs	6 - 10		0 - 6		6 - 11		0 - 6		6 - 12		12 - 14	
Date Collected:	Class A	Class C	BHH	mg/kg	11/08/11		11/08/11		11/08/11		11/08/11		11/08/11		11/08/11	
Units:	mg/kg	mg/kg	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC
Detected Volatile Organics																
1,2,4,5-Tetramethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
1,2,4-Trimethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
1,4-Diethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
Ethylbenzene	0.43	3.7	- -	- -	NA		NA		NA		NA		NA		NA	
n-Butylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
n-Propylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
p-Isopropyltoluene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
sec-Butylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
Total BTEX	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
Detected PAHs																
1,1'-Biphenyl	- -	- -	- -	- -	0.0045		0.018		0.0020		0.0057 [0.0072]		0.0024		0.0019	
1-Methyldibenzothiophene(1MDT)	- -	- -	- -	- -	0.0026		0.0031		0.00086 U		0.0055 [0.0045]		0.00089 U		0.00095 U	
1-Methylnaphthalene	- -	- -	- -	- -	0.0091		0.029		0.0048		0.013 [0.022]		0.0075		0.0070	
1-Methylphenanthrene (1MP)	- -	- -	- -	- -	0.027		0.040		0.0041		0.069 [0.057]		0.013		0.0055	
2,3,5-Trimethylnaphthalene	- -	- -	- -	- -	0.0042		0.012		0.0013		0.012 [0.013]		0.0047		0.0011	
2,6-Dimethylnaphthalene	- -	- -	- -	- -	0.0068		0.018		0.0031		0.014 [0.022]		0.0050		0.0060	
2/3-Methyldibenzothiophene(2MDT)	- -	- -	- -	- -	0.0078		0.0094		0.00086 U		0.017 [0.013]		0.0016		0.00095 U	
2/4-Methylphenanthrene (2MP)	- -	- -	- -	- -	0.049		0.071		0.0062		0.13 [0.11]		0.023		0.010	
2-Methylanthracene (2MA)	- -	- -	- -	- -	0.029		0.035		0.0077		0.10 [0.12]		0.013		0.0080	
3-Methylphenanthrene (3MP)	- -	- -	- -	- -	0.035		0.048		0.0039		0.088 [0.074]		0.016		0.0070	
4-Methyldibenzothiophene(4MDT)	- -	- -	- -	- -	0.0059		0.0058		0.0010		0.011 [0.0089]		0.0024		0.0011	
9-Methylphenanthrene (9MP)	- -	- -	- -	- -	0.040		0.052		0.011		0.11 [0.081]		0.020		0.0089	
Benzo(a)fluoranthene	- -	- -	- -	- -	0.12		0.11		0.049		0.24 [0.17]		0.049		0.046	
Benzo(b)fluorene	- -	- -	- -	491	0.080	7	0.10	8	0.011	1	0.24 [0.21]	20	0.036	4	0.017	1
Benzo(e)Pyrene	- -	- -	- -	452	0.37	33	0.31	25	0.11	13	0.59 [0.44]	45	0.13	15	0.15	13
Benzothiophene	- -	- -	- -	594	0.0021	0.2	0.0084	1	0.0011	0.1	0.0035 [0.0026]	0.3	0.00093	0.1	0.0013	0.1
C1-Benzo(b)thiophenes	- -	- -	- -	841	0.0015	0.1	0.0034	0.3	0.0020	0.2	0.0022 [0.0021]	0.2	0.0021	0.2	0.0032	0.3
C1-Chrysenes	- -	- -	- -	- -	0.26		0.20		0.048		0.51 [0.36]		0.086		0.065	
C1-Decalins	- -	- -	- -	964	0.0011	0.1	0.0032	0.3	0.0018	0.2	0.0020 [0.0017]	0.2	0.0016	0.2	0.0036	0.3
C1-Dibenzothiophenes	- -	- -	- -	979	0.021	2	0.023	2	0.0026	0.3	0.045 [0.035]	3	0.0065	1	0.0024	0.2
C1-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.38		0.40		0.067		0.99 [0.74]		0.15		0.094	
C1-Fluorenes	- -	- -	- -	967	0.019	2	0.023	2	0.0041	0.5	0.052 [0.041]	4	0.0097	1	0.0043	0.4
C1-Naphthalenes	- -	- -	- -	1095	0.012	1	0.041	3	0.0084	1	0.017 [0.032]	2	0.0094	1	0.011	1
C1-Naphthobenzothiophenes	- -	- -	- -	980	0.053	5	0.053	4	0.016	2	0.12 [0.081]	9	0.025	3	0.019	2
C1-Phenanthrenes/Anthracenes	- -	- -	- -	- -	0.18		0.25		0.034		0.51 [0.45]		0.087		0.041	
C2-Benzo(b)thiophenes	- -	- -	- -	- -	0.0019		0.0025		0.0015		0.0033 [0.0030]		0.0012		0.0014	
C2-Chrysenes	- -	- -	- -	930	0.29	26	0.12	10	0.035	4	0.26 [0.18]	19	0.052	6	0.040	3
C2-Decalins	- -	- -	- -	- -	0.0018		0.0048		0.0034		0.0026 [0.0025]		0.0026		0.0064	
C2-Dibenzothiophenes	- -	- -	- -	- -	0.024		0.022		0.0057		0.048 [0.034]		0.010		0.0052	
C2-Fluoranthenes/Pyrenes	- -	- -	- -	769	0.20	18	0.23	19	0.053	6	0.56 [0.36]	40	0.096	11	0.075	6
C2-Fluorenes	- -	- -	- -	611	0.027	2	0.036	3	0.010	1	0.072 [0.051]	5	0.017	2	0.0074	1
C2-Naphthalenes	- -	- -	- -	445	0.019	2	0.057	5	0.0078	1	0.038 [0.053]	4	0.020	2	0.011	1
C2-Naphthobenzothiophenes	- -	- -	- -	- -	0.037		0.032		0.012		0.062 [0.045]		0.018		0.015	
C2-Phenanthrenes/Anthracenes	- -	- -	- -	670	0.13	12	0.18	15	0.038	4	0.38 [0.29]	29	0.070	8	0.034	3

See Notes on Page 13.

Table 9
Sediment Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID:	NYSDEC Sediment Guidance Values				NG-SR-SD-10		NG-SR-SD-11		NG-SR-SD-12		NG-SR-SD-12		NG-SR-SD-12		NG-SR-SD-13	
Sample Depth(Inches):				PAHs	0 - 6		0 - 7		0 - 6		6 - 12		12 - 20		0 - 7	
Date Collected:	Class A	Class C	BHH	mg/kg	11/08/11		11/08/11		11/09/11		11/09/11		11/09/11		11/09/11	
Units:	mg/kg	mg/kg	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC
Detected Volatile Organics																
1,2,4,5-Tetramethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
1,2,4-Trimethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
1,4-Diethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
Ethylbenzene	0.43	3.7	- -	- -	NA		NA		NA		NA		NA		NA	
n-Butylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
n-Propylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
p-Isopropyltoluene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
sec-Butylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
Total BTEX	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
Detected PAHs																
1,1'-Biphenyl	- -	- -	- -	- -	0.013		0.0093		0.0016		0.0044 U [0.0020]		0.0019		0.00082 U	
1-Methyldibenzothiophene(1MDT)	- -	- -	- -	- -	0.0059		0.010		0.00099		0.0044 U [0.0010]		0.0015 U		0.00095	
1-Methylnaphthalene	- -	- -	- -	- -	0.023		0.018		0.0020		0.0044 U [0.0024]		0.0023		0.0011	
1-Methylphenanthrene (1MP)	- -	- -	- -	- -	0.047		0.099		0.0094		0.011 [0.010]		0.012		0.0084	
2,3,5-Trimethylnaphthalene	- -	- -	- -	- -	0.0052		0.015		0.00087 U		0.0044 U [0.0011]		0.0015 U		0.00082 U	
2,6-Dimethylnaphthalene	- -	- -	- -	- -	0.020		0.024		0.0019		0.0064 [0.0022]		0.0024		0.0012	
2/3-Methyldibenzothiophene(2MDT)	- -	- -	- -	- -	0.019		0.030		0.0020		0.0044 U [0.0019]		0.0022		0.0012	
2/4-Methylphenanthrene (2MP)	- -	- -	- -	- -	0.096		0.19		0.018		0.019 [0.021]		0.025		0.015	
2-Methylanthracene (2MA)	- -	- -	- -	- -	0.033		0.088		0.0048		0.0084 [0.0058]		0.0080		0.0069	
3-Methylphenanthrene (3MP)	- -	- -	- -	- -	0.082		0.14		0.014		0.015 [0.016]		0.019		0.011	
4-Methyldibenzothiophene(4MDT)	- -	- -	- -	- -	0.014		0.024		0.0022		0.0044 U [0.0022]		0.0032		0.0025	
9-Methylphenanthrene (9MP)	- -	- -	- -	- -	0.061		0.13		0.011		0.014 [0.012]		0.016		0.012	
Benzo(a)fluoranthene	- -	- -	- -	- -	0.14		0.21		0.023		0.025 [0.022]		0.032		0.023	
Benzo(b)fluorene	- -	- -	- -	491	0.20	38	0.27	49	0.032	10	0.026 [0.030]	4	0.054	5	0.023	7
Benzo(e)Pyrene	- -	- -	- -	452	0.64	121	0.76	138	0.12	38	0.088 [0.12]	14	0.17	15	0.098	29
Benzothiophene	- -	- -	- -	594	0.0031 U		0.0031 U		0.00087 U		0.0044 U [0.00086 U]		0.0015 U		0.00082 U	
C1-Benzo(b)thiophenes	- -	- -	- -	841	0.0086	2	0.0035	1	0.00087 U		0.0044 U [0.00086 U]		0.0023	0.2	0.00082 U	
C1-Chrysenes	- -	- -	- -	- -	0.24		0.48		0.057		0.060 [0.053]		0.084		0.069	
C1-Decalins	- -	- -	- -	964	0.014	3	0.0032	1	0.00087 U		0.0044 U [0.00086 U]		0.0015 U		0.00082 U	
C1-Dibenzothiophenes	- -	- -	- -	979	0.048	9	0.079	14	0.0061	2	0.0075 [0.0063]	1	0.0086	1	0.0067	2
C1-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.59		1.0		0.12		0.12 [0.12]		0.19		0.12	
C1-Fluorenes	- -	- -	- -	967	0.053	10	0.072	13	0.0049	2	0.015 [0.0054]	1	0.0078	1	0.0046	1
C1-Naphthalenes	- -	- -	- -	1095	0.029	5	0.024	4	0.0024	1	0.0044 U [0.0033]	0.4	0.0028	0.2	0.0014	0
C1-Naphthobenzothiophenes	- -	- -	- -	980	0.097	18	0.17	31	0.023	7	0.022 [0.019]	3	0.033	3	0.029	9
C1-Phenanthrenes/Anthracenes	- -	- -	- -	- -	0.33		0.67		0.057		0.070 [0.067]		0.082		0.054	
C2-Benzo(b)thiophenes	- -	- -	- -	- -	0.0066		0.0058		0.00087 U		0.0063 [0.00087 J]		0.0021		0.00082 U	
C2-Chrysenes	- -	- -	- -	930	0.13	25	0.27	49	0.036	11	0.028 [0.028]	4	0.046	4	0.045	13
C2-Decalins	- -	- -	- -	- -	0.010		0.0059		0.0013		0.0044 U [0.00086 U]		0.0015 U		0.00082 U	
C2-Dibenzothiophenes	- -	- -	- -	- -	0.035		0.081		0.0076		0.012 [0.0076]		0.012		0.011	
C2-Fluoranthenes/Pyrenes	- -	- -	- -	769	0.26	49	0.53	96	0.078	25	0.072 [0.070]	10	0.10	9	0.073	21
C2-Fluorenes	- -	- -	- -	611	0.040	8	0.075	14	0.0068	2	0.016 [0.0068]	2	0.010	1	0.0081	2
C2-Naphthalenes	- -	- -	- -	445	0.049	9	0.056	10	0.0054	2	0.019 J [0.0058 J]	2	0.0091	1	0.0037	1
C2-Naphthobenzothiophenes	- -	- -	- -	- -	0.13		0.16		0.022		0.019 [0.016]		0.032		0.027	
C2-Phenanthrenes/Anthracenes	- -	- -	- -	670	0.14	26	0.37	67	0.033	11	0.038 [0.036]	5	0.048	4	0.043	13

See Notes on Page 13.

Table 9
Sediment Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID:	NYSDEC Sediment Guidance Values				NG-SR-SD-14		NG-SR-SD-14		NG-SR-SD-14		NG-SR-SD-14		NG-SR-SD-15		NG-SR-SD-16	
Sample Depth(Inches):				PAHs	0 - 6		6 - 12		12 - 24		24 - 36		0 - 6		0 - 6	
Date Collected:	Class A	Class C	BHH	mg/kg	11/09/11		11/09/11		11/09/11		11/09/11		11/09/11		11/09/11	
Units:	mg/kg	mg/kg	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC
Detected Volatile Organics																
1,2,4,5-Tetramethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
1,2,4-Trimethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
1,4-Diethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
Ethylbenzene	0.43	3.7	- -	- -	NA		NA		NA		NA		NA		NA	
n-Butylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
n-Propylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
p-Isopropyltoluene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
sec-Butylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
Total BTEX	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA	
Detected PAHs																
1,1'-Biphenyl	- -	- -	- -	- -	0.0091		0.0050		0.0071 [0.0072]		0.0035		0.0018		0.010 U	
1-Methyldibenzothiophene(1MDT)	- -	- -	- -	- -	0.012		0.0085		0.0070 [0.0084]		0.0029		0.0052		0.010	
1-Methylnaphthalene	- -	- -	- -	- -	0.045		0.014		0.011 [0.027]		0.0087		0.0030		0.010 U	
1-Methylphenanthrene (1MP)	- -	- -	- -	- -	0.11		0.058		0.044 [0.048]		0.022		0.055		0.062	
2,3,5-Trimethylnaphthalene	- -	- -	- -	- -	0.020		0.0077		0.0054 [0.0075]		0.0042		0.0052		0.010 U	
2,6-Dimethylnaphthalene	- -	- -	- -	- -	0.037		0.014		0.014 [0.023]		0.010		0.0056		0.010 U	
2/3-Methyldibenzothiophene(2MDT)	- -	- -	- -	- -	0.037		0.026		0.021 [0.023]		0.011		0.017		0.024	
2/4-Methylphenanthrene (2MP)	- -	- -	- -	- -	0.17		0.091		0.078 [0.078]		0.041		0.098		0.11	
2-Methylanthracene (2MA)	- -	- -	- -	- -	0.062		0.041		0.036 [0.038]		0.015		0.062		0.074	
3-Methylphenanthrene (3MP)	- -	- -	- -	- -	0.15		0.082		0.063 [0.063]		0.033		0.071		0.079	
4-Methyldibenzothiophene(4MDT)	- -	- -	- -	- -	0.033		0.022		0.018 [0.021]		0.0071		0.012		0.019	
9-Methylphenanthrene (9MP)	- -	- -	- -	- -	0.14		0.086		0.068 [0.073]		0.033		0.086		0.10	
Benzo(a)fluoranthene	- -	- -	- -	- -	0.13		0.10		0.090 [0.091]		0.046		0.16		0.24	
Benzo(b)fluorene	- -	- -	- -	491	0.17	24	0.13	18	0.11 [0.11]	11	0.049	5	0.13	9	0.15	16
Benzo(e)Pyrene	- -	- -	- -	452	0.41	58	0.34	48	0.29 [0.28]	28	0.17	17	0.47	32	0.83	86
Benzothiophene	- -	- -	- -	594	0.0016	0.2	0.0014	0.2	0.0018 U [0.0015 U]		0.00091 U		0.0018 U		0.010 U	
C1-Benzo(b)thiophenes	- -	- -	- -	841	0.0034	0.5	0.0021	0.3	0.0020 [0.0026]	0.2	0.0013	0.1	0.0018 U		0.010 U	
C1-Chrysenes	- -	- -	- -	- -	0.41		0.29		0.22 [0.25]		0.12		0.41		0.57	
C1-Decalins	- -	- -	- -	964	0.0022	0.3	0.0013	0.2	0.0026 [0.0030]	0.3	0.0021	0.2	0.0018 U		0.010 U	
C1-Dibenzothiophenes	- -	- -	- -	979	0.097	14	0.068	10	0.056 [0.063]	6	0.025	2	0.044	3	0.064	7
C1-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.82		0.58		0.48 [0.52]		0.24		0.72		1.0	
C1-Fluorenes	- -	- -	- -	967	0.094	13	0.043	6	0.033 [0.035]	3	0.017	2	0.028	2	0.041	4
C1-Naphthalenes	- -	- -	- -	1095	0.048	7	0.017	2	0.017 [0.043]	3	0.012	1	0.0047	0	0.014	1
C1-Naphthobenzothiophenes	- -	- -	- -	980	0.15	21	0.12	17	0.10 [0.12]	11	0.047	5	0.14	10	0.25	26
C1-Phenanthrenes/Anthracenes	- -	- -	- -	- -	0.63		0.36		0.29 [0.30]		0.15		0.38		0.44	
C2-Benzo(b)thiophenes	- -	- -	- -	- -	0.0067		0.0042		0.0043 [0.0050]		0.0028		0.0032		0.011	
C2-Chrysenes	- -	- -	- -	930	0.24	34	0.16	22	0.14 [0.15]	14	0.074	7	0.24	16	0.41	42
C2-Decalins	- -	- -	- -	- -	0.0032		0.0019		0.0046 [0.0045]		0.0043		0.0041		0.010 U	
C2-Dibenzothiophenes	- -	- -	- -	- -	0.11		0.077		0.067 [0.086]		0.028		0.056		0.11	
C2-Fluoranthenes/Pyrenes	- -	- -	- -	769	0.43	61	0.30	42	0.24 [0.27]	25	0.13	13	0.51	35	0.76	79
C2-Fluorenes	- -	- -	- -	611	0.11	16	0.062	9	0.038 [0.043]	4	0.022	2	0.050	3	0.068	7
C2-Naphthalenes	- -	- -	- -	445	0.11	16	0.039	5	0.033 [0.057]	4	0.023	2	0.016	1	0.032	3
C2-Naphthobenzothiophenes	- -	- -	- -	- -	0.10		0.079		0.081 [0.10]		0.040		0.12		0.29	
C2-Phenanthrenes/Anthracenes	- -	- -	- -	670	0.40	57	0.24	34	0.19 [0.24]	21	0.098	10	0.30	21	0.39	40

See Notes on Page 13.

Table 9
Sediment Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID:	NYSDEC Sediment Guidance Values				NG-SR-SD-16		NG-SR-SD-16		NG-SR-SD-16		NG-SR-SD-16		NG-SR-SD-17		NG-SR-SD-18		NG-SR-SD-19	
Sample Depth(Inches):				PAHs	6 - 12		12 - 24		24 - 36		36 - 48		0 - 7		0 - 5		0 - 5	
Date Collected:	Class A	Class C	BHH	mg/kg	11/09/11		11/09/11		11/09/11		11/09/11		11/09/11		11/09/11		11/09/11	
Units:	mg/kg	mg/kg	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC
Detected Volatile Organics																		
1,2,4,5-Tetramethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
1,2,4-Trimethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
1,4-Diethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
Ethylbenzene	0.43	3.7	- -	- -	NA		NA		NA		NA		NA		NA		NA	
n-Butylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
n-Propylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
p-Isopropyltoluene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
sec-Butylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
Total BTEX	- -	- -	- -	- -	NA		NA		NA		NA		NA		NA		NA	
Detected PAHs																		
1,1'-Biphenyl	- -	- -	- -	- -	0.0053 U		0.00075 U		0.00086 U		0.00091 U		0.015		0.0087		0.17	
1-Methyldibenzothiophene(1MDT)	- -	- -	- -	- -	0.0069		0.0010		0.00086 U		0.0013		0.023		0.0041		0.20	
1-Methylnaphthalene	- -	- -	- -	- -	0.0054		0.0014		0.00098		0.0015		0.085		0.020		0.31	
1-Methylphenanthrene (1MP)	- -	- -	- -	- -	0.043		0.0071		0.0042		0.0092		0.19		0.055		2.6	
2,3,5-Trimethylnaphthalene	- -	- -	- -	- -	0.0053 U		0.00075 U		0.00086 U		0.0012		0.034		0.0046		0.78	
2,6-Dimethylnaphthalene	- -	- -	- -	- -	0.0067		0.0014		0.00096		0.0020		0.11		0.016		1.3	
2/3-Methyldibenzothiophene(2MDT)	- -	- -	- -	- -	0.017		0.0013		0.00086 U		0.0017		0.068		0.018		0.58	
2/4-Methylphenanthrene (2MP)	- -	- -	- -	- -	0.078		0.013		0.0083		0.014		0.32		0.12		5.2	
2-Methylanthracene (2MA)	- -	- -	- -	- -	0.061		0.0059		0.0039		0.0046		0.12		0.036		4.5	
3-Methylphenanthrene (3MP)	- -	- -	- -	- -	0.053		0.0097		0.0062		0.012		0.27		0.091		3.9	
4-Methyldibenzothiophene(4MDT)	- -	- -	- -	- -	0.013		0.0017		0.00098		0.0030		0.065		0.012		0.32	
9-Methylphenanthrene (9MP)	- -	- -	- -	- -	0.075		0.0097		0.0061		0.011		0.25		0.065		3.9	
Benzo(a)fluoranthene	- -	- -	- -	- -	0.15		0.023		0.010		0.010		0.18		0.14		4.9	
Benzo(b)fluorene	- -	- -	- -	491	0.076	18	0.023	15	0.011	4	0.014	3	0.34	104	0.26	36	8.7	455
Benzo(e)Pyrene	- -	- -	- -	452	0.44	102	0.086	54	0.037	13	0.043	9	0.59	181	0.72	99	9.3	487
Benzothiophene	- -	- -	- -	594	0.0053 U		0.00075 U		0.00086 U		0.00091 U		0.0032 U		0.0016 U		0.028	1
C1-Benzo(b)thiophenes	- -	- -	- -	841	0.0053 U		0.00075 U		0.00086 U		0.00091 U		0.024	7	0.0018	0.2	0.020	1
C1-Chrysenes	- -	- -	- -	- -	0.39		0.050		0.026		0.036		0.57		0.33		10	
C1-Decalins	- -	- -	- -	964	0.0053 U		0.00075 U		0.00086 U		0.00091 U		0.0032	1	0.0016 U		0.019	1
C1-Dibenzothiophenes	- -	- -	- -	979	0.047	11	0.0051	3	0.0021	1	0.0072	2	0.19	58	0.040	5	1.6	84
C1-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.61		0.10		0.054		0.074		1.4		0.73		25	
C1-Fluorenes	- -	- -	- -	967	0.029	7	0.0044	3	0.0027	1	0.0059	1	0.18	55	0.040	5	3.1	162
C1-Naphthalenes	- -	- -	- -	1095	0.0075	2	0.0018	1	0.0013	0.4	0.0018	0.4	0.084	26	0.027	4	0.40	21
C1-Naphthobenzothiophenes	- -	- -	- -	980	0.17	39	0.018	11	0.011	4	0.015	3	0.23	71	0.12	16	2.3	120
C1-Phenanthrenes/Anthracenes	- -	- -	- -	- -	0.32		0.047		0.030		0.054		1.2		0.37		20	
C2-Benzo(b)thiophenes	- -	- -	- -	- -	0.0079		0.00091		0.00086 U		0.0012		0.022		0.0032		0.11	
C2-Chrysenes	- -	- -	- -	930	0.28	65	0.031	20	0.016	5	0.020	4	0.30	92	0.25	34	5.1	267
C2-Decalins	- -	- -	- -	- -	0.0053 U		0.00075 U		0.00086 U		0.00091 U		0.0032 U		0.0016 U		0.039	
C2-Dibenzothiophenes	- -	- -	- -	- -	0.068		0.0076		0.0041		0.011		0.15		0.028		1.4	
C2-Fluoranthenes/Pyrenes	- -	- -	- -	769	0.50	116	0.057	36	0.035	12	0.044	9	0.52	160	0.33	45	9.9	518
C2-Fluorenes	- -	- -	- -	611	0.046	11	0.0050	3	0.0035	1	0.0084	2	0.12	37	0.029	4	2.4	126
C2-Naphthalenes	- -	- -	- -	445	0.022	5	0.0037	2	0.0022	1	0.0061	1	0.26	80	0.033	5	2.9	152
C2-Naphthobenzothiophenes	- -	- -	- -	- -	0.23		0.019		0.011		0.015		0.25		0.17		1.1	
C2-Phenanthrenes/Anthracenes	- -	- -	- -	670	0.27	63	0.032	20	0.017	6	0.036	8	0.56	172	0.15	21	11	576

See Notes on Page 13.

Table 9
Sediment Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID:	NYSDEC Sediment Guidance Values				NG-SR-SD-20		NG-SR-SD-21		NG-SR-SD-22		NG-SR-SD-23		NG-SR-SD-24		NG-SR-SD-25	
Sample Depth(Inches):				PAHs	0 - 4		0 - 6		0 - 4		0 - 3		0 - 3		0 - 6	
Date Collected:	Class A	Class C	BHH	mg/kg	11/09/11		11/09/11		11/10/11		11/10/11		11/10/11		11/10/11	
Units:	mg/kg	mg/kg	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC
Detected Volatile Organics																
1,2,4,5-Tetramethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		0.63		0.68	
1,2,4-Trimethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		0.30		0.25 U	
1,4-Diethylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		0.16		0.20 U	
Ethylbenzene	0.43	3.7	- -	- -	NA		NA		NA		NA		0.066		0.050 U	
n-Butylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		0.038		0.050 U	
n-Propylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		0.12		0.050 U	
p-Isopropyltoluene	- -	- -	- -	- -	NA		NA		NA		NA		0.041 J		0.050 U	
sec-Butylbenzene	- -	- -	- -	- -	NA		NA		NA		NA		0.038 U		0.063	
Total BTEX	- -	- -	- -	- -	NA		NA		NA		NA		0.066		ND	
Detected PAHs																
1,1'-Biphenyl	- -	- -	- -	- -	0.0068		0.0038		0.0020		0.0021		0.014		0.012	
1-Methyldibenzothiophene(1MDT)	- -	- -	- -	- -	0.0040		0.0028		0.0030		0.0011		0.0058		0.0098	
1-Methylnaphthalene	- -	- -	- -	- -	0.0096		0.0039		0.0028		0.0014		0.43		0.033	
1-Methylphenanthrene (1MP)	- -	- -	- -	- -	0.048		0.036		0.013		0.0091		0.074		0.044	
2,3,5-Trimethylnaphthalene	- -	- -	- -	- -	0.0051		0.0040		0.0017		0.0011		0.020		0.011	
2,6-Dimethylnaphthalene	- -	- -	- -	- -	0.0097		0.0063		0.0029		0.0019		0.037		0.031	
2/3-Methyldibenzothiophene(2MDT)	- -	- -	- -	- -	0.015		0.012		0.0094		0.0013		0.012		0.010	
2/4-Methylphenanthrene (2MP)	- -	- -	- -	- -	0.094		0.067		0.019		0.018		0.16		0.075	
2-Methylanthracene (2MA)	- -	- -	- -	- -	0.051		0.046		0.0091		0.0075		0.094		0.034	
3-Methylphenanthrene (3MP)	- -	- -	- -	- -	0.070		0.048		0.015		0.014		0.11		0.061	
4-Methyldibenzothiophene(4MDT)	- -	- -	- -	- -	0.0088		0.0058		0.0073		0.0021		0.012		0.017	
9-Methylphenanthrene (9MP)	- -	- -	- -	- -	0.066		0.052		0.019		0.013		0.11		0.068	
Benzo(a)fluoranthene	- -	- -	- -	- -	0.12		0.13		0.022		0.024		0.12		0.10	
Benzo(b)fluorene	- -	- -	- -	491	0.16	13	0.17	26	0.025	5	0.029	4	0.18	10	0.12	3
Benzo(e)Pyrene	- -	- -	- -	452	0.40	33	0.41	63	0.089	18	0.11	14	0.43	24	0.49	13
Benzothiophene	- -	- -	- -	594	0.0013	0.1	0.00089 U		0.00077 U		0.00083 U		0.021	1	0.0068	0.2
C1-Benzo(b)thiophenes	- -	- -	- -	841	0.0016	0.1	0.00089 U		0.00088	0.2	0.00083 U		0.096	5	0.15	4
C1-Chrysenes	- -	- -	- -	- -	0.29		0.25		0.076		0.054		0.33		0.30	
C1-Decalins	- -	- -	- -	964	0.0016	0.1	0.0016	0.2	0.00089	0.2	0.00083 U		0.0045	0.2	0.0071	0.2
C1-Dibenzothiophenes	- -	- -	- -	979	0.036	3	0.026	4	0.023	5	0.0060	1	0.042	2	0.048	1
C1-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.62		0.56		0.14		0.12		0.69		0.55	
C1-Fluorenes	- -	- -	- -	967	0.030	2	0.023	4	0.0079	2	0.0056	1	0.069	4	0.071	2
C1-Naphthalenes	- -	- -	- -	1095	0.012	1	0.0051	1	0.0042	1	0.0020	0.3	0.26	14	0.032	1
C1-Naphthobenzothiophenes	- -	- -	- -	980	0.082	7	0.068	10	0.064	13	0.020	3	0.091	5	0.14	4
C1-Phenanthrenes/Anthracenes	- -	- -	- -	- -	0.33		0.25		0.077		0.063		0.56		0.29	
C2-Benzo(b)thiophenes	- -	- -	- -	- -	0.0027		0.0019		0.0020		0.0012		0.021		0.035	
C2-Chrysenes	- -	- -	- -	930	0.15	12	0.12	18	0.058	12	0.027	4	0.19	10	0.18	5
C2-Decalins	- -	- -	- -	- -	0.0030		0.0023		0.0016		0.00083 U		0.0040 U		0.011	
C2-Dibenzothiophenes	- -	- -	- -	- -	0.033		0.026		0.035		0.0084		0.038		0.062	
C2-Fluoranthenes/Pyrenes	- -	- -	- -	769	0.35	29	0.27	41	0.085	17	0.070	9	0.41	23	0.39	11
C2-Fluorenes	- -	- -	- -	611	0.038	3	0.029	4	0.016	3	0.0067	1	0.065	4	0.066	2
C2-Naphthalenes	- -	- -	- -	445	0.023	2	0.015	2	0.0084	2	0.0051	1	0.17	9	0.10	3
C2-Naphthobenzothiophenes	- -	- -	- -	- -	0.055		0.042		0.079		0.016		0.076		0.18	
C2-Phenanthrenes/Anthracenes	- -	- -	- -	670	0.22	18	0.18	28	0.064	13	0.036	5	0.34	19	0.23	6

See Notes on Page 13.

Table 9
Sediment Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID:	NYSDEC Sediment Guidance Values				NG-SR-SD-01		NG-SR-SD-02		NG-SR-SD-03		NG-SR-SD-04		NG-SR-SD-05		NG-SR-SD-06		NG-SR-SD-07	
Sample Depth(Inches):				PAHs	0 - 3		0 - 3		0 - 7		0 - 4		0 - 4		0 - 7		0 - 6	
Date Collected:	Class A	Class C	BHH	mg/kg	11/08/11		11/08/11		11/08/11		11/08/11		11/08/11		11/08/11		11/08/11	
Units:	mg/kg	mg/kg	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC
Detected PAHs																		
C3-Benzo(b)thiophenes	- -	- -	- -	- -	0.0057		0.0025		0.0047		0.013		0.024		0.0094		0.0030	
C3-Chrysenes	- -	- -	- -	1009	0.26	121	0.038	8	0.18	9	0.32	30	0.75	12	0.44	68	0.14	16
C3-Decalins	- -	- -	- -	- -	0.0016 U		0.0018		0.0014		0.0024		0.011		0.0021		0.0016	
C3-Dibenzothiophenes	- -	- -	- -	- -	0.050		0.0095		0.029		0.058		0.12		0.075		0.024	
C3-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.30		0.036		0.21		0.35		0.87		0.47		0.16	
C3-Fluorenes	- -	- -	- -	687	0.15 J	70 J	0.020 J	4 J	0.10 J	5 J	0.12 J	11 J	0.29 J	5 J	0.20 J	31 J	0.077 J	9 J
C3-Naphthalenes	- -	- -	- -	510	0.080	37	0.0092	2	0.065	3	0.21	20	0.50	8	0.17	26	0.043	5
C3-Naphthobenzothiophenes	- -	- -	- -	- -	0.12		0.027		0.049		0.062		0.14		0.069		0.026	
C3-Phenanthrenes/Anthracenes	- -	- -	- -	745	0.18	84	0.019	4	0.14	7	0.30	28	0.72	11	0.34	53	0.10	11
C4-Benzo(b)thiophenes	- -	- -	- -	- -	0.0032		0.0018		0.0026		0.0058		0.015		0.0067		0.0020	
C4-Chrysenes	- -	- -	- -	1112	0.11	51	0.023	5	0.085	4	0.14	13	0.34	5	0.19	29	0.062	7
C4-Decalins	- -	- -	- -	- -	0.0016 U		0.0033		0.0027		0.0054		0.019		0.0044		0.0029	
C4-Dibenzothiophenes	- -	- -	- -	- -	0.031		0.0065		0.019		0.034		0.076		0.041		0.013	
C4-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.21		0.027		0.14		0.21		0.53		0.29		0.096	
C4-Naphthalenes	- -	- -	- -	768	0.033	15	0.0058	1	0.038	2	0.10	9	0.29	5	0.11	17	0.030	3
C4-Naphthobenzothiophenes	- -	- -	- -	581	0.085	40	0.023	5	0.033	2	0.035	3	0.082	1	0.032	5	0.012	1
C4-Phenanthrenes/Anthracenes	- -	- -	- -	- -	0.056		0.0079		0.049		0.099		0.25		0.10		0.033	
Carbazole	- -	- -	- -	830	0.25	117	0.023	5	0.063	3	0.11	10	0.50	8	0.047	7	0.043	5
Cis/Trans-Decalin	- -	- -	- -	- -	0.0010		0.00043		0.00090		0.0012		0.018		0.00058		0.00063	
Dibenzofuran	- -	- -	- -	1213	0.12	56	0.016	3	0.055	3	0.27	25	0.29	5	0.050	8	0.028	3
Dibenzothiophene	- -	- -	- -	- -	0.17		0.015		0.039		0.15		0.16		0.062		0.028	
Naphthobenzothiophene	- -	- -	- -	- -	0.55		0.051		0.17		0.31		0.48		0.36		0.16	
Perylene	- -	- -	- -	- -	0.55		0.052		0.21		0.49		0.56		0.57		0.23	
Retene	- -	- -	- -	657	0.0016 U		0.00076 U		0.00086 U		0.00083 U		0.0018 U		0.00082 U		0.00077 U	
2-Methylnaphthalene	- -	- -	- -	- -	0.018		0.0046		0.037		0.085		0.19		0.024		0.012	
Acenaphthene	- -	- -	- -	914	0.31	145	0.012	2	0.017	1	0.12	11	0.084	1	0.026	4	0.039	4
Acenaphthylene	- -	- -	- -	- -	0.063		0.032		0.13		0.40		0.50		0.29		0.084	
Anthracene	- -	- -	- -	843	1.4	654	0.066	14	0.25	13	1.1	104	2.9	46	0.67	104	0.25	28
Benzo(a)anthracene	- -	- -	- -	- -	2.5		0.19		0.81		1.6		2.5		1.9		0.80	
Benzo(a)pyrene	- -	- -	18	1122	2.2	1028	0.19	39	0.82	42	1.6	151	2.3	36	1.8	279	0.81	92
Benzo(b)fluoranthene	- -	- -	- -	- -	1.8		0.17		0.71		1.3		1.8		1.4		0.70	
Benzo(g,h,i)perylene	- -	- -	- -	- -	1.1		0.12		0.48		0.97		1.1		1.1		0.51	
Benzo(k)fluoranthene	- -	- -	- -	708	1.7	794	0.16	33	0.66	34	1.2	113	1.7	27	1.4	217	0.64	72
Chrysene	- -	- -	- -	539	2.1	981	0.19	39	0.76	39	1.5	142	2.2	35	1.7	264	0.71	80
Dibenzo(a,h)anthracene	- -	- -	9.8	1115	0.36	168	0.033	7	0.16	8	0.30	28	0.41	6	0.38	59	0.17	19
Fluoranthene	- -	- -	- -	385	4.9	2290	0.45	93	1.4	71	3.7	349	4.0	63	3.7	574	1.4	158
Fluorene	- -	- -	- -	- -	0.41		0.027		0.054		0.34		0.49		0.12		0.065	
Indeno(1,2,3-cd)pyrene	- -	- -	- -	967	1.3	607	0.13	27	0.58	29	1.1	104	1.3	21	1.3	202	0.60	68
Naphthalene	- -	- -	- -	597	0.022	10	0.0097	2	0.12	6	0.35	33	0.91	14	0.059	9	0.034	4
Phenanthrene	- -	- -	- -	698	3.0	1402	0.27	56	0.69	35	2.7	255	2.6	41	1.1	171	0.50	56
Pyrene	- -	- -	- -	- -	3.9		0.37		1.2		2.9		3.1		3.0		1.1	
Total Priority Pollutant PAHs [1]	4	35	- -	- -	**27**		2.4		**8.9**		**21**		**28**		**20**		**8.5**	
Detected Total Organic Carbon																		
Total Organic Carbon	- -	- -	- -	- -	2,140		4,850		19,700		10,600		63,400		6,450		8,850	

See Notes on Page 13.

Table 9
Sediment Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID:	NYSDEC Sediment Guidance Values				NG-SR-SD-07		NG-SR-SD-08		NG-SR-SD-08		NG-SR-SD-09		NG-SR-SD-09		NG-SR-SD-09	
Sample Depth(Inches):				PAHs	6 - 10		0 - 6		6 - 11		0 - 6		6 - 12		12 - 14	
Date Collected:	Class A	Class C	BHH	mg/kg	11/08/11		11/08/11		11/08/11		11/08/11		11/08/11		11/08/11	
Units:	mg/kg	mg/kg	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC
Detected PAHs																
C3-Benzo(b)thiophenes	- -	- -	- -	- -	0.0030		0.0039		0.0023		0.0046 [0.0040]		0.0018		0.0016	
C3-Chrysenes	- -	- -	- -	1009	0.32	29	0.10	8	0.038	4	0.20 [0.14]	15	0.049	6	0.038	3
C3-Decalins	- -	- -	- -	- -	0.00093 U		0.0036		0.0028		0.0023 [0.0020]		0.0016		0.0051	
C3-Dibenzothiophenes	- -	- -	- -	- -	0.023		0.041		0.0069		0.035 [0.025]		0.0081		0.0057	
C3-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.089		0.11		0.039		0.24 [0.15]		0.056		0.038	
C3-Fluorenes	- -	- -	- -	687	0.039 J	4 J	0.053 J	4 J	0.014 J	2 J	0.084 J [0.068 J]	4 J	0.021 J	2 J	0.017 J	1 J
C3-Naphthalenes	- -	- -	- -	510	0.023	2	0.068	5	0.0097	1	0.065 [0.060]	5	0.023	3	0.0070	1
C3-Naphthobenzothiophenes	- -	- -	- -	- -	0.033		0.022		0.013		0.042 [0.029]		0.014		0.014	
C3-Phenanthrenes/Anthracenes	- -	- -	- -	745	0.054	5	0.084	7	0.024	3	0.15 [0.11]	11	0.031	4	0.018	2
C4-Benzo(b)thiophenes	- -	- -	- -	- -	0.0017		0.0021		0.0016		0.0052 [0.0026]		0.0012		0.00095 U	
C4-Chrysenes	- -	- -	- -	1112	0.032	3	0.054	4	0.028	3	0.10 [0.064]	7	0.032	4	0.027	2
C4-Decalins	- -	- -	- -	- -	0.0032		0.0068		0.0045		0.0039 [0.0040]		0.0024		0.0062	
C4-Dibenzothiophenes	- -	- -	- -	- -	0.012		0.010		0.0047		0.021 [0.015]		0.0056		0.0042	
C4-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.061		0.077		0.028		0.14 [0.096]		0.038		0.028	
C4-Naphthalenes	- -	- -	- -	768	0.015	1	0.041	3	0.011	1	0.043 [0.035]	3	0.012	1	0.0055	0.5
C4-Naphthobenzothiophenes	- -	- -	- -	581	0.023	2	0.013	1	0.0091	1	0.029 [0.019]	2	0.012	1	0.013	1
C4-Phenanthrenes/Anthracenes	- -	- -	- -	- -	0.024		0.034		0.012		0.047 [0.034]		0.012		0.0085	
Carbazole	- -	- -	- -	830	0.039	4	0.031	3	0.0049	1	0.035 [0.087]	5	0.0078	1	0.014	1
Cis/Trans-Decalin	- -	- -	- -	- -	0.00062		0.0023		0.00068		0.00093 [0.0012]		0.0013		0.00078	
Dibenzofuran	- -	- -	- -	1213	0.016	1	0.075	6	0.0027	0.3	0.025 [0.033]	3	0.0044	1	0.0057	0.5
Dibenzothiophene	- -	- -	- -	- -	0.016		0.021		0.0014		0.026 [0.026]		0.0041		0.0040	
Naphthobenzothiophene	- -	- -	- -	- -	0.094		0.094		0.014		0.20 [0.14]		0.034		0.025	
Perylene	- -	- -	- -	- -	0.17		0.13		0.031		0.26 [0.19]		0.048		0.054	
Retene	- -	- -	- -	657	0.00093 U		0.00090 U		0.00086 U		0.00087 U [0.00085 U]		0.00089 U		0.0030	0.3
2-Methylnaphthalene	- -	- -	- -	- -	0.010		0.039		0.0088		0.015 [0.031]		0.0081		0.012	
Acenaphthene	- -	- -	- -	914	0.017	2	0.012	1	0.0026	0.3	0.019 [0.017]	2	0.0035	0.4	0.0035	0.3
Acenaphthylene	- -	- -	- -	- -	0.084		0.081		0.065		0.13 [0.11]		0.048 J		0.053	
Anthracene	- -	- -	- -	843	0.12	11	0.13	10	0.040	5	0.27 [0.49]	33	0.046 J	5 J	0.040	3
Benzo(a)anthracene	- -	- -	- -	- -	0.44		0.42		0.063		0.98 [0.71]		0.15 J		0.11	
Benzo(a)pyrene	- -	- -	18	1122	0.58	52	0.47	38	0.11	13	0.96 [0.70]	72	0.18	21	0.19	16
Benzo(b)fluoranthene	- -	- -	- -	- -	0.48		0.43		0.097		0.82 [0.60]		0.16 J		0.17	
Benzo(g,h,i)perylene	- -	- -	- -	- -	0.44		0.31		0.20		0.59 [0.44]		0.17 J		0.17	
Benzo(k)fluoranthene	- -	- -	- -	708	0.42	38	0.36	29	0.083	10	0.73 [0.56]	56	0.15 J	17 J	0.14	12
Chrysene	- -	- -	- -	539	0.41	37	0.39	31	0.066	8	0.87 [0.72]	69	0.15 J	17 J	0.13	11
Dibenzo(a,h)anthracene	- -	- -	9.8	1115	0.11	10	0.089	7	0.035	4	0.21 [0.13]	15	0.041 J	5 J	0.045	4
Fluoranthene	- -	- -	- -	385	0.86	77	0.81	65	0.060	7	1.6 [1.2]	122	0.23	26	0.17	15
Fluorene	- -	- -	- -	- -	0.025		0.028		0.0028		0.047 [0.059]		0.0075 J		0.0053	
Indeno(1,2,3-cd)pyrene	- -	- -	- -	967	0.45	41	0.34	27	0.17	20	0.69 [0.50]	52	0.16 J	18 J	0.18	16
Naphthalene	- -	- -	- -	597	0.032	3	0.17	14	0.014	2	0.043 [0.042]	4	0.0098 J	1 J	0.013	1
Phenanthrene	- -	- -	- -	698	0.29	26	0.39	31	0.014	2	0.48 [0.49]	42	0.077 J	9 J	0.068	6
Pyrene	- -	- -	- -	- -	0.76		0.69		0.067		1.3 [1.0]		0.21		0.17	
Total Priority Pollutant PAHs [1]	4	35	- -	- -	**5.5**		**5.1**		1.1		**9.7 [7.9]**		1.8 J		1.7	
Detected Total Organic Carbon																
Total Organic Carbon	- -	- -	- -	- -	11,100		12,400		8,660		12,700 [10,200]		8,700		11,600	

See Notes on Page 13.

Table 9
Sediment Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID:	NYSDEC Sediment Guidance Values				NG-SR-SD-10		NG-SR-SD-11		NG-SR-SD-12		NG-SR-SD-12		NG-SR-SD-12		NG-SR-SD-13	
Sample Depth(Inches):				PAHs	0 - 6		0 - 7		0 - 6		6 - 12		12 - 20		0 - 7	
Date Collected:	Class A	Class C	BHH	mg/kg	11/08/11		11/08/11		11/09/11		11/09/11		11/09/11		11/09/11	
Units:	mg/kg	mg/kg	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC
Detected PAHs																
C3-Benzo(b)thiophenes	- -	- -	- -	- -	0.012		0.010		0.0020		0.0099 J [0.0020]		0.0040		0.0019	
C3-Chrysenes	- -	- -	- -	1009	0.16	30	0.23	42	0.033	11	0.053 [0.026]	5	0.046	4	0.036	11
C3-Decalins	- -	- -	- -	- -	0.0031 U		0.0031 U		0.00087 U		0.0044 U [0.00086 U]		0.0015 U		0.00082 U	
C3-Dibenzothiophenes	- -	- -	- -	- -	0.034		0.063		0.0076		0.014 [0.0062]		0.010		0.013	
C3-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.12		0.24		0.033		0.031 [0.027]		0.047		0.038	
C3-Fluorenes	- -	- -	- -	687	0.14 J	26 J	0.17 J	22 J	0.029 J	9 J	0.0044 UJ [0.030 J]	4 J	0.030 J	3 J	0.018 J	5 J
C3-Naphthalenes	- -	- -	- -	510	0.057	11	0.075	14	0.0052	2	0.017 [0.0061]	2	0.0095	1	0.0048	1
C3-Naphthobenzothiophenes	- -	- -	- -	- -	0.15		0.14		0.021		0.018 [0.014]		0.030		0.022	
C3-Phenanthrenes/Anthracenes	- -	- -	- -	745	0.055	10	0.15	27	0.013	4	0.021 [0.014]	2	0.021	2	0.022	6
C4-Benzo(b)thiophenes	- -	- -	- -	- -	0.0076		0.0073		0.00087 U		0.0044 U [0.00086]		0.0019		0.00096	
C4-Chrysenes	- -	- -	- -	1112	0.12	23	0.14	25	0.020	6	0.0044 UJ [0.020 J]	3 J	0.035	3	0.026	8
C4-Decalins	- -	- -	- -	- -	0.0031 U		0.0031 U		0.00087 U		0.0044 U [0.00086 U]		0.0015 U		0.00082 U	
C4-Dibenzothiophenes	- -	- -	- -	- -	0.031		0.042		0.0042		0.0044 U [0.0042]		0.0090		0.0074	
C4-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.10		0.17		0.029		0.025 [0.022]		0.035		0.031	
C4-Naphthalenes	- -	- -	- -	768	0.036	7	0.044	8	0.0029	1	0.011 J [0.0032 J]	1 J	0.0057	1	0.0035	1
C4-Naphthobenzothiophenes	- -	- -	- -	581	0.14	26	0.11	20	0.016	5	0.017 [0.012]	2	0.025	2	0.016	5
C4-Phenanthrenes/Anthracenes	- -	- -	- -	- -	0.031		0.058		0.0071		0.019 [0.0065]		0.011		0.011	
Carbazole	- -	- -	- -	830	0.21	40	0.15	27	0.025	8	0.018 [0.026]	3	0.031	3	0.013	4
Cis/Trans-Decalin	- -	- -	- -	- -	0.0094		0.0015 U		0.00044 U		0.0035 J [0.00043 UJ]		0.0011		0.00041 U	
Dibenzofuran	- -	- -	- -	1213	0.17	32	0.087	16	0.0059	2	0.0061 [0.010]	1	0.0083	1	0.0031	1
Dibenzothiophene	- -	- -	- -	- -	0.13		0.097		0.011		0.0083 [0.013]		0.014		0.0063	
Naphthobenzothiophene	- -	- -	- -	- -	0.23		0.29		0.048		0.035 [0.045]		0.075		0.041	
Perylene	- -	- -	- -	- -	0.27		0.36		0.048		0.063 [0.046]		0.071		0.039	
Retene	- -	- -	- -	657	0.0031 U		0.0031 U		0.0037	1	0.039 J [0.0053 J]	3 J	0.0085	1	0.0050	1
2-Methylnaphthalene	- -	- -	- -	- -	0.024		0.021		0.0020		0.0044 U [0.0030]		0.0023		0.0012	
Acenaphthene	- -	- -	- -	914	0.37	70	0.16	29	0.012	4	0.010 [0.014]	2	0.016	1	0.0061	2
Acenaphthylene	- -	- -	- -	- -	0.045		0.13		0.019		0.020 [0.017]		0.017		0.022	
Anthracene	- -	- -	- -	843	0.38	72	0.41	74	0.030	10	0.042 J [0.038]	5 J	0.055	5	0.035	10
Benzo(a)anthracene	- -	- -	- -	- -	0.80		1.1		0.14		0.13 J [0.14]		0.22		0.12	
Benzo(a)pyrene	- -	- -	18	1122	0.96	181	1.2	218	0.16	51	0.13 [0.16]	20	0.22	19	0.14	41
Benzo(b)fluoranthene	- -	- -	- -	- -	0.92		1.1		0.17		0.12 [0.16]		0.23		0.13	
Benzo(g,h,i)perylene	- -	- -	- -	- -	0.64		0.76		0.13		0.086 [0.12]		0.16		0.089	
Benzo(k)fluoranthene	- -	- -	- -	708	0.68	129	0.91	165	0.14	45	0.12 J [0.14]	19 J	0.20	18	0.12	35
Chrysene	- -	- -	- -	539	0.86	163	1.1	200	0.17	54	0.14 J [0.17]	23 J	0.25	22	0.14	41
Dibenzo(a,h)anthracene	- -	- -	9.8	1115	0.17	32	0.23	42	0.032	10	0.024 [0.030]	4	0.046	4	0.026	8
Fluoranthene	- -	- -	- -	385	2.2	416	2.6	472	0.39	124	0.32 [0.41]	49	0.51	45	0.26	76
Fluorene	- -	- -	- -	- -	0.33		0.18		0.013		0.016 [0.017]		0.020		0.0076	
Indeno(1,2,3-cd)pyrene	- -	- -	- -	967	0.69	130	0.85	154	0.13	41	0.091 [0.12]	14	0.17	15	0.096	28
Naphthalene	- -	- -	- -	597	0.019	4	0.038	7	0.0036	1	0.0044 U [0.0055]	1	0.0031	0	0.0018	1
Phenanthrene	- -	- -	- -	698	1.9	359	1.6	290	0.20	64	0.16 J [0.25]	34 J	0.26	23	0.12	35
Pyrene	- -	- -	- -	- -	1.7		2.1		0.31		0.26 [0.33]		0.40		0.22	
Total Priority Pollutant PAHs [1]	4	35	- -	- -	**13**		**15**		2.0		1.7 J [2.1]		2.8		1.5	
Detected Total Organic Carbon																
Total Organic Carbon	- -	- -	- -	- -	5,290		5,510		3,140		12,300 J [2,540 J]		11,400		3,410	

See Notes on Page 13.

Table 9
Sediment Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID:	NYSDEC Sediment Guidance Values				NG-SR-SD-14		NG-SR-SD-14		NG-SR-SD-14		NG-SR-SD-14		NG-SR-SD-15		NG-SR-SD-16	
Sample Depth(Inches):				PAHs	0 - 6		6 - 12		12 - 24		24 - 36		0 - 6		0 - 6	
Date Collected:	Class A	Class C	BHH	mg/kg	11/09/11		11/09/11		11/09/11		11/09/11		11/09/11		11/09/11	
Units:	mg/kg	mg/kg	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC
Detected PAHs																
C3-Benzo(b)thiophenes	- -	- -	- -	- -	0.011		0.0084		0.0082 [0.0099]		0.0043		0.0055		0.018	
C3-Chrysenes	- -	- -	- -	1009	0.14	20	0.11	15	0.10 [0.12]	11	0.053	5	0.19	13	0.43	45
C3-Decalins	- -	- -	- -	- -	0.0026		0.00089 U		0.0018 U [0.0035]		0.0034		0.0018 U		0.010 U	
C3-Dibenzothiophenes	- -	- -	- -	- -	0.073		0.053		0.050 [0.062]		0.025		0.050		0.11	
C3-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.19		0.13		0.11 [0.13]		0.065		0.25		0.42	
C3-Fluorenes	- -	- -	- -	687	0.12 J	17 J	0.070 J	10 J	0.068 J [0.069 J]	7 J	0.051 J	5 J	0.074 J	5 J	0.15 J	16 J
C3-Naphthalenes	- -	- -	- -	510	0.11	16	0.045	6	0.035 [0.053]	4	0.023	2	0.032	2	0.044	5
C3-Naphthobenzothiophenes	- -	- -	- -	- -	0.059		0.047		0.064 [0.073]		0.034		0.12		0.31	
C3-Phenanthrenes/Anthracenes	- -	- -	- -	745	0.15	21	0.11	15	0.079 [0.11]	9	0.042	4	0.14	10	0.19	20
C4-Benzo(b)thiophenes	- -	- -	- -	- -	0.0061		0.0048		0.0053 [0.0062]		0.0030		0.0044		0.014	
C4-Chrysenes	- -	- -	- -	1112	0.070	10	0.060	8	0.061 [0.066]	6	0.032	3	0.12	8	0.31	32
C4-Decalins	- -	- -	- -	- -	0.0081		0.0036		0.0018 UJ [0.0077 J]	1 J	0.0064		0.0018 U		0.010 U	
C4-Dibenzothiophenes	- -	- -	- -	- -	0.031		0.024		0.026 [0.032]		0.014		0.037		0.074	
C4-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.11		0.078		0.074 [0.079]		0.045		0.15		0.30	
C4-Naphthalenes	- -	- -	- -	768	0.054	8	0.027	4	0.022 [0.032]	3	0.016	2	0.028	2	0.039	4
C4-Naphthobenzothiophenes	- -	- -	- -	581	0.031	4	0.030	4	0.042 [0.055]	5	0.025	2	0.096	7	0.30	31
C4-Phenanthrenes/Anthracenes	- -	- -	- -	- -	0.046		0.032		0.030 [0.041]		0.018		0.057		0.099	
Carbazole	- -	- -	- -	830	0.072	10	0.036	5	0.044 [0.027]	4	0.028	3	0.024	2	0.13	13
Cis/Trans-Decalin	- -	- -	- -	- -	0.0013		0.00071		0.0014 [0.0015]		0.0014 J	0.1 J	0.00089 U		0.0050 U	
Dibenzofuran	- -	- -	- -	1213	0.035	5	0.016	2	0.022 [0.024]	2	0.018	2	0.0077	1	0.019	2
Dibenzothiophene	- -	- -	- -	- -	0.062		0.038		0.034 [0.029]		0.019		0.020		0.051	
Naphthobenzothiophene	- -	- -	- -	- -	0.18		0.14		0.12 [0.13]		0.059		0.18		0.32	
Perylene	- -	- -	- -	- -	0.24		0.27		0.26 [0.23]		0.30		0.20		0.33	
Retene	- -	- -	- -	657	0.00096 U		0.00089 U		0.0018 UJ [0.015 J]	1 J	0.011	1	0.0018 U		0.010 U	
2-Methylnaphthalene	- -	- -	- -	- -	0.034		0.015		0.017 [0.043]		0.011		0.0042		0.010 U	
Acenaphthene	- -	- -	- -	914	0.050	7	0.031	4	0.043 [0.033]	4	0.016	2	0.018	1	0.052	5
Acenaphthylene	- -	- -	- -	- -	0.22		0.14		0.11 [0.12]		0.073		0.15		0.31	
Anthracene	- -	- -	- -	843	0.26	37	0.17	24	0.18 [0.15]	16	0.080	8	0.20	14	0.30	31
Benzo(a)anthracene	- -	- -	- -	- -	0.59		0.44		0.41 [0.40]		0.20		0.80		1.0	
Benzo(a)pyrene	- -	- -	18	1122	0.62	88	0.52	73	0.46 [0.45]	45	0.25	25	0.78	53	1.3	135
Benzo(b)fluoranthene	- -	- -	- -	- -	0.54		0.40		0.38 [0.34]		0.22		0.69		1.0	
Benzo(g,h,i)perylene	- -	- -	- -	- -	0.40		0.30		0.26 [0.25]		0.16		0.43		0.80	
Benzo(k)fluoranthene	- -	- -	- -	708	0.48	68	0.38	53	0.37 [0.33]	35	0.21	21	0.59	40	1.0	104
Chrysene	- -	- -	- -	539	0.63	89	0.46	65	0.42 [0.41]	41	0.25	25	0.73	50	1.1	114
Dibenzo(a,h)anthracene	- -	- -	9.8	1115	0.13	18	0.10	14	0.086 [0.081]	8	0.047	5	0.15	10	0.26	27
Fluoranthene	- -	- -	- -	385	1.1	156	0.78	110	0.89 [0.78]	83	0.51	50	1.2	82	2.1	218
Fluorene	- -	- -	- -	- -	0.11		0.048		0.051 [0.043]		0.030		0.022		0.050	
Indeno(1,2,3-cd)pyrene	- -	- -	- -	967	0.45	64	0.35	49	0.30 [0.28]	29	0.17	17	0.50	34	0.88	91
Naphthalene	- -	- -	- -	597	0.033	5	0.023	3	0.021 [0.039]	3	0.016 J	1.6 J	0.0077	1	0.021	2
Phenanthrene	- -	- -	- -	698	0.84	119	0.43	60	0.51 [0.39]	45	0.31	30	0.37	25	0.78	81
Pyrene	- -	- -	- -	- -	1.0		0.78		0.79 [0.73]		0.46		1.1		1.8	
Total Priority Pollutant PAHs [1]	4	35	- -	- -	**7.6**		**5.4**		**5.3 [4.9]**		3.0 J		**7.8**		**13**	
Detected Total Organic Carbon																
Total Organic Carbon	- -	- -	- -	- -	7,040		7,120		11,200 [8,880]		10,200		14,600		9,650	

See Notes on Page 13.

Table 9
Sediment Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID:	NYSDEC Sediment Guidance Values				NG-SR-SD-16		NG-SR-SD-16		NG-SR-SD-16		NG-SR-SD-16		NG-SR-SD-17		NG-SR-SD-18		NG-SR-SD-19	
Sample Depth(Inches):				PAHs	6 - 12		12 - 24		24 - 36		36 - 48		0 - 7		0 - 5		0 - 5	
Date Collected:	Class A	Class C	BHH	mg/kg	11/09/11		11/09/11		11/09/11		11/09/11		11/09/11		11/09/11		11/09/11	
Units:	mg/kg	mg/kg	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC
Detected PAHs																		
C3-Benzo(b)thiophenes	- -	- -	- -	- -	0.012		0.0021		0.00086 U		0.0032		0.026		0.0045		0.19	
C3-Chrysenes	- -	- -	- -	1009	0.29	67	0.028	18	0.016	5	0.020	4	0.26	80	0.24	33	3.8	199
C3-Decalins	- -	- -	- -	- -	0.0053 U		0.00075 U		0.00086 U		0.00091 U		0.0032 U		0.0016 U		0.030	
C3-Dibenzothiophenes	- -	- -	- -	- -	0.068		0.0067		0.0035		0.0084		0.086		0.026		0.93	
C3-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.29		0.027		0.016		0.021		0.23		0.16		4.2	
C3-Fluorenes	- -	- -	- -	687	0.076 J	18 J	0.012 J	8 J	0.0062 J	2 J	0.017 J	4 J	0.12 J	37 J	0.15 J	21 J	1.9 J	99 J
C3-Naphthalenes	- -	- -	- -	510	0.036	8	0.0043	3	0.0032	1	0.0081	2	0.20	61	0.024	3	3.7	194
C3-Naphthobenzothiophenes	- -	- -	- -	- -	0.24		0.019		0.011		0.012		0.23		0.17		0.58	
C3-Phenanthrenes/Anthracenes	- -	- -	- -	745	0.13	30	0.013	8	0.0090	3	0.017	4	0.17	52	0.054	7	3.9	204
C4-Benzo(b)thiophenes	- -	- -	- -	- -	0.0084		0.0011		0.00086 U		0.0014		0.012		0.0027		0.094	
C4-Chrysenes	- -	- -	- -	1112	0.20	46	0.018	11	0.00086 U		0.00091 U		0.17	52	0.13	18	1.7	89
C4-Decalins	- -	- -	- -	- -	0.0053 U		0.00075 U		0.00086 U		0.00091 U		0.0032 U		0.0016 U		0.061	
C4-Dibenzothiophenes	- -	- -	- -	- -	0.053		0.0043		0.0025		0.0049		0.052		0.024		0.45	
C4-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.19		0.019		0.011		0.015		0.16		0.15		2.4	
C4-Naphthalenes	- -	- -	- -	768	0.028	6	0.0031	2	0.0018	1	0.0047	1	0.073	22	0.013	2	1.6	84
C4-Naphthobenzothiophenes	- -	- -	- -	581	0.22	51	0.017	11	0.0094	3	0.0091	2	0.20	61	0.13	18	0.27	14
C4-Phenanthrenes/Anthracenes	- -	- -	- -	- -	0.068		0.0062		0.0067		0.018		0.057		0.028		1.2	
Carbazole	- -	- -	- -	830	0.022	5	0.012	8	0.0029	1	0.0077	2	0.051	16	0.26	36	1.0	52
Cis/Trans-Decalin	- -	- -	- -	- -	0.0026 U		0.00038 U		0.00043 U		0.00046 UJ		0.0016 UJ		0.00081 UJ		0.010 J	0.5 J
Dibenzofuran	- -	- -	- -	1213	0.0075	2	0.0039	2	0.0021	1	0.0026	1	0.080	25	0.13	18	1.8	94
Dibenzothiophene	- -	- -	- -	- -	0.019		0.0062		0.0026		0.0059		0.15		0.12		1.7	
Naphthobenzothiophene	- -	- -	- -	- -	0.15		0.029		0.017		0.020		0.30		0.30		3.6	
Perylene	- -	- -	- -	- -	0.17		0.036		0.022		0.025		0.24		0.30		4.9	
Retene	- -	- -	- -	657	0.0053 U		0.00075 U		0.014	5	0.055	12	0.0032 U		0.0016 U		0.0053 U	
2-Methylnaphthalene	- -	- -	- -	- -	0.0058		0.0014		0.0012		0.0013		0.057		0.025		0.35	
Acenaphthene	- -	- -	- -	914	0.027	6	0.0078	5	0.0032	1	0.0046	1	0.15	46	0.27	37	0.69	36
Acenaphthylene	- -	- -	- -	- -	0.19		0.019		0.0090		0.014		0.21		0.038		2.5	
Anthracene	- -	- -	- -	843	0.21	49	0.033	21	0.016	5	0.021	4	0.64	196	0.34	47	23	1204
Benzo(a)anthracene	- -	- -	- -	- -	0.61		0.12		0.058		0.060		1.1		0.90		27	
Benzo(a)pyrene	- -	- -	18	1122	0.70	162	0.13	82	0.057	19	0.065	14	1.0	307	1.0	137	22	1152
Benzo(b)fluoranthene	- -	- -	- -	- -	0.57		0.12		0.052		0.059		0.76		1.1		17	
Benzo(g,h,i)perylene	- -	- -	- -	- -	0.40		0.078		0.037		0.040		0.54		0.68		8.1	
Benzo(k)fluoranthene	- -	- -	- -	708	0.52	121	0.11	70	0.048	16	0.056	12	0.77	236	0.76	104	11	576
Chrysene	- -	- -	- -	539	0.57	132	0.12	76	0.060	20	0.070	15	1.1	337	1.0	137	21	1099
Dibenzo(a,h)anthracene	- -	- -	9.8	1115	0.13	30	0.026	16	0.012	4	0.012	3	0.18	55	0.21	29	3.4	178
Fluoranthene	- -	- -	- -	385	0.99	230	0.25	158	0.13	44	0.17	36	2.5	767	2.5	343	56	2932
Fluorene	- -	- -	- -	- -	0.022		0.011		0.0042		0.0072		0.33		0.28		4.6	
Indeno(1,2,3-cd)pyrene	- -	- -	- -	967	0.43	100	0.087	55	0.041	14	0.044	9	0.61	187	0.74	102	11	576
Naphthalene	- -	- -	- -	597	0.012	3	0.0031	2	0.0019	1	0.0017	0.4	0.014	4	0.043	6	0.44	23
Phenanthrene	- -	- -	- -	698	0.24	56	0.12	76	0.049	17	0.10	21	2.0	613	2.0	275	40	2094
Pyrene	- -	- -	- -	- -	0.88		0.21		0.11		0.14		2.2		1.9		44	
Total Priority Pollutant PAHs [1]	4	35	- -	- -	**6.5**		1.4		0.69		0.87		**14**		**14**		**291**	
Detected Total Organic Carbon																		
Total Organic Carbon	- -	- -	- -	- -	4,310		1,580		2,930		4,740		3,260		7,280		19,100	

See Notes on Page 13.

Table 9
Sediment Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Location ID:	NYSDEC Sediment Guidance Values				NG-SR-SD-20		NG-SR-SD-21		NG-SR-SD-22		NG-SR-SD-23		NG-SR-SD-24		NG-SR-SD-25	
Sample Depth(Inches):				PAHs	0 - 4		0 - 6		0 - 4		0 - 3		0 - 3		0 - 6	
Date Collected:	Class A	Class C	BHH	mg/kg	11/09/11		11/09/11		11/10/11		11/10/11		11/10/11		11/10/11	
Units:	mg/kg	mg/kg	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC	mg/kg	ug/gOC
Detected PAHs																
C3-Benzo(b)thiophenes	- -	- -	- -	- -	0.0053		0.0038		0.0034		0.0022		0.011		0.029	
C3-Chrysenes	- -	- -	- -	1009	0.12	10	0.098	15	0.056	11	0.024	3	0.19	10	0.21	6
C3-Decalins	- -	- -	- -	- -	0.0012 U		0.00089 U		0.00077 U		0.00083 U		0.0040 U		0.0048 U	
C3-Dibenzothiophenes	- -	- -	- -	- -	0.025		0.020		0.033		0.0074		0.030		0.061	
C3-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.15		0.11		0.051		0.030		0.20		0.20	
C3-Fluorenes	- -	- -	- -	687	0.11 J	9 J	0.043 J	7 J	0.027 J	5 J	0.021 J	3 J	0.10 J	5 J	0.11 J	3 J
C3-Naphthalenes	- -	- -	- -	510	0.030	2	0.023	4	0.012	2	0.0063	1	0.12	7	0.087	2
C3-Naphthobenzothiophenes	- -	- -	- -	- -	0.045		0.032		0.071		0.016		0.079		0.19	
C3-Phenanthrenes/Anthracenes	- -	- -	- -	745	0.091	7	0.079	12	0.032	6	0.015	2	0.13	7	0.12	3
C4-Benzo(b)thiophenes	- -	- -	- -	- -	0.0035		0.0021		0.0024		0.0010		0.0051		0.014	
C4-Chrysenes	- -	- -	- -	1112	0.067	5	0.049	8	0.037	7	0.017	2	0.12	7	0.15	4
C4-Decalins	- -	- -	- -	- -	0.0059		0.00089 U		0.0031		0.00083 U		0.0040 U		0.0048 U	
C4-Dibenzothiophenes	- -	- -	- -	- -	0.019		0.014		0.021		0.0045		0.018		0.054	
C4-Fluoranthenes/Pyrenes	- -	- -	- -	- -	0.098		0.076		0.041		0.023		0.13		0.17	
C4-Naphthalenes	- -	- -	- -	768	0.023	2	0.016	2	0.0093	2	0.0039	1	0.053	3	0.049	1
C4-Naphthobenzothiophenes	- -	- -	- -	581	0.031	3	0.021	3	0.054	11	0.013	2	0.075	4	0.17	5
C4-Phenanthrenes/Anthracenes	- -	- -	- -	- -	0.036		0.051		0.017		0.0067		0.047		0.098	
Carbazole	- -	- -	- -	830	0.11	9	0.030	5	0.018	4	0.018	2	0.042	2	0.075	2
Cis/Trans-Decalin	- -	- -	- -	- -	0.00077 J	0.06 J	0.00045 UJ		0.00038 UJ		0.00041 UJ		0.0091		0.011 J	0.3 J
Dibenzofuran	- -	- -	- -	1213	0.043	4	0.013	2	0.0054	1	0.0052	1	0.030	2	0.039	1
Dibenzothiophene	- -	- -	- -	- -	0.050		0.018		0.0071		0.0086		0.042		0.071	
Naphthobenzothiophene	- -	- -	- -	- -	0.16		0.15		0.049		0.041		0.14		0.18	
Perylene	- -	- -	- -	- -	0.18		0.19		0.031		0.042		0.15		0.22	
Retene	- -	- -	- -	657	0.033	3	0.12	18	0.00077 U		0.0022	0.3	0.0040 U		0.15	4
2-Methylnaphthalene	- -	- -	- -	- -	0.010		0.0047		0.0040		0.0018		0.010		0.019	
Acenaphthene	- -	- -	- -	914	0.070	6	0.014	2	0.0089	2	0.0096	1	0.10	5	0.14	4
Acenaphthylene	- -	- -	- -	- -	0.050		0.050		0.043		0.023		0.052		0.12	
Anthracene	- -	- -	- -	843	0.19	16	0.14	21	0.052	10	0.042	5	0.36	20	0.18	5
Benzo(a)anthracene	- -	- -	- -	- -	0.65		0.62		0.11		0.14		0.65		0.52	
Benzo(a)pyrene	- -	- -	18	1122	0.62	51	0.65	100	0.12	24	0.15	19	0.61	34	0.64	18
Benzo(b)fluoranthene	- -	- -	- -	- -	0.60		0.56		0.11		0.16		0.59		0.66	
Benzo(g,h,i)perylene	- -	- -	- -	- -	0.39		0.43		0.079		0.11		0.41		0.51	
Benzo(k)fluoranthene	- -	- -	- -	708	0.49	40	0.51	78	0.10	20	0.12	16	0.52	29	0.56	15
Chrysene	- -	- -	- -	539	0.65	53	0.62	95	0.12	24	0.16	21	0.65	36	0.65	18
Dibenzo(a,h)anthracene	- -	- -	9.8	1115	0.13	11	0.13	20	0.025	5	0.033	4	0.13	7	0.13	4
Fluoranthene	- -	- -	- -	385	1.5	123	1.2	184	0.23	46	0.35	45	1.4	77	1.3	36
Fluorene	- -	- -	- -	- -	0.082		0.032		0.010		0.012		0.11		0.11	
Indeno(1,2,3-cd)pyrene	- -	- -	- -	967	0.45	37	0.48	74	0.086	17	0.13	17	0.47	26	0.50	14
Naphthalene	- -	- -	- -	597	0.021	2	0.011	2	0.0058	1	0.0037	0.5	0.079	4	0.036	1
Phenanthrene	- -	- -	- -	698	0.87	71	0.36	55	0.096	19	0.17	22	0.91	50	0.52	14
Pyrene	- -	- -	- -	- -	1.2		0.96		0.21		0.29		1.2		1.1	
Total Priority Pollutant PAHs [1]	4	35	- -	- -	**7.9**		**6.7**		1.4		1.9		**8.2**		**7.7**	
Detected Total Organic Carbon																
Total Organic Carbon	- -	- -	- -	- -	12,200		6,530		4,990		7,710		18,200		36,300	

See Notes on Page 13.

Table 9
Sediment Sample Analytical Results

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Notes:
Duplicate samples are in brackets [ ].
NYSDEC Screening and Assessment of Contaminated Sediment (2014).
Exceedances of the NYSDEC Sediment Guidance Value - Class A are **bold**.
Exceedances of the NYSDEC Sediment Guidance Value - Class C are shaded gray.
Exceedances of the NYSDEC Sediment Guidance Value for PAHs are shaded yellow.
Exceedances of the NYSDEC Sediment Guidance Value for Bioaccumulation -Human Health are italic.
Organics criteria are presented in ug/gOC and are adjusted on a sample-specific basis for total organic carbon.
[1] Values for Total PAHs are from ER-L (shown under Acute) and ER-M (shown under Chronic) values shown in Appendix 2 Table 70, and displayed in mg/kg.
- - = Not available.
J - Indicates an estimated value.
mg/kg - milligrams per kilogram.
NA - Not analyzed/Not available.
ND - None detected.
NYSDEC - New York State Department of Environmental Conservation.
PAH - Polycyclic aromatic hydrocarbons.
U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
ug/gOC - micrograms per gram organic carbon.

Table 10
Fish and Wildlife Resource Impact Analysis
Dominant Vegetation within Relevant Covertype

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

Riparian Fringe Forest	
American elm	*Ulmus americana*
Boxelder	*Acer negundo*
Eastern cottonwood	*Populus deltoides*
Willow spp.	*Salix spp.*
American basswood	*Tilia americana*
Tartarian honeysuckle	*Lonicera tatarica*
Grasses	*Poa spp.*
Spotted joe-pye-weed	*Eupatoriadelphus maculatus*
Jewelweed	*Impatiens capensis*
Virginia creeper	*Parthenocissus quinquefolia*
Successional Southern Upland Forest	
American elm	*Ulmus americana*
Boxelder	*Acer negundo*
Black cherry	*Populus deltoides*
Sugar maple	*Acer saccharum*
Sumac	*Rhus spp.*
Queen Anne's lace	*Daucus carota*
Common burdock	*Arctium minus*
Goldenrod	*Solidago spp.*
Japanese knotweed	*Fallopia japonica*
Buckthorn	*Rhamnus spp.*
Virginia creeper	*Parthenocissus quinquefolia*
River grape	*Vitis riparia*
Succesional Old Field	
Queen Anne's lace	*Daucus carota*
Common burdock	*Arctium minus*
Goldenrod	*Solidago spp.*
Virginia creeper	*Parthenocissus quinquefolia*
River grape	*Vitis riparia*
Gravel Road/Cement Pad	
Japanese knotweed	*Fallopia japonica*
Grasses	*Poa spp.*
Queen Anne's lace	*Daucus carota*
Common burdock	*Arctium minus*
Clover	*Trifolium spp.*

Table 11
Fish and Wildlife Resource Impact Analysis
Observed and Typical Biota Expected Onsite or in the Vicinity of the Site

Remedial Investigation
National Grid
Malone (Amsden Street) Former MGP Site
Malone, New York

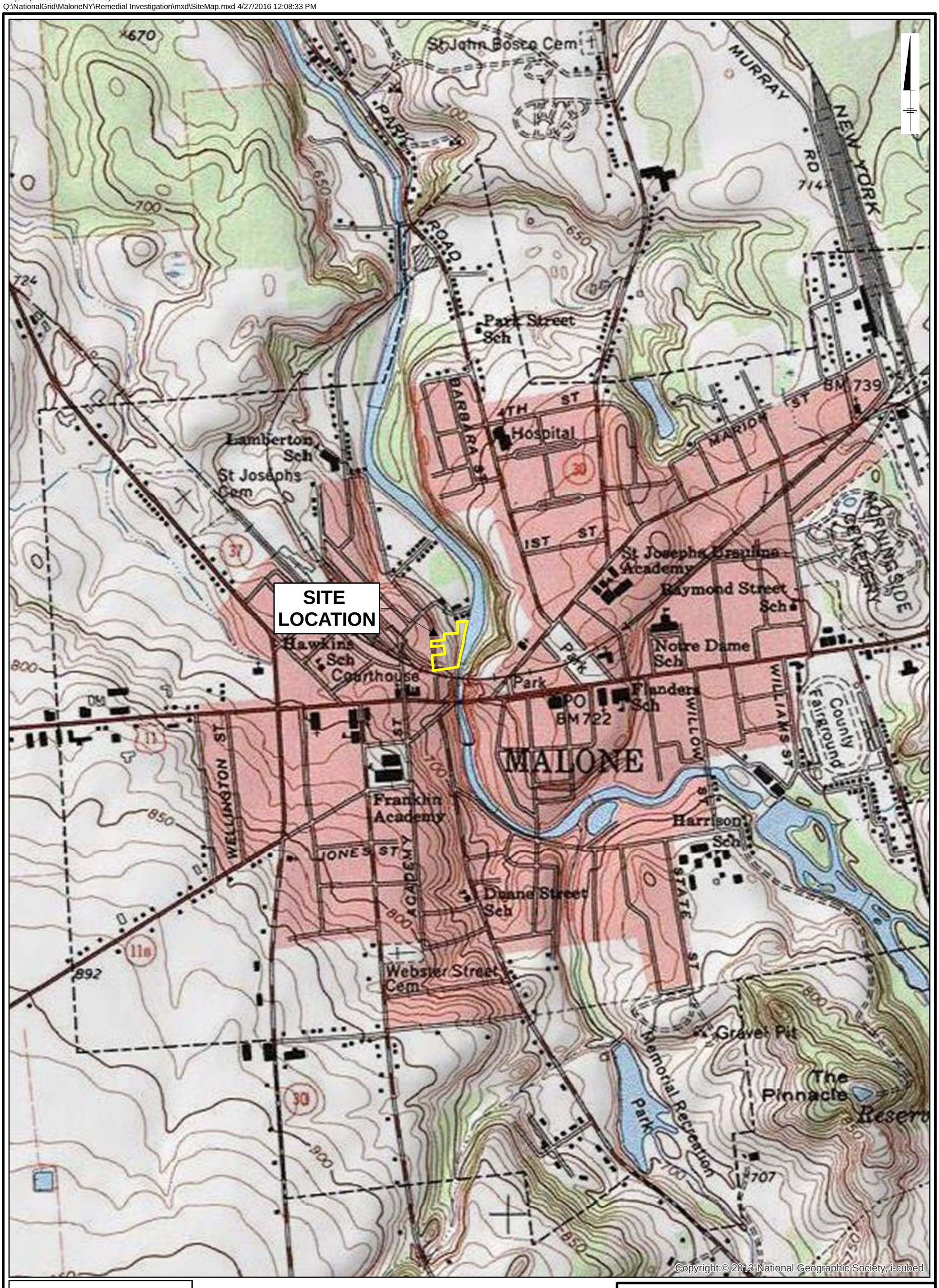
Common Name	Scientific Name
Mammals	
Woodchuck*	*Marmota monax*
Eastern gray squirrel*	*Sciurus carolinensis*
American beaver*	*Castor canadensis*
Raccoon*	*Procyon lotor*
Mice	*Peromyscus* spp., *Mus musculus*
Vole	*Microtus pennsylvanicus*
Norway rat	*Rattus norvegicus*
Eastern cottontail	*Sylvilagus floridanus*
Eastern chipmunk	*Tamias striatus*
White-tailed deer	*Odocoileus hemionus*
Common muskrat	*Ondatra zibethicus*
Birds	
American crow*	*Corvus brachyrhynchos*
Blue jay*	*Cyanocitta cristata*
Black capped chickadee*	*Parus atricapillus*
Gray catbird*	*Dumetella carolinensis*
Rock dove*	*Columba livia*
American cardinal*	*Cardinalis cardinalis*
Osprey*	*Pandion haliaetus*
Ring-billed gull*	*Larus delawarensis*
Killdeer	*Charadrius vociferus*
Goldfinch	*Carduelis tristis*
House finch	*Carpodacus mexicanus*
House sparrow	*Passer domesticus*
Red-tailed hawk	*Buteo jamaicensis*
Common grackle	*Quiscalus quiscula*
Sparrow	*Spizella* spp.
European starling	*Sturnus vulgaris*
American robin	*Turdus migratorius*
Herptiles	
Green frog*	*Rana clamitans*
Eastern garter snake*	*Thamnophis sirtalis sirtalis*
American toad	*Bufo americanus*
American bullfrog	*Rana catesbeiana*

Note:

* Observed during Arcadis site visit on September 14, 2012. Observations included visual sighting, tracks, den, and/or scat.

FIGURES

City: SYR Div/Group: IM/DV Created By: Jayme Rapp Last Saved By: jrapp
Project (B0036706.0000.00008)
Q:\NationalGrid\MaloneNY\Remedial Investigation\mxd\SiteMap.mxd 4/27/2016 12:08:33 PM



SITE LOCATION

0 1,000 2,000 Feet
GRAPHIC SCALE

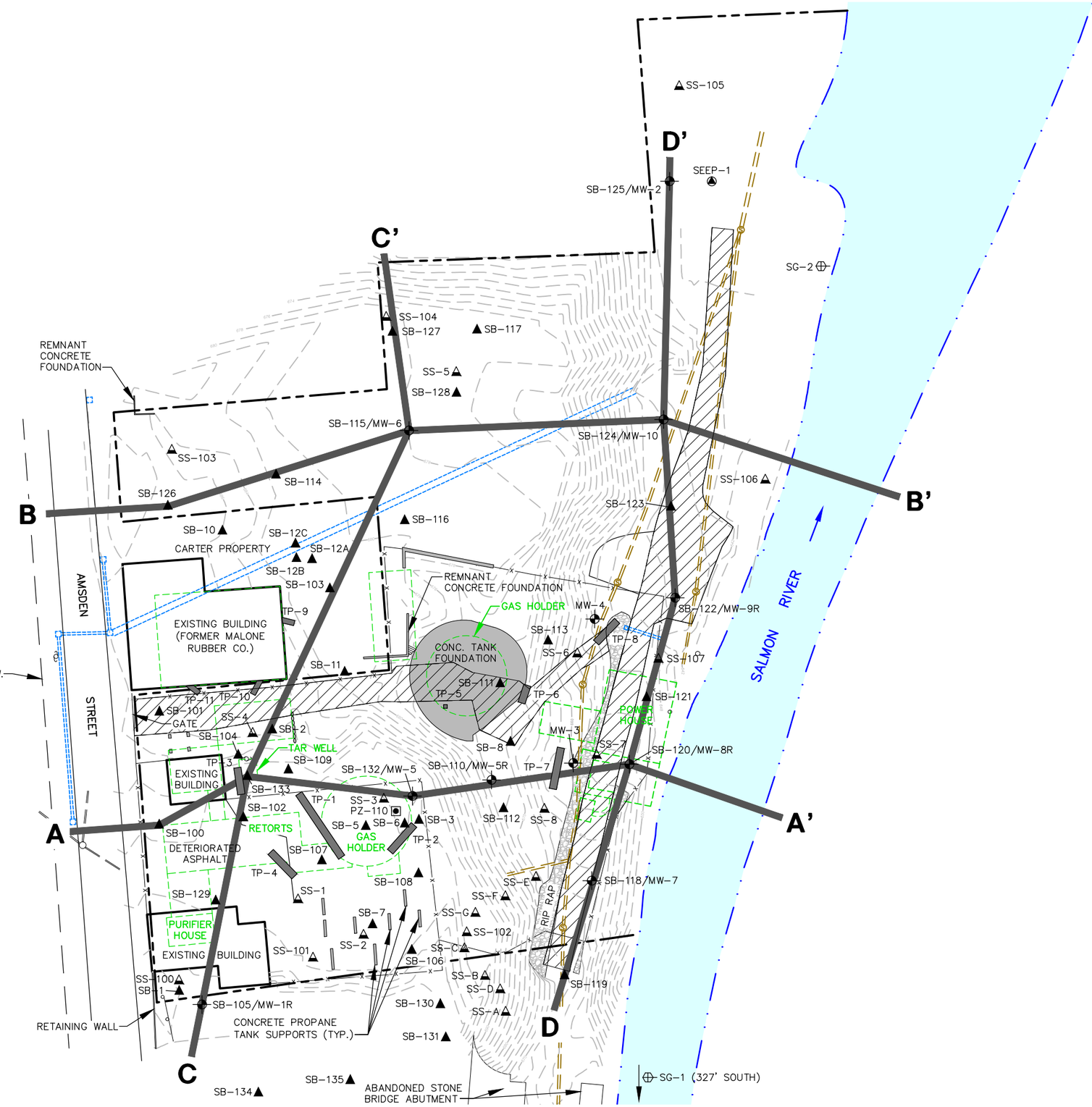
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE

REMEDIAL INVESTIGATION

SITE MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1



LEGEND:

- PZ-110 — PIEZOMETER LOCATION
- SG-2 — STREAM GAUGE LOCATION
- MW-3 — MONITORING WELL LOCATION
- SB-8 — SOIL BORING LOCATION
- SS-6 — SURFACE SOIL SAMPLE LOCATION
- TP-8 — TEST PIT
- SEEP-1 — SEEP SAMPLE LOCATION
- NATIONAL GRID PROPERTY LINE
- 684 — TOPOGRAPHIC CONTOUR (4/04/2009)
- HISTORIC STRUCTURE BASED ON 1923 SANBORN MAP
- APPROXIMATE EDGE OF WATER
- SANITARY PIPE AND MANHOLE
- STORM LINE AND CATCH BASIN
- FENCE
- GUARD RAIL
- UTILITY POLE
- A — A' LINE OF CROSS SECTION
- ACCESS ROAD

NOTES:

1. BASE MAP PREPARED FROM DRAWING FILE BY "TRC" TITLED SEWER ACCESS ROAD BUILT – FIGURE 2 – PROJECT NO. 106355001000–000016, DATED 4/04/09, AT A SCALE OF 1"=20'. MAP IS REFERENCED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983 (NAD83) AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE) AND VERTICALLY TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). NORTH ARROW AS SHOWN INDICATES GRID NORTH REFERENCED TO NAD83 AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE).
2. ALL LOCATIONS ARE APPROXIMATE.

0 60' 120'

GRAPHIC SCALE

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

SITE LAYOUT AND CROSS SECTION LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE 2

CIT:□S:\RACUSE\N□ DI:□GROUP\EN□IM:D□ DB:R.ALLEN LD:(Opt.) PIC:(Opt.) PM:S.PO□LIN TM:(Opt.) L:\R\(Opt)ON:□OFF:□REF□
G:\EN□CAD\S_RACUSE\ACT\B0036706.0000.00008\D□GRI\36706:01.d□ LA:OUT: 2 SA:ED: 6 22 2016 2:46 PM ACAD□ER: 19.1S (LMS TECH) PAGESETUP: ---
XREFS: 36706X02 36706XBL IMAGES: PROJECTNAME: ---

CITY: SYRACUSE, N.Y . DIV/GROUP: ENV/IM-DV DB: B. DECLERCQ, R. ALLEN PM: S. POWLIN
G:\ENVCAD\SYRACUSE\ACT\B0036706\0000\00008\DWG\RI\36706B03.dwg LAYOUT: 1 SAVED: 6/22/2016 3:12 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 6/22/2016 3:13 PM BY: ALLEN, ROYCE

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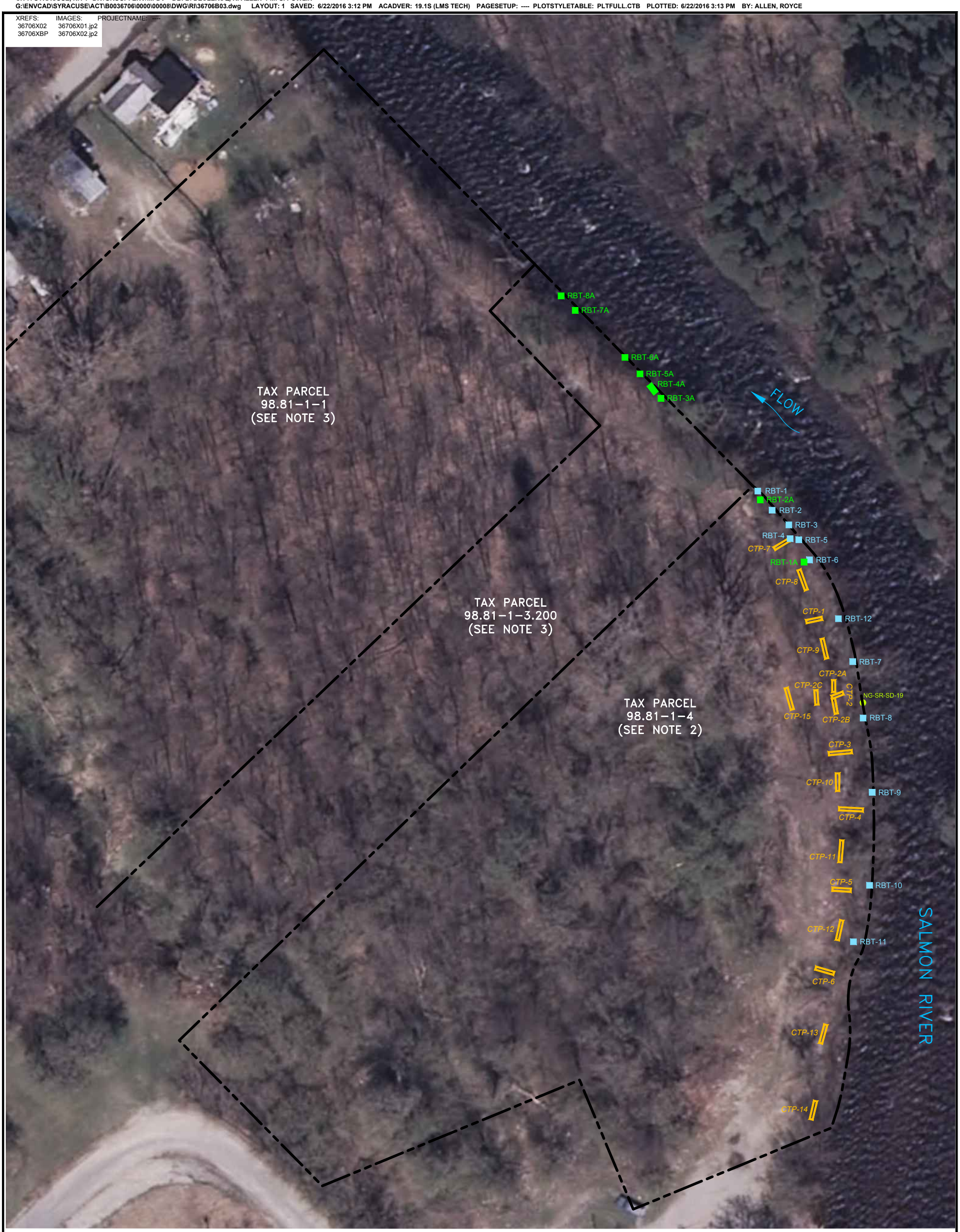


LEGEND:

- SEDIMENT SAMPLE LOCATION
- APPROXIMATE HORIZONTAL EXTENT OF TAX PARCEL 98.81-1-4 (SEE NOTE 2)
- TEST PIT LOCATION
- TAR PIECE(S) OBSERVED AND REMOVED ON RIVER BANK (JULY 29, 2013)
- TAR OBSERVED ON RIVER BANK (AUGUST 22, 2014)

NOTES:

1. AERIAL PHOTOGRAPHS OBTAINED FROM THE NEW YORK STATE GEOGRAPHIC INFORMATION SYSTEM (NYS GIS) WEBSITE DATED 2008.
2. PROPERTY LINES FOR TAX PARCEL 98.81-1-4 BASED ON A SURVEY PERFORMED BY THEW ASSOCIATES LAND SURVEYORS, DATED 8/16/13.
3. PROPERTY LINES FOR TAX PARCELS 98.81-1-3.200 AND 98.81-1-1 BASED ON 2014 TAX MAP PROVIDED ON http://franklin.sdgnys.com/index.aspx.
4. TAX PARCELS 98.81-1-1, 98.81-1-3.200 AND 98.81-1-4 OWNED BY MR. TRAVIS PRITCHARD AND MR. TIMOTHY CARTER.

0 60' 120'
GRAPHIC SCALE

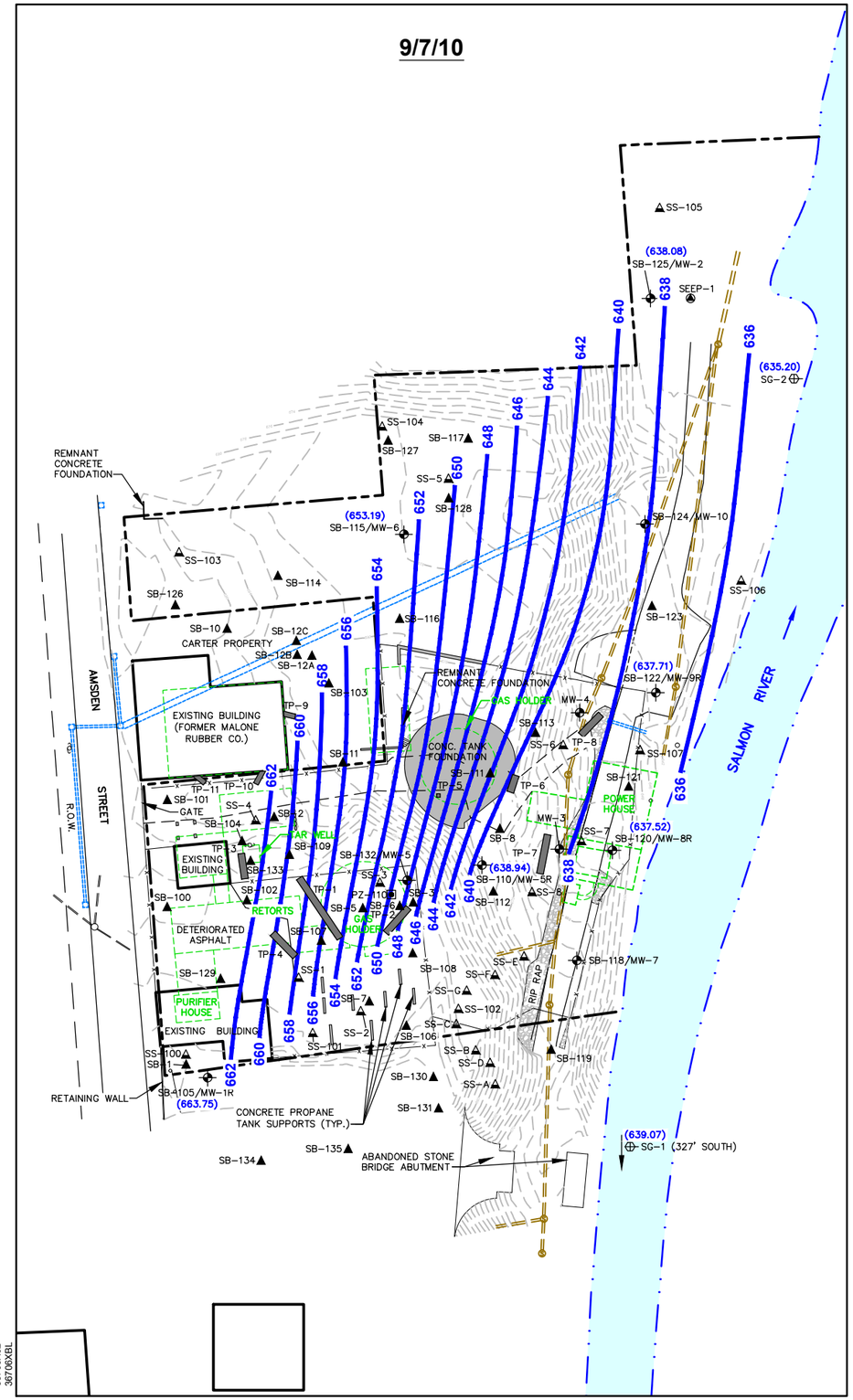
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

PRITCHARD PROPERTY

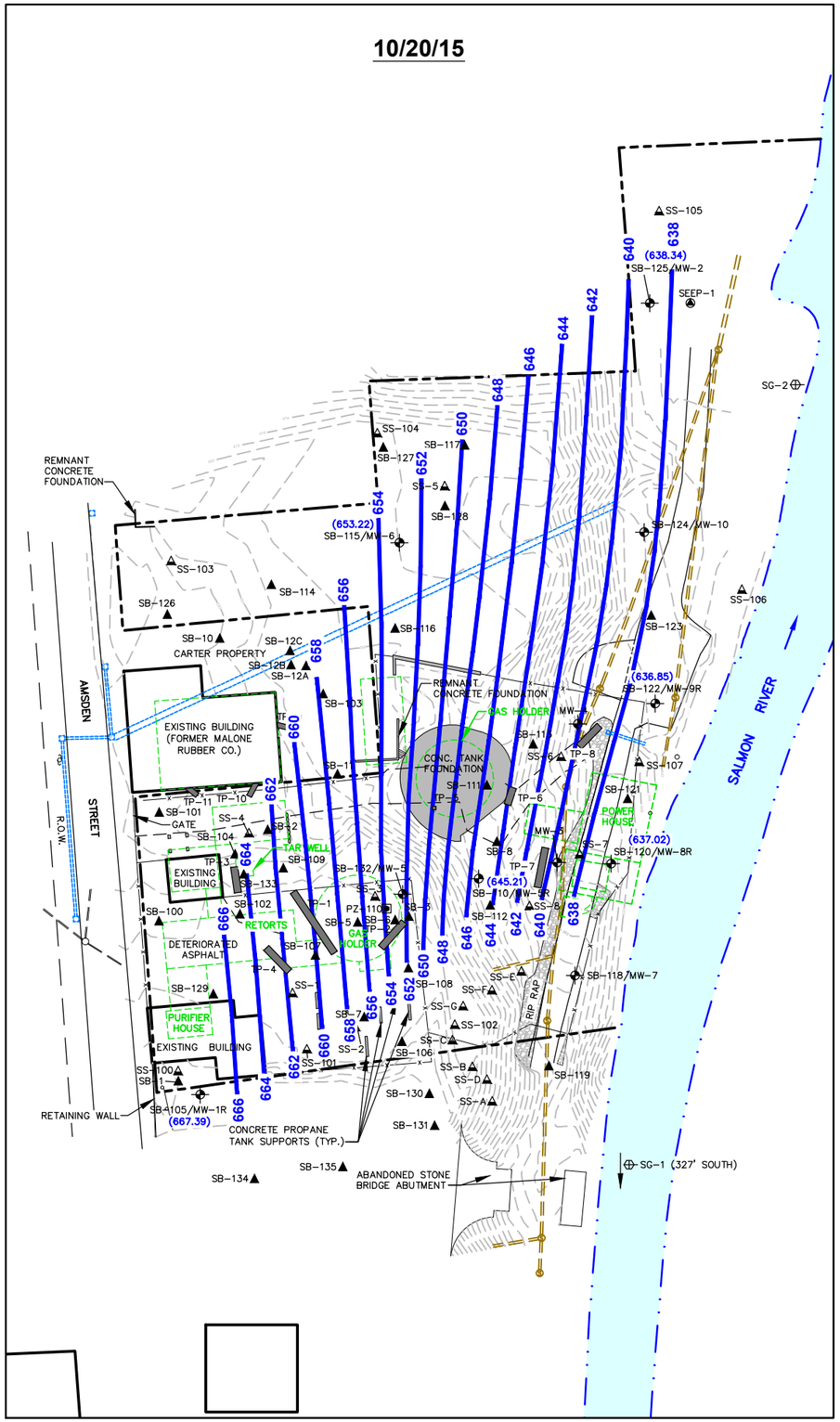
ARCADIS Design & Consultancy for natural and built assets

FIGURE
3

9/7/10



10/20/15



LEGEND:

- PZ-110 — PIEZOMETER LOCATION
- SG-2 — STREAM GAUGE LOCATION
- MW-3 — MONITORING WELL LOCATION
- SB-8 — SOIL BORING LOCATION
- SS-6 — SURFACE SOIL SAMPLE LOCATION
- TP-8 — TEST PIT
- SEEP-1 — SEEP SAMPLE LOCATION
- NATIONAL GRID PROPERTY LINE
- 684 — TOPOGRAPHIC CONTOUR (4/04/2009)
- HISTORIC STRUCTURE BASED ON 1923 SANBORN MAP
- APPROXIMATE EDGE OF WATER
- SANITARY PIPE AND MANHOLE
- STORM LINE AND CATCH BASIN
- FENCE
- GUARD RAIL
- UTILITY POLE
- (638.08) — WATER TABLE ELEVATION
- 640 — WATER TABLE ELEVATION CONTOUR

NOTES:

1. BASE MAP PREPARED FROM DRAWING FILE BY "TRC" TITLED SEWER ACCESS ROAD BUILT – FIGURE 2 – PROJECT NO. 106355001000–000016, DATED 4/04/09, AT A SCALE OF 1"=20'. MAP IS REFERENCED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983 (NAD83) AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE) AND VERTICALLY TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). NORTH ARROW AS SHOWN INDICATES GRID NORTH REFERENCED TO NAD83 AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE).
2. ALL LOCATIONS ARE APPROXIMATE.

0 80' 160'

GRAPHIC SCALE

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

WATER TABLE CONTOURS (9/7/10 and 10/20/15)

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FIGURE
4

City: SYR Div/Group: IM/DV Created By: Jayme Rapp Last Saved By: jrapp
Project (B0036706.0000.00008)
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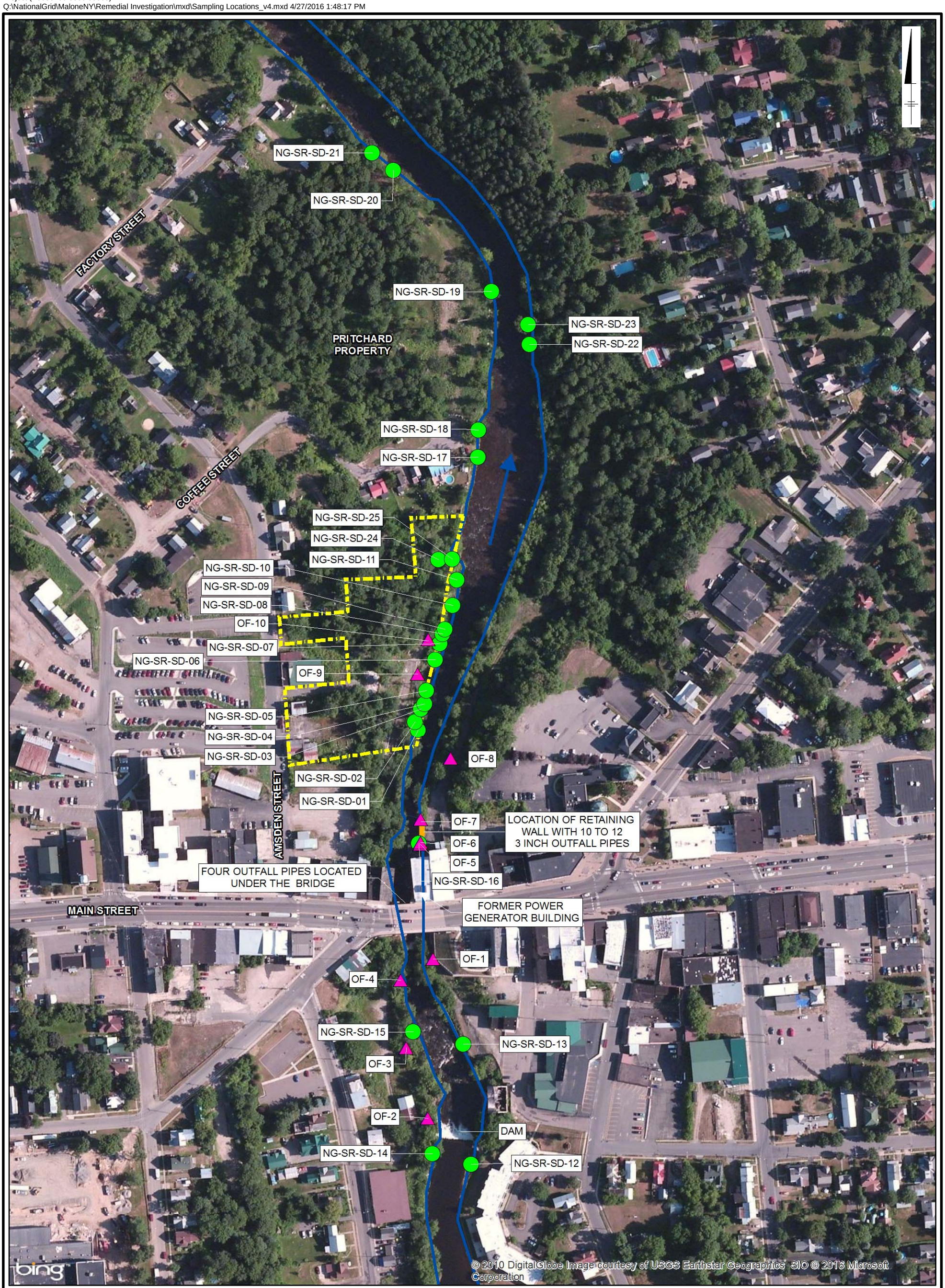


LEGEND:

- OUTFALL LOCATIONS
- SAMPLE LOCATIONS
- NATIONAL GRID PROPERTY LINE
- RETAINING WALL
- SHORELINE
- DIRECTION OF RIVER FLOW

0 200 400 Feet
GRAPHIC SCALE

NOTE:

1. 2013 IMAGERY PROVIDED BY BING IMAGERY SERVICE LICENSED THROUGH ESRI SOFTWARE.

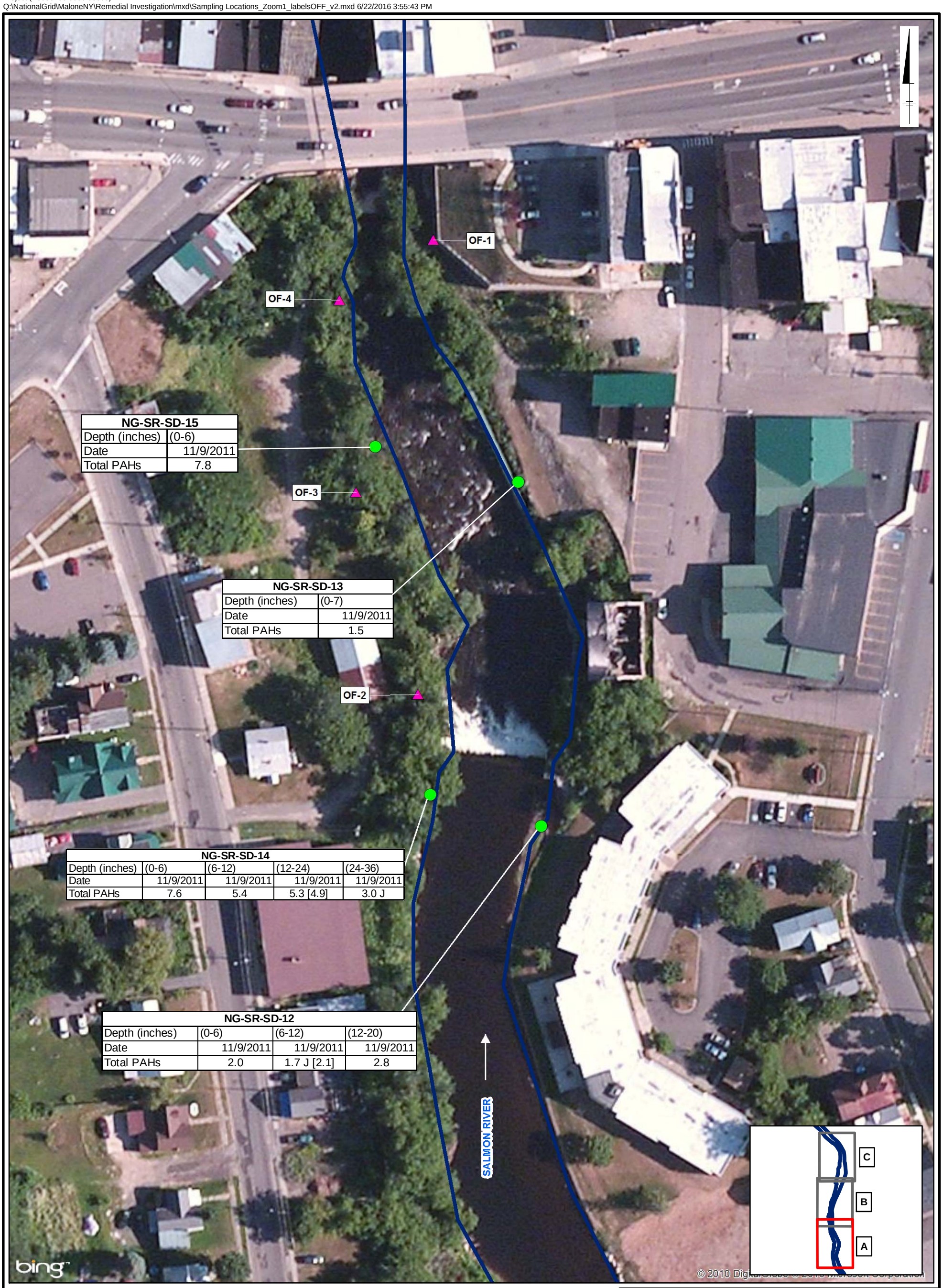
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

OUTFALL AND SAMPLING LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5

City: SYR Div/Group: IM/DV Created By: Jayme Rapp Last Saved By: jrapp
Project (B0036706.0000.00008)
Q:\NationalGrid\MaloneNY\Remedial Investigation\mxd\Sampling Locations_Zoom1_labelsOFF_v2.mxd 6/22/2016 3:55:43 PM



LEGEND:
- OUTFALL LOCATIONS
- SAMPLE LOCATIONS
- SHORELINE

0 70 140 Feet
GRAPHIC SCALE

NOTES:
1. 2013 IMAGERY PROVIDED BY BING IMAGERY SERVICE LICENSED THROUGH ESRI SOFTWARE.
2. SAMPLE RESULTS REPORTED IN MG/KG. DUPLICATE RESULTS PRESENTED IN BRACKETS.
3. J = ESTIMATED VALUE

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

OUTFALL AND SAMPLING LOCATION MAP - ZOOM A

ARCADIS Design & Consultancy for natural and built assets

FIGURE 5A

City: SYR Div/Group: IM/DV Created By: Jayme Rapp Last Saved By: jrapp
Project (B0036706.0000.00008)
Q:\NationalGrid\MaloneNY\Remedial Investigation\mxd\Sampling Locations_Zoom2_labelsOFF_v2.mxd 6/22/2016 3:58:44 PM

NG-SR-SD-25	
Depth (inches)	(0-6)
Date	11/10/2011
Total PAHs	7.7

NG-SR-SD-24	
Depth (inches)	(0-3)
Date	11/10/2011
Total PAHs	8.2

NG-SR-SD-11	
Depth (inches)	(0-7)
Date	11/8/2011
Total PAHs	15

NG-SR-SD-10	
Depth (inches)	(0-6)
Date	11/8/2011
Total PAHs	13

NG-SR-SD-09			
Depth (inches)	(0-6)	(6-12)	(12-14)
Date	11/8/2011	11/8/2011	11/8/2011
Total PAHs	9.7 [7.9]	1.8 J	1.7

NG-SR-SD-08		
Depth (inches)	(0-6)	(6-11)
Date	11/8/2011	11/8/2011
Total PAHs	5.1	1.1

NG-SR-SD-07		
Depth (inches)	(0-6)	(6-10)
Date	11/8/2011	11/8/2011
Total PAHs	8.5	5.5

NG-SR-SD-06	
Depth (inches)	(0-7)
Date	11/8/2011
Total PAHs	20

NG-SR-SD-05	
Depth (inches)	(0-4)
Date	11/8/2011
Total PAHs	28

NG-SR-SD-04	
Depth (inches)	(0-4)
Date	11/8/2011
Total PAHs	21

NG-SR-SD-03	
Depth (inches)	(0-7)
Date	11/8/2011
Total PAHs	8.9

NG-SR-SD-02	
Depth (inches)	(0-3)
Date	11/8/2011
Total PAHs	2.4

NG-SR-SD-01	
Depth (inches)	(0-3)
Date	11/8/2011
Total PAHs	27

NG-SR-SD-16					
Depth (inches)	(0-6)	(6-12)	(12-24)	(24-36)	(36-48)
Date	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011
Total PAHs	13	6.5	1.4	0.69	0.87

SALMON RIVER

OF-10
OF-9
OF-8
OF-7
OF-6
OF-5

LOCATION OF RETAINING WALL WITH 10 TO 12 3 INCH OUTFALL PIPES

A
B
C

bing

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LEGEND:

- OUTFALL LOCATIONS
- SAMPLE LOCATIONS
- NATIONAL GRID PROPERTY LINE
- RETAINING WALL
- AREA OF VISIBLE COAL TAR
- TAR PATTY EXTENT
- SHORELINE
- SEEP AREA
- FLOODPLAIN AREA

0 70 140 Feet
GRAPHIC SCALE

NOTES:

1. 2010 IMAGERY PROVIDED BY BING IMAGERY SERVICE LICENSED THROUGH ESRI SOFTWARE.
2. SAMPLE RESULTS REPORTED IN MG/KG. DUPLICATE RESULTS PRESENTED IN BRACKETS.
3. J = ESTIMATED VALUE

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

OUTFALL AND SAMPLING LOCATION MAP - ZOOM B

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FIGURE
5B

City: SYR Div/Group: IM/DV Created By: Jayme Rapp Last Saved By: jrapp
Project (B0036706.0000.00008)
Q:\NationalGrid\MaloneNY\Remedial Investigation\mxd\Sampling Locations_Zoom3_labelsOFF_v2.mxd 6/22/2016 4:01:58 PM

NG-SR-SD-21	
Depth (inches)	(0-6)
Date	11/9/2011
Total PAHs	6.7

NG-SR-SD-20	
Depth (inches)	(0-4)
Date	11/9/2011
Total PAHs	7.9

NG-SR-SD-19	
Depth (inches)	(0-5)
Date	11/9/2011
Total PAHs	291

NG-SR-SD-23	
Depth (inches)	(0-3)
Date	11/10/2011
Total PAHs	1.9

NG-SR-SD-22	
Depth (inches)	(0-4)
Date	11/10/2011
Total PAHs	1.4

PRITCHARD PROPERTY

NG-SR-SD-18	
Depth (inches)	(0-5)
Date	11/9/2011
Total PAHs	14

NG-SR-SD-17	
Depth (inches)	(0-7)
Date	11/9/2011
Total PAHs	14

SALMON RIVER

C
B
A

bing

© 2010 Digi...

LEGEND:

- OUTFALL LOCATIONS
- SAMPLE LOCATIONS
- NATIONAL GRID PROPERTY LINE
- SHORELINE

0 70 140 Feet

GRAPHIC SCALE

NOTES:

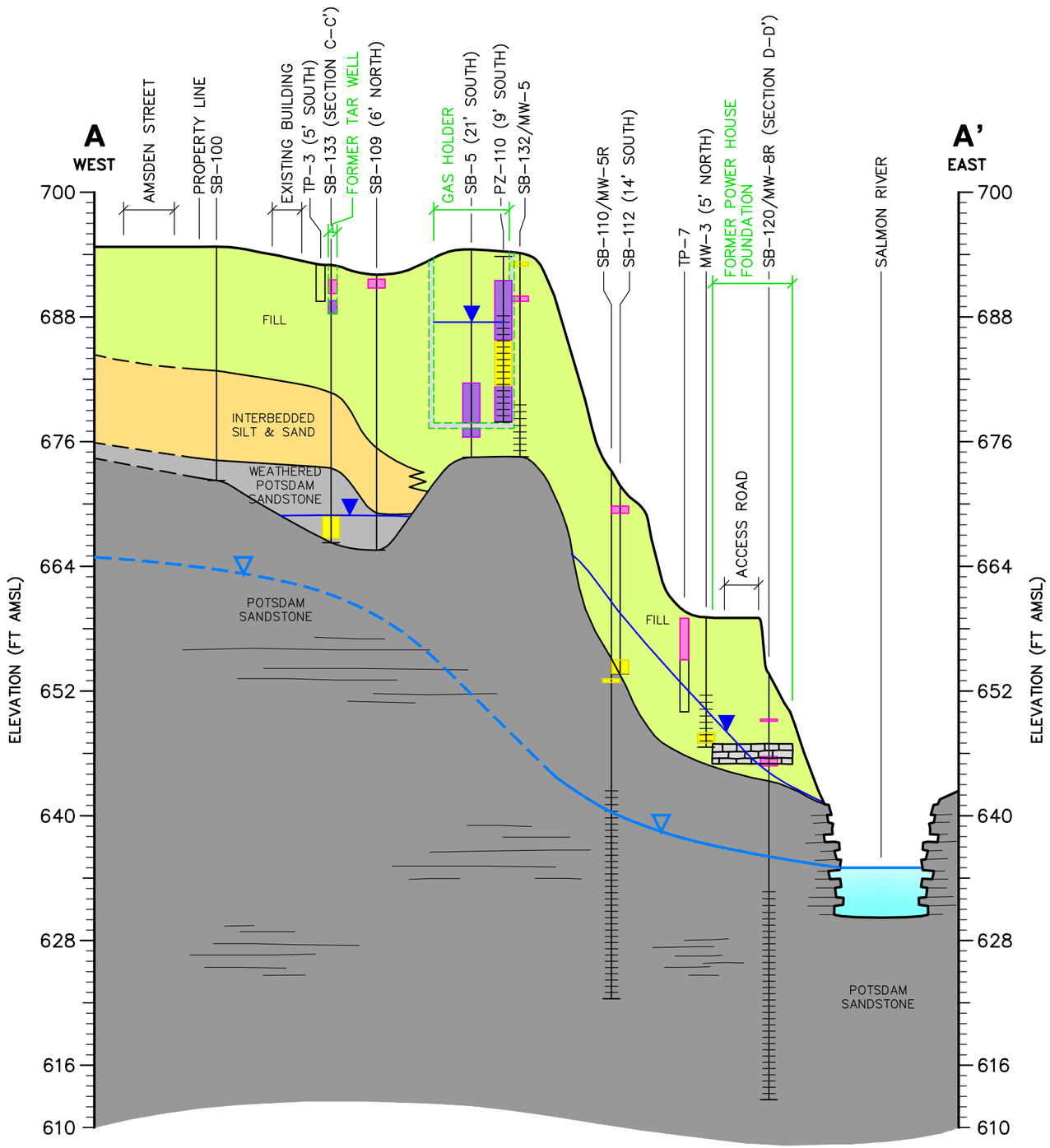
1. 2013 IMAGERY PROVIDED BY BING IMAGERY SERVICE LICENSED THROUGH ESRI SOFTWARE.
2. SAMPLE RESULTS REPORTED IN MG/KG. DUPLICATE RESULTS PRESENTED IN BRACKETS.
3. J = ESTIMATED VALUE

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

OUTFALL AND SAMPLING LOCATION MAP - ZOOM C

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5C



LEGEND:

- SB-100 — WELL OR BORING ID
- GROUND SURFACE
- PERCHED GROUNDWATER
- WATER TABLE
- LITHOLOGIC CONTACT (DASHED WHERE INFERRED)
- SCREEN
- BOTTOM OF BORING
- FILL
- INTERBEDDED SILT AND SAND
- WEATHERED POTSDAM SANDSTONE
- POTSDAM SANDSTONE (BEDROCK)
- SHEEN/STAINING
- VISCOUS TAR
- SOLID TAR

NOTE:

HORIZONTAL POSITIONS ARE RELATIVE TO NORTH AMERICAN DATUM OF 1983, NEW YORK EAST ZONE, AND VERTICAL POSITIONS ARE RELATIVE TO NORTH AMERICAN VERTICAL DATUM OF 1988..

VERTICAL EXAGGERATION = 5X

0 12' 24'

VERTICAL SCALE

0 60' 120'

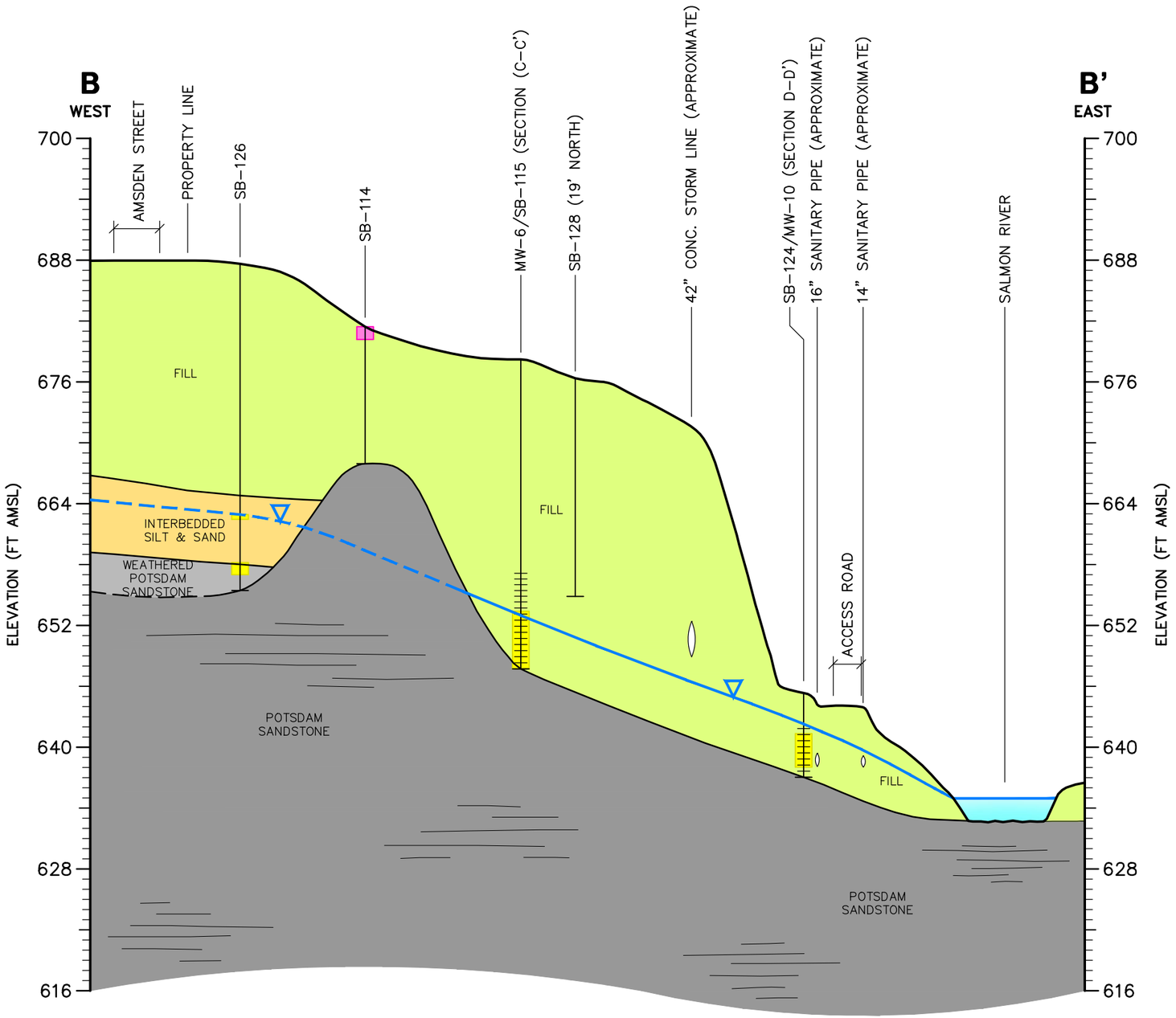
HORIZONTAL SCALE

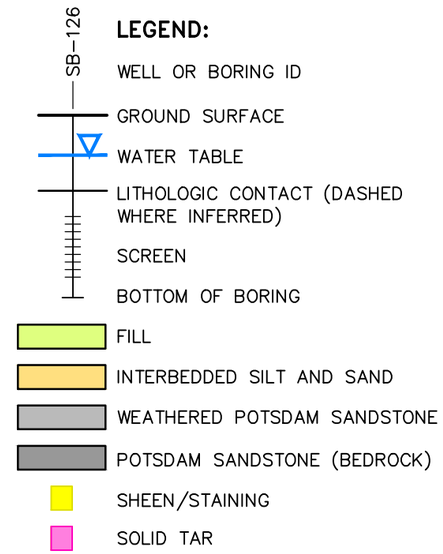
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

GEOLOGIC CROSS SECTION A - A'

ARCADIS Design & Consultancy for natural and built assets

FIGURE 6





NOTE:

HORIZONTAL POSITIONS ARE RELATIVE TO NORTH AMERICAN DATUM OF 1983, NEW YORK EAST ZONE, AND VERTICAL POSITIONS ARE RELATIVE TO NORTH AMERICAN VERTICAL DATUM OF 1988.

VERTICAL EXAGGERATION = 5X

0 12' 24'

VERTICAL SCALE

0 60' 120'

HORIZONTAL SCALE

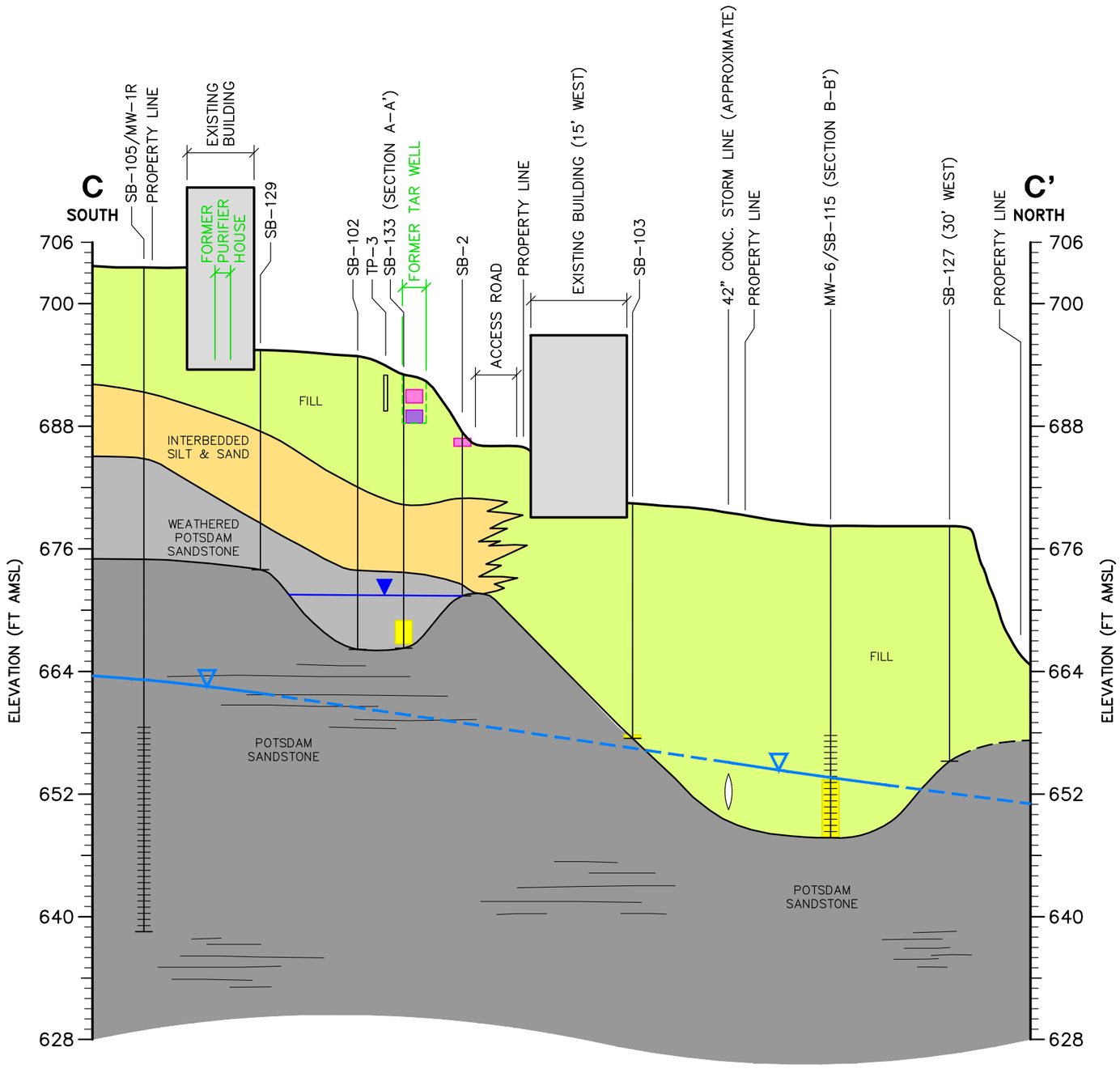
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

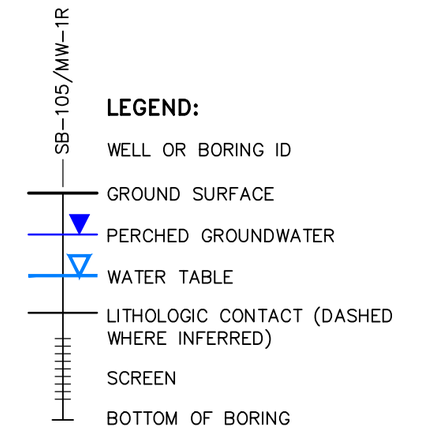
GEOLOGIC CROSS SECTION B - B'

ARCADIS Design & Consultancy for natural and built assets

FIGURE 7

CIT:S:_RACUSE:N:_ DI:_GROUP:EN:CAD-141 DB:R.ALLEN LD:(Op) PIC:(Op) PM:S.PO:_LIN TM:(Op) L:R:(Op:)ON:_:OFF:_REF:_
G:_EN:_CAD:S:_RACUSE:ACT:B0036706.0000.00008.D:_G:RI:36706:.03.d:_ LA:_OUT:.7 SA:_ED: 6.23.2016 8:58 AM ACAD:_ER: 19.1S (LMS TEC:) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 6.23.2016 8:59 AM B:_ALLEN:RO:_CE
XREFS:
36706XBL
IMAGES:
PROJECTNAME: ---





NOTE:

HORIZONTAL POSITIONS ARE RELATIVE TO NORTH AMERICAN DATUM OF 1983, NEW YORK EAST ZONE, AND VERTICAL POSITIONS ARE RELATIVE TO NORTH AMERICAN VERTICAL DATUM OF 1988.

VERTICAL EXAGGERATION = 5X

0 12' 24'

VERTICAL SCALE

0 60' 120'

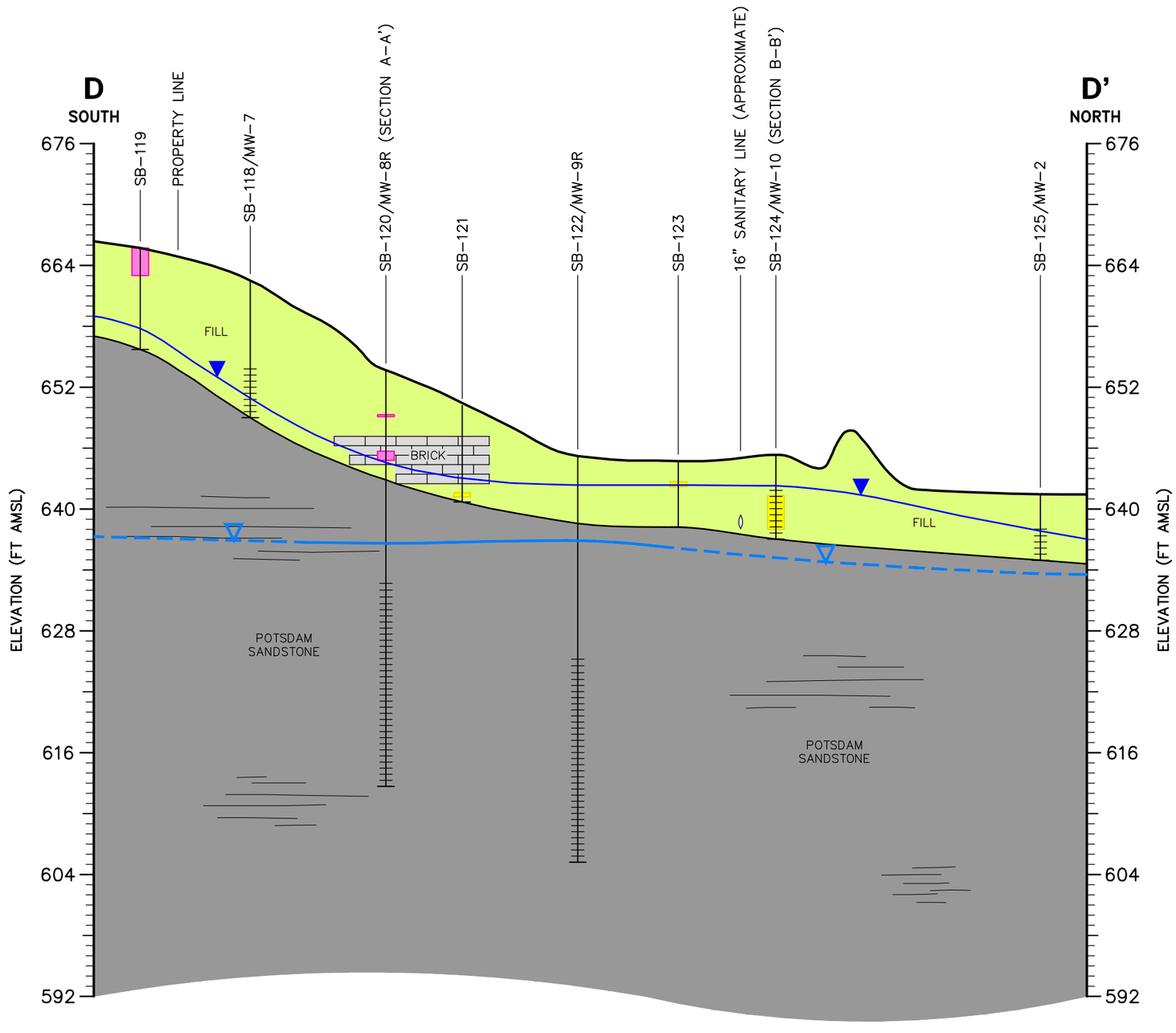
HORIZONTAL SCALE

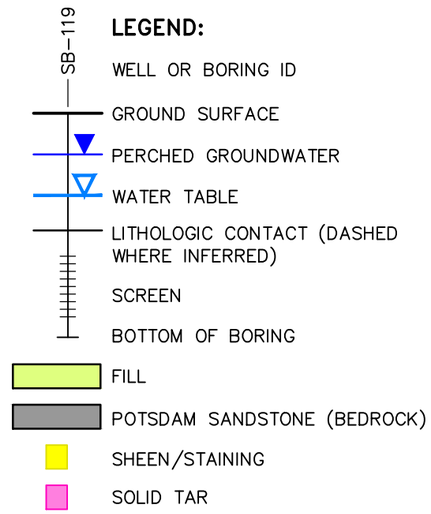
NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

GEOLOGIC CROSS SECTION C - C'

ARCADIS Design & Consultancy for natural and built assets

FIGURE 8





NOTE:

HORIZONTAL POSITIONS ARE RELATIVE TO NORTH AMERICAN DATUM OF 1983, NEW YORK EAST ZONE, AND VERTICAL POSITIONS ARE RELATIVE TO NORTH AMERICAN VERTICAL DATUM OF 1988.

VERTICAL EXAGGERATION = 5X

0 12' 24'

VERTICAL SCALE

0 60' 120'

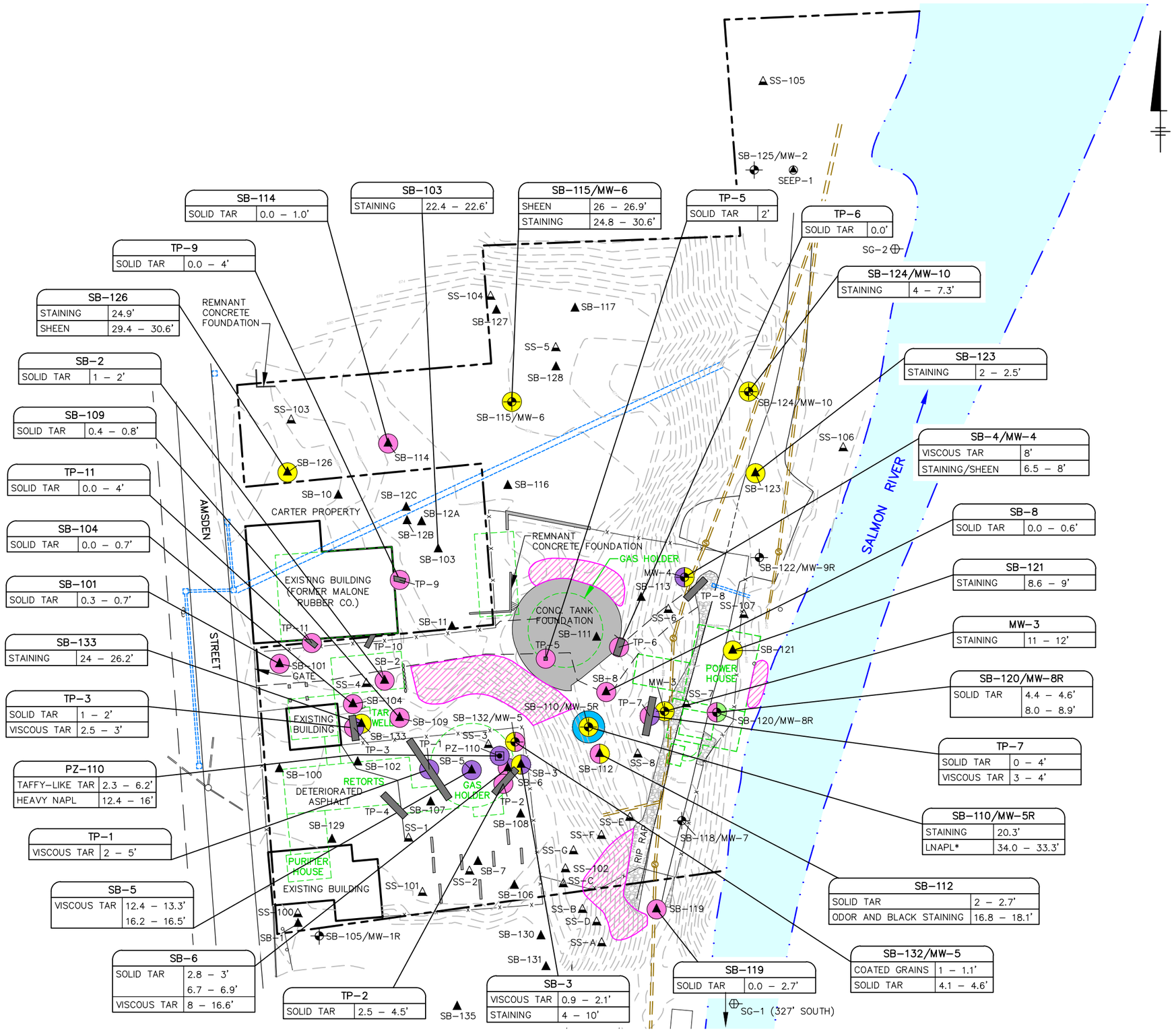
HORIZONTAL SCALE

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

GEOLOGIC CROSS SECTION D - D'

ARCADIS Design & Consultancy for natural and built assets

FIGURE 9



LEGEND:

- PZ-110 — PIEZOMETER LOCATION
- SG-2 — STREAM GAUGE LOCATION
- MW-3 — MONITORING WELL LOCATION
- SB-8 — SOIL BORING LOCATION
- SS-6 — SURFACE SOIL SAMPLE LOCATION
- TP-8 — TEST PIT
- SEEP-1 — SEEP SAMPLE LOCATION
- NATIONAL GRID PROPERTY LINE
- 684 — TOPOGRAPHIC CONTOUR (4/04/2009)
- HISTORIC STRUCTURE BASED ON 1923 SANBORN MAP
- APPROXIMATE EDGE OF WATER
- SANITARY PIPE AND MANHOLE
- STORM LINE AND CATCH BASIN
- FENCE
- UTILITY POLE
- SOLID TAR ABOVE 5 FEET BGS
- SOLID TAR BELOW 5 FEET BGS
- VISCOUS TAR
- SHEEN/STAINING
- APPROXIMATE AREA OF SOLID TAR OBSERVED AT LAND SURFACE
- GASOLINE

NOTES:

1. BASE MAP PREPARED FROM SURVEY CONDUCTED BY THEW ASSOCIATES, DATED 9/13/10. MAP IS REFERENCED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983 (NAD83) AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE) AND VERTICALLY TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). NORTH ARROW AS SHOWN INDICATES GRID NORTH REFERENCED TO NAD83 AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE).
2. ALL LOCATIONS ARE APPROXIMATE.
3. LNAPL FINGERPRINTED AS GASOLINE.

0 60' 120'

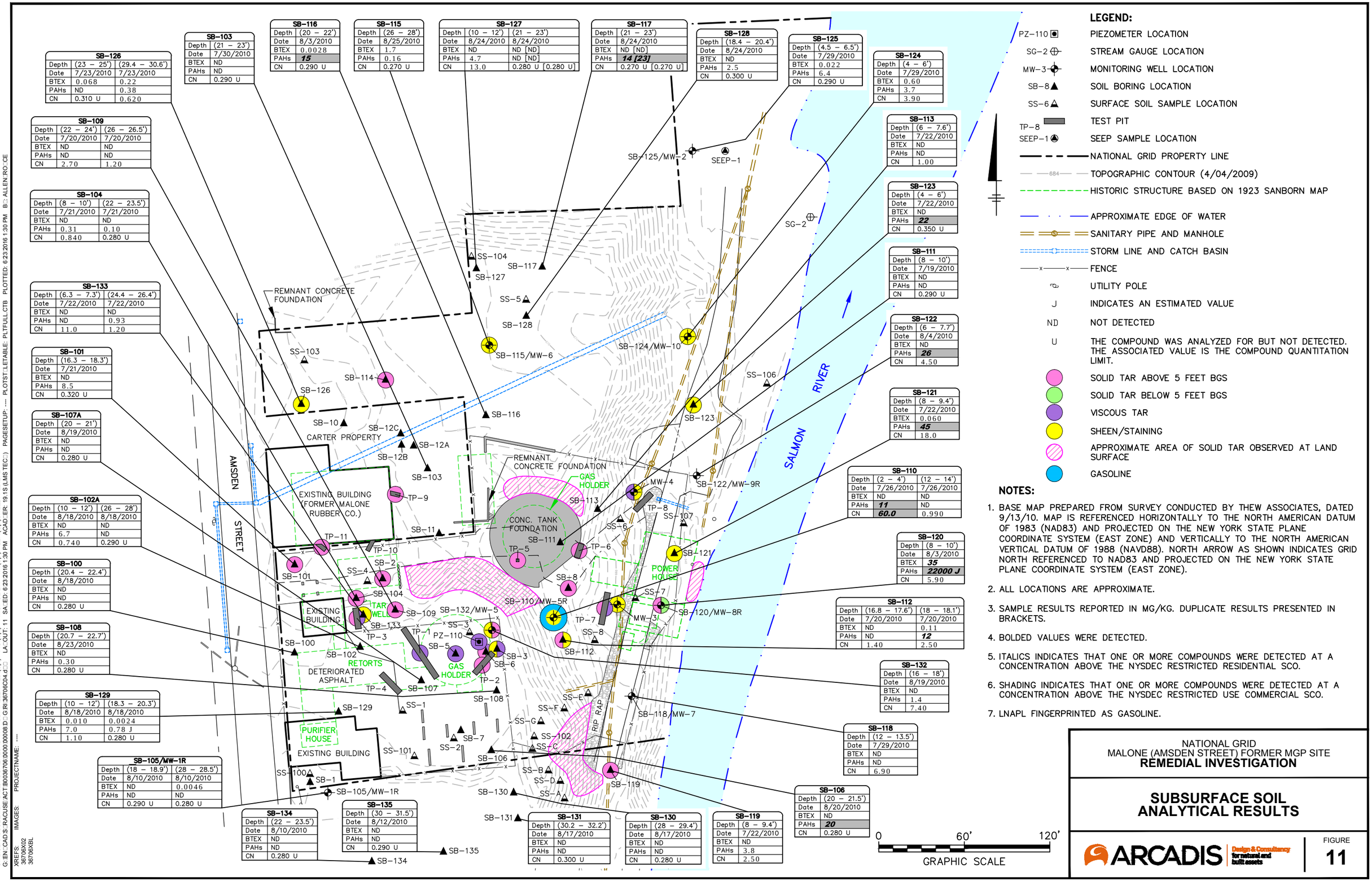
GRAPHIC SCALE

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

OBSERVED IMPACTS - ON SITE

ARCADIS Design & Consultancy for natural and built assets

FIGURE **10**



LEGEND:

- PZ-110 — PIEZOMETER LOCATION
- SG-2 — STREAM GAUGE LOCATION
- MW-3 — MONITORING WELL LOCATION
- SB-8 — SOIL BORING LOCATION
- SS-6 — SURFACE SOIL SAMPLE LOCATION
- TP-8 — TEST PIT
- SEEP-1 — SEEP SAMPLE LOCATION
- NATIONAL GRID PROPERTY LINE
- 684 — TOPOGRAPHIC CONTOUR (4/04/2009)
- HISTORIC STRUCTURE BASED ON 1923 SANBORN MAP
- APPROXIMATE EDGE OF WATER
- SANITARY PIPE AND MANHOLE
- STORM LINE AND CATCH BASIN
- FENCE
- UTILITY POLE
- J — INDICATES AN ESTIMATED VALUE
- ND — NOT DETECTED
- U — THE COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.
- SOLID TAR ABOVE 5 FEET BGS
- SOLID TAR BELOW 5 FEET BGS
- VISCOUS TAR
- SHEEN/STAINING
- APPROXIMATE AREA OF SOLID TAR OBSERVED AT LAND SURFACE
- GASOLINE

NOTES:

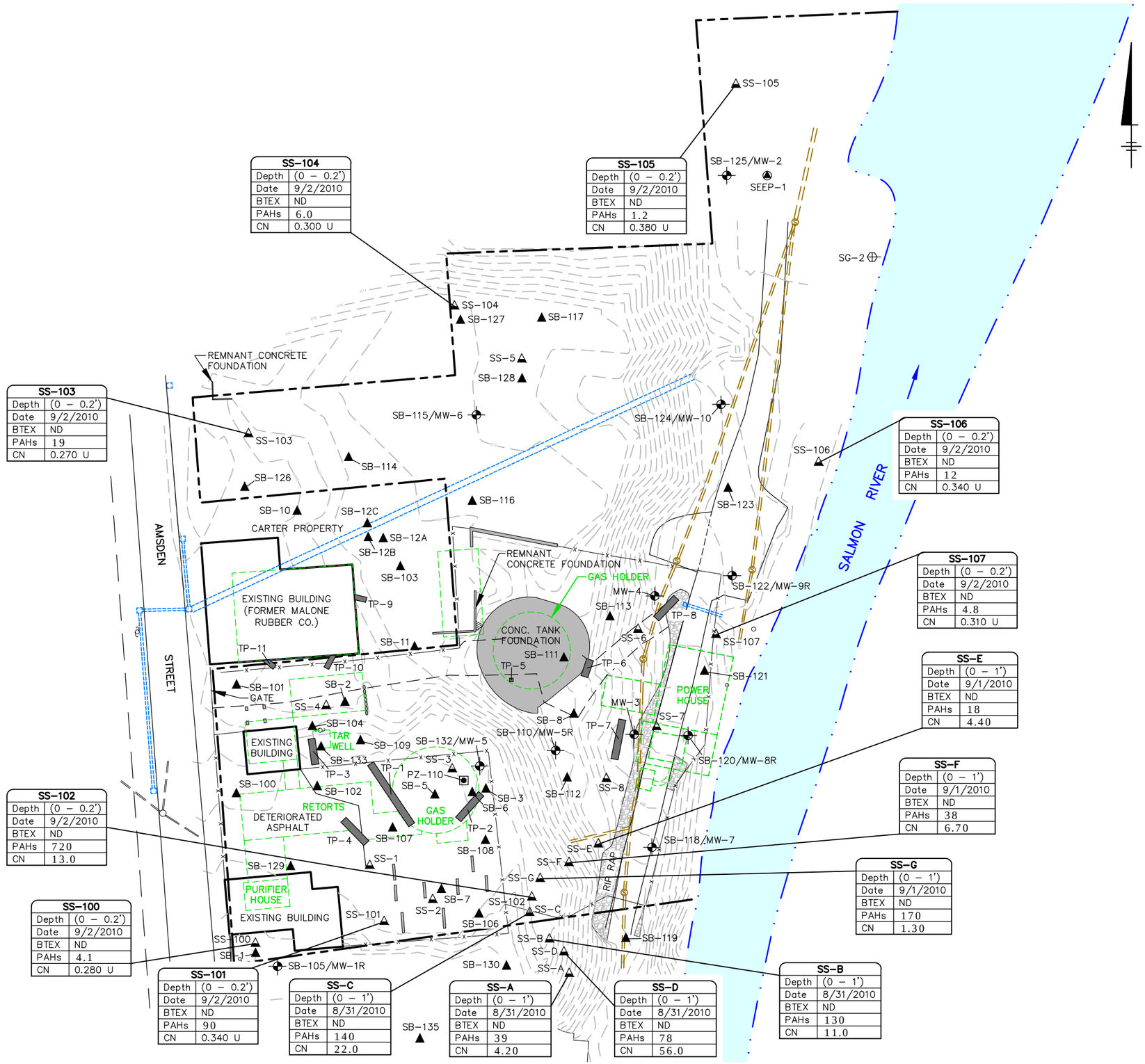
1. BASE MAP PREPARED FROM SURVEY CONDUCTED BY THEW ASSOCIATES, DATED 9/13/10. MAP IS REFERENCED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983 (NAD83) AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE) AND VERTICALLY TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). NORTH ARROW AS SHOWN INDICATES GRID NORTH REFERENCED TO NAD83 AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE).
2. ALL LOCATIONS ARE APPROXIMATE.
3. SAMPLE RESULTS REPORTED IN MG/KG. DUPLICATE RESULTS PRESENTED IN BRACKETS.
4. BOLDED VALUES WERE DETECTED.
5. ITALICS INDICATES THAT ONE OR MORE COMPOUNDS WERE DETECTED AT A CONCENTRATION ABOVE THE NYSDEC RESTRICTED RESIDENTIAL SCO.
6. SHADING INDICATES THAT ONE OR MORE COMPOUNDS WERE DETECTED AT A CONCENTRATION ABOVE THE NYSDEC RESTRICTED USE COMMERCIAL SCO.
7. LNAPL FINGERPRINTED AS GASOLINE.

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

SUBSURFACE SOIL ANALYTICAL RESULTS

ARCADIS Design & Consultancy for natural and built assets

FIGURE 11



LEGEND:

- PZ-110 — PIEZOMETER LOCATION
- SG-2 — STREAM GAUGE LOCATION
- MW-3 — MONITORING WELL LOCATION
- SB-8 — SOIL BORING LOCATION
- SS-6 — SURFACE SOIL SAMPLE LOCATION
- TP-8 — TEST PIT
- SEEP-1 — SEEP SAMPLE LOCATION
- NATIONAL GRID PROPERTY LINE
- 684 — TOPOGRAPHIC CONTOUR (4/04/2009)
- HISTORIC STRUCTURE BASED ON 1923 SANBORN MAP
- APPROXIMATE EDGE OF WATER
- SANITARY PIPE AND MANHOLE
- STORM LINE AND CATCH BASIN
- FENCE
- UTILITY POLE
- J — INDICATES AN ESTIMATED VALUE
- ND — NOT DETECTED
- U — THE COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.

NOTES:

1. BASE MAP PREPARED FROM SURVEY CONDUCTED BY THEW ASSOCIATES, DATED 9/13/10. MAP IS REFERENCED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983 (NAD83) AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE) AND VERTICALLY TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). NORTH ARROW AS SHOWN INDICATES GRID NORTH REFERENCED TO NAD83 AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE).
2. ALL LOCATIONS ARE APPROXIMATE.
3. SAMPLE RESULTS REPORTED IN MG/KG. DUPLICATE RESULTS PRESENTED IN [BRACKETS].
4. BOLDED VALUES WERE DETECTED.

0 60' 120'

GRAPHIC SCALE

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

SURFACE SOIL ANALYTICAL RESULTS

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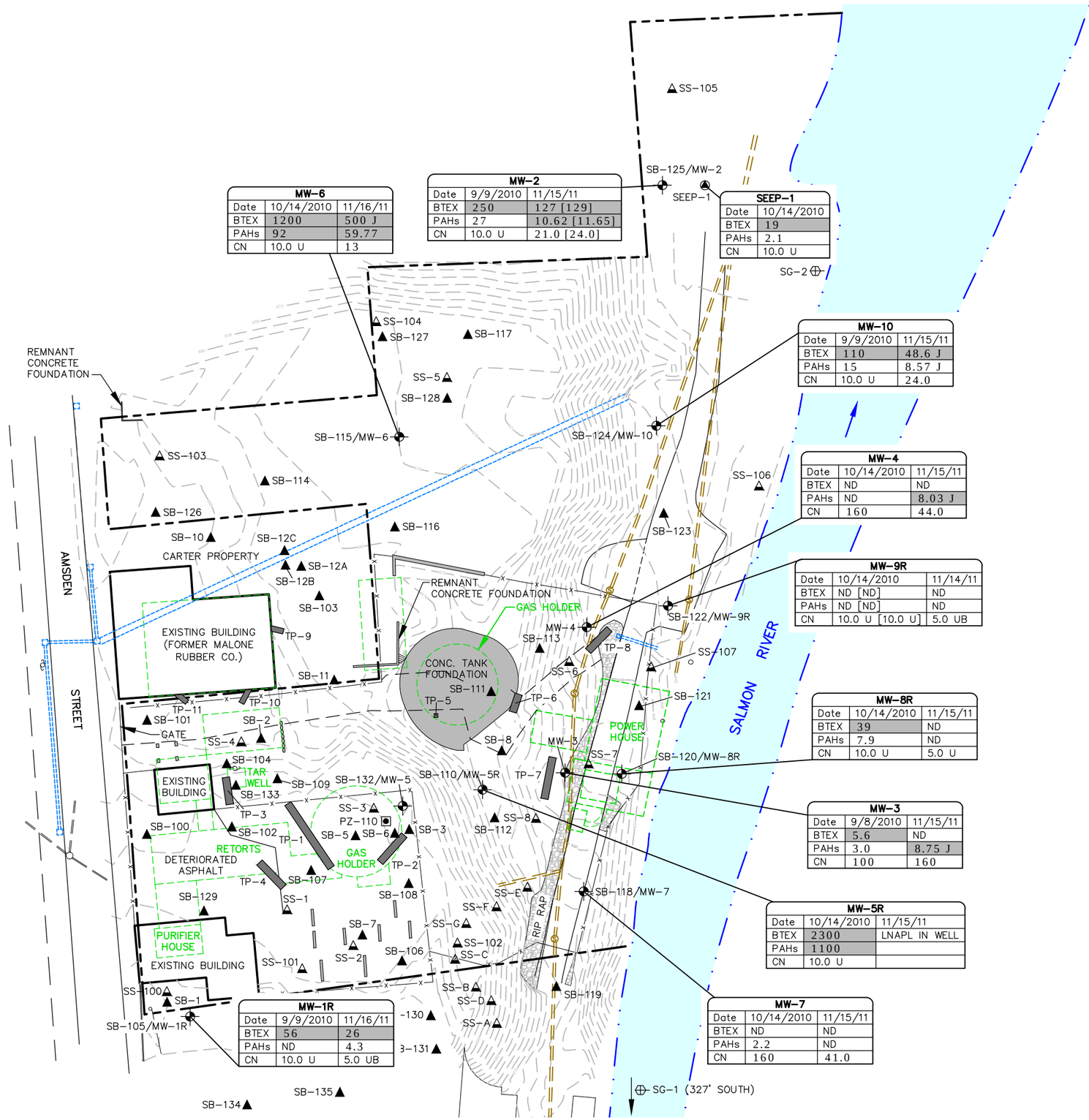
FIGURE 12



LEGEND:

- PZ-110 — PIEZOMETER LOCATION
- SG-2 — STREAM GAUGE LOCATION
- MW-3 — MONITORING WELL LOCATION
- SB-8 — SOIL BORING LOCATION
- SS-6 — SURFACE SOIL SAMPLE LOCATION
- TP-8 — TEST PIT
- SEEP-1 — SEEP SAMPLE LOCATION
- NATIONAL GRID PROPERTY LINE
- 684 — TOPOGRAPHIC CONTOUR (4/04/2009)
- HISTORIC STRUCTURE BASED ON 1923 SANBORN MAP
- APPROXIMATE EDGE OF WATER
- SANITARY PIPE AND MANHOLE
- STORM LINE AND CATCH BASIN
- FENCE
- UTILITY POLE
- J — INDICATES AN ESTIMATED VALUE
- ND — NOT DETECTED
- B — ONE OR MORE CONSTITUENTS DETECTED IN A LABORATORY BLANK
- U — THE COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.
- [ ] — RESULTS IN BRACKETS ARE FOR DUPLICATE SAMPLES

NOTES:

1. BASE MAP PREPARED FROM SURVEY CONDUCTED BY THEW ASSOCIATES, DATED 9/13/10. MAP IS REFERENCED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983 (NAD83) AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE) AND VERTICALLY TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). NORTH ARROW AS SHOWN INDICATES GRID NORTH REFERENCED TO NAD83 AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (EAST ZONE).
2. ALL LOCATIONS ARE APPROXIMATE.
3. SHADED RESULTS INDICATE THAT AT LEAST ONE COMPOUND EXCEEDS THE NEW YORK STATE CLASS GA STANDARDS OR GUIDANCE VALUES. BOLD RESULTS INDICATE DETECTED CONCENTRATION.
4. RESULTS GIVEN IN µg/L.

0 60' 120'

GRAPHIC SCALE

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

GROUNDWATER ANALYTICAL RESULTS

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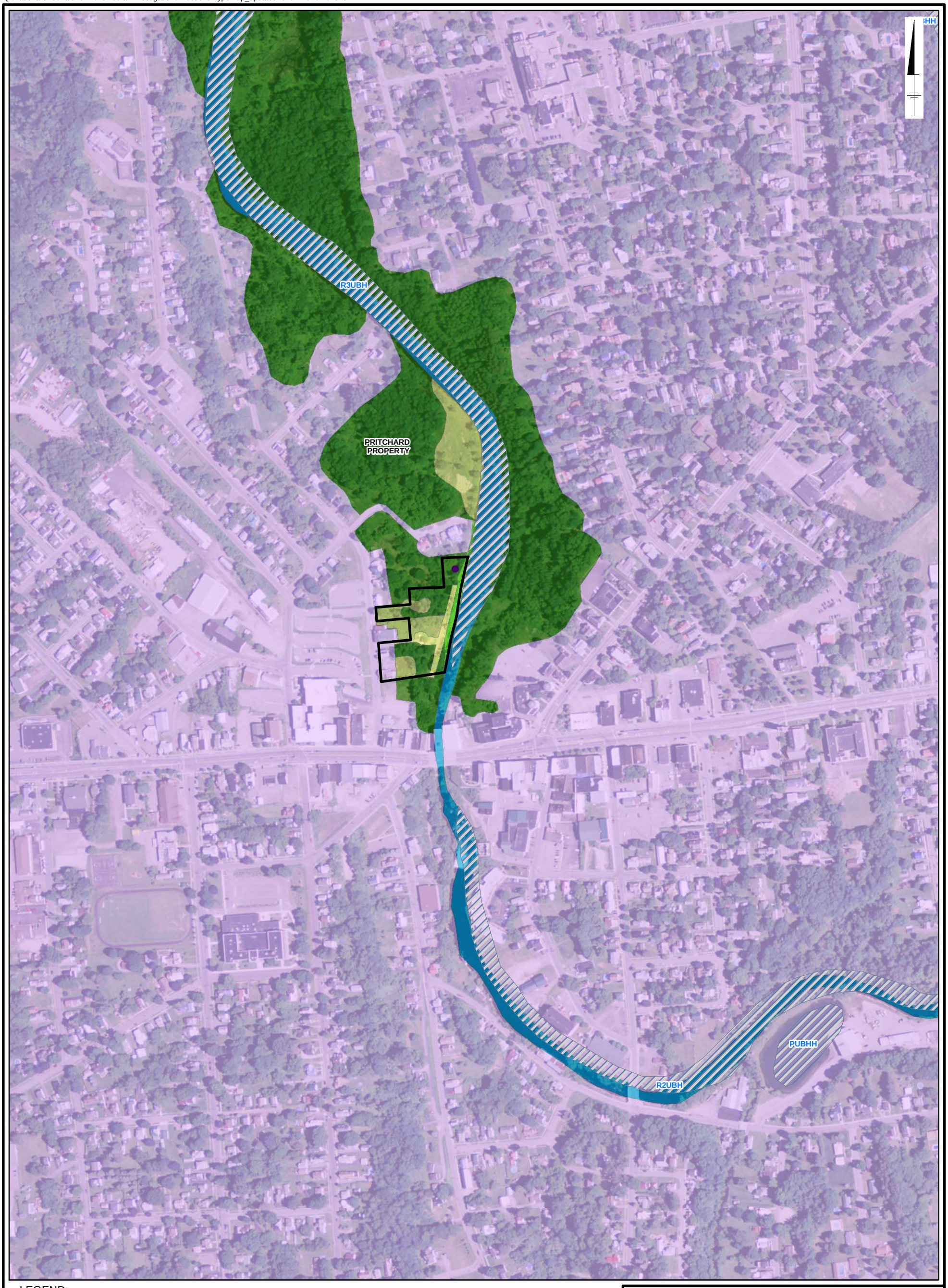
FIGURE 13

City: SYR Div/Group: IM/DV Created By: Jayme Rapp Last Saved By: jrapp
Project (B0036706.0000.00008)
Q:\NationalGrid\MaloneNY\Remedial Investigation\mxd\CoverTypeMap_updated2016.mxd 4/27/2016 1:14:41 PM



LEGEND:
- SEEP LOCATION
- NATIONAL GRID PROPERTY LINE
- SUCCESSIONAL SOUTHERN FOREST
- SUCCESSIONAL OLD/MAINTAINED FIELD
- GRAVEL ROAD/CEMENT PATH
- INDUSTRIAL/COMMERCIAL/RESIDENTIAL
- RIPARIAN FRINGE FOREST
- SALMON RIVER
- NWI WETLAND

0 400 800 Feet
GRAPHIC SCALE

NOTES:
1. 2013 IMAGERY PROVIDED BY ESRI IMAGE SERVICE.
2. 2015 NATIONAL WETLANDS INVENTORY DATA OBTIANED FROM THE U.S. FISH & WILDLIFE SERVICE.

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

COVER TYPE MAP

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FIGURE 14

City: SYR Div/Group: 90 Created By: Sruti Pulugurtha Last Saved By: jrapp
Project (B0036706.0001.00005)
Q:\NationalGrid\MaloneNY\Remedial Investigation\mxd\NWI_wetland_map_updated2016.mxd 8/9/2016 12:27:19 PM

PUBHH
PFO1C
PSS1/EM5E
PFO1E
PSS1E
PFO1E
PFO1/SS1E
PSS1E
PSS1E
PFO1B
R3UBH
PUBFX
PEM5A
PFO1B
PSS1B
PFO1/SS1E
PSS1/EM5F
PSS1A
PUBHH
PUBFH
PUBHH
PSS1E
PSS1/EM5E
PFO1A
SITE LOCATION
R2UBH
PUBHH
PFO1A
PUBHH
PFO1A
PFO1A
PFO1A
PUBFX
PUBKHX
PUSKH
PFO1A
PSS1C
PUBHH
PSS1/EM5EH
PSS1C
PFO1/SS1E
PUBHH
PUBHH
PFO1/SS1C
PUBFH
PFO1/
SS1AD
PUBHX
PUBFH
PFO1E
TWO MILE RADIUS
PFO1AD

LEGEND:

- SITE LOCATION
- TWO MILE RADIUS
- NATIONAL WETLANDS INVENTORY WETLAND

0 0.5 1 Miles
GRAPHIC SCALE

NOTES:

1. TOPOGRAPHIC BASEMAP PROVIDED BY BING IMAGERY SERVICE LICENSED THROUGH ESRI SOFTWARE.
2. 2015 NATIONAL WETLANDS INVENTORY DATA OBTAINED FROM THE U.S. FISH & WILDLIFE SERVICE.

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

NATIONAL WETLANDS INVENTORY WETLAND MAP

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FIGURE
15

City: SYR Div/Group: 90 Created By: Sruti Pulugurtha Last Saved By: jrapp
Project (B0036706.0001.00005)
Q:\NationalGrid\MaloneNY\Remedial Investigation\mxd\NYS_wetland_map_updated2016.mxd 4/27/2016 1:37:10 PM

SITE LOCATION

TWO MILE RADIUS

M-1
M-1
M-20
M-20
M-20
M-17
M-2
CF-7
CF-7
CF-7
CF-6
CF-3

LEGEND:

- SITE LOCATION
- TWO MILE RADIUS
- NEW YORK STATE FRESHWATER WETLAND

0 0.5 1 Miles

GRAPHIC SCALE

NOTES:

1. TOPOGRAPHIC BASEMAP PROVIDED BY BING IMAGERY SERVICE LICENSED THROUGH ESRI SOFTWARE.
2. NEW YORK STATE FRESHWATER WETLAND DATA FOR FRANKLIN COUNTY, NEW YORK WAS OBTAINED FROM THE CORNELL UNIVERSITY GEOSPATIAL INFORMATION REPOSITORY AT: http://cugir.mannlib.cornell.edu/

NATIONAL GRID
MALONE (AMSDEN STREET) FORMER MGP SITE
REMEDIAL INVESTIGATION

NEW YORK STATE WETLAND MAP

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FIGURE
16

APPENDIX A

Soil Boring, Monitoring Well, and Test Pit Logs

Date Start/Finish: 8/19/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: J. Percy
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192327.26
Easting: 545605.98
Casing Elevation: 696.01

Borehole Depth: 15.9' bgs
Surface Elevation: 693.83' AMSL

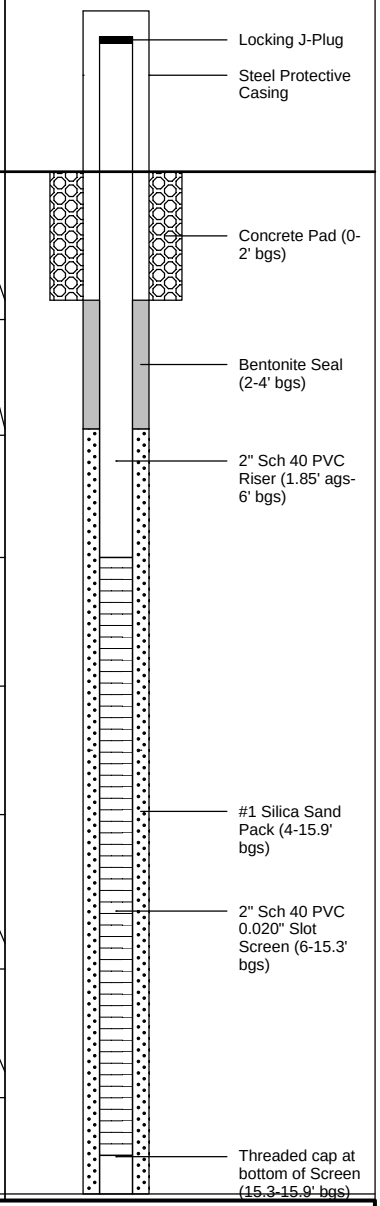
Descriptions By: Joshua Oliver

Well/Boring ID: **PZ-110**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
	695									
0		1	0-2	1.1	2 3 3 3	6	0.0			0.0-1.1 Brown to dark brown fine to coarse SAND, some fine Gravel, trace Organics, red Brick and Cinders. 2.0-2.3 Brown to dark brown fine to coarse SAND, some fine Gravel, trace Organics, red Brick and Cinders.
		2	2-4	0.6	2 2 3 4	5	42			2.3-4.6 Black solid Tar-like material (taffy consistency), moderate coal-tar-like odor, plastic. 4.0-4.1 Brown fine to medium SAND, some coarse Sand, trace Silt, non plastic, wet.
	690	3	4-6	0.3	1 2 1 2	3	47			4.1-4.3 Black solid Tar-like material (taffy consistency), moderate coal-tar-like odor, plastic.
5		4	6-8	0.2	1 2 1 1	3	78			6.0-6.2 Black solid Tar-like material (taffy consistency), moderate coal-tar-like odor, plastic.
	685	5	8-10	0.8	1 2 1 1	3	10.6			8.0-8.8 Brown fine to coarse SAND, trace Silt (layer of black stained medium to coarse SAND at 8.3-8.4' bgs, faint coal-tar-like odor), non plastic, wet.
10		6	10-12	0.3	WOH/ 1.0 3 4	NA	50.9			10.0-10.3 Black medium to coarse SAND, Wood piece, rock Cobble in shoe, non plastic, saturated. 12.0-12.4 Brown fine to coarse SAND, some fine Gravel, trace Wood, non plastic, saturated.
		7	12-14	0.8	4 2 3 3	5	209			12.4-12.8 Brown coarse SAND, saturated with Coal-Tar-like material, plastic, saturated. 14.0-14.4 Brown coarse SAND, saturated with Coal-Tar-like material, plastic, saturated.
	680									
15		8	14-16	0.7	9 5 8 8	13	301			14.4-14.7 Black solid Tar-like material (taffy consistency), moderate coal-tar-like odor, plastic. Rock fragment and red Brick in shoe. Stopped advancing augers when encountered BRICK at 16' bgs. End of Boring at 15.9' bgs.



Well/Boring Construction

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, WOH = weight of hammer.

No analytical sample collected.

Date Start/Finish: 8/18/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: J. Percy
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192319.52
Easting: 545477.64
Casing Elevation: NA

Borehole Depth: 22.5' bgs
Surface Elevation: 694.77' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-100**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	695	1	0-2	0.8	2 2 2 3	4	0.0			0.0-0.8 Brown fine to coarse SAND, some Organics, little red Brick, trace Coal fragments and paper fibers, non plastic, moist.	
		2	2-4	0.5	1 3 3 3	6	0.0			2.0-2.5 Brown fine to coarse SAND and red BRICK, little Organics and fine Gravel, non plastic, moist.	
5	690	3	4-6	0.7	2 1 2 2	3	0.0			4.0-4.7 Brown fine to medium SAND, non plastic, moist.	
		4	6-8	0.0	3 5 5 8	10	NA			NO RECOVERY.	
		5	8-10	0.1	9 10 10 10	20	0.0			8.0-8.1 Brown fine to medium SAND, some coarse Sand, trace Silt, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
10	685	6	10-12	1.0	3 3 8 8	11	0.0			10.0-11.0 Brown fine to coarse SAND, little Silt, trace fine Gravel, non plastic, moist.	
		7	12-14	1.5	1 2 1 2	3	0.0			12.0-13.5 Brown SILT, some fine Sand, laminations of medium Sand, medium plasticity, wet.	
										14.0-14.6 Brown fine to coarse SAND, layer of SILT at 14.3-14.4' bgs, non plastic, moist.	
15	680	8	14-16	1.7	1 1 1 5	2	0.0			14.6-15.4 Brown SILT, medium plasticity, moist.	
										15.4-15.7 White to light brown medium SAND, non plastic, moist.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 20.4-22.4 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: SB-100

Borehole Depth: 22.5' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	0.0	50/0.5	NA	NA			NO RECOVERY.	
										18.0-18.1 White rock fragments, non plastic, moist.	
		10	18-20	1.0	12 12 11 12	23	0.0			18.1-19.0 Brown fine to coarse SAND, layer of Silt at 18.6-18.7' bgs, non plastic, moist.	
20	675									20.0-20.6 Brown fine to coarse SAND, layer of SILT at 18.6-18.7' bgs, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
		11	20-22	1.5	29 32 27 25	59	0.0			20.6-21.5 Brown SILT and white fine to medium GRAVEL, little fine to medium Sand, trace coarse Sand, medium plasticity, moist.	
		12	22-22.9	0.4	27 50/0.4	NA	0.0			22.0-22.4 Light brown fine to medium SAND and fine subangular GRAVEL, rock fragment in shoe, non plastic, moist.	
										Auger refusal at 22.5' bgs. End of Boring.	
25	670										
30	665										
35	660										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 20.4-22.4 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 7/21/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192349.66
Easting: 545548.29
Casing Elevation: NA

Borehole Depth: 18.3' bgs
Surface Elevation: 692.06' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-101**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	695										
0		1	0-2	1.0	5 5 5 5	10	0.0			0.0-0.3 Gray medium to coarse SAND and subangular GRAVEL. 0.3-1.0 Black to brown medium to coarse SAND, some Organics, little red Bricks and Glass, trace solid tar-like pieces, non plastic, moist, no odor.	
	690	2	2-4	0.5	3 2 3 4	5	0.0			2.0-2.5 Black to brown medium to coarse SAND, some Organics, little red Bricks and Glass, non plastic, moist, no odor. 4.0-4.1 Black to brown medium to coarse SAND, some Organics, little red Bricks and Glass, non plastic, moist, no odor.	
5		3	4-6	0.9	7 3 2 3	5	0.0			4.1-4.9 Brown to light brown fine to medium SAND, trace Silt, color lighter with depth, non plastic, moist.	
	685	4	6-8	0.8	2 2 2 2	4	0.0			6.0-6.8 Reddish-brown to brown fine to medium SAND, trace Silt, non plastic, moist.	
		5	8-10	0.7	1 3 5 10	8	0.0			8.0-8.7 Reddish-brown to brown fine to medium SAND, trace Silt, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
10		6	10-12	1.3	4 5 5 4	10	0.0			10.0-11.3 Brown fine to medium SAND, some Silt, medium plasticity, wet.	
	680	7	12-14	1.6	2 2 3 4	5	0.0			12.0-13.6 Brown fine to medium SAND, some Silt, medium plasticity, wet.	
15		8	14-16	1.7	3 3 6 13	9	0.0			14.0-15.7 Brown SILT and fine SAND, trace medium Sand, medium plasticity, saturated.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 16.3-18.3' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: **SB-101**

Borehole Depth: 18.3' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
					5						
	675	9	16-18	1.7	9 13 18	12	0.0			16.0-17.7 Brown SILT and fine SAND, trace medium Sand, medium plasticity, saturated.	Boring backfilled to grade with bentonite/cement grout.
		10	18-18.3	0.3	50/0.3	NA	0.0			18.0-18.3 Brown fine to coarse SAND and angular medium to coarse GRAVEL, some Silt, medium plasticity, saturated.	
20										Refusal at 18.3' bgs. End of Boring.	
	670										
25											
	665										
30											
	660										
35											

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 16.3-18.3' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/18/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192323.55
Easting: 545523.65
Casing Elevation: NA

Borehole Depth: 28.7' bgs
Surface Elevation: 694.86' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-102/102A**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	695	1	0-2	0.9	8 5 15 16	20	0.0			0.0-0.2 ASPHALT. 0.2-0.5 Brown fine to medium SAND and GRAVEL, non plastic, moist. 0.5-0.9 Black fine to medium SAND, some Slag, little Cinders, trace fire Brick and fine to medium white Gravel, non plastic, moist.	
		2	2-4	0.3	50/0.4	NA	0.0			2.0-2.3 Dark brown fine to coarse SAND and GRAVEL, non plastic, moist.	
5	690	3	4-6	0.2	50/0.4	NA	0.0			4.0-4.2 CONCRETE fragments. Spoon refusal at 4.4 ft bgs. Auger refusal at 5.4' bgs. Moved to MW-102A location.	
		4	6-8	0.9	1 1 2 4	3	0.0			6.0-6.9 Brown fine to medium SAND, trace coarse Sand and Organics, non plastic, moist.	
		5	8-10	0.8	6 5 4 4	9	0.0			8.0-8.8 Brown fine to medium SAND, trace coarse Sand and Organics, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
10	685	6	10-12	1.4	2 3 2 2	5	0.0	X		10.0-11.4 Brown fine to medium SAND, some coarse Sand, little Silt, non plastic, saturated.	
		7	12-14	2.0	1 1 1 2	2	0.0			12.0-12.6 Brown fine to medium SAND, some coarse Sand, little Silt, non plastic, saturated. 12.6-14.0 Brown SILT, trace fine to medium Sand, medium plasticity, saturated.	
15	680	8	14-16	1.9	3 3 2 2	5	0.0			14.0-15.9 Brown SILT, laminations of fine to medium Sand, medium plasticity, saturated.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 10-12 ft bgs for VOCs, SVOCs and free cyanide and 26-28 ft bgs for VOCs, SVOCs, total cyanide, and free cyanide. 0-5.4 ft bgs installed as SB-102; auger refusal at 5.4' bgs. Moved less than 5ft northeast and installed boring SB-102A. 0-6 ft bgs descriptions from SB-102, 6-28.7 ft bgs descriptions from SB-102A.

Client: National Grid

Well/Boring ID: SB-102/102A

Borehole Depth: 28.7' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	1.4	3 10 15 14	25	0.0			16.0-16.8 Brown SILT, laminations of fine to medium Sand, medium plasticity, saturated. 16.8-17.4 Light brown medium SAND, non plastic, moist.	
		10	18-20	1.7	7 6 9 12	15	0.0			18.0-18.4 Light brown medium SAND, non plastic, moist. 18.4-19.7 Brown SILT, little Clay, trace fine Sand, very stiff, medium plasticity, moist, moist to saturated at 19.7' bgs.	
20	675									20.0-20.2 Brown SILT, little Clay, trace fine Sand, very stiff, medium plasticity, moist to saturated.	
		11	20-22	1.2	3 4 50/0.5	NA	0.0			20.2-20.5 Brown fine to medium SAND, trace Silt, non plastic, saturated. 20.5-21.2 Brown Clayey SILT, stiff, rock fragments in shoe, plastic, saturated.	
		12	22-24	1.0	14 18 23 16	41	0.0			22.0-22.7 Brown SILT, little Clay, trace fine to medium Sand, medium plasticity, saturated. 22.7-23.0 White to brown medium to coarse SAND and fine to medium subangular to angular GRAVEL, non plastic, saturated.	Boring backfilled to grade with bentonite/cement grout.
25	670	13	24-26	0.4	14 10 3 6	13	0.0			24.0-24.4 White to gray fine to coarse SANDSTONE fragments, little to trace fine to coarse Sand, non plastic, saturated.	
		14	26-28	0.8	5 10 12 29	22	0.0	X		26.0-26.8 White medium to coarse GRAVEL and brown fine to coarse SAND, non plastic, saturated.	
		15	28-28.7	0.1	50/0.4	NA	0.0			28.0-28.7 Rock fragments in shoe, non plastic, saturated.	
30	665									Refusal at 28.7' bgs. End of Boring.	
35	660										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 10-12 ft bgs for VOCs, SVOCs and free cyanide and 26-28 ft bgs for VOCs, SVOCs, total cyanide, and free cyanide. 0-5.4 ft bgs installed as SB-102; auger refusal at 5.4' bgs. Moved less than 5ft northeast and installed boring SB-102A. 0-6 ft bgs descriptions from SB-102, 6-28.7 ft bgs descriptions from SB-102A.

Date Start/Finish: 7/30/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192448.67
Easting: 545570.99
Casing Elevation: NA

Borehole Depth: 23.0' bgs
Surface Elevation: 682.46' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-103**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
685										
0 / 685	1	0-2	0.7	3 3 5 3	8	0.0			0.0-0.7 Brown fine to medium SAND, some Organics, trace red Brick and Cinders, non plastic, moist. (FILL)	
680	2	2-4	0.1	2 2 1 2	3	0.0			2.0-2.1 Red BRICK fragments in shoe, non plastic, moist. (FILL)	
5	3	4-6	0.1	1 2 1 2	3	0.0			4.0-4.1 Red BRICK fragments in shoe, non plastic, moist. (FILL) 6.0-6.1 Brown fine to medium SAND, some Organics, trace red Brick and Cinders, non plastic, moist. (FILL)	
675	4	6-8	1.4	5 5 4 5	9	0.0			6.1-7.4 Brown to light brown fine to medium SAND, non plastic, moist.	
	5	8-10	1.0	7 5 4 3	9	0.0			8.0-9.0 Brown to light brown fine to medium SAND, trace Silt after 8.9' bgs, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
10	6	10-12	1.0	WOH/ 1.5 50/0.2	NA	0.0			10.0-10.7 Brown to light brown SILT, little fine Sand, brown-white rock fragments in shoe, medium plasticity, moist.	
670	7	12-14	1.3	2 5 22 15	27	0.0			12.0-13.3 Light brown to white medium to coarse SAND, some fine Sand, white rock fragments in shoe, non plastic, moist. 14.0-14.2 Light brown medium to coarse GRAVEL, little fine to medium Sand, non plastic, moist.	
15	8	14-16	0.7	27 50/0.5	NA	0.0			14.2-14.7 White to light brown fine to medium SAND, some fine to medium subangular Gravel, non plastic, moist.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, WOH = weight of hammer.

Analytical sample collected 21-23' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: SB-103

Borehole Depth: 23.0' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	0.8	12 35 28 34	63	0.0			16.0-16.8 White to light brown fine to medium SAND, some fine to medium subangular Gravel, non plastic, moist.	
	665	10	18-20	1.2	21 28 27 20	55	0.0			18.0-19.2 Alternating layers of white and light brown fine to medium SAND, some fine to medium subangular Gravel, non plastic, moist to wet.	
20		11	20-22	0.9	15 40 15 9	55	0.0			20.0-20.9 Brown medium to coarse SAND and fine subangular GRAVEL, trace Silt, non plastic, wet to saturated last 0.1' of sample.	Boring backfilled to grade with bentonite/cement grout.
										22.0-22.4 Brown medium to coarse SAND and fine subangular GRAVEL, trace Silt, non plastic, saturated.	
	660	12	22-23	0.6	8 50/0.3	NA	1974			22.4-22.6 Black stained fine SAND and medium angular GRAVEL, moderate degraded petroleum-like odor, non plastic, saturated.	
										Refusal at 23.0' bgs. End of Boring.	
25											
	655										
30											
	650										
35											

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Analytical sample collected 21-23' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 7/21/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192357.69
Easting: 545520.86
Casing Elevation: NA

Borehole Depth: 23.5' bgs
Surface Elevation: 689.78' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-104**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	690										
0		1	0-2	0.7	1 3 4 3	7	25.0			0.0-0.7 Brown-black ORGANICS, trace fine to medium Sand, red Brick and Tar-like material (taffy consistency), slight tar-like odor, non plastic, moist.	
		2	2-4	0.0	2 2 3 5	5	NA			NO RECOVERY.	
5	685	3	4-6	0.1	50/0.3	NA	5.1			4.0-4.3 Brown-black ORGANICS, trace fine to medium Sand and red Brick, slight tar-like odor, non plastic, moist.	
		4	6-8	1.4	2 4 3 5	7	1.1			6.0-6.7 Brown medium to coarse SAND, little fine Gravel, trace fine Sand, non plastic, moist.	
		5	8-10	1.4	3 4 5 7	9	5.8	X		8.0-9.4 Brown medium to coarse SAND, little fine Gravel, trace fine Sand, non plastic, moist. Thin beds (approx 0.2' thick) of white fine SAND at 8.3' and 9.0' bgs, black staining (8.0-8.3' bgs), slight tar-like odor, medium plasticity, moist.	Boring backfilled to grade with bentonite/cement grout.
10	680	6	10-12	2.0	1 1 1 1	2	0.0			10.0-12.0 Brown SILT and fine SAND, seam of fine white SAND at 11.8' bgs, black staining of some grains, no odor, medium plasticity, moist.	
		7	12-14	1.5	2 3 4 6	7	0.0			12.0-13.5 Brown SILT and fine SAND, seam of fine white SAND at 13.2', 13.3', 13.5' bgs, medium plasticity, moist.	
15	675	8	14-16	1.2	6 8 11 13	19	0.0			14.0-15.2 White fine SAND, seam of SILT and fine SAND at 14.2' bgs, non plastic, moist.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 8-10' ft bgs for VOCs, SVOCs, total cyanide and free cyanide and 22-23.5' ft bgs for VOCs.

Client: National Grid

Well/Boring ID: SB-104

Borehole Depth: 23.5' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
					9					16.0-16.4 White fine SAND, non plastic, moist.	
		9	16-18	1.0	17 27 33	44	0.0			16.4-17.0 Brown medium SAND and fine to medium subangular GRAVEL, white rock Cobble in shoe, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
		10	18-20	0.8	18 31 30 25	61	0.0			18.0-18.8 White-brown medium SAND and white fine to medium subangular GRAVEL, trace Silt, non plastic, moist.	
20	670	11	20-22	0.0	18 19 14 21	33	NA			NO RECOVERY. White Cobble in shoe, wet. 22.0-22.2 Brown medium SAND and fine to medium subangular GRAVEL, non plastic, saturated.	
		12	22-23.5	0.5	28 50/0.3	NA	0.3	X		22.2-22.5 Gray medium SAND and medium angular GRAVEL, very slight tar-like odor, non plastic, saturated.	
25	665									Refusal at 23.5' bgs. End of Boring.	
30	660										
35	655										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

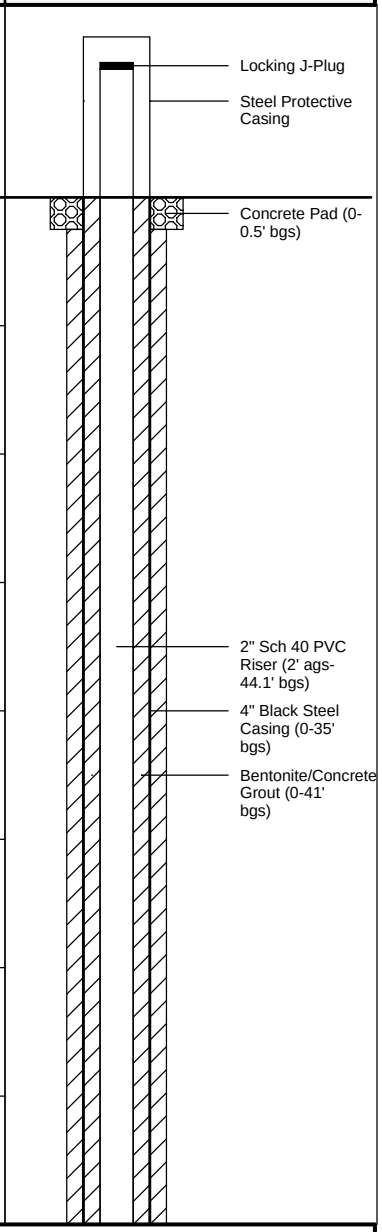
Analytical sample collected 8-10' ft bgs for VOCs, SVOCs, total cyanide and free cyanide and 22-23.5' ft bgs for VOCs.

Date Start/Finish: 8/10-8/16/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger/Coring
Auger Size: 4.25" ID Auger/HQ Core Barrel
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon/ 2.5" x 5' Core Barrel

Northing: 2192223.76
Easting: 545497.66
Casing Elevation: 705.6" AMSL
Borehole Depth: 65.0' bgs
Surface Elevation: 703.54' AMSL
Descriptions By: Marcus Eriksson

Well ID/Boring ID: **SB-105/MW-1R**
Client: National Grid
Site Location: Malone - Amsden Street
Former MGP Site
Malone, NY

Depth (ft bgs) / Elevation (ft AMSL)	Sample Run Number	Sample/Int/Type	Blow Counts/ *Minutes per ft - Coring*	N - Value / *RQD (%) - Coring*	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
705								
0	1	0-2	2 19 21 17	40	0.6	0.0		0.0-0.6 Brown fine to medium SAND, little to trace Organics and Silt, non plastic, moist.
	2	2-4	6 4 6 20	10	1.4	0.0		2.0-3.4 Brown fine SAND, little fine to medium subangular Gravel, trace Silt and Organics, non plastic, moist. Rock in shoe.
700								
5	3	4-6	NA	NA	NA	0.0		4.0-5.5 Very hard drilling (No sampling). Auger refusal at 5.5' bgs. Moved rig and made second attempt.
	4	6-8	50/0.2	NA	0.2	0.0		6.0-6.2 Pink/gray fine to medium SANDSTONE (possible boulder)
695	5	8-10	4 7 8 6	15	1.0	0.0		8.0-10.0 Brown fine to medium SAND, little fine to medium subangular Gravel, trace Silt, non plastic, moist.
10	6	10-12	4 4 5 6	9	2.0	0.0		10.0-12.0 Brown fine to medium SAND, little fine to medium subangular Gravel, trace Silt, becoming more loose with depth, non plastic, moist.
690	7	12-14	4 5 5 5	10	1.5	0.0		12.0-13.5 Brown fine to medium SAND, little fine to medium subangular Gravel, trace Silt, 2mm laminations throughout, non plastic, moist.
15	8	14-16	4 4 3 4	7	1.2	0.0		14.0-15.2 Brown fine to medium SAND, little fine to medium subangular Gravel, trace Silt, 2mm laminations throughout, non plastic, moist.



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, deg = degrees, hz = horizontal.

Analytical sample collected 18-18.9 ft and 28-28.5 ft bgs for VOCs, SVOCs, total cyanide and free cyanide. Intervals from 0-30.2 ft bgs sampled using a 2' by 2" split spoon. Intervals from 30.2-65 ft bgs sampled using an HQ rock core barrel.

Client: National Grid

Well/Boring ID: **SB-105/MW-1R**

Borehole Depth: 65.0' bgs

Site Location:

Malone - Amsden Street
Former MGP Site

Depth (ft bgs) / Elevation (ft AMSL)	Sample Run Number	Sample/Int/Type	Blow Counts/ *Minutes per ft - Coring*	N - Value / *RQD (%) - Coring*	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well Construction
	9	16-18	2 2 3 4	5	2.0	0.0		16.0-17.6 Brown fine to medium SAND, little fine to medium subangular Gravel and Clay, trace Silt, 2mm laminations throughout, medium plasticity, saturated.	
685	10	18-20	9 50/0.4	NA	0.9	0.0		18.0-18.8 Brown fine to medium SAND, little fine to medium subangular Gravel and Clay, trace Silt, 2mm laminations throughout, medium plasticity, saturated. 18.8-18.9 Red/pink fine SANDSTONE, non plastic, moist.	
20	NA	20-22	NA	NA	NA	0.0		20.0-22.0 No soil logged. Location moved for third attempt and drilled without sampling to 22' bgs.	2" Sch 40 PVC Riser (2' ags-44.1' bgs)
680	11	22-24	15 39 50/0.2	NA	0.2	NA		22.0-22.2 Brown fine to medium SAND, little fine to medium subangular Gravel and Clay, trace Silt, 2mm laminations throughout, medium plasticity, saturated.	
25	12	24-26	37 31 42 39	73	1.6	0.0		24.0-25.4 Brown fine SAND, non plastic, moist. 25.4-25.6 Weathered fine SANDSTONE, little fine Sand, non plastic, moist.	4" Black Steel Casing (0-35' bgs)
	13	26-28	26 27 16 24	43	0.4	0.0		26.0-26.4 Weathered fine SANDSTONE, little fine Sand, non plastic, moist.	Bentonite/Concrete Grout (0-41' bgs)
675	14	28-30	18 13 27 28	40	0.3	0.0		28.0-28.3 Weathered fine SANDSTONE, non plastic, moist.	
30	15	30-30.7	37 50/0.2	NA	0.2	0.0		30.0-30.2 Weathered fine SANDSTONE, non plastic, moist.	
670	NA	30.7-35	NA	NA	NA	NA		No samples collected/logged. Drilled rock socket for casing set.	
35			7					35.0-39.3 Gray/white fine to medium Quartzite SANDSTONE with gray/dark gray/brown fine laminations.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, deg = degrees, hz = horizontal.

Analytical sample collected 18-18.9 ft and 28-28.5 ft bgs for VOCs, SVOCs, total cyanide and free cyanide. Intervals from 0-30.2 ft bgs sampled using a 2' by 2" split spoon. Intervals from 30.2-65 ft bgs sampled using an HQ rock core barrel.

Client: National Grid

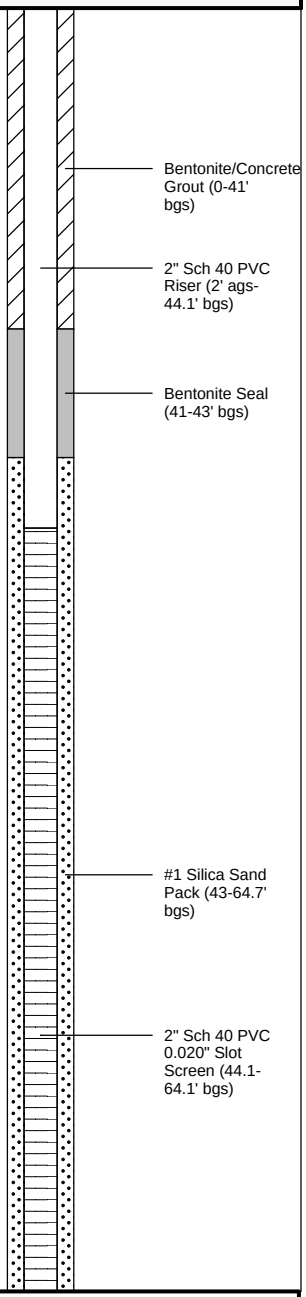
Well/Boring ID: **SB-105/MW-1R**

Borehole Depth: 65.0' bgs

Site Location:

Malone - Amsden Street
Former MGP Site

Depth (ft bgs) / Elevation (ft AMSL)	Sample Run Number	Sample/Int/Type	Blow Counts/ *Minutes per ft - Coring*	N - Value / *RQD (%) - Coring*	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
665	1	35-39.3	7, 7, 7, 5	*100*	4.29	NA		Fractures: 35.5'-hz, 35.9'-hz Munsell Color: 7/N Impacts: None Approximate water loss: 0 gal
40	2	40-45	18, 18, 18, 18	*91*	4.96	NA		40.0-45.0 Gray/white fine to medium Quartzite SANDSTONE with gray/dark gray/brown fine laminations, very coarse Sandstone (43.0-43.4' bgs). Fractures: 40.2'-hz, 41.3'-hz, 42.7'-hz, 43.32'-hz, 43.51'-hz Munsell Color: 7/N Impacts: None Approximate water loss: 280 gal (started loosing water at 43.5' bgs)
660								
45	3	45-50	19, 19, 19, 19, 19	*87*	4.67	NA		45.0-50.0 Gray/white fine to medium Quartzite SANDSTONE with dark gray/brown fine laminations, coarse Sandstone at 47.8' bgs. Fractures: 45.2'-hz, 46.3'-hz, 47.9'-hz, 47.95'-hz, 48.5'-hz, 49.1'-hz Munsell Color: 7/N Impacts: None Approximate water loss: NA
655								
50	4	50-51.5	*60*	*91*	1.29	NA		50.0-51.5 Gray/white fine to coarse Quartzite SANDSTONE with dark gray/brown fine laminations, hard. Fractures: 50.45'-hz, 50.8'-hz Munsell Color: N7 Impacts: None Approximate water loss: 500 gal
650	5	51.3-55	23, 4, 6, 20	*83*	3.08	NA		51.5-55.0 Gray/white fine to coarse Quartzite SANDSTONE with dark gray/brown fine laminations, hard. Fractures: 52.0'-hz, 52.75'-hz, 53.9'-hz Munsell Color: N7 Impacts: None Approximate water loss: 300 gal
55			10					55.0-60.0 Gray/white fine to coarse Quartzite SANDSTONE with dark gray/brown/red fine laminations, hard.



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, deg = degrees, hz = horizontal.

Analytical sample collected 18-18.9 ft and 28-28.5 ft bgs for VOCs, SVOCs, total cyanide and free cyanide. Intervals from 0-30.2 ft bgs sampled using a 2' by 2" split spoon. Intervals from 30.2-65 ft bgs sampled using an HQ rock core barrel.

Client: National Grid

Well/Boring ID: **SB-105/MW-1R**

Borehole Depth: 65.0' bgs

Site Location:

Malone - Amsden Street
Former MGP Site

Depth (ft bgs) / Elevation (ft AMSL)	Sample Run Number	Sample/Int/Type	Blow Counts/ *Minutes per ft - Coring*	N - Value / *RQD (%) - Coring*	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well Construction
	6	55-60	10 15 8 9	89	5.29	NA		Fractures: 55.9'-hz, 56.35'-hz, 56.75'-hz, 57.62'-hz, 57.95'-hz, 59.1'-hz, 59.2'-hz, 59.3'-hz Munsell Color: N7 Impacts: None Approximate water loss: 350 gal	
645 60									
	7	60-65	5 7 4 5 5	98	5.25	NA		60.0-65.0 Gray/white fine to coarse Quartzite SANDSTONE with dark gray fine laminations, hard. Fractures: 60.5'-10 deg, highly weathered, 60.3'-hz, 61.75'-hz Munsell Color: N7 Impacts: None Approximate water loss: 300 gal	2" Sch 40 PVC 0.020" Slot Screen (44.1-64.1' bgs) Threaded cap at bottom of Screen (64.1-64.7' bgs)
640 65								End of boring at 65.0' bgs.	
635 70									
630 75									

Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, deg = degrees, hz = horizontal.

Analytical sample collected 18-18.9 ft and 28-28.5 ft bgs for VOCs, SVOCs, total cyanide and free cyanide. Intervals from 0-30.2 ft bgs sampled using a 2' by 2" split spoon. Intervals from 30.2-65 ft bgs sampled using an HQ rock core barrel.

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Date Start/Finish: 8/20/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192251.00
Easting: 545615.74
Casing Elevation: NA

Borehole Depth: 21.8' bgs
Surface Elevation: 695.19' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-106**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	695	1	0-2	1.0	4 14 24 7	38	0.0			0.0-0.2 Dark brown fine to coarse SAND, some organics, trace Silt, non plastic, moist. 0.2-1.0 Gray fine to coarse SAND and fine to coarse angular GRAVEL, non plastic, moist.	
		2	2-4	1.4	3 3 4 4	7	0.0			2.0-2.3 Gray fine to coarse SAND and fine to coarse angular GRAVEL, non plastic, moist. 2.3-3.4 Brown medium SAND, some fine to coarse Sand, trace Silt and Organics, non plastic, moist.	
5	690	3	4-6	1.2	3 2 3 6	5	0.0			4.0-5.2 Brown (lighter with depth) to light brown medium SAND, some fine Sand, non plastic, moist. 6.0-6.1 Light brown medium SAND, trace fine Sand, non plastic, moist.	
		4	6-8	1.6	7 7 7 10	14	0.0			6.1-7.6 Brown SILT and very fine SAND, trace medium Sand, non plastic.	
		5	8-10	1.5	9 13 13 12	26	0.0			8.0-8.3 Brown SILT and very fine SAND, trace medium Sand, non plastic. 8.3-9.5 Brown fine to medium SAND, some Silt, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
10	685	6	10-12	1.9	7 8 12 11	20	0.0			10.0-11.9 Brown fine to medium SAND, some Silt, non plastic, moist.	
		7	12-14	1.9	8 10 10 10	20	0.0			12.0-13.9 Brown fine SAND and SILT, little to some medium Sand, non plastic, moist.	
15	680	8	14-16	1.9	6 8 8 8	16	0.0			14.0-15.2 Brown SILT, some fine Sand, seams of light brown medium Sand at 14.8' and 15.0' bgs, stiff, non plastic, moist. 15.2-15.9 Brown to light brown fine to medium SAND, trace Silt, non plastic moist.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 20.0-21.5 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: **SB-106**

Borehole Depth: 21.8' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	1.8	9 10 16 13	26	0.0			16.0-17.8 Brown SILT, some fine Sand, seams of light brown medium Sand at 17.4' and 17.6' bgs, medium plasticity, moist.	
		10	18-20	2.0	12 14 19 19	33	0.0			18.0-20.0 Brown SILT, some fine Sand, seams of light brown medium Sand at 18.2', 18.7' and 19.8' bgs, medium plasticity, moist.	Boring backfilled to grade with bentonite/cement grout.
20	675									20.0-20.4 Brown SILT, some fine Sand, medium plasticity, moist to wet.	
		11	20-21.5	1.1	3 13 50/0.5	NA	0.0	X		20.4-21.1 Light brown medium SAND, some fine Sand, trace Silt, non plastic, moist.	
										Auger refusal at 21.8' bgs. End of Boring.	
25	670										
30	665										
35	660										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 20.0-21.5 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/19/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: J. Percy
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192300.03
Easting: 545566.59
Casing Elevation: NA

Borehole Depth: 21' bgs
Surface Elevation: 694.02' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-107**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	695										
0		1	0-2	0.5	4 7 7 2	14	0.0			0.0-0.5 Dark brown fine to coarse SAND, some Organics, little fine Gravel, non plastic, moist.	
										2.0-2.2 Black Coal fragments.	
		2	2-4	1.3	2 1 1 2	2	0.0			2.2-3.3 Brown fine to medium SAND, trace Silt, non plastic, moist.	
	690	3	4-6	1.4	2 5 6 5	11	0.0			4.0-5.4 Brown fine to medium SAND, trace Silt, non plastic, moist.	
5		4	6-8	1.4	6 6 6 6	12	0.0			6.0-7.4 Brown fine to medium SAND, trace Silt, non plastic, moist.	
										8.0-8.2 Brown fine to medium SAND, trace Silt, non plastic, moist.	
	685	5	8-10	1.4	5 4 3 4	7	0.0			8.2-9.4 Brown SILT, little fine Sand (laminations of dark brown fine Sand), non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
10		6	10-12	1.4	2 1 2 1	3	0.0			10.0-11.4 Alternating layers of light brown to brown medium to coarse SAND and fine SAND/SILT layers (0.3' thick), no to medium plasticity, moist.	
		7	12-14	1.9	1 2 1 5	3	0.0			12.0-13.0 Alternating layers of light brown to brown medium to coarse SAND and fine SAND/SILT layers (0.3' thick), no to medium plasticity, moist-wet.	
										13.0-14.9 Brown SILT, getting stiff at 13.6' bgs, medium plasticity, wet.	
	680										
15		8	14-16	1.6	4 5 10 10	15	0.0			14.0-15.6 Alternating brown medium to coarse SAND and Clayey SILT, stiff, medium plasticity, moist.	
										16.0-16.4 Alternating brown medium to coarse SAND and Clayey SILT, stiff,	

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Analytical sample collected 20-21 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: SB-107

Borehole Depth: 21' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-16.5	0.4	50/0.4	NA	0.0			non plastic, moist. Rock fragment in shoe.	
										Initial auger refusal at 16.5' bgs. Moved location and drilled to 20' bgs without logging lithology.	
		NA	16.5-20	NA	NA	NA	NA				Boring backfilled to grade with bentonite/cement grout.
20	675	10	20-21	1.0	40 42 50/0.1	NA	NA	X		20.0-21.0 Brown-white SAND and fine to medium GRAVEL, some Silt, rock fragments in shoe, non plastic, moist. Spoon refusal at 21.1' bgs.	
										Auger refusal at 21' bgs. End of Boring.	
25	670										
30	665										
35	660										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 20-21 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/23/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192292.89
Easting: 545619.44
Casing Elevation: NA

Borehole Depth: 23.5' bgs
Surface Elevation: 694.63' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-108**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
695 / 0										
	1	0-2	1.3	1 2 3 5	5	0.0			0.0-1.3 Brown medium to coarse SAND, some Organics, some to little Coal and Slag, trace Silt and Clay, non plastic, moist.	
	2	2-4	0.1	4 4 5 5	9	0.0			2.0-2.1 Brown fine to medium SAND, trace Silt, non plastic, moist.	
690 / 5	3	4-6	1.1	4 4 7 4	11	0.0			4.0-5.1 Brown fine to medium SAND, trace fine subangular Gravel and Silt, non plastic, moist.	
	4	6-8	1.4	2 2 3 3	5	0.0			6.0-6.9 Brown fine to medium SAND, trace fine subangular Gravel and Silt, non plastic, moist. 6.9-7.4 Dark brown medium to coarse SAND, trace Organics, non plastic, moist.	
685 / 10	5	8-10	1.4	3 3 5 6	8	0.0			8.0-9.4 Gray/dark brown to brown fine to coarse SAND, trace Organics, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
	6	10-12	2.0	3 4 5 5	9	0.0			10.0-12.0 Brown medium to coarse SAND, seam of medium Sand at 11.9' bgs, non plastic, moist.	
	7	12-14	1.7	5 5 5 5	10	0.0			12.0-13.1 Brown medium to coarse SAND, non plastic, moist. 13.1-13.7 Light brown-white medium SAND, trace fine Sand, non plastic, moist.	
680 / 15	8	14-16	1.9	1 2 1 1	3	0.0			14.0-15.0 Light brown-white medium SAND, trace fine Sand, non plastic, moist. 15.0-15.9 Brown SILT, some fine Sand, trace white medium Sand and Clay, medium plasticity, wet.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 20.7-22.7 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: **SB-108**

Borehole Depth: 23.5' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	1.8	4 4 5 7	9	0.0			16.0-17.8 Brown SILT, some fine Sand, trace white medium Sand and Clay, medium plasticity, moist-wet.	
20	675	10	18-20	1.7	4 7 7 22	14	0.0			18.0-19.7 Brown fine to medium SAND, some Silt, trace coarse Sand, gray rock fragments in shoe, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
		11	20-22	1.4	12 17 11 50/0.1	28	0.0			20.0-21.4 Brown fine to medium SAND, some Silt, increasing Silt with depth, trace coarse Sand, stiff, rock fragment at 20.7' bgs, non plastic, moist-wet.	
		12	22-22.8	0.7	17 50/0.3	NA	0.0			22.0-22.7 Brown-gray/white medium to coarse SAND and fine to coarse GRAVEL, trace Silt, rock fragment in shoe, non plastic, moist. Spoon refusal at 22.8' bgs.	
25	670									Auger refusal at 23.5' bgs. End of Boring.	
30	665										
35	660										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 20.7-22.7 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 7/20/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192349.66
Easting: 545548.29
Casing Elevation: NA

Borehole Depth: 26.5' bgs
Surface Elevation: 692.06' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-109**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
695										
0	1	0-2	0.8	NA	NA	0.0			0.0-0.4 Black ORGANICS, trace medium Sand and fine Gravel, non plastic, moist. 0.4-0.8 Brown fine to coarse SAND, trace solid Tar-like material (taffy consistency), trace Organics (roots), non plastic, moist.	
690	2	2-4	1.1	NA	NA	0.0			2.0-3.1 Brown fine to coarse SAND, trace Organics (roots), non plastic, moist.	
5	3	4-6	1.1	7 9 8 7	17	0.0			4.0-5.1 Light brown fine to medium SAND, some Silt, non plastic, moist.	
685	4	6-8	0.6	3 4 5 4	9	0.0			6.0-6.6 Light brown to dark brown fine to coarse SAND, some Organics non plastic, moist.	
	5	8-10	1.5	4 6 6 5	12	0.0			8.0-9.5 Dark to light brown fine to medium SAND, trace Organics, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
10	6	10-12	1.2	3 4 3 3	7	0.0			10.0-11.2 Light brown fine to medium SAND, homogeneous, non plastic, moist.	
680	7	12-14	1.6	3 4 5 4	9	0.0			12.0-13.6 Light brown fine to medium SAND, homogeneous, non plastic, moist to wet.	
15	8	14-16	1.0	1 1 1 4	2	0.0			14.0-15.0 Light brown fine to medium SAND, homogeneous, non plastic, moist to wet. 16.0-16.4 Light brown fine to medium SAND, homogeneous, non plastic, moist	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 22-24 ft bgs and 26-26.5 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: SB-109

Borehole Depth: 26.5' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
										to wet.	
	675	9	16-18	1.4	3 2 2 2	4	0.0			16.4-17.4 Brown Clayey SILT, trace fine Sand, medium plasticity, moist. 18-18.1 Brown Clayey SILT, trace fine Sand, medium plasticity, moist.	
		10	18-20	1.5	3 6 8 10	14	0.0			18.1-19.5 Brown to light brown fine to medium SAND, trace Silt, non plastic, wet.	
20		11	20-22	0.1	50/0.1	NA	0.0			20.0-20.1 Brown to light brown fine to medium SAND, trace Silt, non plastic, wet. 22.0-22.4 Brown to light brown fine to medium SAND, trace Silt, non plastic, wet to saturated.	Boring backfilled to grade with bentonite/cement grout.
	670	12	22-24	1.4	2 11 15 17	26	0.0	X		22.4-23.4 Brown Clayey SILT, trace fine Sand, medium plasticity, saturated.	
25		13	24-26	1.0	14 13 9 14	22	2.2			24.0-25.0 Brown medium to coarse SAND and fine to medium GRAVEL, non plastic, saturated. 26.0-26.5 Brown medium to coarse SAND and fine to medium GRAVEL, non plastic, saturated. Slight color change to Brown/gray at 26.4' bgs. Rock chips in shoe.	
		14	26-26.5	0.5	30 50/0.1	NA	147	X			
	665									Refusal at 26.5' bgs. End of Boring.	
30											
	660										
35											

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

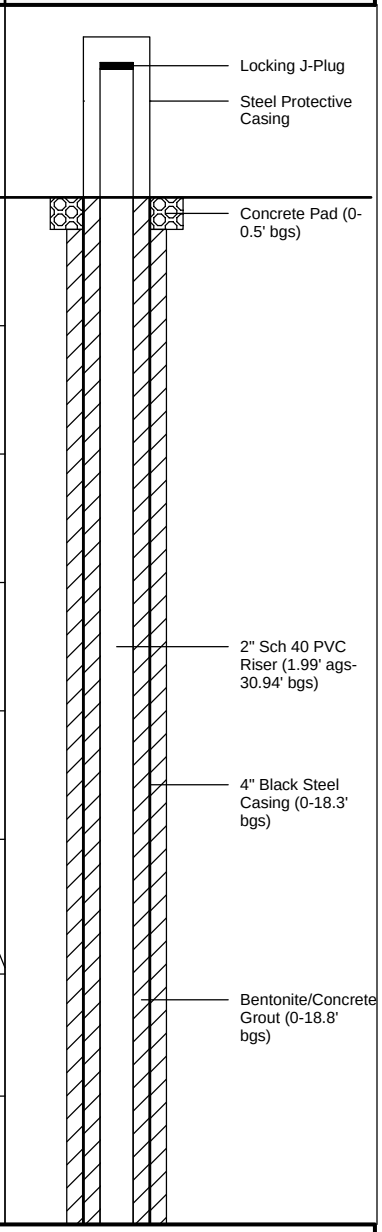
Analytical sample collected 22-24 ft bgs and 26-26.5 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 7/26-7/28/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger/Coring
Auger Size: 6.25" ID Auger/HQ Core Barrel
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon/ 2.5" x 5' Core Barrel

Northing: 2192344.32
Easting: 545659.35
Casing Elevation: 675.3' AMSL
Borehole Depth: 50.8' bgs
Surface Elevation: 673.21' AMSL
Descriptions By: Marcus Eriksson

Well ID/Boring ID: **SB-110/MW-5R**
Client: National Grid
Site Location: Malone - Amsden Street
Former MGP Site
Malone, NY

Depth (ft bgs) / Elevation (ft AMSL)	Sample Run Number	Sample/Int/Type	Blow Counts/ *Minutes per ft - Coring*	N - Value / *RQD (%) - Coring*	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
675 / 0								
	1	0-2	1, 2, 5, 7	7	1.0	0.0		0-1.0 Brown to black fine to coarse SAND, some Silt and red Brick, slightly coated grains (0.4-0.5' bgs), faint tar-like odor, non plastic, moist. (FILL)
	2	2-4	7, 8, 4, 3	12	0.9	0.0		2.0-2.9 Blue-green (brown at 2.6' bgs) medium SAND, trace Silt, non plastic, moist. Possible purifier waste.
670 / 5	3	4-6	3, 3, 5, 7	8	0.7	0.0		4.0-4.7 Brown fine to medium SAND, non plastic, moist.
	4	6-8	8, 12, 9, 6	23	0.8	0.0		6.0-6.8 Brown (turning light brown) fine to medium SAND, non plastic, moist.
665 / 10	5	8-10	23, 14, 11, 8	25	0.1	0.0		8.0-8.1 COBBLE, rock fragments (white-gray) in shoe, non plastic, moist.
	6	10-12	3, 4, 3, 4	7	0.7	0.0		10.0-10.7 Brown fine to medium SAND, some Silt, non plastic, moist to wet. 12.0-12.1 Brown fine to medium SAND, some Silt, non plastic, moist to wet.
660 / 15	7	12-14	2, 1, 1, 2	2	1.4	0.0		12.1-13.4 Brown medium SAND, fine SAND and SILT (interbedded), medium plasticity, wet to saturated at 12.5' bgs. Black discolored laminations at 12.55' bgs.
	8	14-16	NA	NA	NA	NA		14.0-16.0 No sample collected. Drilled using roller bit to 16.0' bgs.



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, deg = degrees, hz = horizontal.

Analytical sample collected 2-4 and 12-14 ft bgs for VOCs, SVOCs, total cyanide and free cyanide. Intervals from 0-18.3 ft bgs sampled using a 2' by 2" split spoon. Intervals from 18.8-50.8 sampled using a HQ rock core barrel.

Client: National Grid

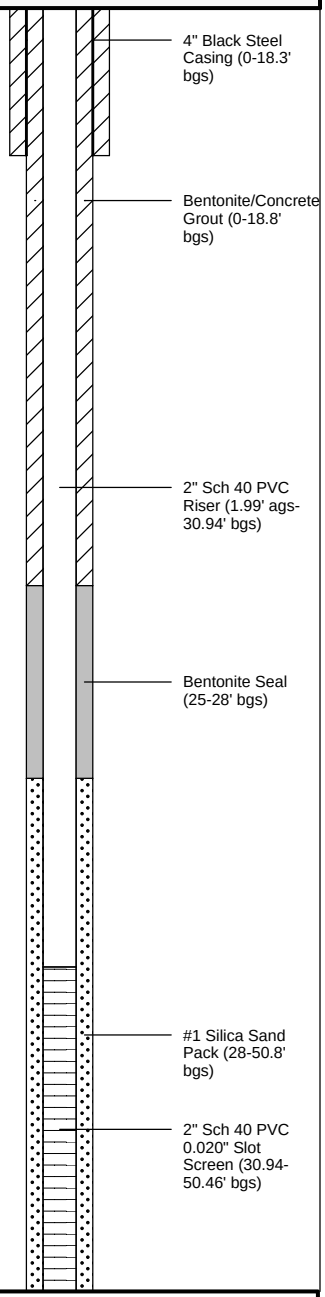
Well/Boring ID: **SB-110/MW-5R**

Borehole Depth: 50.8' bgs

Site Location:

Malone - Amsden Street
Former MGP Site

Depth (ft bgs) / Elevation (ft AMSL)	Sample Run Number	Sample/Int/Type	Blow Counts/ *Minutes per ft - Coring*	N - Value / *RQD (%) - Coring*	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
	9	16-18	4 3 3 10	6	1.5	0.0		16.0-17.5 Brown medium to coarse SAND, trace Silt, fine subrounded white Gravel, faint petroleum-like odor, non plastic, saturated.
655	10	18-18.3	50/0.3	NA	NA	NA		NO RECOVERY. Refusal at 18.3' bgs.
	NA	18.3-18.5	NA	NA	NA	NA		18.3-18.8 No sample collected.
	1	18.8-20.8	7 11	71	1.5	NA		18.8-20.8 White/gray fine to medium SANDSTONE with dark gray/black very fine laminations throughout, hard. Fractures: 20.2'-hz, 20.3'-hz. Munsell Color: N2-N7 (wet) Impacts: Black staining on grains in 20.3' bgs fracture. Approximate water loss: 0 gal
20								
650	2	20.8-25.8	7 7 8 5 7	93	4.92	NA		20.8-25.8 White/gray fine to coarse subangular Quartzite SANDSTONE with dark gray/black very fine laminations throughout, hard. Fractures: 20.9'-hz, 21.35'-10 deg, 21.6'-hz, 22.8'-hz, 23.9'-hz, 24.44'-hz. Munsell Color: N2-N7 (wet) Impacts: Top 0.1' N2 COKE 1" fragments. Approximate water loss: 360 gal
25								
645	3	25.8-30.8	8 8 7 8 7	92	5.0	NA		25.8-30.8 White/gray fine to coarse Quartzite SANDSTONE with dark gray/black very fine laminations throughout, hard. Fractures: 26.1-hz, 26.35'-<10 deg, 26.74'-hz, 26.74-26.78'-fracture zone, 27.0'-hz, 27.45'-hz, 28.78'-mechincal brak. Munsell Color: N2-N7 (wet) Impacts: None. Approximate water loss: 280 gal
30								
640	4	30.8-35.8	8 7 8 8 9	90	4.83	NA		30.8-35.8 White/gray fine to coarse Quartzite SANDSTONE with dark gray/brown very fine laminations, hard. Fractures: 31.2'-hz, 31.22'-hz, 31.45'-hz, 32.23-33.30'-fracture zone, 35.0'-hz. Munsell Color: N2-N7 (wet) Impacts: None. Approximate water loss: 310 gal
35								



Well Construction

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, deg = degrees, hz = horizontal.

Analytical sample collected 2-4 and 12-14 ft bgs for VOCs, SVOCs, total cyanide and free cyanide. Intervals from 0-18.3 ft bgs sampled using a 2' by 2" split spoon. Intervals from 18.8-50.8 sampled using a HQ rock core barrel.

Client: National Grid

Well/Boring ID: **SB-110/MW-5R**

Borehole Depth: 50.8' bgs

Site Location:

Malone - Amsden Street
Former MGP Site

Depth (ft bgs) / Elevation (ft AMSL)	Sample Run Number	Sample/Int/Type	Blow Counts/ *Minutes per ft - Coring*	N - Value / *RQD (%) - Coring*	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well Construction
635 / 40	5	35.8-40.8	10 10 12 11 4	97	4.92	NA		35.8-40.8 White/gray fine to coarse Quartzite SANDSTONE with dark gray/brown very fine laminations, hard. Possible Silt seam at 39.3' bgs. Fractures: 35.85'-hz, 37.85'-hz, 39.3'-hz, 39.85'-hz. Munsell Color: N2-N7 (wet) Impacts: None. Approximate water loss: 310 gal	
630 / 45	6	40.8-45.8	8 9 6 7 13	85	4.25	NA		40.8-45.8 White/gray fine to coarse Quartzite SANDSTONE with dark gray/brown very fine laminations throughout, hard. Possible 1.0' of core fell out of barrel. Fractures: 42.35'-hz moderately weathered, 45.0'-hz. Munsell Color: N2-N7 (wet) Impacts: None. Approximate water loss: 280 gal	2" Sch 40 PVC 0.020" Slot Screen (30.94-50.46' bgs) #1 Silica Sand Pack (28-50.8' bgs)
625 / 50	7	45.8-50.8	10 10 12 14 14	100	5.92	NA		45.8-50.8 White/gray fine to coarse Quartzite SANDSTONE with dark gray/brown very fine laminations throughout, hard. Fractures: 45.87'-hz, 48.1'-hz, 48.7'-10 deg-possible Silt seam (highly weathered), 48.94'-hz, 50.1-50.2'-fracture zone. Munsell Color: N2-N7 (wet) Impacts: None. Approximate water loss: 350 gal	Slip cap at bottom of Screen (50.46-50.8' bgs)
620 / 55								End of boring at 50.8' bgs.	

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Analytical sample collected 2-4 and 12-14 ft bgs for VOCs, SVOCs, total cyanide and free cyanide. Intervals from 0-18.3 ft bgs sampled using a 2' by 2" split spoon. Intervals from 18.8-50.8 sampled using a HQ rock core barrel.

Date Start/Finish: 7/19/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192396.83
Easting: 545664.10
Casing Elevation: NA

Borehole Depth: 10.4' bgs
Surface Elevation: 670.56' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-111**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 670	1	0-2	0.9	NA NA 2 2	NA	0.0			0-1.0 CONCRETE (Holder Tank). 1.0-1.9 Brown fine to medium SAND, trace Organics (roots), non plastic, moist. (FILL)	
	2	2-4	0.7	2 3 8 6	11	0.0			2.0-2.7 Brown fine to medium SAND, little subangular multicolored fine to medium Gravel, non plastic, moist. (FILL)	
5 / 665	3	4-6	0.8	7 8 2 7	10	0.0			4.0-4.8 Brown fine to medium SAND, little subangular multicolored fine to medium Gravel, non plastic, moist. (FILL)	Boring backfilled to grade with bentonite/cement grout.
	4	6-8	0.9	4 3 3 5	6	0.0			6.0-6.9 Brown fine to medium SAND, little subangular multicolored fine to medium Gravel, trace Silt, non plastic, moist. (FILL)	
	5	8-10	1.2	8 12 15 19	27	0.0	X		8.0-9.2 Brown fine to medium SAND, little subangular multicolored fine to medium Gravel, trace Silt, non plastic, moist. (FILL) 10.0-10.1 Brown fine to medium SAND, little subangular multicolored fine to medium Gravel, trace Silt, non plastic, moist. (FILL) Dark rock chips in shoe, possible bedrock. Spoon refusal at 10.1' bgs.	
10 / 660	6	10-10.1	0.1	50/0.1	NA	0.0			Auger refusal at 10.4' bgs. End of Boring.	
15 / 655										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 8-10' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 7/20/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192328.52
Easting: 545665.91
Casing Elevation: NA

Borehole Depth: 18.1' bgs
Surface Elevation: 671.77' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-112**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0											
	670	1	0-2	0.2	1 1 5 4	6	0.0			0-0.2 Dark brown ORGANICS and red BRICK, Cobble in shoe, non plastic, moist.	
		2	2-4	0.7	2 2 1 2	3	0.0			2.0-2.7 Dark brown to brown fine to medium SAND, trace Organics, trace Brick, trace solid Tar globs (taffy consistency), non plastic, moist. 4.0-4.2 Dark brown to brown fine to medium SAND, trace Organics, trace Brick, trace Glass, slight tar-like odor, non plastic, moist.	
5		3	4-6	0.7	8 20 50/0.1	NA	16.2			4.2-4.7 Light brown fine to coarse SAND and fine to medium subangular GRAVEL, trace Brick, trace Silt, non plastic, moist. Augered past COBBLE from 5.1-6.2' ft bgs. 6.5-6.7 White quartz COBBLE, trace white Sand, non plastic, moist.	
	665	4	6-8	0.8	25 31 29	NA	3.6			6.7-7.3 Light brown medium SAND, little fine Gravel, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
10		5	8-10	0.4	15 13 11 14	24	1.3			8.0-8.4 Brown medium to coarse SAND, some fine Gravel, multicolored Cobble in shoe, non plastic, moist.	
	660	6	10-12	1.6	7 5 4 4	9	0.2			10.0-11.6 Brown fine to medium SAND, homogeneous, moist to wet. Wet at 10.5' bgs.	
		7	12-14	0.2	2 2 2 2	4	0.8			12.0-12.2 Brown medium to coarse SAND and fine to medium GRAVEL, non plastic, saturated.	
15		8	14-16	1.3	16 18 23 28	41	5.1			14.0-15.0 Brown medium to coarse SAND and fine to medium GRAVEL, degraded petroleum-like odor, non plastic, saturated. 15.0-15.3 White to light brown medium to coarse SAND, Cobble in shoe, non plastic, saturated.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 16.8-17.6' ft bgs for VOCs, SVOCs, total cyanide and 18-18.1 ft bgs for VOCs.

Client: National Grid

Well/Boring ID: SB-112

Borehole Depth: 18.1' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
					26					16.0-16.8 Brown medium to coarse SAND and fine to medium GRAVEL, non plastic, saturated.	Boring backfilled to grade with bentonite/cement grout.
	655	9	16-18	1.6	29 26 27	55	52.8	X		16.8-17.6 Gray/black medium to coarse SAND and fine to medium GRAVEL, trace Silt, degraded petroleum-like odor, little black staining, non plastic, saturated.	
		10	18-18.1	0.1	50/0.1	NA	92.1	X		18.0-18.1 Gray/black medium to coarse SAND and fine to medium GRAVEL, trace Silt, tar-like odor, moderate black staining on grains, non plastic, saturated.	
20										Refusal at 18.1' bgs. End of Boring.	
	650										
25											
	645										
30											
	640										
35											

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 16.8-17.6' ft bgs for VOCs, SVOCs, total cyanide and 18-18.1 ft bgs for VOCs.

Date Start/Finish: 7/22/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192420.18
Easting: 545690.31
Casing Elevation: NA

Borehole Depth: 7.8' bgs
Surface Elevation: 660.53' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-113**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 660	1	0-2	1.0	2 2 5 6	7	0.0			0.0-0.1 ORGANICS (grass, roots, stems), moist. 0.1-0.5 Brown fine to medium SAND, some Organics, trace Silt, non plastic, moist. 0.5-1.0 Brown fine to coarse SAND, little Coal fragments, trace red Brick, Concrete and Organics, loose, non plastic, moist.	
	2	2-4	0.9	3 3 4 2	7	0.0			2.0-2.9 Brown fine to coarse SAND, trace Coal fragments, red Brick, Concrete and Organics, loose, non plastic, moist.	
5 / 655	3	4-6	0.2	3 3 1 3	4	0.0			4.0-4.2 Brown fine to medium SAND, trace Concrete, Cobble in shoe, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
	4	6-7.8	0.3	6 4 2 50/0.1	6	0.0	X		6.0-6.3 Brown fine to medium SAND, some fine Gravel, trace Concrete, Cobble in shoe, non plastic, saturated. Split spoon refusal at 7.6' bgs.	
10 / 650									Auger refusal at 7.8' bgs. End of Boring.	
15 / 645										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 6-7.6' ft bgs for VOCs.

Date Start/Finish: 8/2/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192510.91
Easting: 545541.53
Casing Elevation: NA

Borehole Depth: 13.5' bgs
Surface Elevation: 681.44' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-114**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0										
680	1	0-2	1.0	2 4 7 8	11	33.0			0.0-0.9 Brown fine to medium SAND, little fine subangular Gravel, trace tar-like pieces, Brick, Glass and Organics, non plastic, moist. (FILL) 0.9-1.0 Black solid hardened tar, non plastic, moist.	
	2	2-4	NA	5 5 4 3	9	NA			NO RECOVERY.	
5	3	4-6	0.5	1 WOH/ 1.0 2	NA	0.0			4.0-4.5 Brown fine to medium SAND, some Cinders, red Brick, Coal fragments, Slag fragments and Glass, non plastic, moist. (FILL) 6.0-6.4 Brown fine to medium SAND, some Cinders, red Brick, Coal fragments, Slag fragments and Glass, non plastic, moist. (FILL)	
675	4	6-8	0.6	1 1 2 3	3	0.0			6.4-6.6 Red BRICK, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
	5	8-10	0.6	1 2 2 2	4	0.0			8.0-8.6 Brown fine to medium SAND, some Cinders, red Brick, Coal fragments, Slag fragments and Glass, non plastic, moist. (FILL)	
10	6	10-12	0.5	1 1 WOH 1	NA	0.0			10.0-10.5 Brown fine to medium SAND, some Cinders, red Brick, Coal fragments, Slag fragments and Glass, trace rubber, non plastic, moist. (FILL) 12.0-12.1 Brown fine to medium SAND, some Cinders, red Brick, Coal fragments, Slag fragments and Glass, trace rubber, non plastic, moist. (FILL)	
670	7	12-13.5	0.5	1 50/0.2	NA	0.0			12.1-12.4 Black fine to medium COAL fragments, no odor, non plastic, moist. 12.4-12.5 Brown fine to medium SAND, black glass fragments, non plastic, moist.	
15									Refusal at 13.5' bgs. End of Boring.	

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No analytical samples collected.

SB-114A - Blind drilled to 13ft bgs (auger refusal) to confirm refusal depth.

Date Start/Finish: 8/25/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192535.35
Easting: 545614.28
Casing Elevation: 680.2' AMSL

Borehole Depth: 31.2' bgs
Surface Elevation: 678.23' AMSL

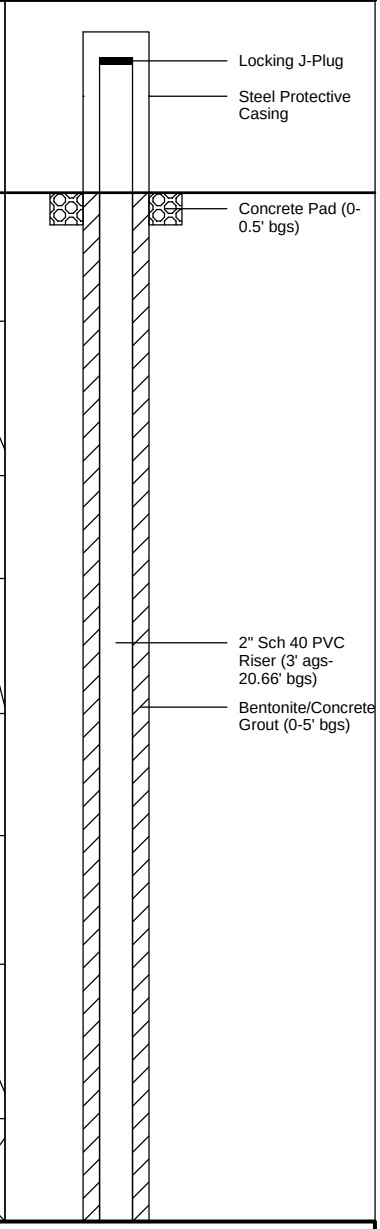
Descriptions By: Joshua Oliver

Well/Boring ID: SB-115_MW-6

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
	680									
0		1	0-2	0.9	1, 1, 2, 3	3	0.0			0.0-0.9 Brown fine to medium SAND, little Silt, little Coal fragments starting at 0.7' bgs, non plastic, moist.
	675	2	2-4	0.0	4, 5, 4, 4	9	NA			NO RECOVERY. Cobble in shoe.
										4.0-4.4 Brown fine to medium SAND, trace Coal fragments and medium Gravel, non plastic, moist.
5		3	4-6	0.8	7, 4, 2, 2	6	0.0			4.4-4.8 White-black CINDERS, some red Brick, little Coal fragments, non plastic, moist.
		4	6-8	1.0	2, 2, 2, 2	4	0.0			6.0-7.0 Brown-white fine to coarse SAND, some Cinders, little Coal fragments, trace fire Brick, Wood and red Brick, non plastic, moist.
										8.0-8.1 Brown-white fine to coarse SAND, some Cinders, little Coal fragments, trace fire Brick, Wood and red Brick, non plastic, moist.
	670	5	8-10	1.1	2, 2, 2, 3	4	0.0			8.1-9.1 Black-white CINDERS, some Coal fragments, little red Brick, trace Slag, trace Glass, non plastic, moist.
10		6	10-12	0.7	1, 1, 1, 1	2	0.0			10.0-10.7 Black-white CINDERS, some Coal fragments, little red Brick, trace Slag, trace Glass, non plastic, moist.
	665	7	12-14	0.6	1, 1, 1, 1	2	0.0			12.0-12.6 Black-white CINDERS, some Coal fragments, little red Brick, trace Slag, trace Glass, non plastic, moist.
										14.0-14.4 Gray medium to coarse SAND and fine to medium subangular GRAVEL, non plastic, moist.
15		8	14-16	0.8	23, 20, 6, 5	26	0.0			14.4-14.7 Red BRICK, little Coal fragments, non plastic, moist.
										14.7-14.8 Dark brown fine to medium SAND, trace fine Gravel, non plastic, moist.



Well/Boring Construction

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, WOH = weight of hammer.

Analytical sample collected 26-28' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: SB-115_MW-6

Borehole Depth: 31.2' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	1.1	2 3 4 5	7	0.0			16.0-16.4 Dark brown fine to medium SAND, trace fine Gravel, seams of Cinders and Slag, non plastic, moist. 16.4-17.1 Dark brown fine to medium SAND, trace Silt, non plastic, moist.	Bentonite Seal (16-18' bgs)
	660	10	18-20	0.9	4 28 18 14	36	0.0			18.0-18.9 Brown medium to coarse SAND and fine to medium GRAVEL (sandstone), possible gray lense at 18.9' bgs, non plastic, moist.	2" Sch 40 PVC Riser (3' ags-20.66' bgs)
20		11	20-22	0.9	11 8 10 10	18	0.0			20.0-20.9 Brown fine to medium SAND, white Cobbles at 20.4' bgs, non plastic, moist.	
		12	22-24	1.0	12 18 9 7	27	0.0			22.0-22.5 White weathered SANDSTONE fragments. 22.5-23.0 Brown fine SAND and SILT, trace medium Sand, stiff, non plastic, moist.	
	655	13	24-26	1.9	WOH/ 1.0 1 3	NA	206			24.0-24.8 Brown fine SAND and SILT, trace medium Sand, stiff, non plastic, moist to wet. 24.8-25.9 Gray fine SAND and SILT, black staining throughout, moderate degraded petroleum-like odor, medium plasticity, saturated.	#1 Silica Sand Pack (18-30.5' bgs)
25		14	26-28	0.9	10 26 27 10	53	1026	X		26.0-26.9 BLACK fine to coarse SAND and GRAVEL, strong degraded petroleum-like odor, non plastic, saturated, sheen on water and spoon.	2" Sch 40 PVC 0.020" Slot Screen (20.66-29.96' bgs)
	650	15	28-30	0.8	8 12 15 10	27	250			28.0-28.8 BLACK fine to coarse SAND and GRAVEL, moderate degraded petroleum-like odor, non plastic, saturated. Cobble in shoe.	
30		16	30-31.2	1.1	7 28 50/0.2	NA	219 20.0			30.0-30.6 BLACK fine to coarse SAND and GRAVEL, moderate degraded petroleum-like odor, non plastic, saturated. 30.6-31.1 Gray weathered SANDSTONE, little medium to coarse Sand, faint petroleum-like odor, non plastic, moist. Spoon refusal at 31.2' bgs. Auger refusal at 30.5' bgs. End of Boring.	Slip cap at bottom of Screen (29.96-30.5' bgs)
	645										
35											

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, WOH = weight of hammer.

Analytical sample collected 26-28' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/3/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192486.00
Easting: 545611.89
Casing Elevation: NA

Borehole Depth: 22.0' bgs
Surface Elevation: 680.54' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-116**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	680	1	0-2	0.7	WOH 2 3 3	5	0.0			0.0-0.3 Brown WOOD chips. 0.3-0.7 Brown to dark brown fine to medium SAND, some Cinders, red Brick and Coal fragments, loose, non plastic, moist. (FILL)	
		2	2-4	0.1	1 2 2 3	4	0.0			2.0-2.1 Brown to dark brown fine to medium SAND, some Cinders, red Brick and Coal fragments, loose, non plastic, moist. (FILL)	
5	675	3	4-6	0.1	6 6 2 2	8	0.0			4.0-4.1 Brown to dark brown fine to medium SAND, some Cinders, red Brick and Coal fragments, loose, non plastic, moist. (FILL)	
		4	6-8	0.3	1 2 2 2	4	0.0			6.0-6.3 Brown to dark brown fine to medium SAND, some Cinders, red Brick and Coal fragments, trace Organics, loose, non plastic, moist. (FILL)	
		5	8-10	0.1	2 1 WOH 1	NA	0.0			8.0-8.1 Brown to dark brown fine to medium SAND, some Cinders, red Brick and Coal fragments, trace Organics, loose, non plastic, moist. (FILL)	Boring backfilled to grade with bentonite/cement grout.
10	670	6	10-12	0.6	1 2 1 4	3	0.0			10.0-10.6 Brown to dark brown fine to medium SAND, some Cinders, red Brick and Coal fragments, trace Glass and Slag, loose, non plastic, moist. (FILL) 12.0-12.3 Brown to dark brown fine to medium SAND, some Cinders, red Brick and Coal fragments, trace Glass and Slag, loose, non plastic, moist. (FILL)	
		7	12-14	1.2	2 2 2 3	4	0.0			12.3-12.6 Black to dark brown fine to coarse SAND, trace Cinders, non plastic, moist. (FILL) 12.6-13.2 Light brown turning reddish-brown fine to medium SAND, trace coarse Sand, non plastic, moist.	
15	665	8	14-16	0.1	1 2 8 7	10	0.0			14.0-14.1 Light brown turning reddish-brown fine to medium SAND, trace coarse Sand, non plastic, moist to wet.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, WOH = weight of hammer.

Analytical sample collected 20-22 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: SB-116

Borehole Depth: 22.0' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	0.5	27 50/0.3	NA	0.0			16.0-16.5 White-gray medium to coarse angular GRAVEL, cobble in shoe. 18.0-18.1 White-gray rock fragments, non plastic, moist.	
		10	18-20	1.0	30 21 21 16	42	0.0			18.1-19.0 Light brown-white fine to coarse SAND and subangular to angular fine to medium GRAVEL, moist.	Boring backfilled to grade with bentonite/cement grout.
20	660	11	20-22	0.5	23 50/0.3	NA	0.0	X		20.0-22.0 Light brown-white fine to coarse SAND and subangular to angular fine to medium GRAVEL, white/gray Brick fragments in shoe, moist to wet.	
		12	22-24	NA	50/0.0	NA	0.0			NO RECOVERY. Rock chip in shoe.	
25	655									Auger refusal at 22.0' bgs. End of Boring.	
30	650										
35	645										

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Analytical sample collected 20-22 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/24/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192590.17
Easting: 545651.43
Casing Elevation: NA

Borehole Depth: 23.0' bgs
Surface Elevation: 677.48' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-117**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
680										
0	1	0-2	1.0	1 1 1 1	2	0.0			0.0-0.4 Brown fine to coarse SAND, some Organics, little Silt, trace Cinders, non plastic, moist. 0.4-1.0 Black-white CINDERS, some Coal fragments, trace Slag, non plastic, moist.	
675	2	2-4	0.3	2 2 3 4	5	0.0			2.0-2.3 Black-white CINDERS, some Coal fragments, trace Slag, trace red Brick, non plastic, moist.	
5	3	4-6	0.4	1 1 1 1	2	0.0			4.0-4.4 Black-white CINDERS, some Coal fragments, trace Slag, trace red Brick, non plastic, moist.	
670	4	6-8	0.5	2 1 2 1	3	0.0			6.0-6.5 Black-white CINDERS, some Coal fragments, trace Slag, trace red Brick, non plastic, moist.	
	5	8-10	0.8	2 2 3 3	5	0.0			8.0-8.8 Black-white CINDERS, some Coal fragments, some Slag, trace red Brick, trace gray medium Sand and fine subangular Gravel, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
10	6	10-12	1.2	2 3 2 3	5	0.0			10.0-11.2 Black-gray-brown CINDERS and COAL fragments, some Slag, trace fire Brick, non plastic, moist. 12.0-12.3 Black COAL fragments, non plastic, moist.	
665	7	12-14	0.7	3 4 3 4	7	0.0			12.3-12.7 Red BRICK, some black/white Cinders, Coal fragments and Slag, trace fine Gravel, non plastic, moist. 14.0-14.3 Red BRICK.	
15	8	14-16	0.9	3 4 6 3	10	0.0			14.3-14.4 Black COAL fragments. 14.4-14.9 Pink-gray medium to coarse SAND, red BRICK and fine GRAVEL, non plastic, moist.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 21-23 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: SB-117

Borehole Depth: 23.0' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
					2					16.0-16.4 Black-white CINDERS, some red Brick and Coal fragments.	
	660	9	16-18	1.2	3 4 4	7	0.0			16.4-17.2 Dark brown to brown (lighter with depth) fine to medium SAND, trace Silt, non plastic, moist.	
		10	18-20	0.0	4 4 13 34	17	NA			NO RECOVERY. Rock fragments in shoe.	Boring backfilled to grade with bentonite/cement grout.
20					11					20.0-20.7 Brown fine to medium SAND, non plastic, moist.	
		11	20-22	0.9	17 18 29	35	0.0			20.7-20.9 Gray fine to medium SANDSTONE rock fragments and medium to coarse brown SAND, non plastic, moist.	
	655	12	22-23.1	0.6	17 35 50/0.1	NA	0.0			22.0-22.6 Gray weathered SANDSTONE fragments, some medium to coarse Sand, non plastic, moist.	
										Auger refusal at 23.0' bgs. End of Boring.	
25											
	650										
30											
	645										
35											

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 21-23 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 7/29/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192289.22
Easting: 545714.14
Casing Elevation: 664.6' AMSL

Borehole Depth: 13.5' bgs
Surface Elevation: 662.51' AMSL

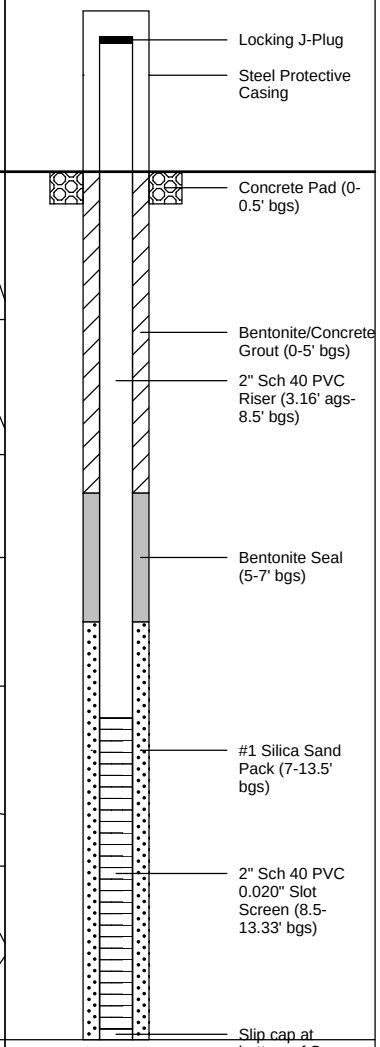
Descriptions By: Joshua Oliver

Well/Boring ID: SB-118_MW-7

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
665									
0	1	0-2	0.8	6 10 7 6	17	0.0			0.0-0.8 Light brown to brown fine to coarse SAND, some fine multicolored Gravel, trace Silt, Organics, and Cinders, non plastic, moist.
									2.0-2.3 Light brown fine to coarse SAND, some fine multicolored Gravel, trace Silt, Organics, and Cinders, non plastic, moist.
660	2	2-4	1.0	4 4 4 4	8	0.0			2.3-3.0 Brown fine to coarse SAND and fine subangular GRAVEL, little red Brick, Coal fragments, Slag fragments and Cinders, non plastic, moist.
									4.0-4.4 Brown-gray medium to coarse SAND and fine subangular multicolored GRAVEL, trace red Brick and Cinders, non plastic, moist.
5	3	4-6	0.7	12 14 7 5	21	0.0			4.4-6.0 Brown medium to coarse SAND, non plastic, moist.
	4	6-8	0.7	7 6 7 8	13	0.0			6.0-6.7 Light brown fine SAND, some fine to medium subangular white Gravel, little Silt, trace Organics, non plastic, moist.
655	5	8-10	0.2	6 4 2 2	6	0.0			8.0-8.2 Light brown fine SAND, some fine to medium subangular white Gravel, little Silt, trace Organics, non plastic, moist.
10									10.0-10.8 Light brown fine SAND, some fine to medium subangular white Gravel, little Silt, trace Organics, non plastic, moist.
	6	10-12	1.1	5 7 3 5	10	0.0			10.8-11.1 Dark brown fine to medium SAND, little Silt, white angular rock fragments at 11.0' bgs, trace Organics, organic odor, non plastic, saturated.
									12.0-12.2 Dark brown fine to medium SAND, little Silt, trace Organics, organic odor, non plastic, saturated.
650	7	12-13.5	1.5	2 2 4 50/0.3	6	0.0	X		12.2-13.5 Brown to light brown (lighter with depth) fine SAND, some Silt, trace organics, non plastic, saturated.
15									Refusal at 13.5' bgs. End of Boring.



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 12-13.5' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 7/22/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192237.10
Easting: 545699.33
Casing Elevation: NA

Borehole Depth: 10.0' bgs
Surface Elevation: 665.73' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-119**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 665	1	0-2	0.8	7 6 6 6	12	0.0			0-0.8 Brown medium to coarse SAND, some fine Gravel, trace Silt, red Brick and solid coal-tar pieces, non plastic, moist.	
									2.0-2.4 Brown medium to coarse SAND, some fine Gravel, trace Silt, red Brick and solid coal-tar pieces, non plastic, moist.	
	2	2-4	0.7	4 4 3 3	7	0.0			2.4-2.7 Black solid coal-tar, faint tar-like odor, trace Organics (roots), non plastic, moist.	
5 / 660	3	4-6	0.1	13 5 2 2	7	0.0			4.0-4.1 Rock fragments in shoe.	Boring backfilled to grade with bentonite/cement grout.
	4	6-8	0.8	WOH/ 1.0' 1 2	NA	0.0			6.0-6.8 Gray to light brown fine SAND, little Silt and Organics, black Slag (6.0-6.4' bgs), non plastic, moist.	
	5	8-10	1.2	13 14 50/0.4	NA	0.0			8.0-9.1 Gray to light brown fine SAND, trace medium Gravel and Silt, dense, non plastic, saturated.	
									9.1-9.2 White rock fragments, trace medium to coarse SAND, non plastic, wet. Spoon refusal at 9.4' bgs.	
10 / 655									Auger refusal at 10.0' bgs. End of Boring.	
15 / 650										

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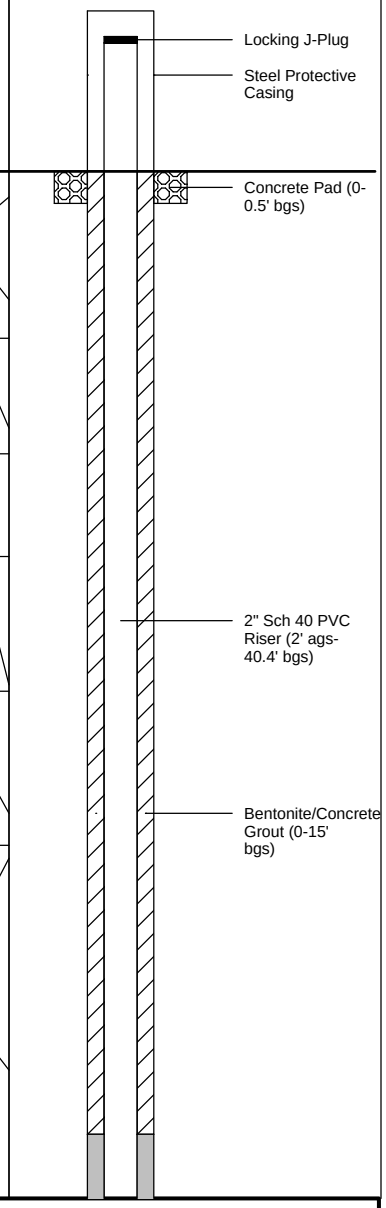
Analytical sample collected 8-9.4' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/3 & 8/6/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger/Coring
Auger Size: 4.25" ID Auger/HQ Core Barrel
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon/ 2.5" x 5' Core Barrel

Northing: 2192352.85
Easting: 545734.72
Casing Elevation: 655.6' AMSL
Borehole Depth: 41.0' bgs
Surface Elevation: 653.68' AMSL
Descriptions By: Joshua Oliver

Well ID/Boring ID: **SB-120/MW-8R**
Client: National Grid
Site Location: Malone - Amsden Street
Former MGP Site
Malone, NY

Depth (ft bgs) / Elevation (ft AMSL)	Sample Run Number	Sample/Int/Type	Blow Counts/ *Minutes per ft - Coring*	N - Value / *RQD (%) - Coring*	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
655								
0	1	0-2	3, 6, 8, 11	14	0.8	0.0		0.0-0.4 Brown fine to coarse SAND, some Organics, non plastic, moist. 0.4-0.8 Brown to gray fine to coarse SAND and fine multicolored GRAVEL, trace red Brick and Cinders, non plastic, moist. (FILL)
	2	2-4	6, 11, 29, 13	40	0.9	0.0		2.0-2.6 Brown to gray fine to coarse SAND and fine multicolored GRAVEL, trace red Brick and Cinders, non plastic, moist. (FILL) 2.6-2.9 White-gray fine to coarse SAND and fine to medium GRAVEL (slight pinkish hue to Sand), Cobble in shoe, non plastic, moist.
650								4.0-4.4 White-gray fine to coarse SAND and fine to medium GRAVEL (slight pinkish hue to Sand), Cobble in shoe, non plastic, moist.
5	3	4-6	12, 5, 6, 12	11	0.6	50.8		4.4-4.6 Black solid hardened tar-like material, tar-like odor, medium plasticity, moist.
	4	6-8	7, 2, 5, 8	7	0.5	0.0		6.0-6.5 Red BRICK, non plastic, moist. 8.0-8.1 Red BRICK and solid black Tar-like material (taffy consistency) at 8.0-8.4' bgs, tar-like odor, non plastic, moist.
645	5	8-10	12, 13, 14, 8	27	0.9	98.1		8.1-8.9 Light brown to gray fine to medium SAND and fine subangular GRAVEL, tar-like material continues, tar-like odor, non plastic, moist.
10	6	10-10.5	50/0.2	NA	0.2	0.0		10-10.2 Dark brown to black medium to coarse fine subangular GRAVEL, very faint tar-like odor, non plastic, saturated.
	NA	10.5-10.7	NA	NA	NA	NA		No samples collected/logged.
	1	10.7-14	40, 40, 40	81	3.08	NA		10.7-14.0 White/gray fine to coarse Quartzite SANDSTONE with dark gray very fine laminations throughout, hard. Fractures: 11.2'-hz, 11.8'-hz, 12.65'-hz, 12.83'-hz, 13.55'-hz, possible silt seem at 12.83' bgs. Munsell Color: N2-N7 Impacts: Possible black staining at 12.65 and 12.83' bgs. Approximate water loss: 220 gal
640								
15	2	14-16	11, 13	54	1.75	NA		14.0-16.0 White/gray fine to coarse Quartzite SANDSTONE with dark gray fine laminations throughout, hard. Fractures: 14.35'-hz, 14.45'-hz, 14.7'-hz, 15.05'-hz, 15.35'-hz. Munsell Color: N3-N7 Impacts: None Approximate water loss: 0 gal



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, deg = degrees, hz = horizontal.

Analytical sample collected 8-10 ft bgs for VOCs, SVOCs, total cyanide and free cyanide. Intervals from 0-10.5 ft bgs sampled using a 2' by 2" split spoon. Intervals from 10.7-41 ft bgs sampled using a HQ rock core barrel.

Client: National Grid

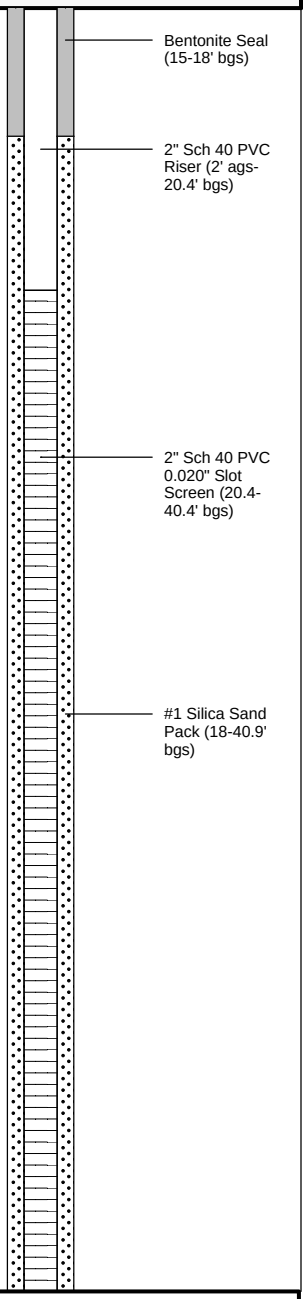
Well/Boring ID: **SB-120/MW-8R**

Borehole Depth: 41.0' bgs

Site Location:

Malone - Amsden Street
Former MGP Site

Depth (ft bgs) / Elevation (ft AMSL)	Sample Run Number	Sample/Int/Type	Blow Counts/ *Minutes per ft - Coring*	N - Value / *RQD (%) - Coring*	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
635 / 20	3	16-21	11, 21, 46, 5, 8	58	5.29	NA		16.0-21.0 White/gray fine to coarse Quartzite SANDSTONE with dark gray and tan fine laminations throughout, hard, few to more fractures in tan colored area. Fractures: 15.9'-hz, 16.2'-hz, 16.5'-hz, 16.75'-hz, 17.05'-hz, 171'-hz, 17.4'-hz, 17.58'-hz, 17.7'-hz, 18.35'-hz, 18.42'-hz, 18.75'-hz, 19.13-19.21'- fracture zone, 19.7'-hz, 20.4'-hz, 20.7'-35 deg. Munsell Color: N3-N7 (Laminations are 10 R (8/2)) Impacts: None Approximate water loss: 0 gal
630 / 25	4	21-26	7, 5, 6, 7, 9	73	4.83	NA		21.0-26.0 White/gray fine to coarse Quartzite SANDSTONE with dark gray fine laminations throughout, few tan laminations (more fractured) hard. Fractures: 21.15'-hz, 21.25'-hz, 21.95'-hz, 22'-hz(moderately weathered), 22.15'-hz, 22.55'-hz(moderately weathered), 22.9'-hz (very weathered), 23.25'-10 deg, 23.33'-hz, 23.45'-hz, 23.58'-hz, 23.65'-hz, 24.3'-hz, 24.7'-hz(moderately weathered), 25.32'-hz. Munsell Color: N3-N7 (Laminations are 10 R (8/2)) Impacts: None Approximate water loss: 30 gal
625 / 30	5	26-31	10, 11, 10, 11, 17	85	4.96	NA		26.0-31.0 White/gray fine to coarse Quartzite SANDSTONE with dark gray laminations, hard. Fractures: 26.15'-hz, 26.5'-hz, 27.23'-hz, 27.4'-hz, 27.8'-hz, 28.25'-hz, 28.55'-hz, 29.0'-hz, 29.5'-hz, 30.45-30.55'-fracture zone and moderately weathered. Munsell Color: N3-N7 Impacts: None Approximate water loss: 25 gal water lost 26-29' bgs, lost all water at 29' bgs, 200 gal water lost 26-31' bgs
620 / 35	6	31-36	6, 9, 7, 13, 12	60	4.71	NA		31.0-36.0 White/gray to tan at 33.5' bgs Quartzite SANDSTONE with dark gray and tan laminations, hard. Fractures: 31.25'-hz, 31.65'-hz, 32.08'-hz, 33.0'-20 deg, 33.5'-40 deg, 34.7'-hz, 34.91'-hz, 35.0'-hz, 35.1'-hz Munsell Color: N3-N7 (Laminations are 10 R (8/2)) Impacts: None Approximate water loss: 350



Well Construction

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, deg = degrees, hz = horizontal.

Analytical sample collected 8-10 ft bgs for VOCs, SVOCs, total cyanide and free cyanide. Intervals from 0-10.5 ft bgs sampled using a 2' by 2" split spoon. Intervals from 10.7-41 ft bgs sampled using a HQ rock core barrel.

Client: National Grid

Well/Boring ID: **SB-120/MW-8R**

Borehole Depth: 41.0' bgs

Site Location:

Malone - Amsden Street
Former MGP Site

Depth (ft bgs) / Elevation (ft AMSL)	Sample Run Number	Sample/Int/Type	Blow Counts/ *Minutes per ft - Coring*	N - Value / *RQD (%) - Coring*	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well Construction
615 / 40	7	36-41	7 8 8 7 7	*89*	4.92	NA		36.0-41.0 Red/gray/pink fine to medium Quartzite SANDSTONE with dark gray fine laminations, hard. Fractures: 38.2'-hz, 39.5'-hz, 39.6'-hz, 339.9'-hz, 40.1'-hz Munsell Color: N2-N7 Impacts: None. Approximate water loss: 350	2" Sch 40 PVC 0.020" Slot Screen (20.4-40.4' bgs) Threaded cap at bottom of Screen (40.4-40.9' bgs)
								End of boring at 41.0' bgs.	
610 / 45									
605 / 50									
600 / 55									

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Analytical sample collected 8-10 ft bgs for VOCs, SVOCs, total cyanide and free cyanide. Intervals from 0-10.5 ft bgs sampled using a 2' by 2" split spoon. Intervals from 10.7-41 ft bgs sampled using a HQ rock core barrel.

Date Start/Finish: 7/22/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192389.18
Easting: 545744.12
Casing Elevation: NA

Borehole Depth: 9.5' bgs
Surface Elevation: 650.20' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-121**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	650	1	0-2	0.4	1 5 28 41	33	0.0			0-0.4 Brown fine to medium SAND, some Organics, trace Silt, non plastic, moist.	
		2	2-4	0.4	10 6 6 4	12	0.0			2.0-2.4 Red BRICK, some Rock fragments, trace fine Sand, non plastic, moist.	
5	645	3	4-6	0.2	7 8 7 7	15	0.0			4.0-4.2 Red BRICK in shoe.	Boring backfilled to grade with bentonite/cement grout.
		4	6-8	0.3	5 4 3 2	7	0.0			6.0-6.3 Red BRICK in shoe and white rock fragments.	
		5	8-10	1.0	7 41 50/0.4	NA	4.9	X		8.0-8.7 Red BRICK, some Concrete, trace staining at 8.6' bgs, non plastic, moist. 8.7-9.0 White fine to coarse SAND and fine to medium GRAVEL, black stained rock fragments at 9.0' bgs, moderate coal-tar-like odor, non plastic, moist.	
10	640									Refusal at 9.5' bgs. End of Boring.	
15	635										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 8-9.4' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/4 & 8/5/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger/Coring
Auger Size: 4.25" ID Auger/HQ Core Barrel
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon/ 2.5" x 5' Core Barrel

Northing: 2192443.92
Easting: 545759.80
Casing Elevation: 646.9' AMSL
Borehole Depth: 40.0' bgs
Surface Elevation: 645.23' AMSL
Descriptions By: Joshua Oliver

Well ID/Boring ID: SB-122/MW-9R
Client: National Grid
Site Location: Malone - Amsden Street
Former MGP Site
Malone, NY

Depth (ft bgs) / Elevation (ft AMSL)	Sample Run Number	Sample/Int/Type	Blow Counts/ *Minutes per ft - Coring*	N - Value / *RQD (%) - Coring*	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0 / 645	1	0-2	3 9 50/0.5	NA	0.9	0.0		0.0-0.7 Brown fine to coarse SAND and fine to medium angular GRAVEL, trace Organics, non plastic, moist. 0.7-0.9 White-gray medium to coarse GRAVEL, little fine to medium Sand, fragments in shoe, non plastic, moist.
	2	2-4	17 4 5 4	9	0.6	0.0		2.0-2.6 Brown medium to coarse SAND and fine to medium subangular GRAVEL, non plastic, moist. White medium to coarse Sand in shoe.
5 / 640	3	4-6	8 2 3 4	5	1.0	0.0		4.0-5.0 Brown fine to medium SAND, some Silt, trace fine Gravel, non plastic, saturated.
	4	6-8	3 50/0.3	NA	1.1	0.0		6.0-6.8 Brown SILT, some fine Sand, trace fine Gravel, slight faint organic odor at 7.0' bgs, rock fragments in shoe, medium plasticity, saturated. Spoon refusal at 6.8' bgs. Auger refusal at 7.7' bgs.
	1	7.7-10	*50*	0	0.7	NA		7.7-10.0 White/gray fine to coarse Quartzite SANDSTONE with dark gray fine laminations, hard. Recovered 3 ground up cobbles between 0.1-0.4' in length. Fractures: None Munsell Color: N2-N7 Impacts: Faint Coal-tar-like odor in return water at 9' bgs. Approximate water loss: 40 gal
10 / 635	2	10-15	*22* *5* *4* *4* *5*	*42*	4.58	NA		10.0-15.0 White/gray fine to coarse Quartzite SANDSTONE with dark gray fine laminations, hard. Fractures: 10.2'-hz, 10.5'-hz, 10.8'-hz, 11.0'-hz, 11.3'-hz, 11.5'-hz, 11.51'-hz, 11.72'-hz, 11.9'-hz, 12.1'-hz, 12.45'-hz, 12.8'-hz, 12.85'-hz, 13.13'-hz, 13.65'-hz, 13.9'-hz, 14.0'-hz Munsell Color: N2-N7 Impacts: None Approximate water loss: 10 gal
15 / 630			*5*					15.0-20.0 White/gray fine to coarse Quartzite SANDSTONE with dark gray fine laminations, hard.

Well Construction: Locking J-Plug; Steel Protective Casing; Concrete Pad (0-0.5' bgs); 4" Black Steel Casing (0-10' bgs); 2" Sch 40 PVC Riser (2' ags-20.04' bgs); Bentonite/Concrete Grout (0-15' bgs)

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, deg = degrees, hz = horizontal.

Analytical sample collected 6-7.7 ft bgs for VOCs, SVOCs, total cyanide and free cyanide. Intervals from 0-7.7 ft bgs sampled using a 2' by 2" split spoon. Intervals from 7.7-40 ft bgs sampled using a HQ rock core barrel.

Client: National Grid

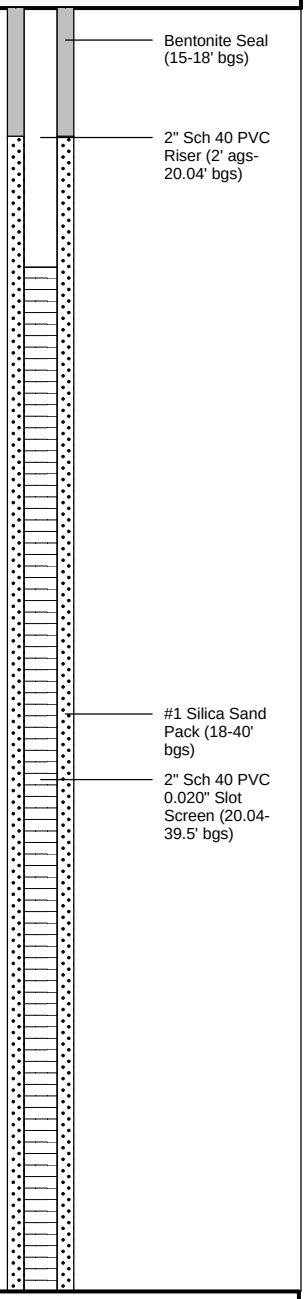
Well/Boring ID: **SB-122/MW-9R**

Borehole Depth: 40.0' bgs

Site Location:

Malone - Amsden Street
Former MGP Site

Depth (ft bgs) / Elevation (ft AMSL)	Sample Run Number	Sample/Int/Type	Blow Counts/ *Minutes per ft - Coring*	N - Value / *RQD (%) - Coring*	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
	3	15-20	5 5 6 7	*75*	5.25	NA		Fractures: 15.28'-hz, 15.56'-hz, 15.88'-hz, 16.19'-hz, 16.5-16.6-fracture zone (moderately weathered), 17.83'-hz, 19.1'-hz, 19.4'-hz, 19.5'-hz Munsell Color: N2-N7 Impacts: None Approximate water loss: 50 gal
20 625	4	20-25	7 8 8 8 20	*93*	5.1	NA		20.0-25.0 White/gray fine to coarse Quartzite SANDSTONE with dark gray fine laminations throughout, hard. Fractures: 20.7'-hz, 21.4'-hz, 21.5'-hz, 22.75'-hz, 23.35'-hz, 24.3'-hz, 24.5-10 deg Munsell Color: N2-N7 Impacts: None Approximate water loss: 170 gal
25 620	5	25-30	11 8 9 9 11	*90*	4.8	NA		25.0-30.0 White/gray fine to coarse Quartzite SANDSTONE with dark gray fine laminations throughout, hard. At 27.6'bgs bedding plane changed from less than 10 deg to approximately 20 deg abruptly. Fractures: 25.15'-hz, 25.3'-hz, 26.0'-hz, 26.4'-hz, 28.9'-20 deg Munsell Color: N2-N7 Impacts: None Approximate water loss: 300 gal
30 615	6	30-35	11 15 12 22	*100*	5.1	NA		30.0-35.0 White/gray (slight tan/pink hue in some laminations) fine to coarse Quartzite SANDSTONE with dark gray fine laminations throughout, very hard. Fractures: 31.55'-15 deg, 32.7'-15 deg, 33.35'-hz, 33.7'-20 deg Munsell Color: N2-N7 (Laminations are 10 R (8/2)) Impacts: None Approximate water loss: 450 gal
35 610			15					35.0-40.0 White/gray to tan fine to coarse Quartzite SANDSTONE with dark gray fine laminations, hard.



Well Construction

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Analytical sample collected 6-7.7 ft bgs for VOCs, SVOCs, total cyanide and free cyanide. Intervals from 0-7.7 ft bgs sampled using a 2' by 2" split spoon. Intervals from 7.7-40 ft bgs sampled using a HQ rock core barrel.

Client: National Grid

Well/Boring ID: **SB-122/MW-9R**

Borehole Depth: 40.0' bgs

Site Location:

Malone - Amsden Street
Former MGP Site

Depth (ft bgs) / Elevation (ft AMSL)	Sample Run Number	Sample/Int/Type	Blow Counts/ *Minutes per ft - Coring*	N - Value / *RQD (%) - Coring*	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well Construction
	7	35-40	13 13 15 17	*100*	5.25	NA		Fractures: 37.65'-10 deg, 38.1'-10 deg, 39.75'-25 deg Munsell Color: N2-N7 (Laminations are 10 R (8/2)) Impacts: None Approximate water loss: 500 gal	2" Sch 40 PVC 0.020" Slot Screen (20.04-39.5' bgs) #1 Silica Sand Pack (18-40' bgs) Slip cap at bottom of Screen (39.5-40' bgs)
40 *605*								End of boring at 40.0' bgs.	
45 *600*									
50 *595*									
55 *590*									

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Analytical sample collected 6-7.7 ft bgs for VOCs, SVOCs, total cyanide and free cyanide. Intervals from 0-7.7 ft bgs sampled using a 2' by 2" split spoon. Intervals from 7.7-40 ft bgs sampled using a HQ rock core barrel.

Date Start/Finish: 7/20/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192493.42
Easting: 545757.48
Casing Elevation: NA

Borehole Depth: 6.5' bgs
Surface Elevation: 644.72' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-123**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	645										
0		1	0-2	0.8	7 15 17 19	32	0.0			0.0-0.8 Brown-gray medium to coarse SAND and fine to medium subangular to angular GRAVEL, trace Organics, cloth and Cinders, non plastic, saturated.	
		2	2-4	0.5	8 8 8 6	16	0.0			2.0-2.5 Gray fine to coarse SAND and fine to medium subangular GRAVEL, trace Silt, faint unknown odor, trace black staining, non plastic, saturated.	Boring backfilled to grade with bentonite/cement grout.
5	640	3	4-6	0.6	9 17 9 7	16	0.0	X		4.0-4.6 Gray to dark gray fine SAND and SILT, coarse Gravel at 4.1' bgs, faint unknown odor, medium plasticity, saturated.	
		4	6-8	NA	50/0.1	NA	NA			NO RECOVERY.	
10	635									Refusal at 6.5' bgs. End of Boring.	
15	630										

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Analytical sample collected 4-6' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 7/29/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192541.35
Easting: 545753.48
Casing Elevation: 647.0' AMSL

Borehole Depth: 8.3' bgs
Surface Elevation: 645.35' AMSL

Descriptions By: Joshua Oliver

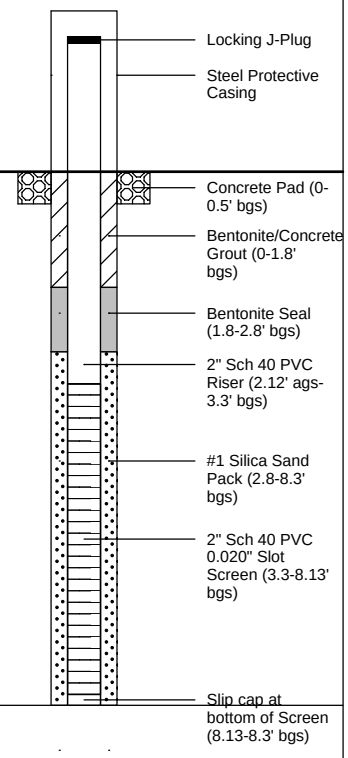
Well/Boring ID: **SB-124_MW-10**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	645	1	0-2	0.2	1 WOH 1 WOH	NA	0.0			0.0-0.2 Brown medium to coarse SAND, little Silt, Organics, trace rubber, red Brick and glass, non plastic, moist.
		2	2-4	0.8	1 1 1 1	2	54.7			2.0-2.8 Black fine SAND, some Silt, trace Organics, moderate degraded petroleum-like odor, non plastic, saturated.
5	640	3	4-6	0.9	22 9 7 3	16	6187	X		4.0-4.9 Black SILT and fine SAND, some fine to medium subangular Gravel, moderate to strong degraded petroleum-like odor, little black staining, medium plasticity, saturated.
		4	6-8	1.3	8 12 10 8	22	3765			6.0-7.3 Black SILT and fine SAND, some fine to medium subangular Gravel, strong degraded petroleum-like odor, little black staining, medium plasticity, saturated.
		5	8-8.3	0.3	50/0.3	NA	175			8.0-8.3 Brown to white medium to coarse and fine GRAVEL, moderate degraded petroleum-like odor, non plastic, saturated.
10	635									Refusal at 8.3' bgs. End of Boring.
15	630									

Well/Boring Construction



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, WOH = weight of hammer.

Analytical sample collected 4-6' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 7/29/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192671.63
Easting: 545756.71
Casing Elevation: 642.4' AMSL

Borehole Depth: 6.5' bgs
Surface Elevation: 641.47' AMSL

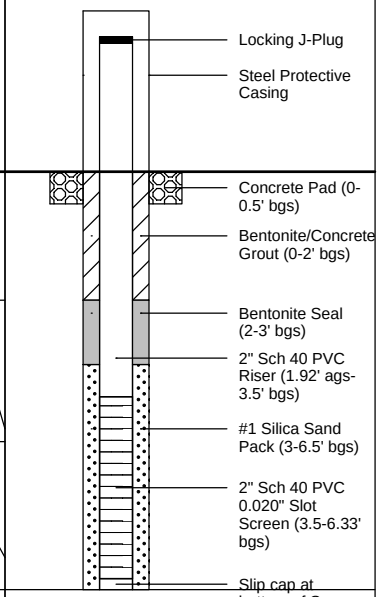
Descriptions By: Joshua Oliver

Well/Boring ID: **SB-125_MW-2**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0										
	640	1	0-2	0.7	WOH/ 1.5' 17	NA	0.2			0-0.7 Dark brown to light brown fine to medium SAND, some Organics, little Silt, organic odor, non plastic, moist.
		2	2-4	0.3	5 5 4 5	9	0.0			2.0-2.3 Dark brown to light brown fine to medium SAND, some Organics, little Silt, organic odor, non plastic, moist.
										4.0-4.2 Dark brown to light brown fine to medium SAND, some Organics, little Silt, organic odor, non plastic, moist.
5		3	4-6	0.9	5 7 7 9	14	3.9	X		4.2-4.9 Gray/brown fine to medium SAND and white coarse subangular GRAVEL, trace Silt, very faint degraded petroleum-like odor, non plastic, saturated.
	635	4	6-6.5	0.3	1 50/0.3	NA	8.9			6.0-6.3 Gray/brown fine to medium SAND and fine to medium Subangular GRAVEL, trace Silt, faint degraded petroleum-like odor, non plastic, saturated.
										Refusal at 6.5' bgs. End of Boring.
10										
	630									
15										



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Analytical sample collected 4.5-6.5' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 7/23/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192493.87
Easting: 545482.37
Casing Elevation: NA

Borehole Depth: 32.2' bgs
Surface Elevation: 687.64' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-126**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
690 / 0										
	1	0-2	0.4	1, 3, 7, 22	10	0.0			0.0-0.4 Brown fine to coarse SAND, some Organics, little Silt, cobble in shoe, non plastic, moist. (FILL)	
685	2	2-4	0.4	4, 6, 6, 5	12	0.0			2.0-2.4 Brown fine to coarse SAND, some Organics, little Silt, trace Cinders and Organics, non plastic, moist. (FILL)	
5	3	4-6	0.5	2, 1, 1, 1	2	0.0			4.0-4.5 Brown fine to coarse SAND, trace Cinders and Organics, non plastic, moist. (FILL)	
	4	6-8	0.1	2, 2, 1, 2	3	0.0			6.0-6.1 Metal piece and COBBLE in tip of shoe, wet.	
680									8.0-8.5 Brown fine to coarse SAND, trace Cinders, Organics and Glass, trace Silt, non plastic, moist. (FILL)	Boring backfilled to grade with bentonite/cement grout.
	5	8-10	0.7	2, 3, 2, 3	5	0.0			8.5-8.7 Brown fine SAND, little Silt, trace fine Gravel, non plastic, moist.	
10	6	10-12	0.7	3, 3, 3, 3	6	0.0			10.0-10.7 Brown fine SAND, little Silt, little fine subangular Gravel, trace Silt, non plastic, moist.	
675	7	12-14	NA	3, 4, 3, 4	7	NA			NO RECOVERY. Cobble in shoe.	
15	8	14-16	0.9	4, 4, 8, 8	12	0.0			14.0-14.9 Brown (lighter with depth) fine to medium SAND, trace Silt, fine Gravel, non plastic, moist.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, WOH = weight of hammer.

Analytical sample collected 23-25 ft bgs for VOCs, SVOCs, total cyanide and 29.4-30.6 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: **SB-126**

Borehole Depth: 32.2' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	1.2	5 6 5 6	11	0.0			16.0-17.2 Brown to light brown fine SAND, trace Silt, homogeneous, non plastic, moist.	
	670									18.0-18.6 Brown to light brown fine SAND, trace Silt, homogeneous, non plastic, moist.	
		10	18-20	0.9	4 4 6 7	10	0.0			18.6-18.9 Brown medium SAND, little fine Gravel, non plastic, wet.	
20		11	20-22	0.1	1 1 1 1	2	0.0			20.0-20.1 Brown medium SAND, little fine Gravel, non plastic, saturated.	
	665									22.0-22.8 Brown fine to medium SAND, non plastic, saturated.	
		12	22-24	1.9	1 1 3 1	4	1.5			22.8-23.9 Gray Silty CLAY, trace fine Sand, degraded petroleum-like odor, plastic, saturated.	
25		13	24-26	1.8	WOH 2.0'	NA	2.2			24.0-25.5 Gray Silty CLAY, trace fine Sand, degraded petroleum-like odor, slight black staining at 24.9' bgs, plastic, saturated.	Boring backfilled to grade with bentonite/cement grout.
										25.5-25.8 Light brown fine SAND, little Silt, no odor, non plastic, dense, saturated.	
										26.0-26.3 Light brown fine SAND, little Silt no odor, non plastic, dense, saturated.	
		14	26-28	0.7	WOH 1.0' 50/0.1	NA	1.7			26.3-26.7 Gray Silty CLAY, trace fine Sand, degraded petroleum-like odor, plastic, saturated.	
	660									28.0-29.4 Gray Silty CLAY, trace fine Sand, degraded petroleum-like odor, plastic, saturated.	
		15	28-30	1.6	WOH 9 2 6	11	>250			29.4-29.6 Black medium to coarse SAND and fine GRAVEL, trace Silt, light sheen, heavy degraded petroleum-like odor, non plastic, saturated.	
30		16	30-32	0.6	1 4 10 7	14	30			30.0-30.6 Black medium to coarse SAND and fine GRAVEL, trace Silt, light sheen, heavy degraded petroleum-like odor, non plastic, saturated.	
		17	32-32.2	0.2	50/0.2	NA	NA			32.0-32.2 White rock fragments in shoe, possible bedrock.	
	655									Refusal at 32.2' bgs. End of Boring.	
35											

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Analytical sample collected 23-25 ft bgs for VOCs, SVOCs, total cyanide and 29.4-30.6 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/23-8/24/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192589.00
Easting: 545605.17
Casing Elevation: NA

Borehole Depth: 23.1' bgs
Surface Elevation: 678.22' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: SB-127

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	680										
0											
		1	0-2	1.3	1 4 8 10	12	0.0			0.0-0.8 Brown fine to coarse SAND, some Organics, trace Coal fragments, non plastic, moist. 0.8-1.3 Pink-brown medium to coarse SAND, some red Brick, trace fine Sand and Cinders, non plastic, moist.	
	675	2	2-4	0.6	10 30 10 5	40	0.0			2.0-2.6 Brown fine to coarse SAND and fine to medium subangular GRAVEL, trace Brick, Cinders, Slag, Coal fragments, Glass fragments and Organics, non plastic, moist. 4.0-4.2 Brown fine to coarse SAND and fine to medium subangular GRAVEL, trace Brick, Cinders, Slag, Coal fragments, Glass fragments and Organics, non plastic, moist.	
5		3	4-6	1.4	11 6 6 4	12	0.0			4.2-4.3 Dark brown medium to coarse SAND, trace Slag and Coal fragments, non plastic, moist. 4.3-4.5 Red BRICK. 4.5-4.6 Brown fine to coarse SAND and fine to medium subangular GRAVEL, trace Brick, Cinders, Slag, Coal fragments, Glass fragments and Organics, non plastic, moist.	
		4	6-8	0.9	4 2 2 2	4	0.0			4.6-4.8 Dark brown fine to coarse SAND, trace Coal fragments, non plastic, moist. 4.8-5.0 White CINDERS, some Slag and Coal fragments, non plastic, moist.	
	670	5	8-10	1.0	2 2 2 3	4	0.0			5.0-5.2 Brown fine to coarse SAND, trace Silt and fine Gravel, non plastic, moist. 5.2-5.4 White CINDERS, some Slag and Coal fragments, non plastic, moist.	
10		6	10-12	1.5	2 5 6 6	11	0.0	X		6.0-6.4 Brown-white fine to coarse SAND, some Cinders, little red Brick, trace Slag, non plastic, moist. 6.4-6.7 WOOD. 6.7-6.9 Red BRICK. 8.0-8.7 Dark brown fine to medium SAND, trace Silt and Organics, non plastic, moist.	
	665	7	12-14	1.0	3 5 3 5	8	0.0			8.7-9.0 Black-white CINDERS, some Slag and Coal fragments, non plastic, moist. 10.0-10.6 Black-gray CINDERS, some Coal fragments and medium to coarse Sand, non plastic, moist.	
15		8	14-16	1.2	9 7 5 4	12	0.0			10.6-11.1 Gray SILT, some fine Sand, trace Clay, stiff, green seam at 11' bgs, non plastic, moist. 11.1-11.5 Gray-black-orange CINDERS, some Slag and Coal fragments, trace red Brick, non plastic, moist. 12.0-13.0 Gray-black-orange CINDERS, some Slag and Coal fragments, trace	Boring backfilled to grade with bentonite/cement grout.

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 10-12 and 21-23 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: SB-127

Borehole Depth: 23.1' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	1.2	3 5 5 5	10	0.0			red Brick, non plastic, moist. 14.0-14.2 Red BRICK. 14.2-15.2 Dark brown fine to medium SAND, trace Silt, non plastic, moist.	
	660	10	18-20	1.1	4 6 8 13	14	0.0			16.0-17.2 Dark brown fine to medium SAND, trace Silt, trace fine angular Gravel, non plastic, moist. 18.0-19.1 Dark brown to brown (lighter with depth) fine to medium SAND, trace fine angular Gravel, non plastic, moist.	
20		11	20-22	0.2	24 28 27 14	55	0.0			20.0-20.2 Brown fine to medium SAND, gray Cobble in shoe, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
		12	22-23.1	1.1	8 11 50/0.1	NA	0.0			22.0-23.1 Brown fine to coarse SAND, little Silt, trace fine Gravel, rock fragment in shoe, non plastic, moist to wet.	
	655									Auger refusal at 23.0' bgs. End of Boring.	
25											
	650										
30											
	645										
35											

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 10-12 and 21-23 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/24/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192555.68
Easting: 545640.21
Casing Elevation: NA

Borehole Depth: 21.5' bgs
Surface Elevation: 676.39' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-128**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0											
	675	1	0-2	1.0	1 1 2 2	3	0.0			0.0-0.8 Brown fine to medium SAND, some Silt, little Organics, trace Coal fragments, non plastic, moist. 0.8-1.0 White-black CINDERS, some Coal fragments, trace red Brick, Slag and fire Brick, non plastic, moist.	
		2	2-4	1.0	2 3 3 4	6	0.0			2.0-3.0 White-black CINDERS, some Coal fragments, trace red Brick, Slag and fire Brick, non plastic, moist.	
5		3	4-6	1.1	2 2 2 2	4	0.0			4.0-4.7 Brown medium to coarse SAND, trace Cinders and Coal fragments, non plastic, moist. 4.7-5.0 White-black CINDERS, some Coal fragments, trace red Brick, non plastic, moist. 5.0-5.1 Red BRICK.	
	670	4	6-8	0.6	1 1 1 1	2	0.0			6.0-6.6 White-black-brown CINDERS, some fine to medium Sand, little Coal fragments and Slag, trace red Brick, non plastic, moist.	
		5	8-10	0.8	2 2 3 4	5	0.0			8.0-8.8 White-black-brown CINDERS, some fine to medium Sand, little Coal fragments and Slag, trace red Brick, non plastic, moist. 10.0-10.4 Brown fine to medium SAND, little Silt, trace Cinders and Coal fragments, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
10		6	10-12	1.3	1 2 1 2	3	0.0			10.4-11.3 White-black CINDERS, some Coal fragments and Slag, non plastic, moist. 12.0-12.2 White-black CINDERS, some Coal fragments and Slag, non plastic, moist.	
	665	7	12-14	0.8	2 2 2 2	4	0.0			12.2-12.6 Brown fine to medium SAND, little Silt, trace Cinders and Coal fragments, non plastic, moist. 12.6-12.8 White-black CINDERS, some Coal fragments and Slag, non plastic, moist.	
15		8	14-16	0.8	2 2 2 2	4	0.0			14.0-14.8 White-black CINDERS, some Coal fragments and Slag, trace amber Glass fragments, non plastic, moist.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 18.4-20.4 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: **SB-128**

Borehole Depth: 21.5' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	660	9	16-18	1.6	2 2 2 3	4	0.0			16.0-17.6 Brown (lighter with depth) fine to medium SAND, little Silt, trace Organics, non plastic, moist.	
		10	18-20	1.1	2 2 6 8	8	0.0	X		18.0-19.0 Brown fine to medium SAND, trace Silt, non plastic, moist to wet. 19.0-19.1 White SANDSTONE fragments.	Boring backfilled to grade with bentonite/cement grout.
20		11	20-21.5	0.2	50/0.4	NA	0.0			20.0-20.2 Gray-brown SAND and fine to medium angular GRAVEL (sandstone), Cobble in shoe, non plastic, moist.	
	655									Auger refusal at 21.5' bgs. End of Boring.	
25	650										
30	645										
35											

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 18.4-20.4 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/18/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: J. Percy
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192278.04
Easting: 545508.51
Casing Elevation: NA

Borehole Depth: 21.5' bgs
Surface Elevation: 695.46' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-129**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	695	1	0-2	0.7	WOH/ 1.0 8 8	NA	0.0			0.0-0.5 ASPHALT. 0.5-0.9 Black fine to coarse SAND and GRAVEL, some Asphalt fragments, trace red Brick, non plastic, moist. 0.9-1.2 Gray medium to coarse GRAVEL, non plastic, moist.	
		2	2-4	0.8	5 3 2 4	5	0.0			2.0-2.8 Black to dark brown fine to coarse SAND and fine to medium GRAVEL, some Slag, trace red Brick and Cinders, non plastic, moist.	
5	690	3	4-6	0.0	4 5 4 5	9	NA			NO RECOVERY. Cobble in shoe.	
		4	6-8	1.5	4 8 5 3	13	0.0			6.0-7.5 Brown fine to medium SAND, little Silt, trace coarse Sand (black laminations of coarse Sand and fine Gravel at 6.4' bgs), rock fragments at 6.9' bgs, non plastic, wet.	
		5	8-10	0.9	3 4 3 3	7	0.0			8.0-8.9 Brown SILT, little medium to coarse Sand, medium plasticity, wet to saturated. 10.0-10.1 Brown SILT, little medium to coarse Sand, medium plasticity, wet.	Boring backfilled to grade with bentonite/cement grout.
10	685	6	10-12	1.1	3 2 4 5	6	6.9	X		10.1-10.3 White to light brown medium SAND, medium plasticity, moist. 10.3-11.1 Brown to light brown alternating layers of medium to coarse SAND and SILT, very faint degraded petroleum-like odor, non plastic, moist to wet.	
		7	12-14	1.6	8 13 13 17	26	0.0			12.0-13.6 Brown alternating layers (0.3' thick) medium to coarse SAND and Clayey SILT, stiff, medium plasticity, moist.	
15	680	8	14-16	2.0	7 9 8 9	17	0.0			14.0-16.0 Brown Clayey SILT, stiff, 2 laminations of medium to coarse SAND, medium plasticity, moist.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, WOH = weight of hammer.

Analytical sample collected 10-12 ft bgs for VOCs, SVOCs, total cyanide and free cyanide and 18.3-20.3 ft bgs for VOCs, SVOCs and total cyanide.

Client: National Grid

Well/Boring ID: SB-129

Borehole Depth: 21.5' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	1.3	9 24 28 27	52	0.0			16.0-17.2 Brown Clayey SILT, stiff, medium plasticity, moist. 17.2-17.3 Light brown medium to coarse SAND, trace Silt, non plastic, moist.	
		10	18-20	1.0	37 35 24 25	56	0.0			18.0-19.0 Brown to light brown fine to coarse SAND and fine to medium subangular GRAVEL, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
20	675	11	20-21.4	0.3	14 26 50/0.4	NA	0.0			20.0-20.3 Brown to light brown fine to coarse SAND and fine to medium subangular GRAVEL, non plastic, moist.	
										Auger refusal at 21.5' bgs. End of Boring.	
25	670										
30	665										
35	660										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, WOH = weight of hammer.

Analytical sample collected 10-12 ft bgs for VOCs, SVOCs, total cyanide and free cyanide and 18.3-20.3 ft bgs for VOCs, SVOCs and total cyanide.

Date Start/Finish: 8/17/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: J. Percy
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192221.36
Easting: 545631.37
Casing Elevation: NA

Borehole Depth: 30.1' bgs
Surface Elevation: 702.17' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-130**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
705 / 0									
700	1	0-2	0.4	4 4 5 6	9	0.0			0.0-0.4 Brown fine to coarse SAND, some Organics, little fine to medium subangular Gravel, non plastic, moist.
	2	2-4	0.3	4 3 4 3	4	0.0			2.0-2.3 Brown fine to coarse SAND, some Organics, little fine to medium subangular Gravel, trace Coal fragments, Cobble in shoe, non plastic, moist.
5	3	4-6	0.2	4 1 2 3	3	0.0			4.0-4.2 Brown fine to coarse SAND, some Organics and fine to medium subangular Gravel, trace Coal fragments, non plastic, moist.
695	4	6-8	0.8	2 4 4 2	8	0.0			6.0-6.8 Black COAL fragments, trace brown medium Sand, medium subangular Gravel, non plastic, moist.
	5	8-10	0.3	2 1 3 4	4	0.0			8.0-8.3 Black COAL fragments, some Cinders, fine Brick fragments and Slag, trace medium Sand, non plastic, moist.
10									10.0-10.2 Black COAL fragments, some Cinders, fine Brick fragments and Slag, trace medium Sand, non plastic, moist.
	6	10-12	1.1	4 3 3 2	6	0.0			10.2-11.1 Brown fine to medium SAND, trace coarse Sand and Organics, non plastic, moist.
690	7	12-14	1.7	3 4 4 8	8	0.0			12.0-13.7 Brown fine to medium SAND, trace Coarse Sand, Silt and Organics, non plastic, moist.
15	8	14-16	0.6	5 2 1 2	3	0.0			14.0-14.6 Brown fine to medium SAND, trace Coarse Sand, Silt and Organics, non plastic, moist.

Well/Boring Construction: Boring backfilled to grade with bentonite/cement grout.

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 28-29.4 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: **SB-130**

Borehole Depth: 30.1' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	1.0	3 4 5 4	9	0.0			16.0-17.0 Brown medium to coarse SAND, some fine Sand, non plastic, moist.	
	685										
		10	18-20	NA	3 5 5 5	10	NA			NO RECOVERY.	
20											
					5					20.0-20.6 Brown fine to coarse SAND, trace fine Gravel, non plastic, moist.	
		11	20-22	1.6	4 5 6	9	0.0			20.6-21.6 Light brown alternating layers of medium to coarse SAND and fine SAND and SILT, non plastic, moist.	
	680									22.0-22.5 Light brown alternating layers of medium to coarse SAND and fine SAND and SILT, non plastic, moist.	
		12	22-24	1.8	6 6 9 7	15	0.0			22.5-23.6 Light brown SILT and fine SAND, trace medium to coarse Sand, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
										23.6-23.8 Very light brown medium to coarse SAND, trace Silt, non plastic, moist.	
		13	24-26	1.9	8 9 8 6	17	0.0			24.0-25.9 Light brown SILT and fine SAND, laminations of very light brown medium to coarse Sand at 24.4', 24.6' and 25.6' bgs, non plastic, moist.	
25											
		14	26-28	1.8	8 9 10 12	19	0.0			26.0-27.8 Light brown SILT and fine SAND, laminations of very light brown medium to coarse Sand at 26.3', 27.4' and 27.8' bgs, non plastic, moist.	
	675										
		15	28-30	1.4	14 22 20 50/0.2	42	0.0	X		28-29.4 Light brown fine to medium SAND with laminations of very thin medium to coarse Sand at 28.1' and 28.3' bgs, non plastic, moist.	
30										NO RECOVERY.	
		16	30-30.1	NA	50/0.0	NA	NA			Refusal at 30.1' bgs. End of Boring.	
	670										
35											

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 28-29.4 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/17/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: J. Percy
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192203.23
Easting: 545634.35
Casing Elevation: NA

Borehole Depth: 33.0' bgs
Surface Elevation: 702.33' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-131**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
705										
0	1	0-2	0.9	2, 2, 16, 23	18	0.0			0.0-0.9 Brown fine to coarse SAND, some Organics, trace medium Gravel and black Coal fragments, non plastic, moist.	
700	2	2-4	NA	6, 4, 3, 3	7	NA			NO RECOVERY. Cobble in shoe.	
5	3	4-6	0.3	3, 1, 2, 2	3	0.0			4.0-4.3 Brown fine to coarse SAND, some Organics, trace medium Gravel and black Coal fragments, non plastic, moist.	
695	4	6-8	NA	2, 2, 2, 10	4	NA			NO RECOVERY.	
	5	8-10	1.1	3, 2, 2, 5	4	0.0			8.0-9.1 Brown fine to medium SAND, trace Organics and medium Gravel, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
10	6	10-12	1.3	3, 8, 10, 32	18	0.0			10.0-11.3 Brown fine to medium SAND, trace Organics, non plastic, moist. White fine to coarse Sand in shoe from broken Cobble.	
690	7	12-14	1.0	29, 10, 11, 10	21	0.0			12.0-13.0 Brown fine to medium SAND, trace Organics and medium white Gravel, non plastic, moist.	
15	8	14-16	0.9	7, 5, 5, 4	10	0.0			14.0-14.9 Brown fine to medium SAND, trace Organics and medium white Gravel, non plastic, wet.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 30.2-32.2 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: **SB-131**

Borehole Depth: 33.0' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	1.6	4 9 6 7	15	0.0			16.0-17.6 Brown fine to medium SAND, trace Organics and fine white Gravel, non plastic, wet.	
	685										
		10	18-20	1.2	5 14 14 12	28	0.0			18.0-19.2 Brown fine to medium SAND, trace Organics and fine white Gravel, non plastic, wet.	
20		11	20-22	1.5	8 11 11 13	22	0.0			20.0-21.5 Brown fine to medium SAND, non plastic, wet.	
	680	12	22-24	1.2	8 8 13 13	21	0.0			22.0-23.2 Brown fine to medium SAND and SILT, trace fine Gravel, non plastic, moist.	
25		13	24-26	1.6	9 9 8 5	17	0.0			24.0-25.6 Brown fine SAND, little Silt, trace fine Gravel, non plastic, wet.	Boring backfilled to grade with bentonite/cement grout.
		14	26-28	1.6	5 5 5 4	10	0.0			26.0-26.6 Brown fine SAND, little Silt, trace fine Gravel, non plastic, wet.	
	675										
		15	28-30	1.4	3 2 3 2	5	0.0			28.0-29.4 Brown fine SAND, little Silt, trace fine Gravel, loose, non plastic, wet.	
30		16	30-32	2.0	2 2 8 10	10	0.0	X		30.0-31.7 Light brown fine to medium SAND with reddish brown and dark brown discolorations (30.7-31.7' bgs), trace Silt, non plastic, wet. 31.7-32.0 Light brown SILT, trace fine Sand and Clay, medium plasticity, saturated.	
	670	17	32-33	0.2	50/0.1	NA	0.0			32.0-32.2 Light brown SILT, trace fine Sand and Clay, medium plasticity, saturated. White fine to medium SAND and GRAVEL in shoe. Spoon refusal at 32.2 ft bgs.	
										Auger refusal at 33.0' bgs. End of Boring.	
35											

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 30.2-32.2 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/19-8/20/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192335.52
Easting: 545616.14
Casing Elevation: 696.1' AMSL

Borehole Depth: 19.6' bgs
Surface Elevation: 694.15' AMSL

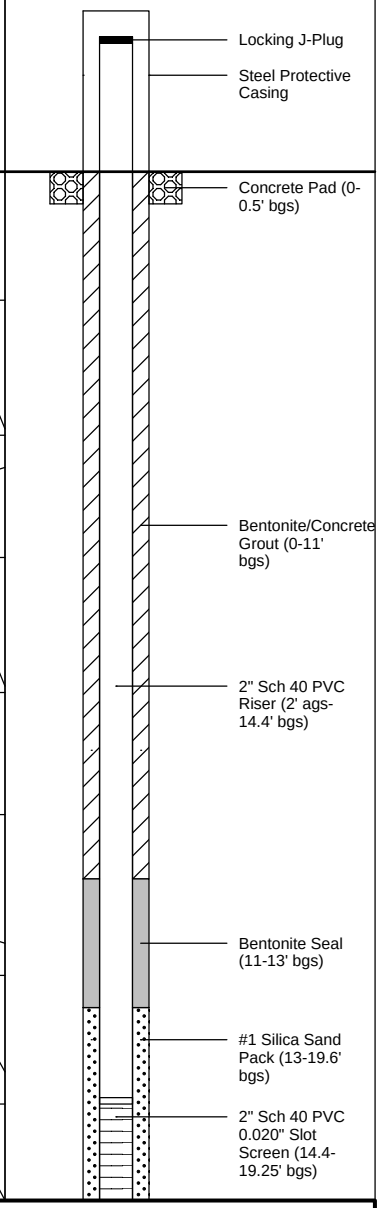
Descriptions By: Joshua Oliver

Well/Boring ID: SB-132_MW-5

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
	695									
0		1	0-2	1.1	WOH 2 3 2	5	213			0.0-1.1 Brown fine to coarse SAND, trace Silt and Organics, non plastic, moist. Coal moderate coated grains 1.0-1.1' bgs, faint coal-tar-like odor.
		2	2-4	0.0	1 2 1 2	3	NA			NO RECOVERY.
	690									4.0-4.1 Brown medium to coarse SAND, trace fine Gravel, non plastic, moist.
										4.1-4.6 Black hardened tar-like material, trace fine Gravel, non plastic, moist.
5		3	4-6	1.3	5 9 7 6	16	20			4.6-5.3 Brown to light brown fine to coarse SAND, trace Silt, non plastic, moist.
		4	6-8	1.2	8 10 10 12	20	0.0			6.0-7.2 Brown to light brown fine to coarse SAND, trace Silt, non plastic, moist.
										8.0-8.1 White SANDSTONE fragments.
	685	5	8-10	1.4	14 11 10 9	21	0.0			8.1-9.4 Brown fine to coarse SAND, little fine subangular Gravel, trace Silt, non plastic, moist.
10		6	10-12	0.8	4 5 4 5	9	0.0			10.0-10.8 Brown fine to coarse SAND, little fine subangular Gravel, trace Silt, non plastic, moist.
										12.0-12.5 White SANDSTONE and black SHALE rock fragments.
		7	12-14	0.8	9 11 9 15	20	0.0			12.5-12.8 Brown fine to coarse SAND, little Silt, little fine to medium subangular Gravel, non plastic, moist. Auger refusal at 14.5' bgs. Move location 3' south and continue sampling at 14' bgs.
	680									14.0-14.5 Brown fine to coarse SAND and fine to medium subangular GRAVEL, non plastic, moist.
15		8	14-16	0.9	50 40 21 21	61	0.0			14.5-14.9 Gray-white rock fragments, Cobble in shoe. 16.0-16.2 Gray-white rock fragments, Cobble in shoe.



Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, WOH = weight of hammer.

Analytical sample collected 16-18' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

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Client: National Grid

Well/Boring ID: SB-132_MW-5

Borehole Depth: 19.6' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	1.6	18 18 10 24	28	0.0	X		16.2-17.6 Brown to light brown medium to coarse SAND and find SAND, some Silt (alternating layers), green laminations at 17.5' bgs, non plastic, moist. 18.0-18.2 Brown to light brown medium to coarse SAND and fine SAND, some Silt (alternating layers), non plastic, moist.	#1 Silica Sand Pack (13-19.6' bgs)
	675	10	18-19.6	0.3	6 11 50/0.2	NA	0.0			18.2-18.3 Gray rock fragments (Sandstone).	2" Sch 40 PVC 0.020" Slot Screen (14.4-19.25' bgs) Slip cap at bottom of Screen (19.25-19.4' bgs)
20										Auger refusal at 19.6' bgs. End of Boring.	
	670										
25											
	665										
30											
	660										
35											

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, WOH = weight of hammer.

Analytical sample collected 16-18' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 7/22/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192346.15
Easting: 545525.84
Casing Elevation: NA

Borehole Depth: 26.4' bgs
Surface Elevation: 692.94' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-133**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	695										
0		1	0-2	0.5	WOH 1 1 2	2	0.0			0.0-0.5 Brown to black ORGANICS, some fine to medium Sand, trace red Brick, Coal fragments and Concrete, non plastic, moist. (FILL)	
	690	2	2-4	0.7	WOH 1 1 1	2	0.0			2.0-2.7 Brown fine to medium SAND, trace Brick, no Coal fragments, trace Organics, non plastic, moist. (FILL)	
5		3	4-6	0.6	WOH 1 1 4	2	0.0			4.0-4.6 Brown fine to medium SAND, trace Brick, trace Coal fragments, trace Organics, non plastic, moist. (FILL) 6.0-6.3 Brown fine to medium SAND, trace Brick, trace Coal fragments, trace Organics, non plastic, moist. (FILL)	
		4	6-8	1.3	3 3 3 3	6	0.0			6.3-7.3 Brown to light brown medium to coarse SAND, homogeneous, blue-green stained grains throughout sample, non plastic, moist.	
	685	5	8-10	0.9	2 3 3 3	6	0.0			8.0-8.9 Brown to light brown medium to coarse SAND, homogeneous, seam of Silt <0.01' thick at 8.6' bgs, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
10		6	10-12	1.4	1 2 3 4	5	0.0			10.0-10.8 Brown to light brown medium to coarse SAND, homogeneous, little Silt, trace fine Gravel at 10.7' bgs, non plastic, moist. 10.8-11.4 Light brown white fine to medium SAND, trace Coarse Sand, non plastic, moist. 12.0-12.2 Light brown white fine to medium SAND, trace Coarse Sand, non plastic, moist.	
	680	7	12-14	1.7	4 7 10 13	17	0.0			12.2-13.7 Brown SILT and fine SAND, layer of light brown to white fine to medium SAND (13.1-13.3'), medium plasticity, moist. 14.0-14.2 Brown SILT and fine SAND, medium plasticity, moist.	
15		8	14-16	1.8	5 10 10 9	20	0.0			14.2-15.3 Light brown to white fine to medium SAND, non plastic, moist. 15.3-15.8 Brown SILT and fine SAND interbedded with light brown to white SAND, medium plasticity, moist.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, WOH = weight of hammer.

Analytical sample collected 6.3-7.3' and 24.4-26.4' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: SB-133

Borehole Depth: 26.4' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	1.7	10 10 11 12	21	0.0			16.0-16.5 Brown SILT and fine SAND interbedded with light brown to white SAND, medium plasticity, moist. 16.5-17.2 Brown SILT and fine SAND, medium plasticity, moist. 17.2-17.7 Brown SILT and fine SAND interbedded with light brown to white SAND, medium plasticity, moist.	
	675	10	18-20	1.3	8 11 10 10	21	0.0			18.0-19.3 Brown SILT and fine white SAND, slight discoloration (lamination of dark gray at 18.8' bgs), lenses of fine white Sand, no odor, medium plasticity, moist.	
20		11	20-22	1.6	6 7 12 20	19	0.0			20.0-21.6 Brown SILT and fine white SAND, thin dark gray laminations, possible black staining (20.2-21.6' bgs), fine to medium Gravel at 21.0' and 21.6' bgs, no odor, medium plasticity, moist.	Boring backfilled to grade with bentonite/cement grout.
	670	12	22-24	0.5	24 40 13 15	53	0.0			22.0-22.5 Brown fine SAND, trace Silt, rock fragments in shoe, wet.	
25		13	24-26	0.5	12 17 26 29	43	2.5	X		24.0-24.5 Brown (black at 24.2' bgs) medium to coarse SAND and fine to coarse GRAVEL, black staining below 24.2' bgs, non plastic, saturated.	
		14	26-26.4	0.2	50/0.4	NA	1.7			26.0-26.2 Black medium to coarse SAND and fine to coarse GRAVEL, staining, faint degraded petroleum-like odor.	
	665									Refusal at 26.4' bgs. End of Boring.	
30											
	660										
35											

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, WOH = weight of hammer.

Analytical sample collected 6.3-7.3' and 24.4-26.4' ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/10/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: G. Lansing
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192173.00
Easting: 545531.88
Casing Elevation: NA

Borehole Depth: 24.7' bgs
Surface Elevation: 703.34' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-134**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
705 / 0									
700 / 5	1	0-2	1.1	5, 10, 15, 16	25	0.0			0.0-1.1 Brown fine to medium SAND, some fine to medium subangular Gravel, little Organics, trace Coal fragments, non plastic, moist.
	2	2-4	0.3	8, 7, 10, 8	17	0.0			2.0-2.3 Brown fine to medium SAND, little fine to medium subangular Gravel, trace Coal, non plastic, moist. Rock in shoe.
	3	4-6	0.7	1, 2, 2, 3	4	0.0			4.0-4.7 Brown fine SAND, little fine to medium subangular Gravel and Silt, non plastic, moist.
695 / 10	4	6-8	0.8	5, 10, 9, 10	19	0.0			6.0-6.8 Brown fine SAND, little fine to medium subangular Gravel and Silt, non plastic, moist.
	5	8-10	1.1	8, 8, 9, 6	17	0.0			8.0-8.9 Brown fine SAND, little fine to medium subangular Gravel and Silt, non plastic, moist.
									10.0-10.4 Brown fine SAND, little fine to medium subangular Gravel and Silt, non plastic, moist.
	6	10-12	2.0	5, 10, 9, 10	19	NA			10.4-12.0 Brown fine SAND, trace fine subangular Gravel, non plastic, moist.
690 / 15	7	12-14	2.0	3, 4, 4, 5	8	0.0			12.0-14.0 Brown fine SAND, little Silt, trace fine subangular Gravel, non plastic, moist.
	8	14-16	2.0	1, 5, 3, 5	8	NA			14.0-16.0 Brown fine SAND, little Silt, trace fine subangular Gravel, non plastic, moist, increasing moisture with depth.

Well/Boring Construction: Boring backfilled to grade with bentonite/cement grout.

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 22-23.5 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: SB-134

Borehole Depth: 24.7' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	2.0	1 4 4 5	8	0.0			16.0-18.0 Brown fine SAND, little Silt, trace fine subangular Gravel, non plastic, moist, perched layers of moisture.	
	685	10	18-20	2.0	3 7 7 7	14	0.0			18.0-20.0 Brown fine SAND, trace Silt, non plastic, moist.	
20		11	20-22	2.0	3 4 2 1	6	0.0			20.0-22.0 Brown fine SAND, trace Silt, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
	680	12	22-24	1.5	2 8 35 35	43	0.0	X		22.0-23.5 Brown fine SAND, trace Silt, non plastic, moist.	
		13	24-24.7	0.2	50/0.2	NA	0.0			24.0-24.2 Fine pink/gray SANDSTONE. Spoon refusal at 24.2' bgs.	
25										Auger refusal at 24.7' bgs. End of Boring.	
	675										
30											
	670										
35											

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Analytical sample collected 22-23.5 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/12/2010
Drilling Company: Parratt Wolff, Inc.
Driller's Name: J. Percy
Drilling Method: Hollow Stem Auger
Auger Size: 3.25" ID
Rig Type: Track-Mounted CME-850
Sampling Method: 2" x 2' Split Spoon

Northing: 2192179.85
Easting: 545582.14
Casing Elevation: NA

Borehole Depth: 31.5' bgs
Surface Elevation: 702.73' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SB-135**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
705 / 0										
0	1	0-2	1.1	6 11 10 9	21	0.0			0.0-0.6 Brown fine SAND, some fine to medium subangular Gravel, trace Silt and Organics, non plastic, moist. 0.6-1.1 Brown fine SAND, little fine to coarse subangular Gravel, trace Silt, non plastic, moist.	
700	2	2-4	1.3	8 6 6 4	12	0.0			2.0-3.3 Brown fine SAND, little fine to medium subangular Gravel and Silt, non plastic, moist. 4.0-4.5 Brown fine SAND, little fine to medium subangular Gravel and Silt, non plastic, moist.	
5	3	4-6	1.2	3 2 3 3	5	0.0			4.5-5.2 Brown fine SAND, trace fine subangular Gravel, Silt, non plastic, moist.	
695	4	6-8	0.9	1 1 2 3	3	0.0			6.0-6.9 Brown fine SAND, trace fine subangular Gravel, Silt, non plastic, moist.	
	5	8-10	1.0	3 6 6 6	12	0.0			8.0-10.0 Brown fine SAND, trace fine subangular Gravel, Silt, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
10	6	10-12	NA	2 3 9 12	12	NA			NO RECOVERY.	
690	7	12-14	0.8	16 18 50/0.3	NA	0.0			12.0-12.9 Dark brown fine to medium SAND, little to some fine to coarse subangular Gravel and Silt, non plastic, moist. Crushed Quartz in spoon.	
15	8	14-16	NA	50/0.4	NA	NA			NO RECOVERY.	

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Analytical sample collected 30-31.5 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Client: National Grid

Well/Boring ID: SB-135

Borehole Depth: 31.5' bgs

Site Location:
Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	2.0	5 5 6 7	11	0.0			16.0-18.0 Brown fine SAND, trace fine subangular Gravel and Silt, non plastic, moist.	
	685	10	18-20	1.7	8 6 5 7	11	0.0			18.0-19.7 Brown fine SAND, trace fine subangular Gravel and Silt, non plastic, moist, increasing moisture with depth.	
20		11	20-22	1.6	4 12 28 34	40	0.0			20.0-21.6 Brown fine SAND, trace fine subangular Gravel and Silt, non plastic, moist. Cobble in shoe.	
										22.0-22.5 Brown fine SAND, trace fine subangular Gravel and Silt, non plastic, moist. Cobble in shoe.	
	680	12	22-24	2.0	8 7 11 9	18	0.0			22.5-23.8 Brown SILT, little fine Sand, trace Clay and fine subangular Gravel, non plastic, moist.	
										23.8-24.0 Gray/pink/white fine SAND, trace fine subangular Gravel, non plastic, moist.	Boring backfilled to grade with bentonite/cement grout.
25		13	24-26	1.6	11 6 12 13	18	0.0			24.0-25.6 Gray/pink/white fine SAND, trace fine subangular Gravel, 0.2-0.3'-thick Silt laminations throughout, non plastic, moist.	
		14	26-28	2.0	11 8 12 17	20	0.0			26.0-28.0 Brown SILT, little fine Sand, trace fine subangular Gravel, non plastic, moist.	
	675	15	28-30	1.7	17 17 16 18	33	0.0			28.0-29.7 Brown fine SAND, little to trace fine subangular Gravel, non plastic, moist. Silt in shoe.	
30		16	30-31.5	1.5	39 37 50/0.2	NA	0.0	X		30.0-31.5 Brown fine SAND, little to trace fine subangular Gravel, non plastic, moist. SANDSTONE in shoe.	
	670									Refusal at 31.5' bgs. End of Boring.	
35											

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Analytical sample collected 30-31.5 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 9/2/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192234.35
Easting: 545488.45
Casing Elevation: NA

Borehole Depth: 1.0' bgs
Surface Elevation: 703.66' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SS-100**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
705 / 0	1	0-1.0	1.0	NA	NA	0.0	X		0.0-0.2 Brown fine SAND, some Silt, trace Organics, trace fine subangular Gravel, moist.	Location backfilled with cuttings.
									End of Boring at 1.0' bgs.	
700 / 5										
695 / 10										
690 / 15										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-0.2 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 9/2/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192246.80
Easting: 545561.71
Casing Elevation: NA

Borehole Depth: 1.0' bgs
Surface Elevation: 695.50' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SS-101**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 695	1	0-1.0	1.0	NA	NA	0.0			Brown SILT, some fine Sand, little Organics, moist.	Location backfilled with cuttings.
									End of Boring at 1.0' bgs.	
5 / 690										
10 / 685										
15 / 680										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-0.2 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 9/2/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192260.70
Easting: 545645.79
Casing Elevation: NA

Borehole Depth: 1.0' bgs
Surface Elevation: 693.52' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: SS-102

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
695										
0	1	0-1.0	1.0	NA	NA	0.0			Dark brown SILT, some Organics, little red Brick, trace Ash/Cinders and fine Sand, moist.	Location backfilled with cuttings.
									End of Boring at 1.0' bgs.	
690										
5										
685										
10										
680										
15										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-0.2 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 9/2/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192524.48
Easting: 545484.53
Casing Elevation: NA

Borehole Depth: 1.0' bgs
Surface Elevation: 688.57' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SS-103**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
690 / 0	1	0-1.0	1.0	NA	NA	0.0			Brown SILT, little fine Sand, little Organics, trace fine subangular Gravel, moist.	Location backfilled with cuttings.
									End of Boring at 1.0' bgs.	
685 / 5										
680 / 10										
675 / 15										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-0.2 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 9/2/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192597.18
Easting: 545596.47
Casing Elevation: NA

Borehole Depth: 1.0' bgs
Surface Elevation: 677.41' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SS-104**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
680 / 0	1	0-1.0	1.0	NA	NA	0.0			Brown SILT, some fine Sand, trace Organics, red Brick and Glass, moist.	Location backfilled with cuttings.
									End of Boring at 1.0' bgs.	
675 / 5										
670 / 10										
665 / 15										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-0.2 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 9/2/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192723.44
Easting: 545761.96
Casing Elevation: NA

Borehole Depth: 1.0' bgs
Surface Elevation: 639.98' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SS-105**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	640	1	0-1.0	1.0	NA	NA	0.0			Dark brown SILT, some Organics, little Clay, trace fine Sand, moist.	Location backfilled with cuttings.
										End of Boring at 1.0' bgs.	
5	635										
10	630										
15	625										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-0.2 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 9/2/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192508.19
Easting: 545809.05
Casing Elevation: NA

Borehole Depth: 1.0' bgs
Surface Elevation: 637.54' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SS-106**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
640										
0	1	0-1.0	1.0	NA	NA	0.0	X		Brown fine SAND, little Silt, trace Organics, moist.	Location backfilled with cuttings.
									End of Boring at 1.0' bgs.	
635										
5										
630										
10										
625										
15										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-0.2 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 9/2/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192410.21
Easting: 545750.62
Casing Elevation: NA

Borehole Depth: 1.0' bgs
Surface Elevation: 647.24' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SS-107**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
650 / 0	1	0-1.0	1.0	NA	NA	0.0			Brown SILT, some fine Sand, little Organics, trace fine subangular Gravel, moist.	Location backfilled with cuttings.
									End of Boring at 1.0' bgs.	
645 / 5										
640 / 10										
635 / 15										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-0.2 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/31/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192217.18
Easting: 545667.07
Casing Elevation: NA

Borehole Depth: 4.0' bgs
Surface Elevation: 680.75' AMSL

Descriptions By: Levia Terrell

Well/Boring ID: **SS-A**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	680	1	0-0.5	0.5	NA	NA	0.0	X		0.0-0.5 Brown SILT, trace fine Sand, fine subangular Gravel and Organics, loose, moist.	Location backfilled to grade with bentonite.
		2	0.5-1	0.5	NA	NA	0.0			0.5-1.0 Brown SILT, trace fine Sand, fine subangular Gravel, Organics and Slag, loose, moist.	
		3	1-1.5	0.5	NA	NA	0.0			1.0-1.5 Brown SILT, little Slag, trace fine Sand, fine subangular Gravel, Organics and red Brick, loose, moist.	
		4	1.5-2	0.5	NA	NA	0.0			1.5-2.0 Brown SILT, little Slag, trace fine Sand, fine subangular Gravel, Organics, red Brick and Wood (roots), loose, moist.	
		5	2-2.5	0.5	NA	NA	0.0			2.0-2.5 Brown SILT, some Slag, trace medium to coarse Sand, fine subangular Gravel and red Brick, loose, moist.	
		6	2.5-3	0.5	NA	NA	0.0			2.5-3.0 Brown SILT, some Slag, trace medium to coarse Sand and fine subangular Gravel, loose, moist.	
		7	3-3.5	0.5	NA	NA	0.0			3.0-3.5 Brown SILT, some medium subangular Gravel and Slag, trace fine to coarse Sand, loose, moist.	
		8	3.5-4	0.5	NA	NA	0.0			3.5-4.0 Brown SILT, some medium subangular Gravel and Slag, trace fine to coarse Sand and red Brick, loose, moist.	
5	675									End of Boring at 4.0' bgs.	
10	670										
15	665										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-1 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/31/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192236.77
Easting: 545655.79
Casing Elevation: NA

Borehole Depth: 2.0' bgs
Surface Elevation: 692.28' AMSL

Descriptions By: Levia Terrell

Well/Boring ID: **SS-B**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
695 / 0										
	1	0-1	1.0	NA	NA	0.0	X		0.0-1.0 Brown SILT, some fine Sand, trace fine to medium subangular Gravel and Organics (roots), moist.	Location backfilled to grade with bentonite.
	2	1-2	1.0	NA	NA	0.0			1.0-2.0 Black to red/brown and tan fine SAND and SILT, trace fine to medium subangular Gravel, strong odor, moist.	
690 / 5									End of Boring at 2.0' bgs.	
685 / 10										
680 / 15										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-1 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/31/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192251.90
Easting: 545644.51
Casing Elevation: NA

Borehole Depth: 2.5' bgs
Surface Elevation: 693.85' AMSL

Descriptions By: Levia Terrell

Well/Boring ID: **SS-C**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
695 / 0	1	0-1	1.0	NA	NA	0.0	X		0.0-1.0 Dark brown to black fine SAND and SILT, little Ash and Cinders, trace fine subangular Gravel, moist.	Location backfilled to grade with bentonite.
	2	1-2	1.0	NA	NA	0.0			1.0-2.0 Dark brown to black fine SAND, SILT, CINDERS and ASH, trace medium subangular Gravel, trace red Brick, loose, moist.	
	3	2-2.5	0.5	NA	NA	0.0			2.0-2.5 Dark brown to black fine SAND, SILT, CINDERS and ASH, trace medium subangular Gravel, trace red Brick, loose, moist.	
690 / 5									Refusal at 2.5' bgs. End of Boring.	
685 / 10										
680 / 15										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-1 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 8/31/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192229.55
Easting: 545664.07
Casing Elevation: NA

Borehole Depth: 4.0' bgs
Surface Elevation: 683.61' AMSL

Descriptions By: Levia Terrell

Well/Boring ID: **SS-D**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
685 / 0										
	1	0-1	1.0	NA	NA	0.0	X		0.0-1.0 Brown SILT and fine SAND, little medium to coarse Sand, trace fine to medium subrounded Gravel, red Brick and Organics, moist.	Location backfilled to grade with bentonite.
	2	1-2	1.0	NA	NA	0.0			1.0-2.0 Dark brown to black SILT and fine SAND, little medium to coarse Sand, trace fine to medium subrounded Gravel and red Brick, moist.	
	3	2-3	1.0	NA	NA	0.0			2.0-3.0 Dark brown to black medium to coarse SAND, some fine Sand, trace Cinders, red Brick and Slag, moist.	
680	4	3-4	1.0	NA	NA	0.0			3.0-4.0 Dark brown to black medium to coarse SAND, some fine Sand, trace Cinders, red Brick and Slag, moist.	
5									End of Boring at 4.0' bgs.	
675										
10										
670										
15										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-1 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 9/1/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192290.94
Easting: 545683.64
Casing Elevation: NA

Borehole Depth: 2.0' bgs
Surface Elevation: 670.96' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SS-E**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 670	1	0-1	1.0	NA	NA	0.0	X		0.0-1.0 Brown fine SAND and SILT, little Organics, trace fine Gravel (subangular to angular), moist.	
	2	1-2	1.0	NA	NA	0.0			1.0-2.0 Brown fine SAND and SILT, little red Brick and Cinders, trace Organics, trace fine subangular Gravel, moist.	Location backfilled to grade with bentonite.
									Refusal at 2.1' bgs. End of Boring.	
5 / 665										
10 / 660										
15 / 655										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-1 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 9/1/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing: 2192280.37
Easting: 545666.92
Casing Elevation: NA

Borehole Depth: 2' bgs
Surface Elevation: 684.30' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: **SS-F**

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	685										
0		1	0-1	1.0	NA	NA	0.0	X		0.0-1.0 Dark brown to black fine SAND and SILT, some fine to medium subangular Gravel and Organics, little Cinders, red Brick and Slag, moist.	Location backfilled to grade with bentonite.
		2	1-2	1.0	NA	NA	0.0			1.0-2.0 Dark brown to black fine SAND, some Silt and fine subangular Gravel, little Organics, trace Slag and Coal fragments, moist.	
										End of Boring at 2.0' bgs.	
	680										
5											
	675										
10											
	670										
15											

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-1 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

Date Start/Finish: 9/1/2010
Drilling Company: ARCADIS
Driller's Name: L. Terrell/J. Oliver
Drilling Method: Hand Auger
Auger Size: 4" Bucket Auger
Rig Type: NA
Sampling Method: Bucket Auger

Northing:
Easting:
Casing Elevation: NA

Borehole Depth: 1.5' bgs
Surface Elevation: NA' AMSL

Descriptions By: Joshua Oliver

Well/Boring ID: SS-G

Client: National Grid

Location: Malone - Amsden Street
Former MGP Site
Malone, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-1	1.0	NA	NA	0.0	X		0.0-1.0 Brown fine SAND, little Organics, trace red Brick, fine subangular Gravel and Cinders, moist.	Location backfilled to grade with bentonite.
		2	1-1.5	1.5	NA	NA	0.0			1.0-1.5 Brown fine to medium SAND and fine subangular GRAVEL, little Silt and Organics, trace Cinders and Slag, moist.
										Refusal at 1.5' bgs. End of Boring.
5	-5										
10	-10										
15	-15										

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Analytical sample collected 0-1 ft bgs for VOCs, SVOCs, total cyanide and free cyanide.

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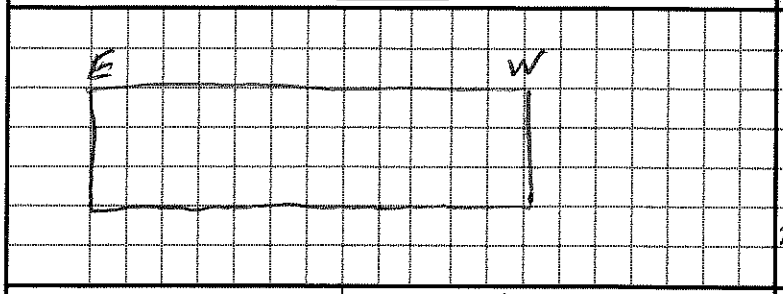
Test Pit Log

Test Pit ID: CTP-1

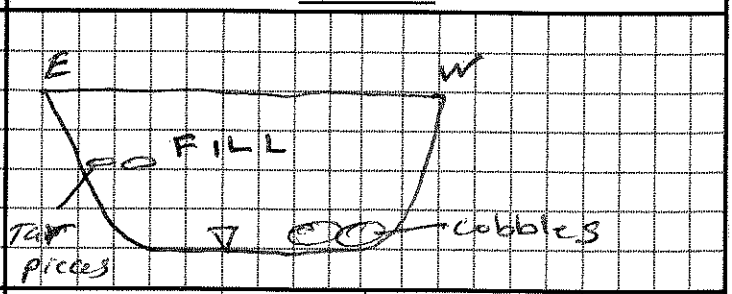
Client:	National Grid	**Date:**	8/3/11
Project:	Carter Property Investigation	**Weather:**	Sunny
Location:	Malone Former MGP Site Coffee Street – Off-Site Malone, New York	**Temperature:**	~75°F
Project #:	B0036706.0000	**Wind:**	Calm
Geologist:	Scott Powlin	**Subcontractor:**	Op-Tech
Coordinates:		**Equipment:**	Track Hoe

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	12'L x 3'W x 4'D	**Total Depth:**	4'	**Depth to Water:**	4'

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-4	0.0	Fill comprised of F-C sand, cobbles, gravel, trace glass, ceramic, brick, roots; trace highly weathered tar – two softball size pieces at 2' bgs at east end of pit.	None.

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

No sheen on water.

No odor from pit.

PID on tar pieces = 0.0 ppm

Photograph Summary:

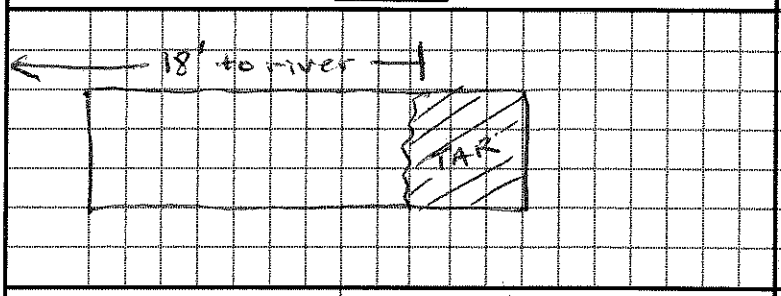
Test Pit Log

Test Pit ID: CTP-2

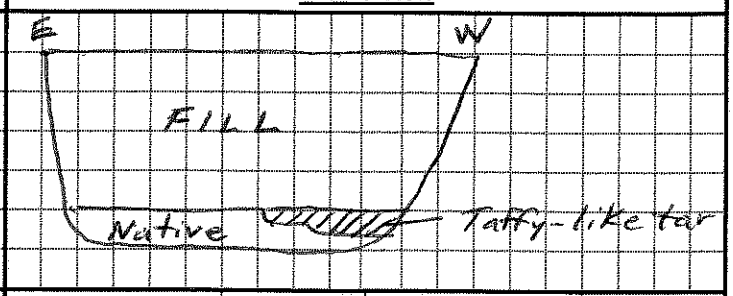
Client:	National Grid	**Date:**	8/3/11
Project:	Carter Property Investigation	**Weather:**	Partly Cloudy
Location:	Malone Former MGP Site Coffee Street – Off-Site Malone, New York	**Temperature:**	~75°F
Project #:	B0036706.0000	**Wind:**	Calm
Geologist:	Scott Powlin	**Subcontractor:**	Op-Tech
Coordinates:		**Equipment:**	Track Hoe

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	12'L x 3'W x 5'D	**Total Depth:**	5'	**Depth to Water:**	5'

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-4	0.0	Fill composed of Fr. Sand, gravel; some glass, paper, white ash-like material; trace brick, metal, roots.	None
4-5	0.0	Brown F-M Sand, Silt, decayed wood. Taffy-like tar observed in bottom 6-inches; bar is 6 inches thick.	

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

PID on tar: 3-3 ppm

No sheen on water.

MGP like odor from p.t.

Photograph Summary:

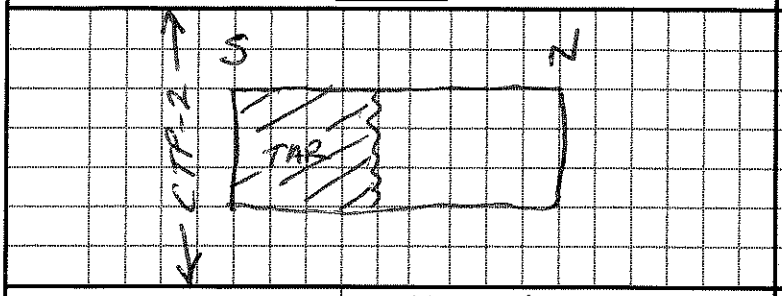
Test Pit Log

Test Pit ID: CTP-2A

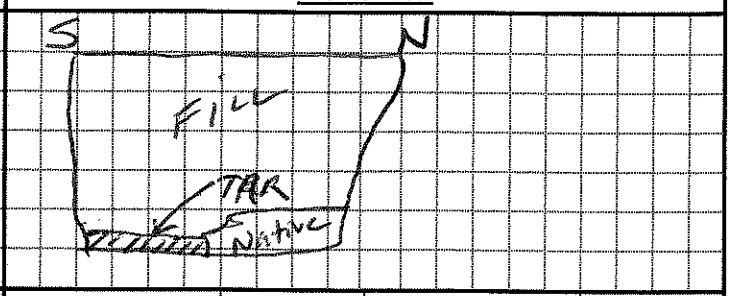
Client:	National Grid	**Date:**	8/3/11
Project:	Carter Property Investigation	**Weather:**	Overcast
Location:	Malone Former MGP Site Coffee Street – Off-Site Malone, New York	**Temperature:**	~80°F
Project #:	B0036706.0000	**Wind:**	Slight breeze
Geologist:	Scott Powlin	**Subcontractor:**	Op-Tech
Coordinates:		**Equipment:**	Track Hoe

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	9'L x 3'W x 5'D	**Total Depth:**	5'	**Depth to Water:**	4.5'

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-4	0.0	F-C sand, gravel, cobbles; some glass, trace ash-like material, cinders	
4-5	0.0	F-M sand + silt, organics - Taffy-like tar	
		on top of native material - 6-inches thick	

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

Test pit starts at mid point of CTP-2 and extends to the north.

No sheen.

Faint MGP-like odor from P.T.

Photograph Summary:

PID on tar: 2.1 ppm

CTP-2A - purpose is to delineate tar observed in CTP-2.

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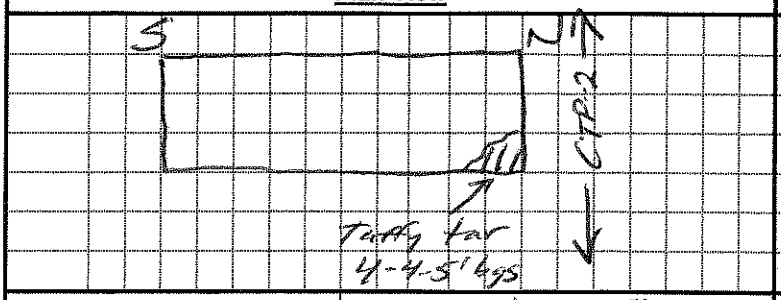
Test Pit Log

Test Pit ID: CTP-2B

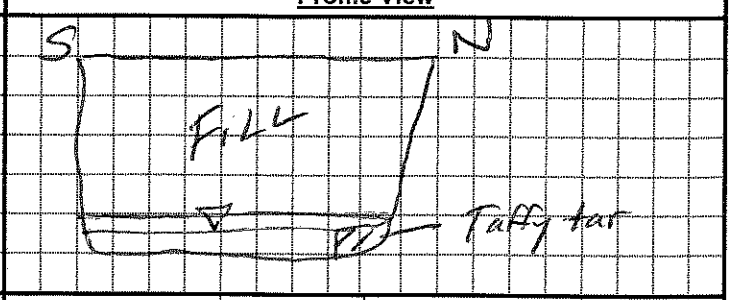
Client:	National Grid	**Date:**	8/3/11
Project:	Carter Property Investigation	**Weather:**	Overcast
Location:	Malone Former MGP Site Coffee Street – Off-Site Malone, New York	**Temperature:**	~80°F
Project #:	B0036706.0000	**Wind:**	Slight Breeze
Geologist:	Scott Powlin	**Subcontractor:**	Op-Tech
Coordinates:		**Equipment:**	Track Hoe

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	10'L x 3'W x 5'D	**Total Depth:**	5	**Depth to Water:**	4-5

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-4	0.0	F-c Sand, cobbles, boulders, metal, trace cinders glass	
4-5	0.0	F-c Sand - orange-brown (Native)	None

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

CTP-2B starts at midpoint of CTP-2 and extends to south.
Taffy tar observed 4-5-5' bgs at NE corner of Pit.
No sheen; No odor.

PID on tar: 3.6 ppm

Photograph Summary:

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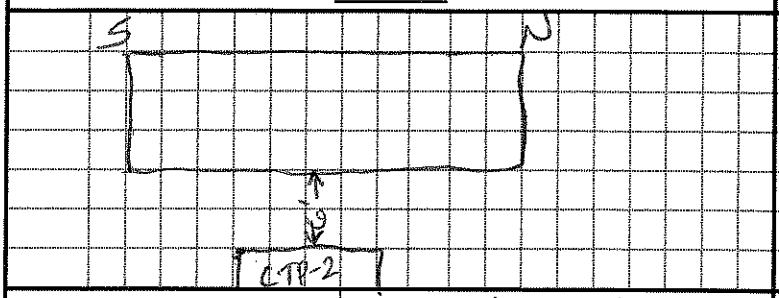
Test Pit Log

Test Pit ID: CTP-2C

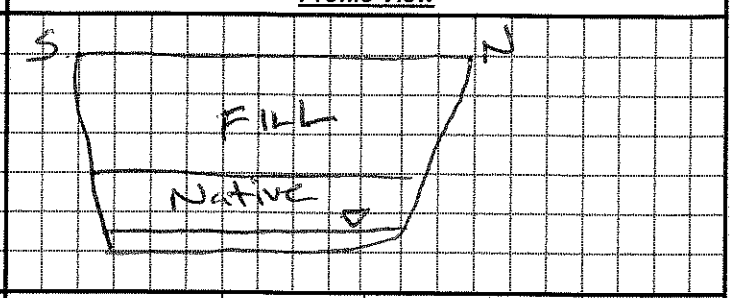
Client:	National Grid	**Date:**	8/3/11
Project:	Carter Property Investigation	**Weather:**	Overcast
Location:	Malone Former MGP Site Coffee Street – Off-Site Malone, New York	**Temperature:**	~80°F
Project #:	B0036706.0000	**Wind:**	Slight breeze
Geologist:	Scott Powlin	**Subcontractor:**	Op-Tech
Coordinates:		**Equipment:**	Track Hoe

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	11'L x 3'W x 5'D	**Total Depth:**	5'	**Depth to Water:**	4-5

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-3	0.0	Fill composed of F-C Sand, cobbles, boulders; some metal, glass	
3-5	0.0	F-M Sand, some organics	

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

CTP-2C located 6' west and perpendicular to CTP-2

No sheen.

No odor.

Photograph Summary:

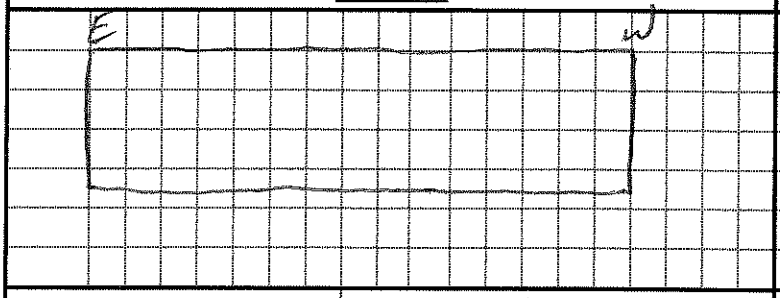
Test Pit Log

Test Pit ID: CTP-3

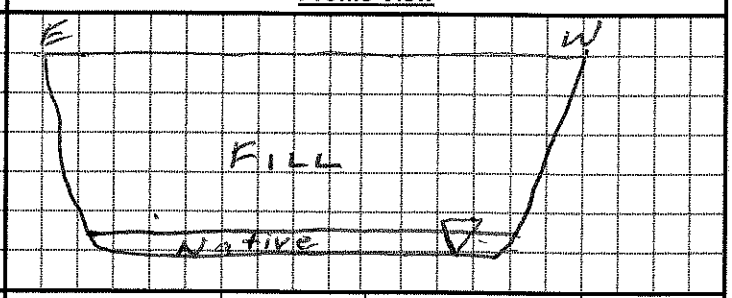
Client:	National Grid	**Date:**	8/3/11
Project:	Carter Property Investigation	**Weather:**	Sunny
Location:	Malone Former MGP Site Coffee Street – Off-Site Malone, New York	**Temperature:**	75°F
Project #:	B0036706.0000	**Wind:**	Calm
Geologist:	Scott Powlin	**Subcontractor:**	Op-Tech
Coordinates:	'	**Equipment:**	Track Hoe

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	15'L x 3.5'W x 5'D	**Total Depth:**	5.	**Depth to Water:**	5

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-4.5	0.0	Fill composed of F-c Sand, gravel, cobbles; trace metal, glass, cinders, roots; Faint	
		degraded petroleum-like odor at east end of	None
		pit at 4' bgs, Soil was stained black.	
4.5-5	0.0	F-M sand and silt, organics	

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

- Other than faint weathered petroleum-like odor, no other odors.
- No sheen on water

Photograph Summary:

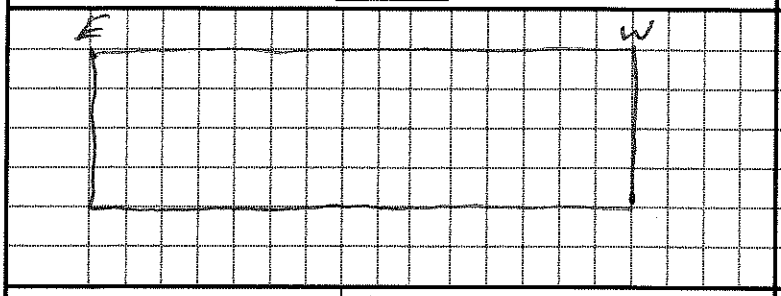
Test Pit Log

Test Pit ID: CTP-4

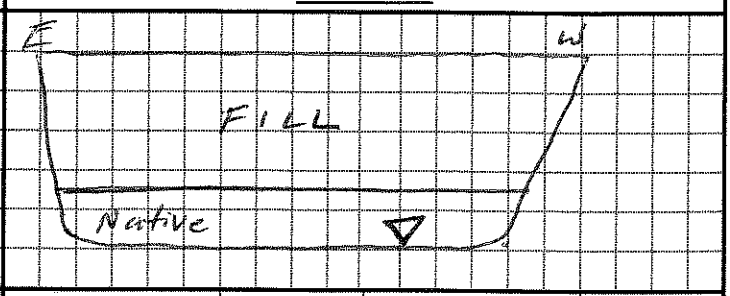
Client:	National Grid	**Date:**	8/3/11
Project:	Carter Property Investigation	**Weather:**	Partly cloudy
Location:	Malone Former MGP Site Coffee Street – Off-Site Malone, New York	**Temperature:**	~75°F
Project #:	B0036706.0000	**Wind:**	Calm
Geologist:	Scott Powlin	**Subcontractor:**	Op-Tech
Coordinates:		**Equipment:**	Track Hoe

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	15'L x 4'W x 5'D	**Total Depth:**	5'	**Depth to Water:**	5'

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-3.5	0.0	Fill composed of F-C Sand, gravel, cobbles; some metal; trace cinders, roots	
3.5-5	0.0	Orange-brown F-C Sand, large tree stump	None

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

Trace blue-stain stones observed on surface of east end of pit - looks like purifier waste.
No sheen.
No odors.

Photograph Summary:

Rusted metal container (about 5 gallon in size) encountered at approximately 3 feet below grade. Container appeared to contain highly weathered/degraded tar and soil.

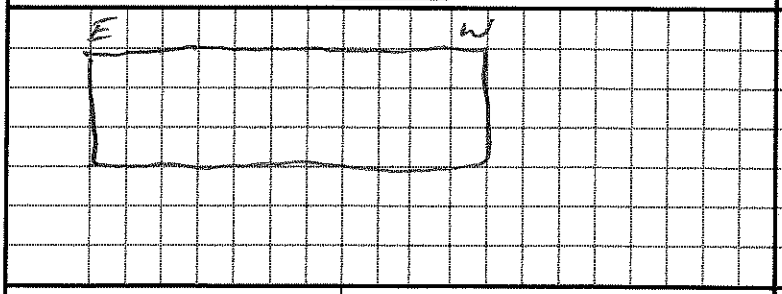
Test Pit Log

Test Pit ID: CTP-5

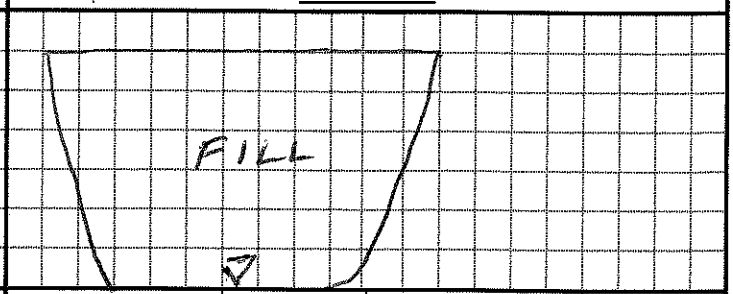
Client:	National Grid	**Date:**	8/3/11
Project:	Carter Property Investigation	**Weather:**	Sunny
Location:	Malone Former MGP Site Coffee Street – Off-Site Malone, New York	**Temperature:**	~ 75° F
Project #:	B0036706.0000	**Wind:**	Breezy
Geologist:	Scott Powlin	**Subcontractor:**	Op-Tech
Coordinates:		**Equipment:**	Track Hoe

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	11'L x 3'W x 6'D	**Total Depth:**	6'	**Depth to Water:**	6'

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-6	0.0	Fill composed of F-C sand, gravel, cobbles, a lot of metal, glass, wood, large boulders, old metal signs.	None

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

No odor.

No sheen.

Photograph Summary:

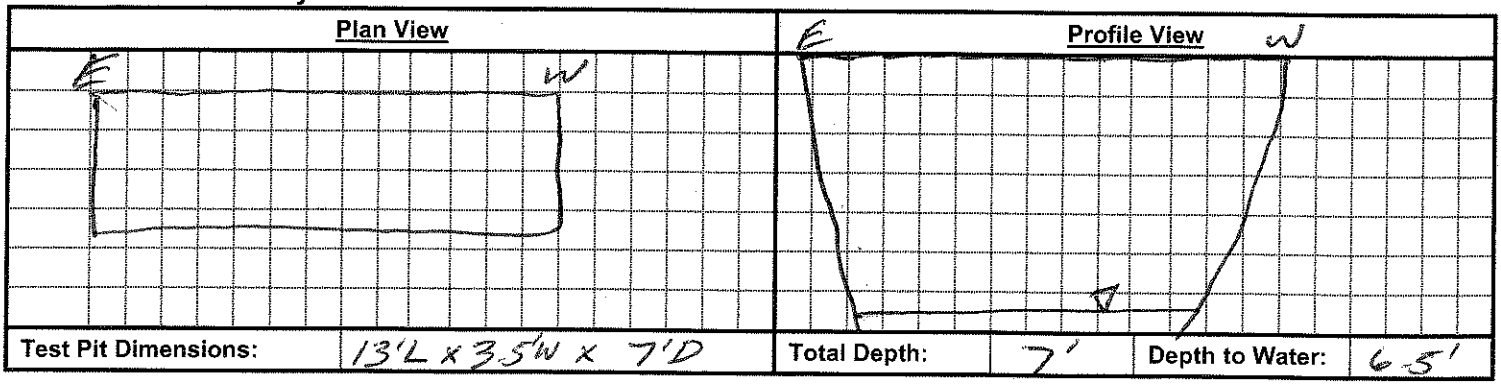
ARCADIS

Test Pit Log

Test Pit ID: CTP-6

Client:	National Grid	**Date:**	8/3/11
Project:	Carter Property Investigation	**Weather:**	Sunny
Location:	Malone Former MGP Site Coffee Street – Off-Site Malone, New York	**Temperature:**	~75°F
Project #:	B0036706.0000	**Wind:**	Calm
Geologist:	Scott Fowler	**Subcontractor:**	Op-Tech
Coordinates:		**Equipment:**	Track Hoe

Sketch of Test Pit Layout:



Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-7	0.0	Fill composed of F-C Sand, gravel, cobbles, boulders. Some bottles, metal, white ash-like material,	
		trace cinders, plastic, cloth, brick.	None

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

No sheen.

No odors.

Photograph Summary:

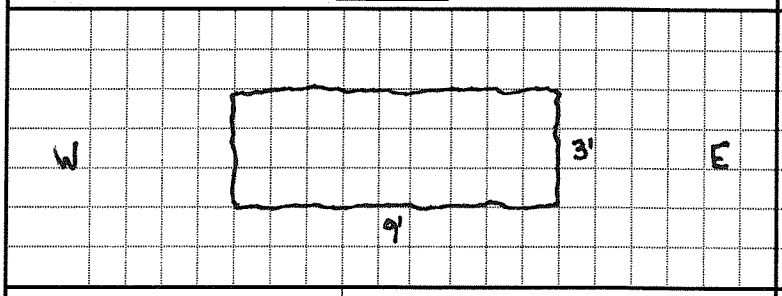
Test Pit Log

Test Pit ID: CTP-7

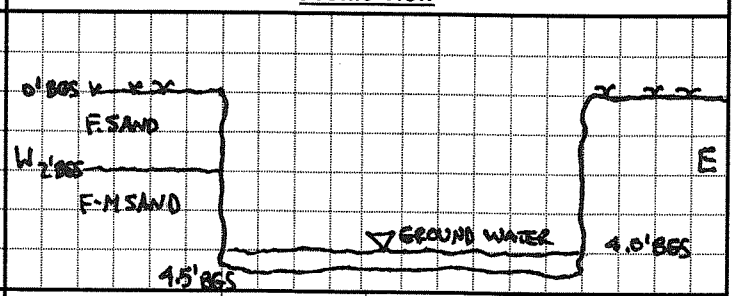
Client:	National Grid	**Date:**	7/29/2013
Project:	Coffee Street	**Weather:**	Sun and Clouds
Location:	Malone, NY	**Temperature:**	80 F
Project #:	B0036706.0000.00012	**Wind:**	SW to NE
Geologist:	Marcus Eriksson	**Subcontractor:**	Op Tech
Coordinates:		**Equipment:**	Excavator

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	**3' wide x 9' long**	**Total Depth:**	**4.5' bgs.**
Depth to Water:	**4' bgs**		

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0.0 – 2.0	0.0	Brown fine SAND, little Silt, fine to coarse subangular Gravel, Organics (roots), trace Metal (M,NP).	NA
2.0 – 4.5	0.0	Brown fine to medium SAND, little to some fine to coarse subrounded Gravel, little red Brick, Glass (M,NP).	NA

Notes:

NA = Not Available/Applicable; bgs = below ground surface; M = moist; S = saturated; NP = non-plastic.

Photograph Summary:

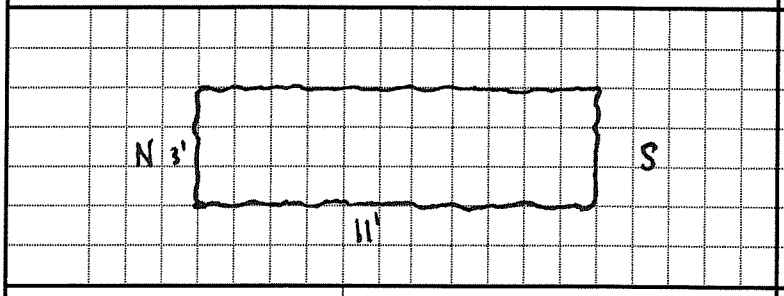
Test Pit Log

Test Pit ID: CTP-8

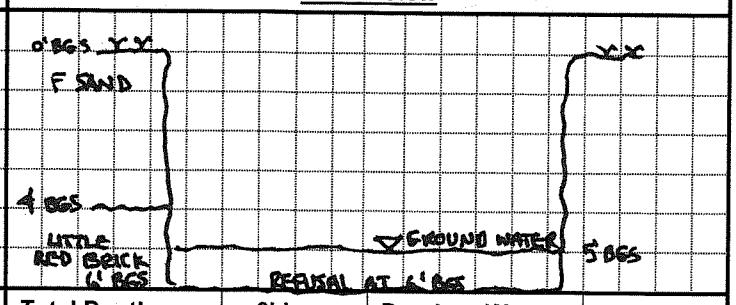
Client:	National Grid	**Date:**	7/29/2013
Project:	Coffee Street	**Weather:**	Sun and Clouds
Location:	Malone, NY	**Temperature:**	80 F
Project #:	B0036706.0000.00012	**Wind:**	SW to NE
Geologist:	Marcus Eriksson	**Subcontractor:**	Op Tech
Coordinates:		**Equipment:**	Excavator

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	**3' wide x 11' long**	**Total Depth:**	**6' bgs.**	**Depth to Water:**	**5' bgs**

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0.0 – 6.0	0.0	Brown fine SAND, little fine to medium subangular Gravel, Organics (roots), little red Brick increases with depth, subround Cobbles increase with depth (M,NP).	NA

Notes:

NA = Not Available/Applicable; bgs = below ground surface; M = moist; S = saturated; NP = non-plastic.

Photograph Summary:

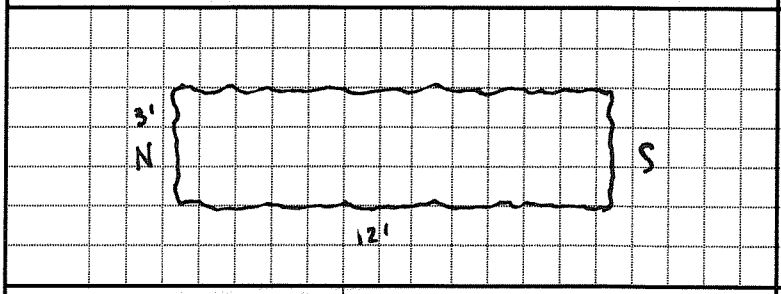
Test Pit Log

Test Pit ID: CTP-9

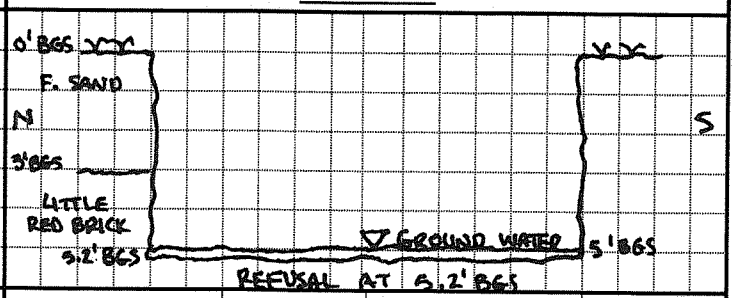
Client:	National Grid	**Date:**	7/29/2013
Project:	Coffee Street	**Weather:**	Sun and Clouds
Location:	Malone, NY	**Temperature:**	80 F
Project #:	B0036706.0000.00012	**Wind:**	SW to NE
Geologist:	Marcus Eriksson	**Subcontractor:**	Op Tech
Coordinates:		**Equipment:**	Excavator

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	**3' wide x 12' long**	**Total Depth:**	**5.2' bgs.**	**Depth to Water:**	**5' bgs**

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0.0 – 5.2	0.0	Brown fine SAND, little fine to medium subangular Gravel, Organics (roots), Glass (bottles), little red Brick (3-3.5' bgs.), trace fire Brick, subround Cobbles increase with depth (M,NP).	NA

Notes:

NA = Not Available/Applicable; bgs = below ground surface; M = moist; S = saturated; NP = non-plastic.

Photograph Summary:

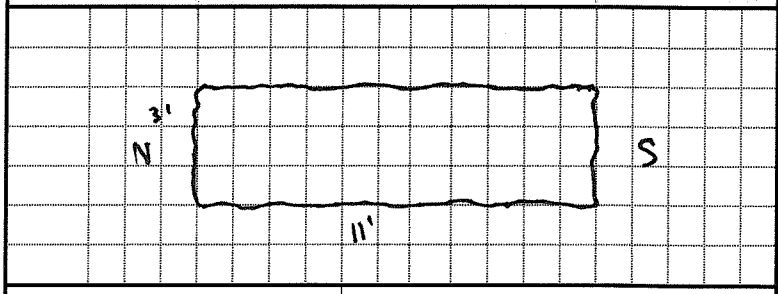
Test Pit Log

Test Pit ID: CTP-10

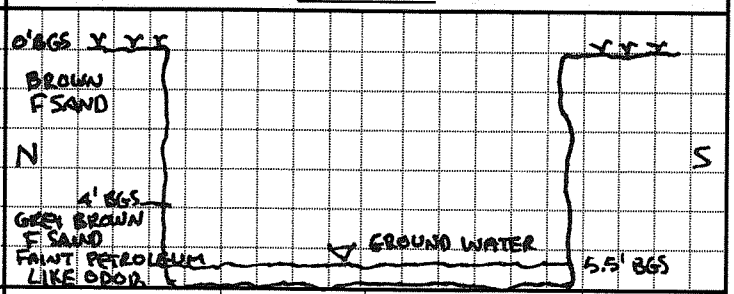
Client:	National Grid	**Date:**	7/29/2013
Project:	Coffee Street	**Weather:**	Sun and Clouds
Location:	Malone, NY	**Temperature:**	80 F
Project #:	B0036706.0000.00012	**Wind:**	SW to NE
Geologist:	Marcus Eriksson	**Subcontractor:**	Op Tech
Coordinates:		**Equipment:**	Excavator

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	3' wide x 11' long	**Total Depth:**	6' bgs.	**Depth to Water:**	5.5' bgs

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0.0 – 4.0	0.0	Brown fine SAND, little fine to coarse subangular to subrounded Gravel, Glass, Metal, Asphalt (shingles), Organics (roots, wood) (M,NP).	NA
4.0 – 6.0	0.0	Grey/brown fine SAND, little to some Silt, Organics (roots) (M,NP). *faint Petroleum-like odor, trace Grey/dark staining.	NA

Notes:

NA = Not Available/Applicable; bgs = below ground surface; M = moist; S = saturated; NP = non-plastic.

Photograph Summary:

ARCADIS

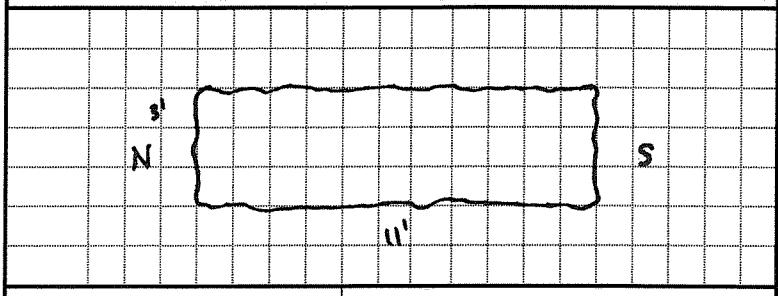
Test Pit Log

Test Pit ID: CTP-11

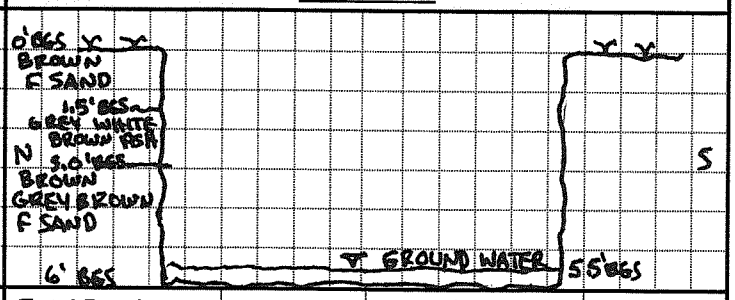
Client:	National Grid	**Date:**	7/29/2013
Project:	Coffee Street	**Weather:**	Sun and Clouds
Location:	Malone, NY	**Temperature:**	80 F
Project #:	B0036706.0000.00012	**Wind:**	SW to NE
Geologist:	Marcus Eriksson	**Subcontractor:**	Op Tech
Coordinates:		**Equipment:**	Excavator

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	3' wide x 11' long	**Total Depth:** 6' bgs.	**Depth to Water:** 5.5' bgs

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0.0 – 1.5	0.0	Brown fine SAND, little fine to coarse subangular Gravel, Organics, black Matting (silt fence), Glass (M,NP).	NA
1.5 – 3.0	0.0	Grey/white/brown ASH, little fine Sand (M,NP).	NA
3.0 – 6.0	0.0	Brown/grey fine SAND, little fine to coarse subrounded Gravel, little Organics (roots).	NA

Notes:

NA = Not Available/Applicable; bgs = below ground surface; M = moist; S = saturated; NP = non-plastic.

Photograph Summary:

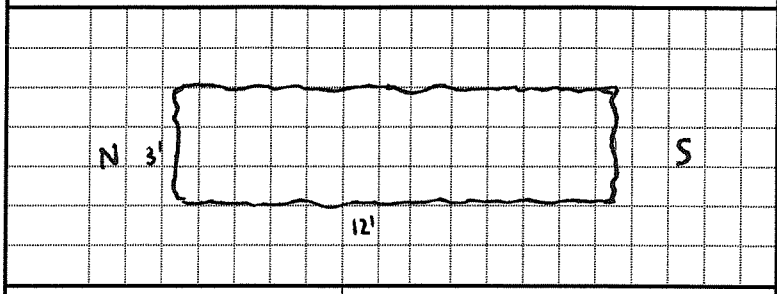
Test Pit Log

Test Pit ID: CTP-12

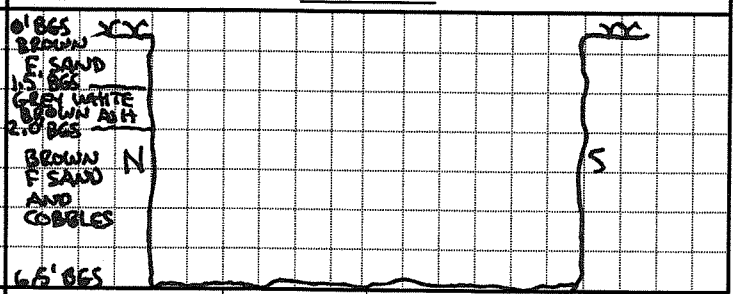
Client:	National Grid	**Date:**	7/29/2013
Project:	Coffee Street	**Weather:**	Sun and Clouds
Location:	Malone, NY	**Temperature:**	80 F
Project #:	B0036706.0000.00012	**Wind:**	SW to NE
Geologist:	Marcus Eriksson	**Subcontractor:**	Op Tech
Coordinates:		**Equipment:**	Excavator

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	**3' wide x 12' long**	**Total Depth:**	**6.5' bgs.**	**Depth to Water:**	**NA**

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0.0 – 1.5	0.0	Brown fine SAND, little fine to coarse subangular Gravel, Organics (roots), Glass (bottles), Metal, Silt (M,NP).	NA
1.5 – 2.0	0.0	Grey/white/brown ASH, little fine Sand (M,NP).	NA
2.0 – 6.5	0.0	Brown fine SAND and COBBLES, little Silt (M,NP).	NA

Notes:

NA = Not Available/Applicable; bgs = below ground surface; M = moist; S = saturated; NP = non-plastic.

Photograph Summary:

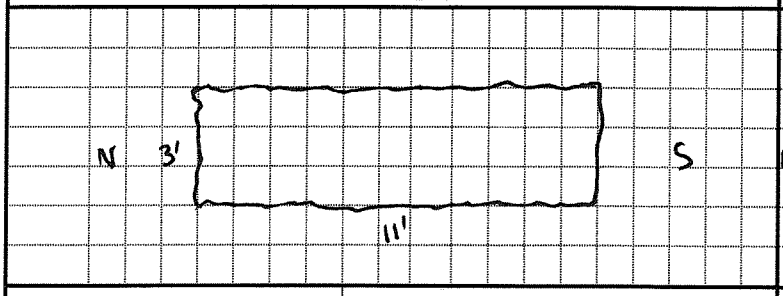
Test Pit Log

Test Pit ID: CTP-13

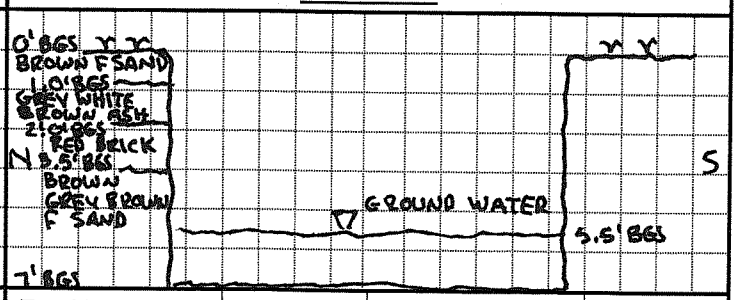
Client:	National Grid	**Date:**	7/29/2013
Project:	Coffee Street	**Weather:**	Sun and Clouds
Location:	Malone, NY	**Temperature:**	80 F
Project #:	B0036706.0000.00012	**Wind:**	SW to NE
Geologist:	Marcus Eriksson	**Subcontractor:**	Op Tech
Coordinates:		**Equipment:**	Excavator

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	**3' wide x 11' long**	**Total Depth:**	**7' bgs.**
Depth to Water:	**5.5' bgs.**		

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0.0 – 1.0	0.0	Brown fine SAND, little fine to coarse subangular Gravel, Organics (roots) (M,NP).	NA
1.0 – 2.0	0.0	Grey/white/brown ASH, little fine Sand (M,NP).	NA
2.0 – 3.5	0.0	Red BRICK, little fine Sand (M,NP).	NA
3.5 – 7.0	0.0	Brown/grey fine SAND, little to some fine to coarse subrounded Gravel, little Silt, Organics (roots) (M,NP).	NA

Notes:

NA = Not Available/Applicable; bgs = below ground surface; M = moist; S = saturated; NP = non-plastic.

Photograph Summary:

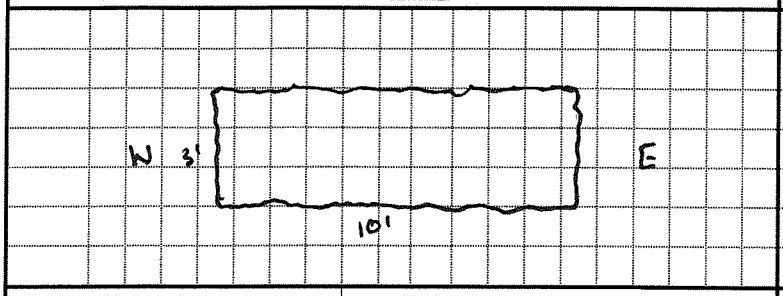
Test Pit Log

Test Pit ID: CTP-14

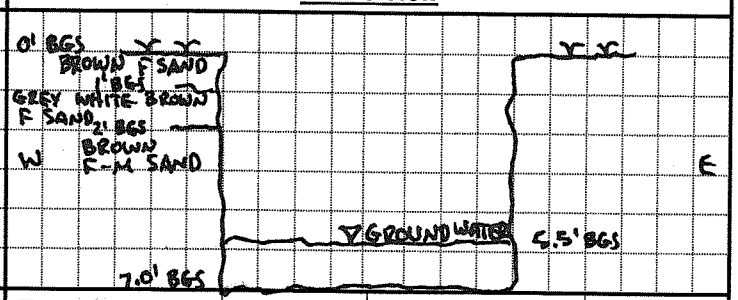
Client:	National Grid	**Date:**	7/29/2013
Project:	Coffee Street	**Weather:**	Sun and Clouds
Location:	Malone, NY	**Temperature:**	80 F
Project #:	B0036706.0000.00012	**Wind:**	SW to NE
Geologist:	Marcus Eriksson	**Subcontractor:**	Op Tech
Coordinates:		**Equipment:**	Excavator

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	**3' wide x 10' long**	**Total Depth:**	7' bgs.
Depth to Water:	**5.5' bgs.**		

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0.0 – 1.0	0.0	Brown fine SAND, little fine to coarse subangular Gravel, Organics (roots), Glass (M,NP).	NA
1.0 – 2.0	0.0	Grey/white/brown ASH, little fine Sand (M,NP).	NA
2.0 – 7.0	0.0	Brown fine to medium SAND, little fine to coarse subrounded Gravel, Cobbles, little Silt, red Brick (M,NP).	NA

Notes:

NA = Not Available/Applicable; bgs = below ground surface; M = moist; S = saturated; NP = non-plastic.

Photograph Summary:

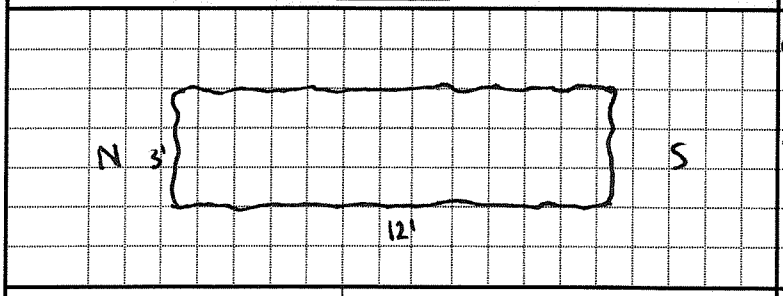
Test Pit Log

Test Pit ID: CTP-15

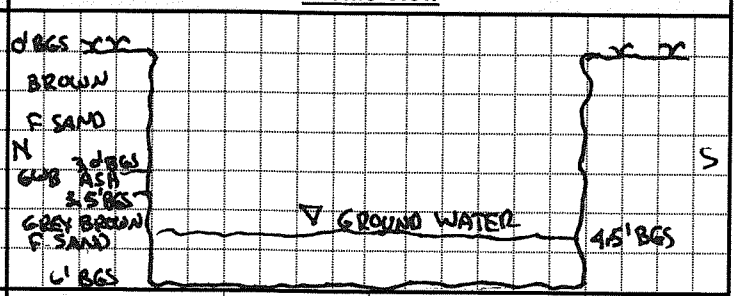
Client:	National Grid	**Date:**	7/29/2013
Project:	Coffee Street	**Weather:**	Sun and Clouds
Location:	Malone, NY	**Temperature:**	80 F
Project #:	B0036706.0000.00012	**Wind:**	SW to NE
Geologist:	Marcus Eriksson	**Subcontractor:**	Op Tech
Coordinates:		**Equipment:**	Excavator

Sketch of Test Pit Layout:

Plan View



Profile View



Test Pit Dimensions:	3' wide x 12' long	**Total Depth:**	6' bgs.	**Depth to Water:**	4.5' bgs.

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0.0 – 3.0	0.0	Brown fine SAND, little fine to coarse subangular Gravel, Organics (roots), Metal, red Brick (M,NP).	NA
3.0 – 3.5	0.0	Grey/white/brown ASH, little fine Sand (M,NP).	NA
3.5 – 6.0	0.0	Grey/brown fine SAND, little Silt, Organics (roots, peat) (M,NP).	NA

Notes:

NA = Not Available/Applicable; bgs = below ground surface; M = moist; S = saturated; NP = non-plastic.

Photograph Summary:

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