nationalgrid

William R. Jones
Lead Senior Environmental Engineer
Environmental Department

February 12, 2008

Ms. Maria Jon
U.S. EPA, Region II
Emergency and Remedial Response Division, NYRB
20th Floor
290 Broadway
New York, New York 10007-1866

Re: Final Supplemental Site Investigation Letter Work Plan
Former Spa Steel Products Property
Saratoga Springs Former MGP Site, Saratoga Springs, New York

Dear Ms. Jon:

This letter presents the Supplemental Site Investigation (SSI) Work Plan for additional investigations in connection with the Former Spa Steel Products Property, Saratoga Springs, New York. This Work Plan has been prepared by ARCADIS on behalf of National Grid in response to discussions held between National Grid and the United States Environmental Protection Agency (USEPA) and New York State Department of Environmental Conservation (NYSDEC) at a project meeting in New York City on August 29, 2007. At that meeting, National Grid agreed to provide a Work Plan to further define the nature and extent of manufactured gas plant (MGP) residuals west-southwest of National Grid's Saratoga Springs Former MGP Site located on Excelsior Avenue and south-southeast of the former Spa Steel Products Property which is directly adjacent to the Saratoga Springs Former MGP Site. A draft version of this Work Plan was submitted to USEPA and NYSDEC for review on September 20, 2007. The USEPA and NYSDEC provided comments on the draft Work Plan in letters dated November 7, 2007 and October 16, 2007, respectively. National Grid provided responses to the USEPA's and NYSDEC's comments in a letter dated December 21, 2007. The USEPA concurred with National Grid's responses as documented in a January 24, 2008 e-mail.

A summary of previously observed impacts is provided below, followed by the scope of work that the USEPA agreed to as documented in their January 24, 2008 e-mail.

Previously Observed Impacts and Possible Explanation for Distribution

Previous investigations conducted by National Grid and the USEPA have identified MGP-residuals (i.e., coal tar) west and southwest from the Saratoga Springs Former MGP Site (National Grid's property), on property formerly owned by Spa Steel Products and the City of Saratoga Springs. A series of figures have been developed to aid in understanding the extent of MGP-related impacts in soil and groundwater on the property to the west and southwest of the former MGP site. Figure 1 shows the following information:

- Locations where potential MGP-related dense non-aqueous phase liquid (DNAPL) has been observed in soil samples recovered during the previous investigations

- Locations where collected groundwater samples contained dissolved-phase constituents at concentrations above the NYSDEC Class GA Standards published in the NYSDEC Technical Operational and Guidance Series (1.1.1) Memorandum (June 1998)

- Water table contours for water levels measured on July 27 and 28, 2006

- Lines of cross-section for the cross-section profiles shown on Figures 2 and 3

In addition to the cross-sections depicted on Figures 1 through 3, a clay surface contour map was prepared, as shown on Figure 4.

As shown on Figures 1 through 3, coal tar has been observed at depths ranging from 15 to 24 feet below grade. As is the case with most MGP sites, coal tar is the likely chief contributor of MGP-related constituents detected in the soil and groundwater south and southeast of the former MGP site. The depth of observed coal tar corresponds well to the depth of the underlying clay unit. The clay appears to be a good capillary barrier to further downward migration of coal tar because coal tar has not been observed below the clay surface in any of the numerous soil borings completed to date. Based on previously completed borings at the Saratoga Springs Former MGP Site and former Spa Steel Products Property, the underlying clay confining unit is greater than 50 feet in thickness. Based on review of Figures 1 through 4, there are two likely mechanisms controlling the movement of coal tar in the subsurface: 1) the topographic expression of the clay surface; and 2) hydraulic gradients.

Coal tar DNAPL has moved downward from source areas (likely originating from the Saratoga Springs Former MGP Site), due to gravitational forces, through the unsaturated zone (primarily fill) and reached the water table at several locations. At some locations, the DNAPL head was sufficient to allow it to penetrate the water table. Beneath the water table, a force in addition to gravity is exerted on the DNAPL body, specifically the hydraulic gradient. Upon reaching the clay unit, the DNAPL has spread laterally following the contours of the clay surface and the hydraulic gradient. The ultimate path that the DNAPL takes depends on the degree of clay surface sloping and the magnitude of the hydraulic gradient. The hydraulic gradient on the former Spa Steel Products Property and City of Saratoga Springs (City) property is in the southeast direction, but coal tar appears to have migrated in the southwest direction from the former MGP site (i.e., across the hydraulic gradient). As such, it appears the clay surface is the primary controlling mechanism for the DNAPL to the west and southwest of the former MGP site. This is further supported by the clay surface contours shown on Figure 4. As shown on Figure 4, a depression in the clay surface is located on the former Spa Steel Property immediately west of the former MGP site. The clay surface is also slightly depressed in the area of MW-EPA-05 and MW-EPA-08. DNAPL has been observed in both of these areas. The path that the DNAPL took to reach these areas is likely function of the undulations in the clay surface. The proposed scope of work described below will initially focus on the areas where DNAPL has been observed, then expand outward from these areas in the direction of observed DNAPL.

Proposed SSI Work

Concurrent with previously performed investigations, a developer has prepared plans for the development of the Former Spa Steel Products Property (including the area north of Excelsior Avenue which contains subsurface MGP-impacted materials). As part of this process, National Grid and the property owner met with the USEPA resulting in the development and subsequent USEPA approval of remedial actions to be completed at the Former Spa Steel Products Property. As a result of the near-term implementation of this remedy, which will mitigate the source contributing to the downgradient MGP-related impacts, no further investigative efforts are necessary north of Excelsior Avenue. However, based upon the results of subsurface investigations performed during the summer of 2006, additional investigation activities are necessary to complete the delineation of subsurface MGP-related impacts south/southeast of the Former Spa Steel Products Property and Excelsior Avenue. These supplemental investigation activities are detailed further in the following sections of this SSI Work Plan.

The proposed SSI scope of work is designed to be flexible to allow for changes in scope as the fieldwork proceeds. The scope of work proposed herein will be implemented in phases, with the scope of the subsequent phases being determined by the results of the preceding phases. All proposed field work will be completed in accordance with the procedures and quality assurance measures detailed in the USEPA- and NYSDEC-approved Spa Steel Products Property Investigation Work Plan (Blasland, Bouck & Lee, Inc., June 2004) and supporting appendices. Laboratory data packages will be reported as Category B deliverables in accordance with most recent version of NYSDEC's Analytical Services Protocol (ASP).

The objectives of the proposed SSI work are to:

- Define the nature and extent of MGP-related constituents in soil and groundwater southwest of the Saratoga Springs Former MGP Site

- Delineate the extent of coal tar DNAPL on the City's property (proximate to Old Red Spring) to the southwest of the former MGP

The scope of the proposed SSI work consists of four main components:

1) Drilling soil borings and sampling soil
2) Installing monitoring wells
3) Sampling groundwater
4) Measuring fluid levels

The scope and rationale for each investigation component is described below. Figure 5 shows the locations of the proposed sampling points.

Soil Borings

The first phase of field investigation will be to drill soil borings and collect soil samples for laboratory analysis. A grid of soil borings will be drilled proximate to existing monitoring wells MW-EPA-05 and MW-EPA-08. The purpose of these soil borings will be to define the extent of DNAPL in this area. Twelve initial soil borings (NG-14 through NG-24 and monitoring well MW-SS-08-08), Figure 5) are proposed to be drilled first, followed by up to 20 additional soil borings. The locations of the 12 initial borings will compliment the boring pattern of borings previously installed by the USEPA. Once completed, the enhanced pattern will provide a grid of sample locations on an approximate 30 to 40 foot spacing within the investigation area of concern. Up to 20 additional soil borings will be drilled based on the observations made while drilling the initial 12 soil borings. The observations will consist of visual indications of sheen, NAPL, and/or staining, detection of odors, and readings obtained using a photoionization detector (PID) to screen soils for volatile organic compounds (VOCs). The 20 additional soil borings are intended to expand the investigation area outward if information and observations obtained from the initial 12 borings indicate MGP impacts extend further than anticipated.

Two additional soil borings (NG-25 and NG-26) are proposed to be drilled adjacent to soil borings SS-06-05 and SS-06-17 to the east-northeast of MW-EPA-05 and MW-EPA-08. Review of the subsurface logs for these borings indicates that these borings were not likely drilled deep enough to encounter the clay confining unit. SS-06-05 was drilled to 12 feet below grade and SS-06-17 was drilled to 8 feet below grade. These borings encountered a clay-rich unit at a much higher elevation than expected in this area, and then were terminated in this unit. The subsurface log for SS-06-06 indicates that a clay-rich lens of material does exist above the clay confining unit, but is separated by a thin layer (approximately 1 to 2-

feet thick) of medium to coarse sand. This is further demonstrated on cross-section B-B' (Figure 3). The DNAPL observed on the Former Spa Steel Property and City property appears to be located within this thin layer of sand immediately above the clay confining unit. If necessary, additional borings and/or monitoring wells will be added in this area if MGP-related residuals are encountered.

Soil borings previously drilled on the Former Spa Steel Property and City property were successfully advanced using direct-push techniques. As such, soil borings drilled during the SSI will be advanced using the same methods. All soil borings will be advanced a minimum of 2-feet into the clay confining unit and soil samples will be collected continuously at each boring location for characterization. Each sample will be observed for geologic conditions and evidence of potential MGP-related residuals (as described above). Soil samples collected for laboratory analysis will be selected at approximate 5-foot intervals at each boring location. Analytical soil samples will be collected starting at the 2 to 4 feet bgs interval and every subsequent approximate 5-foot interval thereafter. The last analytical sample collected at each location will be collected from the interval immediately above the clay confining unit. For example, if the clay confining unit is encountered at approximately 20 feet bgs at a given location, analytical samples will be collected from 2 to 4 feet, 6 to 8 feet, 12 to 14 feet, and 18 to 20 feet bgs. If apparent MGP-related impacts (i.e., sheen, staining, and/or elevated PID readings) are observed at an interval in a given soil boring, a sample will be collected from that interval and the approximate 5-foot sample interval will resume from the impacted interval. It should be noted that, as discussed in the USEPA's November 7, 2007 comments, soil samples exhibiting NAPL will not be collected for laboratory analysis since the presence of contamination is obvious. Soil samples selected for laboratory analysis will be analyzed for volatile organic compounds (VOCs) using USEPA Method 8260B and semi-volatile organic compounds (SVOCs) using USEPA Method 8270C.

Monitoring Wells

National Grid proposes to install at least four additional monitoring wells (Figure 5). Monitoring well MW-SS-08-05 is proposed to be installed to the east and side-gradient of MW-EPA-05 and MW-EPA-08. Monitoring wells MW-SS-08-06 and MW-SS-08-07 are proposed to be installed generally to the west of MW-EPA-05 and MW-EPA-08. Further, one soil boring location downgradient from MW-EPA-05 and MW-EPA-08 will be converted into a monitoring well (MW-SS-08-08). Data from these four new wells will be used to refine the groundwater flow direction and horizontal hydraulic gradients near the DNAPL area and to define the limits of dissolved-phase MGP-related constituents proximate to and to the east and southwest of MW-EPA-05 and MW-EPA-08.

National Grid plans to install additional monitoring wells (as necessary) based on the observations made while drilling the soil borings discussed above. The additional wells will be positioned in areas that are not currently covered by the existing monitoring well network. For example, if a finger of DNAPL is observed to have migrated outside of the coverage area of the existing monitoring well network, additional wells will be installed to define the limits of dissolved-phase constituents potentially associated with the DNAPL.

All monitoring wells will be constructed using 2-inch diameter, Schedule 40 polyvinyl chloride (PVC) material. Each well will be installed with a 10-foot, 0.020-inch slotted well screen, appropriate size sand filter material, and a 2-foot sump. The bottom of each well screen will be positioned coincident with the top of the clay unit. A typical monitoring well specification drawing is attached. Consistent with the soil sampling approach (detailed above), soil samples will be collected from each monitoring well location.

Monitoring wells will be developed a minimum of approximately 48 hours after wells have been installed. Well development will be conducted to remove fine-grained materials (sands, silts, clays) that may have

accumulated in the well and/or sandpack that were produced during drilling or naturally occurring in the formation.

Groundwater Sampling

One round of groundwater samples will be collected from the 1-inch diameter monitoring wells installed by the USEPA (MW-EPA-01 through MW-EPA-10) and the newly installed 2-inch diameter monitoring wells (at least four new wells). The well screen intervals for all of these wells correspond to the depth horizon that NAPL has been observed. As such, the ground water samples will be collected from the same depth at which NAPL has been observed. Groundwater samples will be collected to confirm previous sampling results and to define the extent of dissolved-phase MGP-related constituents associated with the DNAPL observed on the City's property. Consistent with previous groundwater sampling events, groundwater samples will be collected using low-flow groundwater sampling procedures. Groundwater samples will be analyzed for VOCs using USEPA Method 8260B, SVOCs using USEPA Method 8270C, and polycyclic aromatic hydrocarbons (PAHs) by Method 8310.

Fluid Levels

Two complete, synoptic rounds of water levels will be measured at all existing and new monitoring wells previously installed in connection with the investigations conducted at the Former Spa Steel Products Property. Water levels will be measured approximately 1 month apart. Water-level measurements will be used to evaluate groundwater flow direction and/or gradient to the west-southwest of the former MGP site.

DNAPL and/or LNAPL (if encountered) thicknesses will also be measured inside wells that have accumulated NAPL. If NAPL is observed to have accumulated in a well, it will be removed using a peristaltic pump or bailer, and the volume of removed NAPL will be recorded.

Survey

A surveyor licensed in New York State will complete a detailed survey of all investigation locations, including position, surface elevation, and, in the case of monitoring wells, measuring-point elevations. The elevations will be in reference to the North American Vertical Datum (NAVD) 88. Surface coordinates will be in reference to the North American Datum (NAD) 83 State Plane – Eastern Zone.

Soil Vapor Sampling

National Grid is preparing a soil vapor investigation work plan for submittal under separate cover.

Schedule and Reporting

National Grid is prepared to implement this SSI Work Plan within a few weeks following USEPA and NYSDEC approval. SSI fieldwork will not commence until National Grid has secured necessary access agreements required for the work.

As indicated above, the fieldwork will be completed in phases with subsequent phases dependent on the results of the initial phase. National Grid plans to complete all drilling-related fieldwork in one mobilization (i.e., soil borings and wells). As such, the scope of subsequent phases of drilling work will need to be determined in the field. Therefore, National Grid requests that the USEPA and/or NYSDEC provide a means of communication during the drilling program so that the scope of work of subsequent

drilling phases can be readily agreed upon. Groundwater sampling and the first fluid-level measurement round will be conducted approximately 1 week after the drilling portion (including well development) of the fieldwork is completed. The second fluid-level measurement round will be conducted approximately 1 month after the first round.

Sampling analytical results are expected to be available approximately four weeks after the samples are submitted to the laboratory. A Data Usability Summary Report (DUSR) and summary letter report will be prepared following receipt of the laboratory analytical results. The letter report will include:

- Summary of work performed and analytical results obtained for the soil and groundwater samples
- Preliminary forensic evaluation of the analytical results
- Recommendations for additional work, if any
- Data tables presenting laboratory analytical results
- Figures showing the sampling locations, updated groundwater elevation contours, updated clay surface contours, and the extent of MGP-related constituents in soil and groundwater
- Copy of the DUSR

The summary letter report will be submitted to the USEPA and NYSDEC approximately 1 month after receipt of the final Category B data package.

Closing

Please feel free to contact me by phone at (315) 428-5690 or by e-mail at william.r.jones@us.ngrid.com if you have any questions or require further clarification on the proposed scope of work detailed in this proposed SSI Work Plan.

Sincerely,

William R. Jones
Lead Senior Environmental Engineer

SAP/plf
Attachment

cc: David Crosby, NYSDEC
Beth Guidetti, NYSDOH
Gerald Cummins, ARCADIS
Scott Powlin, ARCADIS

Environmental Department, 300 Erie Boulevard West, Syracuse, New York 13202
T: (315) 428-5690 ■ F: (315) 460-9624 ■ william.r.jones@us.ngrid.com ■ www.nationalgrid.com

Date Start/Finish: NA **Drilling Company:** XYZ Drilling **Driller's Name:** Driller **Drilling Method:** NA **Sampler Size:** NA **Auger Size:** NA **Rig Type:** NA	**Northing:** NA **Easting:** NA **Casing Elevation:** NA **Surface Elevation:** NA **Borehole Depth:** 25.0' bgs **Geologist:** Geologist	**Well ID:** **Generic Well Detail** **Client:** National Grid **Location:** Spa Steel Site Saratoga Springs, New York

Depth (ft. bgs) / Elevation (ft. AMSL)	Sample Run Number	Sample/Int/Type	Blows per 6 Inches	N - Value / RQD (%)	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Bedrock Fractures	Stratigraphic Description	Well Construction
0 / 0										Flush-mount concrete surface pad with locking j-plug. Sand Drain (0.5' - 1.0' bgs) Cement-Bentonite Grout (0.5' - 7.5' bgs) 2" Sch. 40 PVC Riser (0.3' - 13.0' bgs) Bentonite Seal (7.5' - 10.5' bgs) 2" Sch. 40 0.020" Slot PVC Screen (13.0' - 23.0' bgs) #1 Silica Sand Pack (10.5' - 23.0' bgs)
5 / -5										
10 / -10										
15 / -15										

ARCADIS BBL
Infrastructure, environment, facilities

Remarks:
bgs = below ground surface; NA = Not Applicable/Available.

Water Level Data

Date	Depth	Elev.

Depth measured from top of casing.

Client:
National Grid

Site Location:
Spa Steel Site
Saratoga Springs, New York

Well ID: Generic Well Detail

Borehole Depth: 25.0' bgs

Depth (ft. bgs) / Elevation (ft. AMSL)	Sample Run Number	Sample/Int/Type	Blows per 6 Inches	N - Value / RQD (%)	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Bedrock Fractures	Stratigraphic Description	Well Construction
20										2" Sch. 40 0.020" Slot PVC Screen (13.0' - 23.0' bgs); #1 Silica Sand Pack (10.5' - 23.0' bgs); 2" Sch. 40 PVC Sump (23.0' - 25.0' bgs); Cement-Bentonite Grout (23.0' - 25.0' bgs)
25										
30										
35										

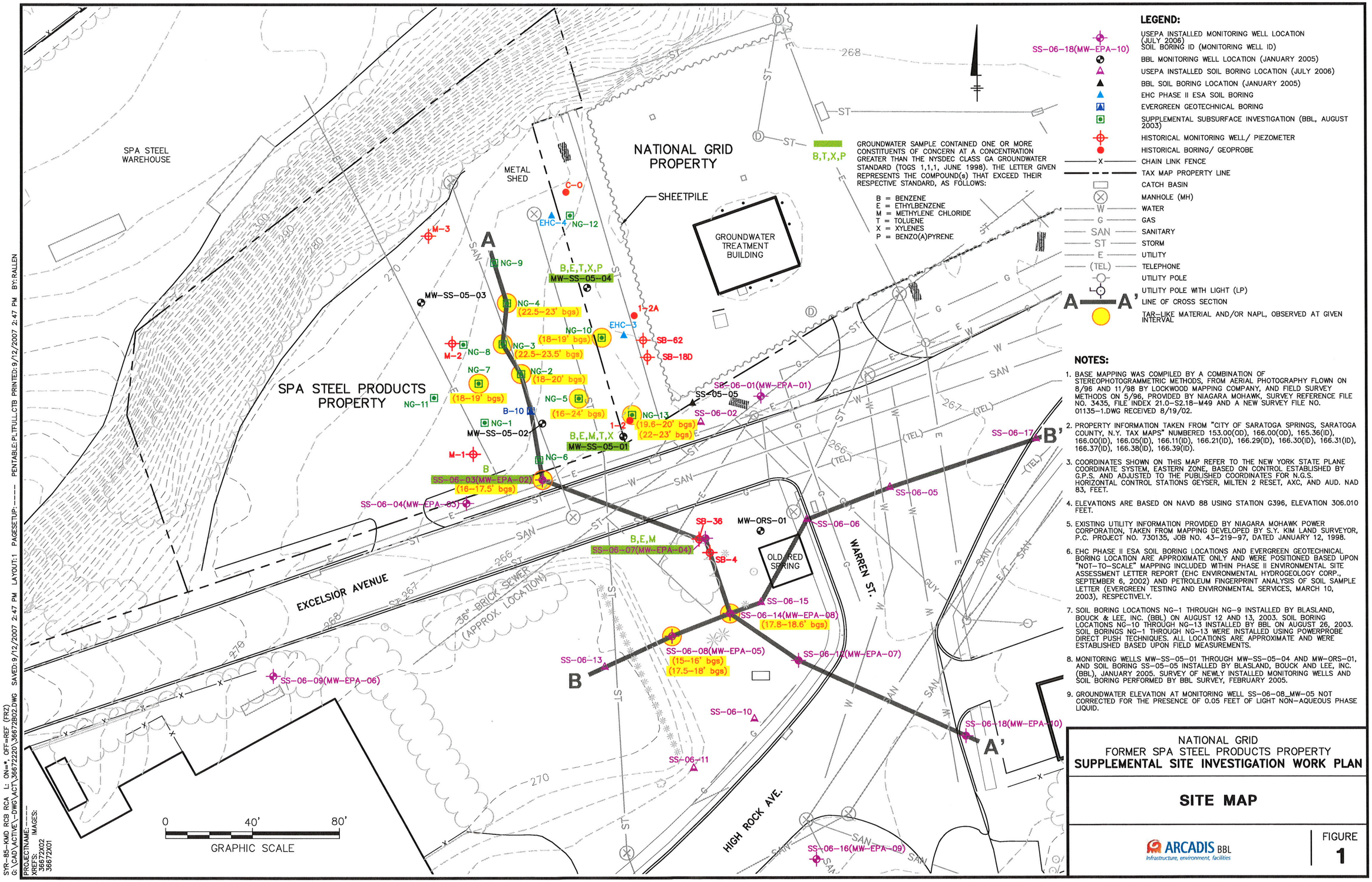
ARCADIS BBL
Infrastructure, environment, facilities

Remarks:
bgs = below ground surface; NA = Not Applicable/Available.

Water Level Data

Date	Depth	Elev.

Depth measured from top of casing.



GROUNDWATER SAMPLE CONTAINED ONE OR MORE CONSTITUENTS OF CONCERN AT A CONCENTRATION GREATER THAN THE NYSDEC CLASS GA GROUNDWATER STANDARD (TOGS 1,1,1, JUNE 1998). THE LETTER GIVEN REPRESENTS THE COMPOUND(s) THAT EXCEED THEIR RESPECTIVE STANDARD, AS FOLLOWS:

B = BENZENE
E = ETHYLBENZENE
M = METHYLENE CHLORIDE
T = TOLUENE
X = XYLENES
P = BENZO(A)PYRENE

LEGEND:

- USEPA INSTALLED MONITORING WELL LOCATION (JULY 2006)
- SOIL BORING ID (MONITORING WELL ID)
- BBL MONITORING WELL LOCATION (JANUARY 2005)
- USEPA INSTALLED SOIL BORING LOCATION (JULY 2006)
- BBL SOIL BORING LOCATION (JANUARY 2005)
- EHC PHASE II ESA SOIL BORING
- EVERGREEN GEOTECHNICAL BORING
- SUPPLEMENTAL SUBSURFACE INVESTIGATION (BBL, AUGUST 2003)
- HISTORICAL MONITORING WELL/ PIEZOMETER
- HISTORICAL BORING/ GEOPROBE
- CHAIN LINK FENCE
- TAX MAP PROPERTY LINE
- CATCH BASIN
- MANHOLE (MH)
- WATER
- GAS
- SANITARY
- STORM
- UTILITY
- TELEPHONE
- UTILITY POLE
- UTILITY POLE WITH LIGHT (LP)
- LINE OF CROSS SECTION
- TAR-LIKE MATERIAL AND/OR NAPL, OBSERVED AT GIVEN INTERVAL

NOTES:

1. BASE MAPPING WAS COMPILED BY A COMBINATION OF STEREOPHOTOGRAMMETRIC METHODS, FROM AERIAL PHOTOGRAPHY FLOWN ON 8/96 AND 11/98 BY LOCKWOOD MAPPING COMPANY, AND FIELD SURVEY METHODS ON 5/96, PROVIDED BY NIAGARA MOHAWK, SURVEY REFERENCE FILE NO. 3435, FILE INDEX 21.0-S2.18-M49 AND A NEW SURVEY FILE NO. 01135-1.DWG RECEIVED 8/19/02.
2. PROPERTY INFORMATION TAKEN FROM "CITY OF SARATOGA SPRINGS, SARATOGA COUNTY, N.Y. TAX MAPS" NUMBERED 153.00(OD), 166.00(OD), 165.36(ID), 166.00(ID), 166.05(ID), 166.11(ID), 166.21(ID), 166.29(ID), 166.30(ID), 166.31(ID), 166.37(ID), 166.38(ID), 166.39(ID).
3. COORDINATES SHOWN ON THIS MAP REFER TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, EASTERN ZONE, BASED ON CONTROL ESTABLISHED BY G.P.S. AND ADJUSTED TO THE PUBLISHED COORDINATES FOR N.G.S. HORIZONTAL CONTROL STATIONS GEYSER, MILTEN 2 RESET, AXC, AND AUD. NAD 83, FEET.
4. ELEVATIONS ARE BASED ON NAVD 88 USING STATION G396, ELEVATION 306.010 FEET.
5. EXISTING UTILITY INFORMATION PROVIDED BY NIAGARA MOHAWK POWER CORPORATION, TAKEN FROM MAPPING DEVELOPED BY S.Y. KIM LAND SURVEYOR, P.C. PROJECT NO. 730135, JOB NO. 43-219-97, DATED JANUARY 12, 1998.
6. EHC PHASE II ESA SOIL BORING LOCATIONS AND EVERGREEN GEOTECHNICAL BORING LOCATION ARE APPROXIMATE ONLY AND WERE POSITIONED BASED UPON "NOT-TO-SCALE" MAPPING INCLUDED WITHIN PHASE II ENVIRONMENTAL SITE ASSESSMENT LETTER REPORT (EHC ENVIRONMENTAL HYDROGEOLOGY CORP., SEPTEMBER 6, 2002) AND PETROLEUM FINGERPRINT ANALYSIS OF SOIL SAMPLE LETTER (EVERGREEN TESTING AND ENVIRONMENTAL SERVICES, MARCH 10, 2003), RESPECTIVELY.
7. SOIL BORING LOCATIONS NG-1 THROUGH NG-9 INSTALLED BY BLASLAND, BOUCK & LEE, INC. (BBL) ON AUGUST 12 AND 13, 2003. SOIL BORING LOCATIONS NG-10 THROUGH NG-13 INSTALLED BY BBL ON AUGUST 26, 2003. SOIL BORINGS NG-1 THROUGH NG-13 WERE INSTALLED USING POWERPROBE DIRECT PUSH TECHNIQUES. ALL LOCATIONS ARE APPROXIMATE AND WERE ESTABLISHED BASED UPON FIELD MEASUREMENTS.
8. MONITORING WELLS MW-SS-05-01 THROUGH MW-SS-05-04 AND MW-ORS-01, AND SOIL BORING SS-05-05 INSTALLED BY BLASLAND, BOUCK AND LEE, INC. (BBL), JANUARY 2005. SURVEY OF NEWLY INSTALLED MONITORING WELLS AND SOIL BORING PERFORMED BY BBL SURVEY, FEBRUARY 2005.
9. GROUNDWATER ELEVATION AT MONITORING WELL SS-06-08_MW-05 NOT CORRECTED FOR THE PRESENCE OF 0.05 FEET OF LIGHT NON-AQUEOUS PHASE LIQUID.

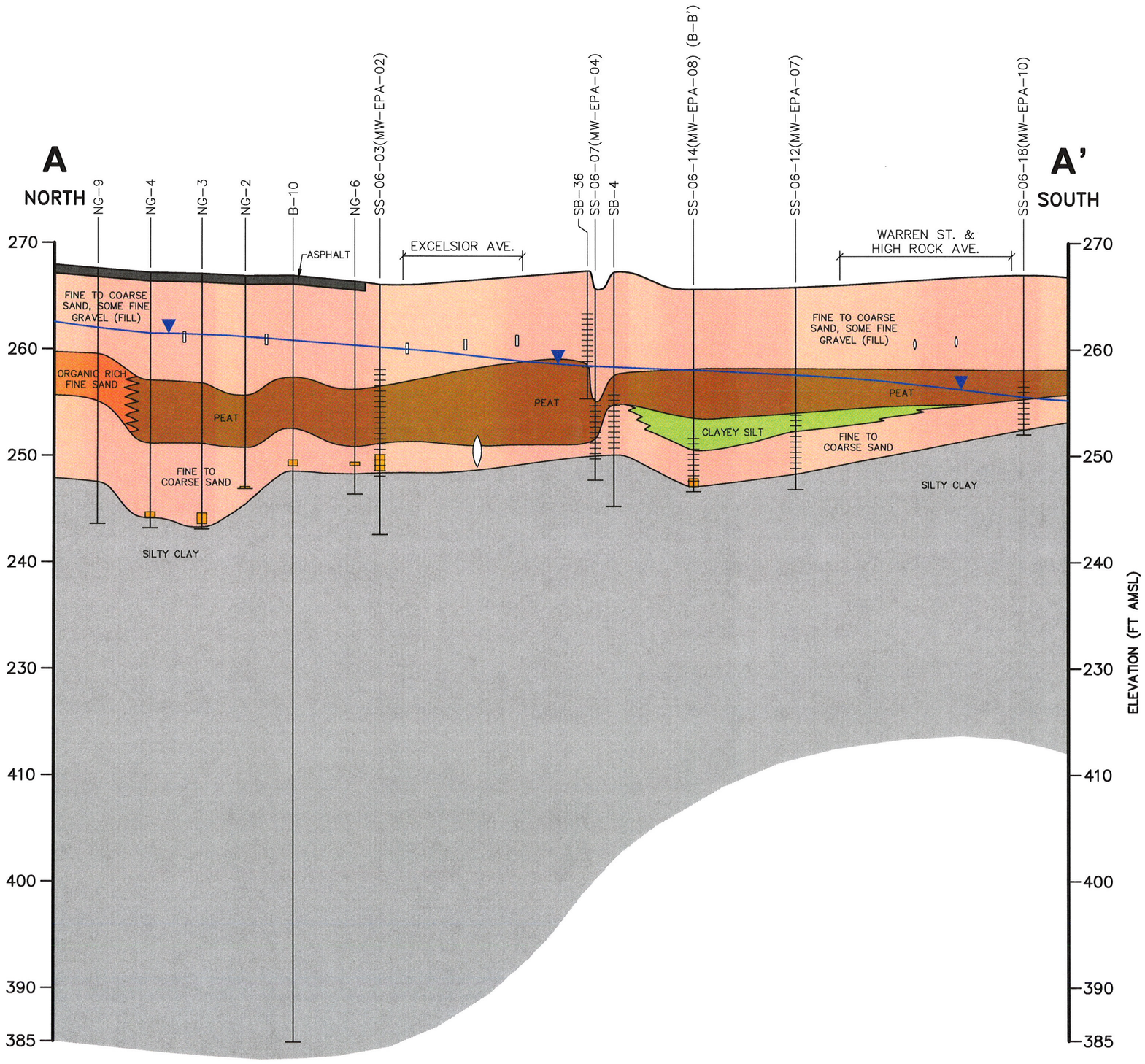
NATIONAL GRID
FORMER SPA STEEL PRODUCTS PROPERTY
SUPPLEMENTAL SITE INVESTIGATION WORK PLAN

SITE MAP

ARCADIS BBL
Infrastructure, environment, facilities

FIGURE 1

SYR-85-KMD RCB RCA L: ON=*, OFF=REF (FRZ)
G:\CAD\ACTIVE\-DWG\ACT\36672220\36672B02.DWG SAVED:9/12/2007 2:47 PM LAYOUT:1 PAGESETUP:----- PENTABLE:PLTFULL.CTB PRINTED:9/12/2007 2:47 PM BY:RALLEN
PROJECTNAME:-----
IMAGES:
XREFS:
36672X02
36672X01



LEGEND:

- WELL OR BORING ID (NG-9)
- GROUND SURFACE
- APPROXIMATE WATER TABLE
- LITHOLOGIC CONTACT (DASHED WHERE INFERRED)
- SCREEN
- BOTTOM OF BORING
- TAR-LIKE MATERIAL AND/OR NAPL
- STORM SEWER
- SANITARY SEWER
- ASPHALT
- FINE TO COARSE SAND, SOME FINE GRAVEL (FILL)
- ORGANIC RICH FINE SAND
- PEAT
- CLAYEY SILT
- SILTY CLAY

NOTE:

DEPTH OF UTILITIES WERE EXTRAPOLATED FROM SPRING VALLEY NORTH U.R. PROJECT, HIGH ROCK AVENUE FIGURE, STATION 29+35 TO STATION 34+50, SHEET 5 OF 13, BY NEWMAN AND DOLL, WALLINGFORD, CONNECTICUT, NOVEMBER 1975.

VERTICAL EXAGGERATION = 4X

0 10' 20'

VERTICAL SCALE

0 40' 80'

HORIZONTAL SCALE

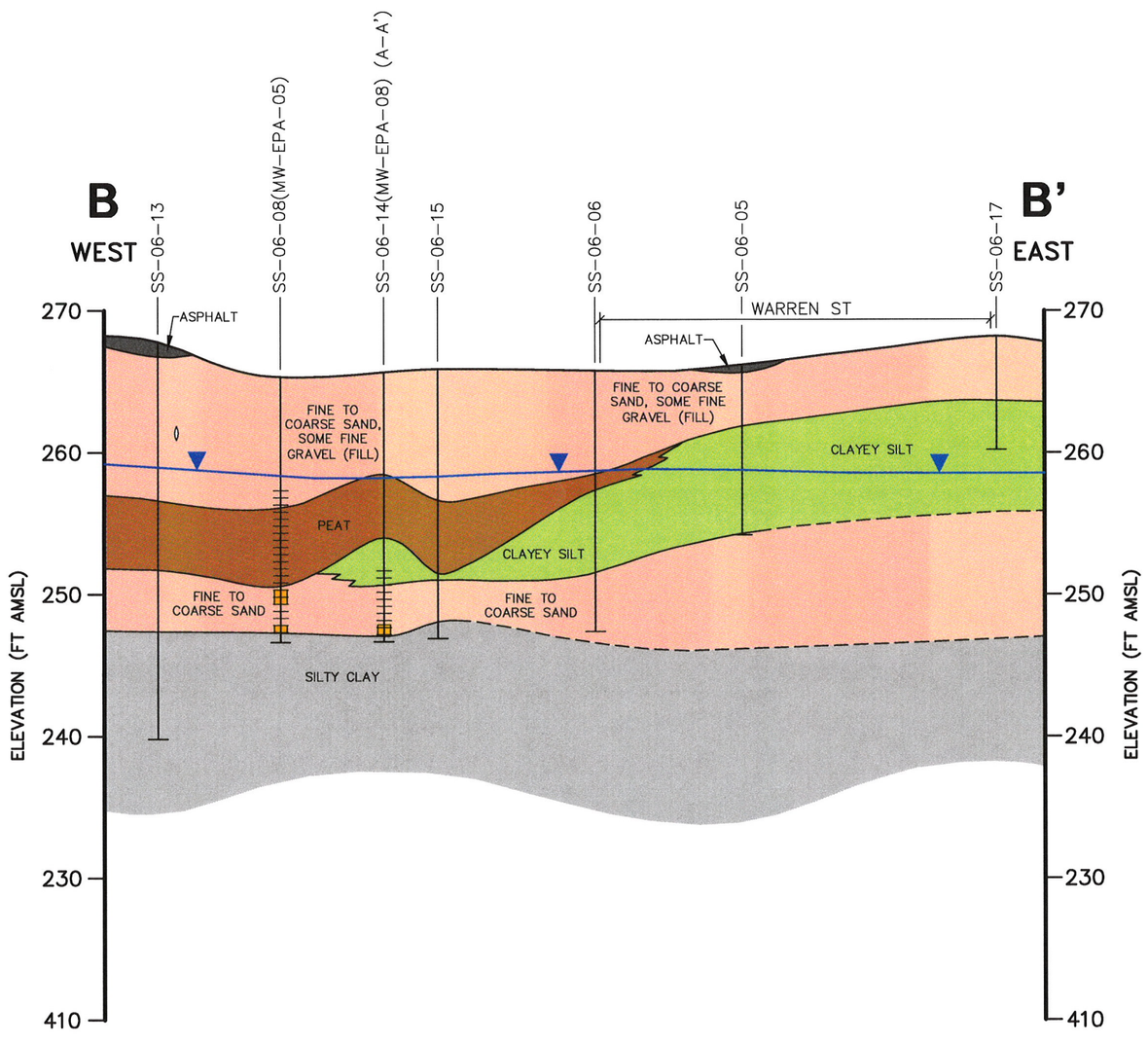
NATIONAL GRID
FORMER SPA STEEL PRODUCTS PROPERTY
SUPPLEMENTAL SITE INVESTIGATION WORK PLAN

CROSS SECTION A-A'

ARCADIS BBL
Infrastructure, environment, facilities

FIGURE
2

SYR-85-KMD RCB RCA L: ON=*; OFF=REF (FRZ)
G:\CAD\ACTIVE\-DWG\ACT\36672220\36672V01.DWG SAVED:9/13/2007 9:32 AM LAYOUT:2 PAGESETUP:----- PENTABLE:PLTFULL.CTB PRINTED:9/13/2007 9:32 AM BY:RALLEN
PROJECTNAME:----
XREFS:
36672X02
36672X01
IMAGES:



LEGEND:

- WELL OR BORING ID (SS-06-17)
- GROUND SURFACE
- APPROXIMATE WATER TABLE
- LITHOLOGIC CONTACT (DASHED WHERE INFERRED)
- SCREEN
- BOTTOM OF BORING
- TAR-LIKE MATERIAL AND/OR NAPL
- SANITARY SEWER
- ASPHALT
- FINE TO COARSE SAND, SOME FINE GRAVEL (FILL)
- PEAT
- CLAYEY SILT
- SILTY CLAY

NOTE:

DEPTH OF UTILITIES WERE EXTRAPOLATED FROM SPRING VALLEY NORTH U.R. PROJECT, HIGH ROCK AVENUE FIGURE, STATION 29+35 TO STATION 34+50, SHEET 5 OF 13, BY NEWMAN AND DOLL, WALLINGFORD, CONNECTICUT, NOVEMBER 1975.

VERTICAL EXAGGERATION = 4X

0 10' 20'

VERTICAL SCALE

0 40' 80'

HORIZONTAL SCALE

NATIONAL GRID
FORMER SPA STEEL PRODUCTS PROPERTY
SUPPLEMENTAL SITE INVESTIGATION WORK PLAN

CROSS SECTION B-B'

ARCADIS BBL
Infrastructure, environment, facilities

FIGURE
3

SYR--85--KMD RGB RCA LT: ON=* OFF=REF (FRZ)
G:\CAD\ACTIVE\--DWG\ACT\36672220\36672V02.DWG SAVED: 9/13/2007 9:43 AM LAYOUT: 3 PAGESETUP: ----- PENTABLE: PLTFULL.CTB PRINTED: 9/13/2007 9:44 AM BY: RALLEN
PROJECTNAME: -----
XREFS:
IMAGES:
36672X02
36672X01

SPA STEEL WAREHOUSE

METAL SHED

NIAGARA MOHAWK PROPERTY

SHEETPILE

GROUNDWATER TREATMENT BUILDING

SPA STEEL PRODUCTS PROPERTY

OLD RED SPRING

WARREN ST.

EXCELSIOR AVENUE

C-0

EHC-4

NG-12 246.5

M-3

247.6 NG-9

248.63 MW-SS-05-03

<243.2 NG-4

MW-SS-05-04 244.35

<243.1 NG-3

M-2

NG-8 247.7

<246.9 NG-2

1-2A

NG-10 247.2

EHC-3

SB-62

SB-18D

<250.6 SS-06-01(MW-EPA-01)

249.2 SS-05-05

SS-06-02 250.6

NG-7 247.2

NG-11 <247.7

B-10

247.0 NG-1

246.59 MW-SS-05-02

242.4 NG-5

245.7 NG-13

1-2B

MW-SS-05-01 243.82

M-1

247.9 NG-6

SS-06-03(MW-EPA-02) 246.11

SS-06-04(MW-EPA-03) 246.71

SS-06-07(MW-EPA-04) 250.25

MW-ORS-01 250.11

249.8 SS-06-06

<255.41 SB-36

250.28 SB-4

248.1 SS-06-15

SS-06-14(MW-EPA-08) 247.18

SS-06-08(MW-EPA-05) 247.83

247.3 SS-06-13

SS-06-12(MW-EPA-07) 248.37

248.0 SS-06-10

248.3 SS-06-11

252.68 SS-06-09(MW-EPA-06)

<260.2 SS-06-17

<254.2 SS-06-05

252.52 SS-06-18(MW-EPA-10)

249.84 SS-06-16(MW-EPA-09)

268 270 280 290 300 266 267 247 248 249 250 251 252

0 40' 80'

GRAPHIC SCALE

LEGEND:

- USEPA INSTALLED MONITORING WELL LOCATION (JULY 2006)
- -18(MW-EPA-10) SOIL BORING ID (MONITORING WELL ID)
- BBL MONITORING WELL LOCATION (JANUARY 2005)
- USEPA INSTALLED SOIL BORING LOCATION (JULY 2006)
- BBL SOIL BORING LOCATION (JANUARY 2005)
- EHC PHASE II ESA SOIL BORING
- EVERGREEN GEOTECHNICAL BORING
- SUPPLEMENTAL SUBSURFACE INVESTIGATION (BBL, AUGUST 2003)
- HISTORICAL MONITORING WELL/ PIEZOMETER
- HISTORICAL BORING/ GEOPROBE
- CHAIN LINK FENCE
- TAX MAP PROPERTY LINE
- 249.8 TOP OF CLAY ELEVATION
- 250 TOP OF CLAY ELEVATION CONTOUR

NOTES:

1. BASE MAPPING WAS COMPILED BY A COMBINATION OF STEREOPHOTOGRAMMETRIC METHODS, FROM AERIAL PHOTOGRAPHY FLOWN ON 8/96 AND 11/98 BY LOCKWOOD MAPPING COMPANY, AND FIELD SURVEY METHODS ON 5/96, PROVIDED BY NIAGARA MOHAWK, SURVEY REFERENCE FILE NO. 3435, FILE INDEX 21.0-S2.18-M49 AND A NEW SURVEY FILE NO. 01135-1.DWG RECEIVED 8/19/02.
2. PROPERTY INFORMATION TAKEN FROM "CITY OF SARATOGA SPRINGS, SARATOGA COUNTY, N.Y. TAX MAPS" NUMBERED 153.00(OD), 166.00(OD), 165.36(ID), 166.00(ID), 166.05(ID), 166.11(ID), 166.21(ID), 166.29(ID), 166.30(ID), 166.31(ID), 166.37(ID), 166.38(ID), 166.39(ID).
3. COORDINATES SHOWN ON THIS MAP REFER TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, EASTERN ZONE, BASED ON CONTROL ESTABLISHED BY G.P.S. AND ADJUSTED TO THE PUBLISHED COORDINATES FOR N.G.S. HORIZONTAL CONTROL STATIONS GEYSER, MILTEN 2 RESET, AXC, AND AUD. NAD 83, FEET.
4. ELEVATIONS ARE BASED ON NAVD 88 USING STATION G396, ELEVATION 306.010 FEET.
5. EXISTING UTILITY INFORMATION PROVIDED BY NIAGARA MOHAWK POWER CORPORATION, TAKEN FROM MAPPING DEVELOPED BY S.Y. KIM LAND SURVEYOR, P.C. PROJECT NO. 730135, JOB NO. 43-219-97, DATED JANUARY 12, 1998.
6. EHC PHASE II ESA SOIL BORING LOCATIONS AND EVERGREEN GEOTECHNICAL BORING LOCATION ARE APPROXIMATE ONLY AND WERE POSITIONED BASED UPON "NOT-TO-SCALE" MAPPING INCLUDED WITHIN PHASE II ENVIRONMENTAL SITE ASSESSMENT LETTER REPORT (EHC ENVIRONMENTAL HYDROGEOLOGY CORP., SEPTEMBER 6, 2002) AND PETROLEUM FINGERPRINT ANALYSIS OF SOIL SAMPLE LETTER (EVERGREEN TESTING AND ENVIRONMENTAL SERVICES, MARCH 10, 2003), RESPECTIVELY.
7. SOIL BORING LOCATIONS NG-1 THROUGH NG-9 INSTALLED BY BLASLAND, BOUCK & LEE, INC. (BBL) ON AUGUST 12 AND 13, 2003. SOIL BORING LOCATIONS NG-10 THROUGH NG-13 INSTALLED BY BBL ON AUGUST 26, 2003. SOIL BORINGS NG-1 THROUGH NG-13 WERE INSTALLED USING POWERPROBE DIRECT PUSH TECHNIQUES. ALL LOCATIONS ARE APPROXIMATE AND WERE ESTABLISHED BASED UPON FIELD MEASUREMENTS.
8. MONITORING WELLS MW-SS-05-01 THROUGH MW-SS-05-04 AND MW-ORS-01, AND SOIL BORING SS-05-05 INSTALLED BY BLASLAND, BOUCK AND LEE, INC. (BBL), JANUARY 2005. SURVEY OF NEWLY INSTALLED MONITORING WELLS AND SOIL BORING PERFORMED BY BBL SURVEY, FEBRUARY 2005.
9. GROUNDWATER ELEVATION AT MONITORING WELL SS-06-08_MW-05 NOT CORRECTED FOR THE PRESENCE OF 0.05 FEET OF LIGHT NON-AQUEOUS PHASE LIQUID.
10. CLAY ELEVATIONS PREFIXED WITH THE < SYMBOL NOT USED FOR CONTOURING BECAUSE TERMINAL DEPTH OF THESE WELLS AND BORINGS WAS NOT DEEP ENOUGH TO INTERSECT TOP OF CLAY SURFACE.

NATIONAL GRID
FORMER SPA STEEL PRODUCTS PROPERTY
SUPPLEMENTAL SITE INVESTIGATION WORK PLAN

CLAY SURFACE CONTOURS

ARCADIS BBL
Infrastructure, environment, facilities

FIGURE **4**

SYR-85-KMD RCB RCA L: ON=*; OFF=REF (FRZ)
G:\CAD\ACTIVE\-DWG\ACT\36672220\36672T02.DWG SAVED:9/13/2007 9:48 AM LAYOUT:4 PAGESETUP:----- PENTABLE:PLTFULL.CTB PRINTED:9/13/2007 9:49 AM BY:RALLEN
PROJECTNAME:-----
XREFS: IMAGES:
36672X02
36672X01

SPA STEEL WAREHOUSE

METAL SHED

NATIONAL GRID PROPERTY

SHEETPILE

GROUNDWATER TREATMENT BUILDING

SPA STEEL PRODUCTS PROPERTY

EXCELSIOR AVENUE

WARREN ST.

HIGH ROCK AVE.

OLD RED SPRING

C-0
EHC-4
NG-12
M-3
NG-9
MW-SS-05-04
MW-SS-05-03
NG-4
1-2A
EHC-3
NG-10
SB-62
SB-18D
M-2
NG-8
NG-3
NG-7
NG-2
NG-11
NG-5
B-10
MW-SS-05-02
NG-13
1-2
MW-SS-05-01
NG-1
SS-06-01(MW-EPA-01)
SS-05-05
SS-06-02
M-1
NG-6
SS-06-03(MW-EPA-02)
SS-06-04(MW-EPA-03)
NG-16
MW-ORS-01
SS-06-06
NG-15
SB-36
SB-4
SS-06-07(MW-EPA-04)
NG-14
NG-20
NG-19
SS-06-15
SS-06-14(MW-EPA-08)
NG-18
NG-17
NG-22
SS-06-08(MW-EPA-05)
SS-06-12(MW-EPA-07)
SS-06-13
NG-21
MW-SS-08-07
SS-06-09(MW-EPA-06)
MW-SS-08-08
SS-06-10
NG-23
NG-24
SS-06-11
MW-SS-08-06
NG-26
SS-06-17
NG-25
SS-06-05
MW-SS-08-05
SS-06-18(MW-EPA-10)
SS-06-16(MW-EPA-09)

268 267 266 270 280 290 300

0 40' 80'
GRAPHIC SCALE

LEGEND:

- USEPA INSTALLED MONITORING WELL LOCATION (JULY 2006)
- SS-06-18(MW-EPA-10) SOIL BORING ID (MONITORING WELL ID)
- BBL MONITORING WELL LOCATION (JANUARY 2005)
- USEPA INSTALLED SOIL BORING LOCATION (JULY 2006)
- BBL SOIL BORING LOCATION (JANUARY 2005)
- EHC PHASE II ESA SOIL BORING
- EVERGREEN GEOTECHNICAL BORING
- SUPPLEMENTAL SUBSURFACE INVESTIGATION (BBL, AUGUST 2003)
- HISTORICAL MONITORING WELL/ PIEZOMETER
- HISTORICAL BORING/ GEOPROBE
- CHAIN LINK FENCE
- TAX MAP PROPERTY LINE
- PROPOSED MONITORING WELL
- PROPOSED SOIL BORING

NOTES:

1. BASE MAPPING WAS COMPILED BY A COMBINATION OF STEREOPHOTOGRAMMETRIC METHODS, FROM AERIAL PHOTOGRAPHY FLOWN ON 8/96 AND 11/98 BY LOCKWOOD MAPPING COMPANY, AND FIELD SURVEY METHODS ON 5/96, PROVIDED BY NIAGARA MOHAWK, SURVEY REFERENCE FILE NO. 3435, FILE INDEX 21.0-S2.18-M49 AND A NEW SURVEY FILE NO. 01135-1.DWG RECEIVED 8/19/02.
2. PROPERTY INFORMATION TAKEN FROM "CITY OF SARATOGA SPRINGS, SARATOGA COUNTY, N.Y. TAX MAPS" NUMBERED 153.00(OD), 166.00(OD), 165.36(ID), 166.00(ID), 166.05(ID), 166.11(ID), 166.21(ID), 166.29(ID), 166.30(ID), 166.31(ID), 166.37(ID), 166.38(ID), 166.39(ID).
3. COORDINATES SHOWN ON THIS MAP REFER TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, EASTERN ZONE, BASED ON CONTROL ESTABLISHED BY G.P.S. AND ADJUSTED TO THE PUBLISHED COORDINATES FOR N.G.S. HORIZONTAL CONTROL STATIONS GEYSER, MILTEN 2 RESET, AXC, AND AUD. NAD 83, FEET.
4. ELEVATIONS ARE BASED ON NAVD 88 USING STATION G396, ELEVATION 306.010 FEET.
5. EXISTING UTILITY INFORMATION PROVIDED BY NIAGARA MOHAWK POWER CORPORATION, TAKEN FROM MAPPING DEVELOPED BY S.Y. KIM LAND SURVEYOR, P.C. PROJECT NO. 730135, JOB NO. 43-219-97, DATED JANUARY 12, 1998.
6. EHC PHASE II ESA SOIL BORING LOCATIONS AND EVERGREEN GEOTECHNICAL BORING LOCATION ARE APPROXIMATE ONLY AND WERE POSITIONED BASED UPON "NOT-TO-SCALE" MAPPING INCLUDED WITHIN PHASE II ENVIRONMENTAL SITE ASSESSMENT LETTER REPORT (EHC ENVIRONMENTAL HYDROGEOLOGY CORP., SEPTEMBER 6, 2002) AND PETROLEUM FINGERPRINT ANALYSIS OF SOIL SAMPLE LETTER (EVERGREEN TESTING AND ENVIRONMENTAL SERVICES, MARCH 10, 2003), RESPECTIVELY.
7. SOIL BORING LOCATIONS NG-1 THROUGH NG-9 INSTALLED BY BLASLAND, BOUCK & LEE, INC. (BBL) ON AUGUST 12 AND 13, 2003. SOIL BORING LOCATIONS NG-10 THROUGH NG-13 INSTALLED BY BBL ON AUGUST 26, 2003. SOIL BORINGS NG-1 THROUGH NG-13 WERE INSTALLED USING POWERPROBE DIRECT PUSH TECHNIQUES. ALL LOCATIONS ARE APPROXIMATE AND WERE ESTABLISHED BASED UPON FIELD MEASUREMENTS.
8. MONITORING WELLS MW-SS-05-01 THROUGH MW-SS-05-04 AND MW-ORS-01, AND SOIL BORING SS-05-05 INSTALLED BY BLASLAND, BOUCK AND LEE, INC. (BBL), JANUARY 2005. SURVEY OF NEWLY INSTALLED MONITORING WELLS AND SOIL BORING PERFORMED BY BBL SURVEY, FEBRUARY 2005.
9. GROUNDWATER ELEVATION AT MONITORING WELL SS-06-08_MW-05 NOT CORRECTED FOR THE PRESENCE OF 0.05 FEET OF LIGHT NON-AQUEOUS PHASE LIQUID.

NATIONAL GRID
FORMER SPA STEEL PRODUCTS PROPERTY
SUPPLEMENTAL SITE INVESTIGATION WORK PLAN

PROPOSED INVESTIGATION LOCATIONS

ARCADIS BBL
Infrastructure, environment, facilities

FIGURE 5

SYR-85-KMD AMS RCB L: ON=*, OFF=REF (FRZ)
G:\CAD\ACT\B0036672\0000\00220\DWG\36672B03.DWG SAVED:1/29/2008 1:21 PM LAYOUT:5 PAGESETUP:---- PENTABLE:PLTFULL.CTB PRINTED:1/29/2008 1:22 PM BY:RBASSETT
PROJECTNAME:----
XREFS: IMAGES:
36672X02
36672X01