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Final
Focused Feasibility Study
Saranac Street Former MGP Site
Operable Unit 1 (OU-1)
Plattsburgh, New York
NYSEG
(New York State Electric & Gas Corporation)

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SUBMITTED TO

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September 3, 2003
973340-1005

Table of Contents

References 40

Tables

Figures

Appendices

Executive Summary

This report contains the results of a Focused Feasibility Study (FFS) for Operable Unit 1 (OU-1) of the Saranac Street Former Manufactured Gas Plant (MGP) Site in Plattsburgh, New York (the Site). The Site is predominately owned by New York State Electric & Gas Corporation (NYSEG). The Plattsburg Municipal Lighting District (PMLD) owns a portion of the Site along the Saranac River. The former MGP was located on the current NYSEG-owned property and operated from 1891 until 1960. The Site was also used by NYSEG as a customer service and operations center until 1980. This portion of the Site has been vacant since that time. This report was prepared in accordance with the *New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) #4030, Selection of Remedial Actions at Inactive Hazardous Waste Sites* to meet the requirements identified in Paragraph V of NYSEG's Order on Consent, number D0-0002-9309.

As a result of former MGP operations on the Site, the Site has sustained MGP-related impacts to the surface and subsurface soils, groundwater, bedrock, and sediments in the adjacent portions of the Saranac River. Based on the nature and distribution of the impacts, the remedial goal for the Site is the elimination of potential human health and ecological exposure pathways and the removal of free tar, tar saturated materials, soils with hydrocarbon impacts in excess of 1,000 parts per million (ppm) total polycyclic aromatic hydrocarbons (PAHs), and/or soils containing purifier waste and impacts above 500 ppm reactive cyanide and/or 250 ppm reactive sulfide. "Landside" soils that qualify for any these defined conditions are hereinafter referred to as "source" soils. In addition to the removal of landside source soils, the remedial goal for the Site includes the removal of free tar, tar-saturated sediments, and sediments capable of generating a sheen when disturbed in the adjacent portions of the Saranac River. "Riverside" sediments that contain impacts that qualify for these defined conditions are hereinafter referred to as "source" sediments. The results of this FFS will be used in the determination of a final remedial alternative for the Site, the preparation of a Record of Decision (ROD) by the NYSDEC, and the preparation of the Remedial Design, as described in Paragraphs V and VI of the Order on Consent.

Based on the preliminary screening and detailed analysis, this FFS identified the following remedial alternative for the property:

- Stabilization of a ten-foot band of MGP fringe material surrounding overburden source soils utilizing shallow soil auger mixing technology
- Excavation of overburden source soils above the till surface
- Installation of a visual excavation barrier and soil surface cap

- Recording deed restrictions, where necessary, for the Site and areas affected by the site and not owned by NYSEG that restrict certain uses and construction
- Installation of a temporary cofferdam system to redirect the Saranac River and allow for the excavation of source sediments in the adjacent portions of the Saranac River
- Excavation and treatment/disposal of impacted river deposits (former source sediments that have since been covered by fill) in the overburden soils on the north bank of the Saranac River
- Continued bedrock tar monitoring and manual tar removal with the installation of additional recovery wells
- Post-remedy monitored natural attenuation (MNA) of groundwater impacts

The estimated cost to implement the selected remedial alternative is $23,621,000. This remedy was selected for a number of reasons as follows:

- Soil and sediment source material will be removed. Success is more certain than with stabilization alone.
- It allows for reuse of site soil materials as backfill.
- It offers broader future land use than stabilization alone.
- It allows greater flexibility with respect to unanticipated difficulties in the subsurface than does stabilization alone.
- The stabilized fringe provides excavation support and reduces the amount of dewatering.
- It has a low qualitative score.
- It provides an overall level of protectiveness similar to excavation of site soils that exceed the Recommended Soil Clean-up Objectives (RSCOs) listed in TAGM 4046.

1. Introduction

1.1 Background

This report presents the results of a Focused Feasibility Study (FFS) for the Saranac Street Former Manufactured Gas Plant (MGP) Site in Plattsburgh, New York (the Site). The Site is predominately owned by New York State Electric & Gas Corporation (NYSEG). The Plattsburgh Municipal Lighting District (PMLD) owns a portion of the Site along the Saranac River. The former MGP was located on the current NYSEG-owned property and operated from 1891 until 1960. NYSEG also used the Site for a customer and service center until 1980. This portion of the Site has been vacant since that time. A location map is presented in Figure 1.

From 1979 until 2002, a series of investigations at the Site identified surface and subsurface impacts associated with the former MGP operations. Remedial efforts were conducted in the early 1980s to contain these impacts. Tar-contaminated river sediments were excavated from the adjacent portions of the Saranac River, a riverside slurry wall was constructed to prevent further tar migration to the Saranac River, a containment cell and surface cap were constructed around a former coal tar pond, and a groundwater treatment facility was installed at the Site.

The *August 9, 2002, Final Report, Remedial Investigation, Plattsburgh Former MGP Site, Operable Unit (OU-1), Saranac Street, Plattsburgh, New York (GEI, 2002)* (RI Report) summarizes the findings of all the investigations and remedial actions and recommends further remedial action to eliminate migration pathways and/or eliminate impacts.

An Interim Remedial Measure (IRM) was conducted at the Site in summer/fall 2002 to remediate MGP tar impacts and purifier wastes at the former MGP footprint and areas south of Saranac Street. An IRM Final Engineering Report, dated May 2003, was published under separate cover. That IRM is the Final Remedy for that portion of the Site. However, the extent of purifier wastes that may extend beneath Saranac and Caroline Streets is uncertain. Therefore, additional sampling will be conducted prior to application of the final remedial solutions recommended in this FSS to determine whether unacceptable wastes remain. If so, they will be removed and treated during the remedial effort described herein.

1.2 Purpose

This FFS was prepared in accordance with the *New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) #4030, Selection of Remedial Actions at Inactive Hazardous Waste Sites* to meet the requirements identified in Paragraph V of NYSEG's Order on Consent, Number D0-0002-9309.

The results of this FFS will be used in the determination of a final remedial alternative for the Site, the preparation of a Record of Decision (ROD) by the NYSDEC, and the preparation of the Remedial Design, as described in Paragraphs V and VI of the Order on Consent.

1.3 Scope of Work

This document has been prepared in accordance with NYSDEC TAGM #4030, and includes several components, as follows:

- Identification of remedial objectives for Areas of Interest (AOIs) identified in the RI Report
- Development of potential Remedial Action Alternatives (RAAs)
- Preliminary Screening of RAAs
- Detailed Analysis of Selected RAAs based on the preliminary screening, including conceptual level cost estimates
- Selection of a RAA for the Site

In a September 24, 2002, meeting to discuss the scope of the FFS, NYSEG and NYSDEC agreed that the potential RAAs for the Site should focus on those alternatives that are acceptable to both NYSEG and NYSDEC and are proven methods of remediation for the types of environmental impacts that are present at the Site. A preliminary summary of those options was provided to NYSDEC in an October 8, 2002 letter, which is included in Appendix A.

GEI generated a draft FSS, dated December 20, 2002, on behalf of NYSEG and delivered the draft to NYSDEC. NYSDEC reviewed the FSS and provided written comments to NYSEG in a letter dated March 12, 2003 (a copy is provided in Appendix A). NYSEG and GEI met with NYSDEC representatives to discuss the comments on April 15, 2003. Based on discussions during that meeting, GEI prepared a response to the NYSDEC written comments,

dated May 15, 2003 (a copy is provided in Appendix A). Based on the April 15, 2003 meeting and subsequent discussions with NYSDEC, this FFS focuses on only those RAAs that are most applicable in the detailed analysis.

2. Site Information

2.1 Site Location and Description

The Site is an 11-acre parcel located on Saranac Street southeast of downtown Plattsburgh, New York. It is currently a vacant lot bounded to the north and west by Saranac Street. A 65,000-square foot capped containment cell, surrounding a former coal tar pond and containing tar-impacted sediments and demolition debris, is located adjacent to the northwestern side of the road. The remainder of the Site is undeveloped and consists primarily of open grassy areas with some woody vegetation, including trees and shrubs along the Saranac River. An electrical substation, belonging to PMLD, is located east of the groundwater treatment system buildings. PMLD owns the strip of land between the NYSEG boundary and the Saranac River. The southeastern portion of the Site was the subject of an IRM in the summer/fall of 2002.

The location of the Site is shown on Figure 1. The RI Report divided the Site into six AOIs, as follows.

- AOI 1: The containment cell
- AOI 2: The area between the containment cell and the riverside slurry wall
- AOI 3: The area north of the riverside slurry wall and the river
- AOI 4: The bedrock system
- AOI 5: The former plant site
- AOI 6: Surface soils

The AOIs and the property boundaries are shown in Figure 2.

In addition to the AOIs identified above, the Saranac River, adjacent to the Site, and Lake Champlain, downstream of the Site, have been affected by the former MGP. As such, the river and lake are undergoing a separate RI/FS process.

However, on September 24, 2002, NYSDEC and NYSEG agreed that the OU-1 FFS should also address and propose a remedy for the impacted portion of the Saranac River adjacent to the Site. Specifically, this includes both sides of the river from just upstream of the "wood deck bridge" to just upstream of the Broad Street "Kennedy Bridge." This portion of the river was included in Operable Unit 2 (OU-2) in previous reports based on investigation methods and risk management issues; however, practical considerations for remediation

dictate that this area is best addressed in conjunction with OU-1. As such, NYSDEC has indicated that existing data for the river adjacent to the Site is approved for use in developing the OU-1 FFS.

2.2 Site History

The following site history was adapted from the detailed site history in the RI report. Former structures are shown in Figure 2.

The southwestern portion of the Site was occupied by an electricity generating plant in 1891. By 1896, the plant site had expanded to include carbureted water gas MGP operations. The carbureted water gas process requires two raw material feedstocks: a solid carbon material and a liquid hydrocarbon. Solid feedstock materials may have included anthracite coal, coke from bituminous coal, or bituminous coal. Liquid feedstock may have included naphtha, gas oil, or fuel oil. The coke or coal was placed in beds, which were heated until they became red-hot. When steam was passed over these incandescent beds, a hydrogen and carbon monoxide gas (blue gas/water gas) was produced. The blue gas was then passed through hot firebrick chambers where oil was sprayed into the gas and cracked into gaseous hydrocarbons (the end product) and tar. The major by-product from this process was the uncracked portion of the liquid hydrocarbons, which produced a tar. During a portion of the plant's operational history, tar generated at the Site was stored in a surface impoundment north of the plant, on the opposite side of Saranac Street.

By 1949, the plant had expanded to its largest size and included three gasholders, while the former electricity generating room had been converted into a garage and repair shop. A heating and plumbing supply business utilized several site buildings at that time. The Site MGP operations apparently ceased around 1960 and the Site was used as a NYSEG service center until 1980. The Site has been vacant since that time.

The former coal tar pond was located in the northern portion of the Site and resulted in effects on soil, groundwater and the adjacent river. Remedial efforts in the early 1980s included the construction of the containment cell around the former coal tar pond, the removal of tar-contaminated river sediments subsequently disposed in the southern portion of the containment cell, and the construction of a riverside slurry wall. Subsequently, a groundwater treatment facility was installed in this area of the Site. The groundwater treatment system has not been operating since 1998 and was closed with NYSDEC oversight in 2002.

The riverside slurry wall and containment cell have had limited effectiveness at preventing the further migration of tar at the Site. The RI Report documented free tar and tar-saturated

materials present in the subsurface between the containment cell and the riverside slurry wall and between the riverside slurry wall and the adjacent portions of the Saranac River. Free tar and tar-saturated sediments were documented in the adjacent portions of the Saranac River suggesting that the removal of tar-contaminated sediments was insufficient or that further migration of impacted materials has occurred or both. An IRM was applied at the site in the summer/fall of 2002. This IRM took place in the former MGP location, removing tar and tar-saturated soils, pipes, and bulky debris to a minimum depth of 4 feet, and a maximum depth of 14 feet, depending on what was encountered in the subsurface.

2.3 Topography

The Site topography slopes from an elevation of about 130 feet mean sea level (MSL) in the southeastern portion of the Site to elevations ranging from 108 to 102 feet MSL adjacent to the river, as illustrated in Figure 3. The northern side of the river, across from the Site, has a maximum elevation of approximately 140 feet above MSL.

2.4 Geology

In general, soil stratigraphy at the Site consists of 2- to 21-feet of urban fill overlying 1- to 15-feet of alluvium overlying 0- to 44-feet of glacial till overlying bedrock. The glacial till unit is not present at the downstream terminus of the riverside slurry wall, as depicted on Figure 4.

2.4.1 Urban Fill

A layer of fill material consisting of miscellaneous soil and demolition debris forms the uppermost stratigraphic unit of the Site. The fill consists of reworked native soils and bank run gravels, whole to crushed and powdered bricks, ash, cinders, broken asphalt, and small to massive limestone foundation blocks. Fill thickness ranges from 2 feet thick, near the southern property boundary of the Site, to 21 feet thick, within the containment cell.

2.4.2 Alluvium

Alluvium at the Site is generally limited to the inland areas near the former MGP footprint. In these areas, the alluvium consists of tan to olive silts and clays. At off-site locations, such as the northern and western banks of the Saranac River downstream of the Site, alluvium consists of laminated fine sands and silts. Thickness of alluvium ranges from as little as 1 foot to 15 feet at the Site.

2.4.3 Glacial Till

The Pleistocene glacial till unit consists of a dense, gray to dark gray silt, clay and very fine-grained sand matrix that contains significant amounts of pulverized limestone. Trace amounts of angular to rounded sands and gravels of various sizes are present within the matrix. Cobbles are also present in trace amounts, as observed during test pitting and at a till exposure on the northern bank of the Saranac River. Some boulders are present within the till, near the top of bedrock.

Vertical-trending microfractures or joints within the till unit were observed at an exposed till outcrop on the northern bank of the Saranac River. Microfractures were also observed within till near the upstream boundary of the Site near the river's edge. In general, the glacial till is extremely dense. Depth to till from the ground surface ranged from approximately 8- feet to 21-feet. Average thickness of till is less than 10 feet. Figure 4 presents a top of till contour map, which indicates a general decrease in till surface elevation from the southeastern portion of the Site, to the north/northwest, near the river. The glacial till unit, where present, directly overlies limestone bedrock. In the vicinity of the downstream terminus of the riverside slurry wall and at off-site well locations, till is not present and fill and alluvium directly overlie bedrock. The till does have dense non-aqueous phase liquids (DNAPL) confining properties where microfractures are not present and do not extend through till to bedrock.

2.4.4 Bedrock

The bedrock surface is somewhat irregular, ranging from flat and solid, to uneven, with slight weathering. Depth to bedrock at the Site ranged from approximately 11 feet to 52 feet bgs. A bedrock contour map, generated from known bedrock surface elevations, is presented in Figure 5. The bedrock beneath the Site consists of the Montreal Member of the Glens Falls Limestone in the Trenton Group (Broughton, 1960).

2.5 Groundwater

Overburden groundwater level measurements recorded during groundwater sampling rounds for the overburden and bedrock aquifers indicate a general groundwater flow towards the Saranac River in both aquifers. The pattern of overburden groundwater contours mimics site topography. The depth to groundwater has ranged from 3.5 to 18 feet below grade surface across the Site. The contours indicate that overburden groundwater discharges to the river in both summer and winter.

Bedrock groundwater is confined with a significant upward gradient. Based on bedrock groundwater elevations, which represent the potentiometric surface of the bedrock aquifer, discharge appears to be to the Saranac River near the downstream edge of the Site, where bedrock is exposed.

2.6 Surface Water

The only consistent surface water body at the Site consists of the adjacent portions of the Saranac River. Overland stormwater flow paths at the Site are illustrated in Figure 3. On the northern side of Saranac Street, some of this water pools in small local depressions until it leaches into the subsurface, which may take several days. Otherwise, excess overland flow on the northern side of Saranac Street generally discharges to the Saranac River. On the southern side of Saranac Street, overland flow tends toward the street itself, where it gathers in one local depression near the bend in Saranac Street until infiltration or evaporation results in the depletion of standing water.

2.7 Surrounding Land Use

The Site is within mixed residential/commercial surroundings. The NYSEG property is bounded to the north by PMLD property, to the west by the Saranac River, on the south by United States Army National Guard property, and on the east by Caroline Street.

2.8 Proposed Future Land Use

There is no distinct future land uses designated for the Site at this time. However, a main objective of this FFS is the selection of a remedial alternative that will allow potential multiple uses for commercial/industrial/green space. Establishment of deed restrictions is expected to be an integral part of the remedial solution for the Site to ensure that future use will not result in an unacceptable risk to human health or the environment. Further details with respect to deed restrictions are provided later, in subsection 6.2 of this FSS.

3. Summary of Remedial Investigation

3.1 Remedial Investigation Activities

This FFS is based on information gathered during the Remedial Investigation activities and previous investigations performed at the Site, including:

- *Investigation & Development of Solutions to Coal Tar Problem at Plattsburgh Service Center*, Acres American, Inc., December 1979.
- *Additional Soil Borings,* Acres American, Inc., November 1980.
- *Draft Environmental Impact Statement for River Bend Urban Renewal Site, for City of Plattsburgh, New York,* by Dresdner Associates, P.A., June 1980.
- *Coal Tar Confinement and Cleanup, Specification No. P1 and P2*, New York State Gas and Electric Corporation, May 1982.
- *Engineering Report To The New York State Department of Environmental Conservation on the Plattsburgh Coal Tar Containment Facility*, by New York State Electric and Gas Corporation; October 30, 1985.
- *Plattsburgh Coal Tar Containment Facility Bench Scale Groundwater Treatment Study*, E.C. Jordan Co., January 1986.
- *Investigation of Slurry Trench Cutoff Walls*, by Ray M. Teeter and Samuel P. Clemence, June 1986.
- *Groundwater Investigation and Proposed Remedial Program*, by Roux Associates, Inc., January 1987.
- *In-Situ Groundwater Treatment System Operating Manual*, Roux Associates, September 1987.
- *Fate of Coal Tar at the Plattsburgh Site During Groundwater Recirculation and Peroxide Addition*, Cambridge Analytical Associates, June 1988.
- *Composite Screening Analysis*, Atlantic Environmental Services, Inc., January 1989.
- *Saranac Street Containment Study*, New York State Electric and Gas Corporation, February 7, 1990.
- *Engineering Report for Treatment System Upgrade at New York State Electric and Gas Corporation's Plattsburgh, New York Manufactured Gas Plant Site,* Remediation Technologies, Inc., August 1991.
- *Plattsburgh MGP Site Investigation*, Atlantic Environmental Services, Inc., January 1995.
- *Data Compilation and Review Report,* Atlantic Environmental Services, Inc. June 21, 1996.

- *The NYSDEC-approved August 9, 2002, Remedial Investigation Report, GEI Consultants, Inc.*
- *Final IRM Final Engineering Report, May 2003, from NYSEG.*

A summary of the RI findings that were used as the basis for this FFS is contained in the following sections.

3.2 Nature and Extent of On-Site Contamination

The RI divided the Site into the six AOI's identified in Section 2.1. For the purposes of evaluating remedial alternatives, the stranded river deposits located north of the Saranac River are considered separately. Figure 6 is an interpreted areal extent of MGP impacts. This figure is based on observations from test pit and boring logs (256 boring logs) generated during site investigations from 1979 through 2001. The test pit and boring logs and a larger-scale version of Figure 6 are presented in Appendix B. Figures 7, 8, and 9 represent geologic cross sections of the areas of heaviest impacts observed at the Site.

3.2.1 AOI #1: The Containment Cell

MGP impacts are widespread within the containment cell. Subsurface soils consist of fill and rubble, including demolition debris and coarse river sediments that were disposed within the southern end containment cell. Tar-saturated soils were encountered within the northern portion of the containment cell. The contaminants identified in this area include elevated levels of BTEX and PAH compounds. The subsurface in the southern end of the containment cell could not be penetrated with a truck-mounted drill rig at most locations during remedial investigations because of subsurface rubble. However, for the purposes of this FSS, it is assumed to have sustained significant MGP-related impacts.

Based on the current lack of DNAPL in recovery well MW-98-04S **(**designed and constructed for the sole purpose of DNAPL collection), it appears that DNAPL is no longer present in the containment call. However, the overburden tar saturated soils in the containment cell are or were the most likely source of tar in bedrock at wells MW-97-05D, MW-98-08D, MW-00-16D and MW-00-22D, as follows.

- The containment cell was used for tar/water separation in past operations.
- The dip of bedrock, when traced south from the fracture in well MW-97-05D (where tar was first observed in bedrock), roughly intersects the bottom of till in the containment cell.

- RI investigations demonstrated that wells MW-98-08D, MW-00-16D, and MW-0022D intersect the extension of the bedrock fracture at well MW-97-05D that contains coal tar.

3.2.2 AOI #2: The Area Between the Containment Cell and the Riverside Slurry Wall

Widespread MGP impacts were observed primarily in the northern and western portions of this area with limited impacts observed along the riverbank directly northwest of the wood deck bridge. The till surface was encountered in nearly all borings at an average depth of approximately 12 feet below grade surface (bgs). A majority of the MGP impacts in this area were limited to the soils directly on top of till. A depression was located in the till surface (refer to Figure 4) with over 4 feet of tar-saturated soils on top of till. Overburden well MW-00-15S installed in the depression produces measurable quantities of free tar.

Limited MGP impacts to the till were observed. Till in a small number of borings had micro-fractures with tar coating, tar-impacted sand lenses, and in one instance a near-vertical fracture with black stained walls. These impacts indicate that tar migration in microfractures has occurred at some locations at the Site. At the riverside slurry wall, no MGP residuals were observed within the glacial till underlying the overburden or at the till-bedrock interface. However, tar has migrated through and/or under the riverside slurry wall within overburden soils on top of till, as depicted in Figures 7 and 8.

3.2.3 AOI #3: North of the Riverside Slurry Wall

Mobile tar was observed in soils above the till in this area in numerous borings and test pits. In addition, tar has been observed each summer on top of sediments in calm backwaters near the gravel bar and location of borehole BH-202. Based on these observations, the soils above till on the northern side of the riverside slurry wall contain tar that migrates into the river. Although the extent of this issue is being fully evaluated in a separate RI/FS for the Saranac River, practical considerations for remediation dictate that the river sediments in this area are best addressed in conjunction with the OU-1 remediation of the riverbank.

3.2.4 AOI #4: Bedrock System

Tar has migrated through limestone bedrock at the Site via a network of bedding plane fractures, near-vertical joints, and slickenside fractures, as described in the RI Report. The overburden tar saturated soil in AOI #1 and AOI #2 are the most likely sources of the tar found in bedrock. All groundwater samples from this AOI contained detectable levels of

inorganics and those wells in contact with tar bearing fractures contained detectable levels of organics consistent with MGP-related impacts.

MGP-related impacts were observed on top of bedrock and in bedrock wells installed on the northern side of the Saranac River (MW-99-12S and MW-00-22D). No physical evidence of MGP impacts was apparent in overburden soils or till in this area. Generally, off-site bedrock groundwater quality is high, except at wells MW-99-12S and MW-00-22D, where tar is present. The data presented in the RI demonstrates that delineation of tar in bedrock is complete. Tar removal efforts have been underway at several bedrock wells since 1998; as long as the removal efforts continue, further migration of tar in the bedrock system should be maintained at steady state.

3.2.5 AOI #5: Former Gas Plant Area

The former MGP operated on this portion of the Site from 1891 to 1960; customer and service center operations continued until 1980. When the plant was decommissioned, various underground pipes, aboveground storage tanks, and underground storage tanks remained on site. Demolition debris was reportedly disposed in the southern end of the containment cell.

During the RI, several former infrastructure pipes containing tar and tar-impacted water were encountered during test pit excavations. In addition, the subsurface soil contained concentrations of various organic contaminants and minor amounts of tar. These impacts resulted in the contamination of overburden groundwater. However, bedrock groundwater at this location is relatively unaffected. While some microfractures with a thin tar film were observed in this area, it is otherwise apparent that the thick till unit has prevented migration of contaminants into the bedrock at this area.

An IRM was performed in AOI #5, the area of the former gas plant, during the summer/fall of 2002. All soil and subsurface structures, including pipes, were removed to a minimum depth of 4 feet below ground surface. Where necessary to remove foundation structures, the excavation was deeper. Tar impacted soils from the upper four feet were properly disposed off-site and the remaining unimpacted soils were reused as backfill in the resulting excavation. The remaining portion of AOI #5, on the south and east side of Saranac Street, was addressed by removing soil to varying depths of up to 14 feet in the area where purifier waste was located during the RI. These soils had sustained cyanide impacts from the purifier wastes. Unacceptably impacted soils were properly disposed off-site; remaining acceptable soil was used as backfill.

Analytical samples were collected from the base and sidewalls of the excavation along both Saranac and Caroline Streets. The samples document that cyanide is not present, or present at low concentrations in the subsurface along Caroline Street. Surface soils in the IRM area were replaced with imported clean soil.

However, the nature and extent of potential purifier wastes and cyanide beneath Saranac and Caroline Streets in this area is not well known. Additional sampling will be conducted prior to application of the final remedy at the site to determine the nature and extent and integrate a solution if necessary.

The 2002 IRM did not include remedial work at the bottom of the riverbank in the area just upstream of the wood deck bridge. This shoreline area has sustained some tar impacts in the subsurface. This FSS does propose a remedy for this area in following sections.

3.2.6 AOI #6: Surface Soils

Surface soils at the Site have sustained generally widespread impacts from the presence of MGP-related PAHs. In addition, two distinct areas of spent purifier media were delineated. The surface soils affected by PAHs pose an acceptable human health risk based on EPA guidance; however, based on New York State guidance, the soils pose an unacceptable human health risk**.** In AOI #5, NYSEG's summer/fall 2002 IRM mitigated the potential effects of impacted surface soils in the former gasworks area. Remedies for the remaining part of the Site, described in following sections of this FSS, will mitigate remaining surface soil impacts, such that future use as green space is possible.

3.2.7 Stranded River Deposits

MGP-related impacts were observed in the overburden soils at the bedrock interface on the north side of the Saranac River. These impacts appear to be a function of deposition of tar and tar saturated material along the riverbank, by the river. The tar migrated over the top of bedrock and into inland shallow bedrock. The tar at the river's edge has subsequently been covered by more recent sediment deposits and anthropogenic fill materials.

3.3 Risk Characterization

A risk assessment was conducted during remedial investigations to evaluate potential human and ecological exposure to chemicals detected at the Site. The risk assessment consisted of a data evaluation, a toxicity assessment, an exposure assessment, and a risk characterization.

The findings of the risk assessment presented in the RI indicated that chemicals typically associated with the operation of MGPs occur in the surface soils of the Site. The

concentrations of various chemicals, especially PAHs, occur in site soils at levels exceeding the typical urban background concentrations. Ingestion of and dermal contact with surface soils was determined to be the only exposure scenario under the current site conditions and assumed future conditions. Based on these scenarios, the RI risk assessment concluded that surface soil posed no significant potential risk from exposure for adverse non-carcinogenic effects. No adverse impacts on terrestrial wildlife have been observed on the site; however, any animals which visit the site and attempt to drink from the Saranac River in the vicinity of the tar seeps may possibly be exposed to site contaminants. While it may only be coincidental, it is important to note that NYSDEC personnel have observed dead and/or intoxicated aquatic wildlife in the vicinity of the seeps on two occasions.

Although groundwater at the Site has sustained MGP-related impacts, there is no use of groundwater at the Site. Groundwater from the Site discharges to the Saranac River. Surface water samples collected from the river contained sub-ppb levels of MGP-related impacts and in most cases met drinking water standards.

The COP Water Department Superintendent was contacted to investigate private well use in the city, which is an "established water district". The city enforces a prohibition on private well installation within established water districts. This finding was reported to the NYS Department of Health (DOH), by NYSEG in April 2003. Therefore, contaminated groundwater at the site is not considered a risk to human health.

An ecological risk assessment for the Saranac River and Lake Champlain is ongoing and was not completed for inclusion in this FFS. A human health risk assessment for river and lake is also planned for a future date. In general, the presence of free tar, tar-saturated sediments, and associated sheens in the adjacent portions of the river is unacceptable and the remedy described herein is designed to eliminate human health risk from exposure to sediments at these locations adjacent to the Site. Finally, the New York State Ambient Surface Water Quality regulations prohibit the presence and/or generation of sheen in surface waters of the state. As such, sediments at certain locations on both sides of the river are addressed herein.

4. Risk-Based Remedial Goals and Action Objectives

4.1 NYSDEC Generic Remedial Action Objectives

NYSDEC is in the process of adopting generic Remedial Action Objectives (RAOs) for hazardous substance sites statewide. The generic RAOs include:

4.1.1 Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

4.1.2 Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

4.1.3 Surface Water

RAOs for Public Health Protection

- Prevent ingestion of water impacted by contaminants.
- Prevent contact or inhalation of contaminants from impacted water bodies.
- Prevent surface water contamination that may result in fish advisories.

RAOs for Environmental Protection

- Restore surface water to ambient water quality criteria for the contaminant of concern.
- Prevent impacts to biota from ingestion/direct contact with surface water causing toxicity and impacts from bioaccumulation through the marine or aquatic food chain.

4.1.4 Sediment

RAOs for Public Heath Protection

- Prevent direct contact with contaminated sediments
- Prevent surface water contamination, which may result in fish advisories.

RAOs for Environmental Protection

- Prevent releases of contaminant(s) from sediments that would result in surface water levels in excess of (ambient water quality criteria).
- Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity or impacts from bioaccumulation through the marine or aquatic food chain

These generic RAOs were used as the basis for developing media-specific RAOs for the Saranac Street site, as discussed in following sections.

4.2 Media-Specific Remedial Action Objectives

The RI for the Site was focused on identifying areas of odor, sheen, free tar, and tar saturated materials, identifying the potential or actual migration pathways of these materials, and the

potential human health and ecological exposure risks. The overall findings of the RI are as follows:

- MGP-related impacts are present in surface soils (on the north and west sides of Saranac Street) that may pose a potential human health risk to trespassers and a site worker.

- Tar and tar saturated soils present in subsurface overburden soils and in sediments in the adjacent portions of the Saranac River pose a potential continuing source of migration of tar to the Saranac River.

- MGP-impacted sediments in the adjacent portions of the Saranac River are a potential ecological risk to fish and wildlife.

- MGP-impacted sediments in the adjacent portions of the Saranac River may pose a potential human health risk to trespassers/recreational users of these portions of the River.

- A migration pathway exists between subsurface tar and tar-saturated soil on the Site and sediments in the adjacent portion of the Saranac River.

- Groundwater at the Site discharges to the river. Minor levels of organic contaminants at sub-ppb levels are present in surface water, but they do not pose an apparent human health risk.

Two sets of potential media-specific cleanup levels were identified in accordance with TAGM 4030 to address the issues listed above:

1) Attain SCGs: Clean up to levels specified in applicable Standards, Criteria, and Guidance (SCGs).

2) Source and Exposure Pathway Elimination: Clean up to site-specific levels that exceed SCGs, but which still create conditions that are protective of human health and the environment.

The first cleanup level, Attain SCGs, is used as a baseline to compare the effectiveness and implementability of potential remedial alternatives that meet the Source and Pathway Elimination objective, as described in Section 6 of this report. This approach recognizes that it may not be feasible or desirable to implement remedies that attain SCGs in circumstances where alternative approaches are also protective of human health and the environment.

At the Saranac Street site, attaining SCGs corresponds to the following media specific objectives:

- Remove or treat soil that exceeds the recommended soil cleanup objectives (RSCOs) specified in TAGM 4046. The RSCOs were established to be presumptively protective of direct human exposure and impacts to groundwater.

- Remove all subsurface tar.

- Eliminate or mitigate, to the extent practicable, potential human and ecological exposure pathways to MGP-related impacts in the sediments in the adjacent portion of the Saranac River. This includes removal or treatment of sediments in this area such that sheen generation is prevented.

Based on the remedial investigation, soil impacts likely exceed the RSCOs in many locations across the Site from the ground surface to the top of the underlying glacial till formation (up to 25 feet below the current ground surface). This includes three distinct zones: surface soil (top foot); subsurface areas containing potentially mobile tar (primarily in the vicinity of the existing containment cell); and subsurface areas of residual impacts outside of the tar areas. As stated above, the RSCOs are intended to be *presumptively* protective of direct contact and groundwater risk, i.e., in the absence of site-specific information regarding actual risk, cleanup to RSCOs would be considered protective by default.

However, the risk assessment summarized in Section 3.3 demonstrated that although surface soils represent a direct contact risk, the existing subsurface contamination does not represent a risk to groundwater and surface water. Thus, site-specific cleanup levels for subsurface soils can be higher than the RSCOs while remaining protective of human health and the environment.

Based on these considerations, the following site-specific and media-specific cleanup objectives were established (henceforth referred to as the Source and Exposure Pathway Elimination):

- Remove or immobilize, to the extent practicable, soil source material. Soil source material is defined as free tar, tar saturated soils, soils containing PAHs in excess of 1,000 ppm, soils containing reactive cyanide at concentrations above 500 ppm, and/or soil with reactive sulfide at concentrations above 250 ppm.

- Prevent or eliminate, to the extent practicable, potential human exposure to residual MGP-related impacts in surface and subsurface soils. Residual impacts are defined as soils containing MGP-related odors or sheen and exhibiting a total PAH concentration less than 1,000 ppm. Purifier waste impacts are considered residual as long as reactive cyanide concentrations do not exceed 500 ppm and reactive sulfide concentrations do not exceed 250 ppm.

- Prevent or mitigate, to the extent practicable, the migration of tar from source areas to the bedrock, groundwater, and surface water.

- Eliminate or mitigate, to the extent practicable, potential human and ecological exposure pathways to sediment source material in the adjacent portion of the Saranac River. Sediment source material is defined as free tar, tar saturated sediments, and sediments in this area capable of generating sheens when disturbed.

4.3 Area Specific Remedial Action Objectives

In this section the conditions identified in each AOI, as summarized in Section 3, are compared to the Source and Pathway Elimination media-specific criteria established in Section 4.2 to determine whether remedial actions are required for the AOI. As indicated in Section 4.2, cleaning up to the SCGs criteria requires remediation of the entire site, and thus does not require separate discussions of applicability to each AOI.

4.3.1 AOIs #1, #2, and #3: Containment Cell and Landside Soil Impacts

The areas that contain source material in AOIs #1, #2, and #3 are a continuing source of groundwater impacts and a potential continuing source of tar migration to the Saranac River and bedrock. Based on the potential risks to human health and the environment, the source materials should be removed or immobilized to prevent further groundwater impacts and tar migration into the Saranac River. Further feasibility evaluation is required to determine the specific remedial approach that will best achieve the general RAOs.

4.3.2 AOI #3: Adjacent Sediments North of the Riverside Slurry Wall

Initially, the river portion of this AOI in OU-1 was considered part of OU-2, which is comprised of the Saranac River and Cumberland Bay of Lake Champlain. However, during overall discussions with NYSDEC about OU-1, it became apparent that remediation of OU-1 presented an efficient and practicable opportunity to address impacted river sediments adjacent to the Site. As such, the feasibility evaluation for OU-1 incorporates the river sediments adjacent to the Site, including the north side of the river.

The shallow sediments in the adjacent portions of the Saranac River that contain source material pose a potential risk to human health and the environment, and are capable of creating a sheen when disturbed. The feasibility of removing or mitigating the effects of this source material requires additional evaluation.

4.3.3 AOI #4: Bedrock System

As described above in section 3.3, there is no apparent groundwater use in the area of the Site, and the COP enforces prohibition on installation of wells within the established water district.

Tar impacts to bedrock were characterized in the RI. Natural attenuation and continued tar removal with the addition of more recovery wells, along with the institutional controls described above, will address the environmental concerns in this area. In addition, other possibilities for enhanced tar removal will be considered after tar removal by pumping has been completed. As such, the only additional feasibility evaluation required is for installation of the additional wells and the associated efforts of tar removal.

4.3.4 AOI #5: Former Gas Plant Area

The former gas plant area was the subject of a source removal IRM in the summer/fall of 2002. Source material in the riverbank adjacent to the former gas plant was not remediated as part of this IRM and further consideration of the feasibility of removing or immobilizing this source material is required. In addition, soils under Saranac and Caroline Streets that represented the northern limit of the IRM work require further investigation to determine whether purifier wastes are present at unacceptable levels.

4.3.5 AOI #6: Surface Soils

Surface soils in the former gas plant area were remediated as part of the summer/fall 2002 IRM and no longer pose a significant risk to human health. Surface soils on the remainder of the Site may pose a potential human health risk and should be removed and/or covered to ensure that no risk to human health will be present under future industrial/commercial use scenarios. Due to this consideration, further feasibility evaluation of these surface soils is required.

4.3.6 Stranded River Deposits

The impacts in this area are the result of river transport and deposition of sediments from the former gas plant side of the Saranac River. Removal of the source and sheen-generating

materials in the adjacent sediments in the Saranac River will eliminate the on-going source of impacts in this area. Further feasibility evaluation is required to determine the specific remedial approach that will best achieve the general RAOs for this area.

4.3.7 Site-Wide Groundwater

There is no current use of groundwater in vicinity of the site. Therefore, current groundwater conditions do not represent a risk to human health and separate remedial actions for groundwater are not considered beyond the screening evaluation contained in Section 5. However, to the extent the groundwater impacts exist at the site, the removal of overburden soil source materials in AOIs #1, #2, and #3 will reduce these impacts. In turn, the reduction will enhance natural attenuation of groundwater.

5. Identification and Screening of Remedial Action Alternatives

5.1 Summary

This section includes the identification and screening of potential RAAs for each of the areas in Section 4.3, in accordance with the criteria in TAGM 4030:

- Effectiveness is a measure of the extent to which a remedy will eliminate significant threats to human health and the environment. This includes the short and long term effectiveness of each remedy.
- Implementability is a measure of both the technical and administrative feasibility of constructing, operating, and maintaining a remedial action alternative.

At this stage of the evaluation, only the general applicability of the RAAs is considered. RAAs that pass the screening are then developed into site-specific scenarios and subjected to detailed evaluation in Section 6. The initial screening analysis evaluation also includes a qualitative estimate of the relative cost of each of the identified RAAs. This cost evaluation is not used as a basis for determining whether an RAA is retained for detailed analysis. The initial screening analysis details are summarized in Tables 1A through 1D.

The RAAs subject to the screening are summarized below. Based on the results of the screening, the italicized options were retained for detailed analysis or selected as the remedy for the area. Non-italicized options were not considered further, as described in the tables. As a practical matter, the following definitions of source and residual materials are presented in the table below, and apply throughout the remainder of this document**.**

Definitions of MGP-Impacted Soils/Sediments, OU-1 FFS Saranac Street Former MGP Site Plattsburgh, New York		
	Source	**Residual**
Soil[1]	• Tar or oil present in any form • Sheen present, total PAHs > 1,000 ppm • MGP-odor present, total PAHs > 1,000 ppm • Purifier wastes present, reactive cyanide > 500 ppm • Purifier wastes present, reactive sulfide > 250 ppm	• No tar or oil present in any form • Sheen or MGP-odor present, Total PAHs ≤ 1,000 ppm • Reactive cyanide ≤ 500 ppm • Reactive sulfide ≤ 250 ppm • Soil Staining (only) present
Sediment[2]	• Tar or oil present in any form • Capable of generating sheen when disturbed	• No tar or oil present in any form • Sheen generation absent

1. Source materials treated such that impacts are well below 1,000 ppm total PAHs can be re-used as backfill in the excavation.
2. Size of source area, accessibility, and practicability may be governing factors in application of remedial measures in river sediments.

The following RAAs have been identified as potentially applicable at the Site. The options in italics are retained for detailed analysis and discussed further in Section 6.

Landside Soil Impacts Including Stranded River Deposits

- *Excavation and Treatment/Disposal of Soil Source Material and Installation of a Soil Surface Cap*
- *Excavation and Treatment/Disposal of Soils that Exceed TAGM Levels*
- *In-Situ Soil Stabilization (Retained for Main Excavation Area Only)*
- In-Situ Treatment by Oxidation
- Excavation of Source Material and On-Site Landfill

Riverside Sediment Impacts

- *Excavation and Treatment/Disposal of Sediment Source Material*

Bedrock Impacts

- *Continued Monitoring and Manual Removal with the Installation of Additional Recovery Wells*
- Pressure Pulsing

Groundwater Impacts

- Post-Remedy Groundwater Treatment
- *Post-Remedy Monitored Natural Attenuation (MNA)*

5.2 Pre-Screening Considerations

Conditions unique to the Site that impact the selection of RAAs include:

- Equipment access to various areas of the Site and river
- Utility clearance of current underground and overhead utilities
- The demonstrated effectiveness of previous and ongoing remedial actions at the Site
- The value of existing institutional controls at the Site
- The potential future redevelopment of the Site

Each of these conditions is discussed in more detail in the following sections.

5.2.1 Equipment Access

The MGP-impacted overburden soils along the riverbank north and south of the Wood Deck Bridge are located along a relatively steep embankment. Access to these areas with conventional soil mixing equipment will be difficult. These circumstances render soil stabilization (as an alternative to excavation) difficult due to the terrain limitations.

5.2.2 Utility Clearance

Significant underground and overhead utility lines are present in the vicinity of the electric substation on the PMLD property. Any RAAs conducted on this portion of the Site will likely require relocation of the existing substation and temporary deactivation of the underground lines.

A 21-inch sanitary sewer transects the Site. RAAs conducted in the vicinity of the sewer will include temporary or permanent relocation of the sewer line or appropriate bracing and support to allow excavation below and around the sewer.

5.2.3 Effectiveness of Previous and Ongoing Remedial Actions

The containment cell and riverside slurry walls have demonstrated limited effectiveness in preventing the mitigation of tar in the overburden at the Site. Microfractures in the till render it an imperfect confining unit. Therefore, till cannot be expected to prevent migration of overburden tar to bedrock. As such, containment technologies were not evaluated as potential RAAs.

The current bedrock tar removal program at the Site has been effective at removing mobile tar from the bedrock fracture zone. The inclusion of this existing remedial action, and enhancement via installation of additional bedrock tar recovery wells should be considered.

5.2.4 Existing Institutional Controls

The existing sign that warns recreational river users about swimming in the adjacent portions of the Saranac River is potentially ineffective. The selected RAA should include removal of impacted sediments, as described in following sections.

Other existing institutional controls (COP well restriction) assist in preventing potential human exposure to impacted groundwater.

5.2.5 Potential Future Redevelopment

The selected RAA will allow for future industrial/commercial/green space multiple uses.

5.3 Description of Potential Remedial Actions

5.3.1 Landside Soil Impacts Including Stranded River Deposits

***Excavation and Treatment/Disposal of Soil Source Material and Installation of a Soil Surface Cap*:** This alternative consists of excavating source materials to the till surface. Source material that can be identified visually will be segregated for disposal. The remaining excavated material would be stockpiled on site. Analytical samples would be collected from the stockpiled material and soils meeting the reuse criteria will be used as backfill at the completion of excavation. The remaining material will be segregated for disposal. All material requiring disposal will be transported to an off-site facility permitted to receive such material or will receive off-site treatment followed by off-site disposal. A visual excavation barrier and a two-foot thick imported soil surface cap will be constructed to prevent exposure to soils left in place. If necessary, a deed restriction will be recorded for the Site that defines acceptable future construction scenarios at the Site.

***Excavation and Treatment/Disposal of Soils that Exceed TAGM Levels*:** This alternative consists of excavating all material that exceeds any RSCO in TAGM 4046. This would likely consists of excavation of all material from the ground surface to the till surface. Excavated material will be disposed at an off-site facility permitted to receive such material or will receive off-site treatment followed by off-site disposal. Imported backfill would be utilized to return the Site to the original grade. If necessary, a deed restriction will be recorded for the Site that defines acceptable future construction scenarios at the Site.

In-Situ Soil Stabilization (Retained for Main Excavation Area Only): Shallow soil-cement stabilization augers would be used to mix cement into the impacted subsurface soils in overlapping columns. The stabilization will result in an increase in soil volume and require that the Site be regraded to accommodate a visual excavation barrier and a two-foot thick imported soil surface cap above the stabilized mass. If necessary, a deed restriction would be recorded for the Site that defines acceptable future construction scenarios at the Site.

In-Situ Treatment by Oxidation: This alternative would consist of the installation of a series of injection points within the impacted soils. These points would be used to inject an advanced oxidant, such as potassium permanganate, into the subsurface to cause an oxidation reaction to occur. This reaction will reduce the lighter end contaminants and may immobilize free tar. This alternative would probably require several iterations over time of injection point installation and application of the oxidant.

Excavation of Source Material and On-Site Landfill: This alternative would consist of excavating all source material and residually impacted soils from the Site. In addition, an area located at least 100 feet from the property boundaries and the nearest surface water would be excavated to the till surface. A solid waste landfill liner would be constructed in this excavation and impacted materials would be disposed of within this landfill. The landfill would be appropriately covered per the New York State (NYS) Solid Waste regulations and the Site would be regraded to allow for the increased volume of soil within the landfill.

5.3.2 Riverside Sediment Impacts

Excavation and Treatment/Disposal of Sediment Source Material: This alternative consists of the installation of a temporary cofferdam system to redirect the adjacent portions of the Saranac River and allow for the excavation of source material from the sediments along the River. These sediments would be amended/dried on-site for disposal at an off-site facility permitted to accept such material, or for off-site ex-situ treatment followed by off-site disposal. The riverbank would be restored after excavation is completed.

5.3.3 Bedrock Impacts

Continued Monitoring and Manual Removal with the Installation of Additional Recovery Wells: This alternative is similar to the ongoing tar removal program. Additional recovery wells would be installed to intercept known tar-bearing fractures at the Site and enhance recovery efforts. When the tar removal via pumping program is apparently completed (based on diminishing returns), other technologies will be evaluated for application.

Pressure Pulsing: This alternative would consist of utilizing pressure pulse technology at the existing and/or new bedrock monitoring wells to enhance tar mobility and increase tar recovery at the wells.

5.3.4 Groundwater Impacts

Post-Remedy Groundwater Treatment: This alternative consists of the design and installation of a groundwater treatment system to mitigate plume migration and return groundwater to background conditions.

Post-Remedy Monitored Natural Attenuation (MNA): This alternative consists of development of a MNA sampling protocol for the Site and the long term sampling of groundwater at the Site to monitor the effectiveness of the aquifer to return to background conditions through natural attenuation.

5.4 Initial Screening of Potential Remedial Actions

In accordance with TAGM 4030, GEI screened the potential alternatives for effectiveness and implementability. The screening process is summarized in Tables 1A through 1D.

5.4.1 Landside Soil Impacts

Based on the initial screening, Excavation and Treatment/Disposal of Soil Source Material and Installation of a Soil Surface Cap; and In-Situ Soil Stabilization were retained for more detailed analysis for the landside soil impacts. As described in Section 4.2, Excavation and Treatment/Disposal of Soils that Exceed TAGM Levels was retained for more detailed analysis for a basis of comparison for other remedial alternatives.

In-Situ Soil Stabilization was eliminated from further consideration for the stranded river deposits because the relatively small area does not justify the increased mobilization time and costs to relocate the equipment to the north bank of the Saranac River.

In-Situ Treatment by Oxidation was eliminated from further consideration because of two practical considerations described below.

> Limited Effectiveness on Source Material: Chemical oxidation has not been widely used in large areas with significant volumes of source material. The effectiveness of oxidation on light end components is well documented; however, it has had mixed results when applied to source material, particularly the heavy components of the separate phase tar. It is suspected that the oxidation of the lighter end components

will immobilize some of the remaining source materials, but long term monitoring data is not available on the reliability of this method as an effective remedy for source material.

Injection Point Fouling: Chemical oxidation reactions typically cause the precipitation of iron oxides, which in turn may cause fouling of injection points and clog pore spaces in surrounding soils. These effects often require periodic installation of new injection points.

The alternative of an on-site landfill was eliminated from further consideration because of limitations presented by the NYS Solid Waste regulations. A solid waste landfill must be a minimum of 100 feet from all property boundaries, 100 feet from the high water level of any surface body of water, and have 10 feet of vertical separation from the bedrock surface. When these constraints are applied to the Site, the location and size of the landfill is not adequate to accommodate all of the impacted materials from the Site without significantly changing the topography of the Site.

5.4.2 Riverside Sediment Impacts

Based on the initial screening, Excavation and Treatment/Disposal of Sediment Source Material was retained for more detailed analysis for the riverside sediment impacts.

5.4.3 Bedrock Impacts

Based on the initial screening, Continued Monitoring and Manual Removal with the Installation of Additional Recovery Wells was retained for more detailed analysis for the bedrock impacts.

Pressure Pulsing was eliminated from further consideration because the potential exists to mobilize tar and cause it to flow away from the recovery wells rather than toward them.

5.4.4 Groundwater Impacts

Based on the initial screening, Post-Remedy MNA was selected as the remedial alternative for groundwater impacts.

Installation of a Post Remedy Groundwater Treatment System was eliminated from further consideration because the previous treatment system installed on the Site demonstrated limited effectiveness while in operation and removal/stabilization of source material will result in a massive reduction in the source of groundwater contamination, making a treatment system unnecessary.

6. Detailed Evaluation of Remedial Action Alternatives

6.1 Summary

Based on the initial screening results, GEI developed detailed construction scenarios and cost estimates for five approaches to removing and/or stabilizing the various impacts at the Site:

Alternative	Description
Remedial Alternative 1	No Action
Remedial Alternative 2	Excavate to TAGM Levels
Remedial Alternative 3A	Excavate Source Material, Install Surface Cap
Remedial Alternative 3B	Excavate Source Material, Stabilize Fringe, Install Surface Cap
Remedial Alternative 4	Stabilize Source Material, Install Surface Cap

Alternative 1 was considered per NYSDEC request. Alternative 2 is based on the remedial goal of attaining SCG across the site. Alternatives 3A and 4 are based on the Source and Pathway remedial goals outlined in Section 4.2. Alternative 3B was added to evaluate the effects of combining excavation and soil stabilization as a final remedy for the Site.

All alternatives include:

- Preconstruction sampling;
- Excavation of source materials on the north bank of the Saranac River near the Durkee Street Municipal Parking Lot and located along the east river bank north and south of the Wood Deck Bridge;
- Excavation of sediment areas capable of generating a sheen;
- Installation of additional bedrock tar recovery wells;
- Continuation of the current bedrock tar monitoring program; and,
- Post–remedy groundwater monitoring.

Preliminary-design level cost estimates were developed for each of the alternatives. GEI then performed a comparative qualitative evaluation of the alternatives in accordance with the detailed evaluation criteria contained in TAGM 4030:

- Compliance with site-specific SCGs
- Overall protection of human health and the environment

- Short-term impacts and effectiveness
- Long-term effectiveness and performance
- Reduction of toxicity, mobility, and volume
- Implementability
- Cost

Based on these criteria, Alternative 3B- Excavate Source Material, Stabilize Fringe, Install Surface Cap was selected as the preferred alternative.

In addition, a separate evaluation was performed to compare off-site disposal/treatment versus on-site treatment for excavated soils. Based on the evaluation, off-site disposal/treatment was retained and on-site treatment was eliminated from the detailed analysis because of logistical complexities, a significantly increased remedial timeframe, and reliability concerns based on experience. A summary of this analysis is contained in Appendix C.

6.2 Description of Alternatives

Based on the results of the prescreening of various RAAs, the following five Remedial Alternatives were developed. These Remedial Alternatives combine various RAAs described in Section 5 into comprehensive alternatives that address all of the AOIs as part of a Site remediation plan.

Appropriate deed restrictions are referred to several times in these alternatives. An appropriate deed restriction will define construction methods if any other than slab-on-grade structures are required. For example, construction that requires significant excavation may need to apply a vapor collection system and/or impermeable liners beneath and around foundations.

NYSEG has met with the Mayor of Plattsburgh for the purpose of discussing deed restrictions and determining who would be responsible for enforcing and maintaining them.

- The City of Plattsburgh (COP)/PMLD has stated that they understand the benefits of deed restrictions with respect to an economical remedial solution and the associated benefits of reuse of their portion of the site.
- The COP/PMLD has agreed in principle to accept deed restrictions on their portion of the site.
- The COP/PMLD has agreed in principle to accept the responsibility for maintaining deed restrictions on their portion of the site.

The COP/PMLD has not specifically been queried about enforcement of deed restrictions. However, the properties to potentially be deed restricted are owned by the COP and enforcement of the restrictions should be relatively simple.

Appropriate deed restrictions may include all or some of the aspects described below. The final deed restrictions and resulting institutional controls will be determined in conjunction with COP/PMLD.

The provisions and restrictions of final deed restrictions shall be recorded in the local land records in such form that the NYSDEC shall approve. This should include at a minimum:

- An A-2 survey of the areas affected specifying the limitations to future construction and/or land use.
- Specific restrictions may include restrictions on future land use, development, or groundwater use in areas where tar is present in bedrock or other contamination remains.
- Names of all property owners affected.
- The time period for which the restrictions/limitations will be valid.
- Required notifications to property owners, COP/PMLD, NYSDEC, NYSDOH, and/or others as deemed necessary prior to any activities
- An agreement to incorporate the restrictions in full or by reference to the recorded deed restriction in all deeds, easements, mortgages, leases, licenses, occupancy agreements, or any other instruments conveying an interest in and/or right to use the property.

Institutional controls may be emplaced to assist the property owners in maintaining compliance with the deed restrictions. These may include:

- Continued proper operation of any remedial actions or systems installed at the site during remediation.
- Specific procedures governing excavation activities to protect worker safety and site neighbors.
- Erection and maintenance of fences and signage to prohibit access or inform users of the property to the specific restrictions.
- Emergency procedures to be followed when emergency situations require immediate excavation of impacted soils to repair utility lines or other infrastructure at the site, or

to respond to other types of emergencies (e.g., fire or floods) that may results in significant risk of harm from exposure to impacts from the site.

- A soil management plan for excavated soils from the site, in the event that contaminated materials are disturbed.

6.2.1 Alternative 1: No Action

In many feasibility studies, the no action response is typically identified and carried through the evaluation process as a point of comparison for other actions. As this feasibility study is focused on alternatives that are more likely to achieve the stated RAOs, further detailed consideration was not given to the no action response. However, as a basis for comparison, such response would include the maintenance of current site conditions to include the ongoing tar recovery program. Therefore, costs associated with this response include ongoing tar recovery.

6.2.2 Alternative 2: Excavate to TAGM Levels

This remedial alternative is a combination of alternatives considered in the initial screening analysis in Section 5. This alternative consists of excavation of any material that exceeds the RSCOs in TAGM 4046 in the overburden above the till surface. A temporary cofferdam system would be installed to redirect the Saranac River and allow for the excavation of all source material in the adjacent portions of the Saranac River. Imported fill would be utilized to return the Site to the original grade. If necessary, an appropriate deed restriction will be recorded for the Site. Figure 10 is a representation of this Alternative.

Primary Assumptions Associated with Alternative 2

- Excavation sidewalls in AOIs #1, #2, and #3, would be sloped at a minimum 1:1 ratio on four sides.

- Average total excavation depth on the landside is 12 feet below ground surface. Average total excavation depth of sediments in the adjacent portions of the Saranac River is 3.5 feet below grade surface of sediments.

- This alternative would require approximately 16 months to complete and require the excavation and off-site treatment/disposal of approximately 225,250 cubic yards (CY) of material.

- The final limits of excavation for this alternative will be determined in the field based on laboratory analytical results. It is assumed that the limits will be similar to those depicted on Figure 10.

6.2.3 Alternative 3A: Excavate Source Materials, Install Surface Cap

This remedial alternative is a combination of alternatives considered in the initial screening analysis in Section 5. This alternative would consist of excavation of overburden soil source material in the overburden above the till surface. A temporary cofferdam system would be installed to redirect the Saranac River and allow for the excavation of all sediment source material in the adjacent portions of the Saranac River. A visual excavation barrier and a two-foot thick imported soil surface cap will be installed on the Site and a deed restriction that defines acceptable future land use and construction will be recorded for the Site. Figure 11 is a representation of this Alternative.

Primary Assumptions Associated with Alternative 3A

All of the Assumptions for Remedial Alternative 2 apply with the changes/additions, as follows:

- All excavated soils not requiring treatment or disposal will be stockpiled and used as backfill.

- This alternative would require approximately 8 months to complete and require the excavation of approximately 104,000 CY of material of which approximately 47,400 CY would require off-site treatment/disposal.

- The final limits of excavation for this alternative will be determined in the field based on the presence of source material. It is assumed that the limits will be similar to those depicted on Figure 11.

6.2.4 Alternative 3B: Excavate Source Materials, Stabilize Residual Fringe, Install Surface Cap

This remedial alternative is the same as Alternative 3A, with the exception that a ten-foot band of MGP residual impacted soils surrounding the source material at the Site would be stabilized utilizing shallow soil auger mixing technology. The stabilized band provides excavation support and reduces groundwater infiltration and associated dewatering. Figure 12 is a representation of this Alternative.

Primary Assumptions Associated with Alternative 3B

All of the Assumptions for Remedial Alternative 3A apply with the changes/additions, as follows:

- Stabilization of fringe residual impacts would occur prior to excavation of source material so that stabilization columns can be used as excavation support.

- Preconstruction shallow Geoprobe™ sampling will be required to identify the exact edge of the source material and define the fringe area.

- The stabilized band of residually-impacted soil is not greater than 10 feet wide.

- The stabilized fringe would reduce the volume of groundwater infiltration into the excavation and decrease the total cost of dewatering.

- Groundwater flow across the Site will not be further impeded by the installation of the stabilized fringe. As depicted on Figure 13, the proposed fringe mirrors the extent of the existing containment cell and riverside slurry wall. The stabilized fringe and the existing containment cell/slurry wall should have similar hydraulic conductivities. Based on this and the lack of current groundwater upwelling, it is not anticipated that the installation of fringe will cause upwelling at the surface. However, a more detailed analysis will be conducted during design based on the final excavation limits determined from the preconstruction sampling.

- This alternative would require approximately 8 months to complete and require the excavation of approximately 104,000 CY of material of which approximately 47,400 CY would require off-site treatment/disposal.

- The final limits of excavation for this alternative will be determined at the conclusion of the preconstruction Geoprobe™ sampling based on the presence of source material. It is assumed that the limits will be similar to those depicted on Figure 13.

6.2.5 Alternative 4: Stabilize Source Materials, Surface Cap

This remedial alternative is a combination of alternatives considered in the initial screening analysis in Section 5. This alternative would consist of shallow soil stabilization of source material in the overburden above the till surface. A temporary cofferdam system would be installed to redirect the Saranac River and allow for the excavation of source material in adjacent portions of the Saranac River. The stabilization will result in an increase in soil

volume and require that the Site be regraded to accommodate a visual excavation barrier and a two-foot thick imported soil surface cap above the stabilized mass. An appropriate deed restriction that limits future land use and construction will be recorded for the Site, if necessary. Figure 13 is a representation of this Alternative.

Primary Assumptions Associated with Alternative 4

All of the Assumptions for Remedial Alternative 1 apply with the changes/additions, as follows:

- Average total excavation depth of sediments in the adjacent portions of the Saranac River is 3.5 feet below grade surface.

- The site will be regraded such that surface soils in the stabilization area will be utilized as backfill in areas requiring excavation (i.e. areas north and south of the Wood Deck Bridge). Average final site grade will be approximately 1.7 feet higher than pre-remediation grade.

- The limits of excavation/stabilization for this alternative will be similar to those depicted on Figure 14.

- This alternative would require approximately 12.5 months to complete and require the excavation of approximately 29,600 CY, the stabilization of approximately 180,200 CY, and the off-site treatment/disposal of 17,700 CY of material.

Based on the results of the detailed evaluation, Alternative 3B provides the best balance of short and long term effectiveness, risk, and cost. A discussion of the detailed evaluation is contained in the following sections.

6.3 Construction Scenarios and Cost Estimates

GEI developed detailed construction scenarios to evaluate the constructability and estimate the cost of each alternative. Each construction scenario considered three components: Preconstruction, Construction Management, and Construction. The construction phases were further subdivided into major components. A cost estimate summary of for the major components of all alternatives is contained in Table 2.

Appendix D contains detailed tables of the assumptions, equipment, quantities, and production rates used as a basis for estimating the cost of each alternative.

The estimated costs for each alternative, including common costs and contingencies are as follows:

Alternative		Cost
Alternative 1	No Action	$108,000
Alternative 2	Excavate to TAGM Levels	$71,605,000
Alternative 3A	Excavate Source Material, Install Surface Cap	$23,355,000
Alternative 3B	Excavate Source Material, Stabilize Fringe, Install Surface Cap	$23,790,000
Alternative 4	Stabilize Source Material, Install Surface Cap	$17,989,000

The total cost of Alternative 1 is $140,000 due to the costs of the ongoing tar recovery program. Alternative 2 is much more expensive ($72 Million) due to the high volume of soil for excavation/disposal and the amount of dewatering required. The total cost of Alternatives 3A and 3B are about the same (~$23-24 Million). The total cost of Alternative 3 is approximately $18 million based on the reuse of site soils and the limited offsite disposal costs.

6.4 Qualitative Scoring

A detailed evaluation of the five alternatives in accordance with the requirements of TAGM 4030 is contained in Table 3. The evaluation includes:

- A qualitative scoring of each alternative against each of the seven evaluation criteria and 20 sub criteria required by TAGM 4030.
- A summary comparison statement for each sub criteria.

The overall scores rank the alternatives as follows (lower scores are better):

Rank	Alternative		Score
NA	Alternative 1	No Action -Not ranked because the alternative does not achieve any remedial objectives	NA
1	Alternative 2	Excavate to TAGM Levels	30
1	Alternative 3A	Excavate Source Material, Install Surface Cap	30
1	Alternative 3B	Excavate Source Material, Stabilize Fringe, Install Surface Cap	30
4	Alternative 4	Stabilize Source Material, Install Surface Cap	39

The scoring system is based on assigning a rating of 1 through 5 to each of the alternatives for each subcriterion. A “1” rating is given to the alternative that compares most favorably with the subcriteria, while a “5” rating is given to the alternative that compares least favorably. For example, Alternative 2 received a “1” rating for the Reduction of Toxicity, Mobility, or Volume subcriteria amount of material destroyed or treated, because it

represents the alternative that will remove and treat the greatest volume of source material and residually-impacted soils/sediments.

Alternatives that compared equally to subcriteria were scored alike. For example, all of the alternatives will have similar monitoring programs and associated Operational and Management costs, so all alternatives received a "1" rating.

The ratings of each subcriterion were then summed to produce a criteria score and the criteria scores were in turn summed to produce an overall score for each alternative. The comparison statement contained in Table 3 summarizes the basis for each of the ratings.

Because the scoring system is based on rating each subsection, the four criteria with the most subcriteria (Short-term Impacts and Effectiveness; Long-Term Effectiveness and Permanence; Reduction of Toxicity, Mobility, and Volume; and Implementability) account for approximately 75 percent of the potential score. This has the appropriate effect of de-emphasizing cost in the qualitative evaluation.

6.5 Selected Remedy

The selected remedy is Alternative 3B - Excavate source materials, Stabilize Fringe, and Install a Surface Cap for several reasons, as follows:

- Soil and sediment source material will be removed. Success is more certain than with stabilization alone.
- It allows for reuse of site soil materials as backfill.
- It offers broader future land use than stabilization alone.
- It allows greater flexibility with respect to unanticipated difficulties in the subsurface than does stabilization alone.
- The stabilized fringe provides excavation support and reduces the amount of dewatering.
- It has a low qualitative score.
- It provides an overall level of protectiveness similar to Alternative 2.

Alternative 1- No Action was eliminated because it does not achieve SCGs or the criteria associated with the site specific Source and Pathway Elimination remedial objectives.

Alternative 2- Excavate to TAGM 4060 RSCOs was not selected because significantly increased difficulty and cost of executing does not justify the nominal benefit of achieving SCGs.

Alternative 3A - Excavate Source Material, Install Surface Cap was not selected because it requires appropriately side-sloped unsupported excavation below the water table and it is anticipated that a significant amount of dewatering will be required.

Alternative 4 - Stabilize Source Material, Install Surface Cap was not selected because the long-term effectiveness of this alternative has not been established.

7. Limitations

This Focused Feasibility Study was prepared for the use of NYSEG. The findings provided by GEI in this report are based solely on the information reported in this document. Information, which was not available to GEI at the time of this investigation, may result in a modification of the conclusions stated above. Costs were estimated from preliminary vender quotes, published construction cost estimating information, and GEI experience, and may vary from actual costs. This report has been prepared in accordance with generally accepted engineering and geohydrological practices. No other warranty, expressed or implied, is made.

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Tables

Table 1A
Remedial Action Alternatives, Landside Soil Including Stranded River Deposits - Initial Screening
Saranac Street
Plattsburgh, New York

Remedial Action Alternative	Effects	Implementability	Cost	Retained for Detailed Analysis?
Excavation and treatment/cap. Soils that exceeds site-specific cleanup objectives.	Eliminates major source of impacts to groundwater and bedrock. May not reduce all impacted soils to RSCO levels	Executed with conventional excavating equipment. Requires construction dewatering.	Moderate	Yes - protective if cap and/or deed restrictions eliminate exposure pathways to impacted soils below the site-specific cleanup objectives but above RSCO levels.
Excavation and treatment/cap. Soils that exceeds TAGM levels.	Removes continued source of impacts to groundwater and bedrock. PAHs soil concentrations reduced to RSCOs in all areas.	Similar to above, but on a much larger scale that will be logistically more complicated.	Very High	Yes – protective and minimizes the potential for additional site work after remedy implementation.
In-situ soil stabilization.	If a continuous area of stabilization is created, this alternative will immobilize NAPL in overburden soils and prevent continued migration into the till and bedrock.	Final site topography increased due to increased volume of stabilized soils. May require pre-excavation of debris and cobbles to accommodate auger mixing. Shallow impacts make predicting overlap of stabilization columns fairly consistent.	Moderate	Yes for main excavation area - moderate expected effectiveness. Long term monitoring required to prove effectiveness. No for stranded river deposits – small area does not justify separate mobilization.
In-situ treatment by oxidation.	May remove light end components of mobile NAPL and may lead to immobilization of NAPL in tar saturated areas.	Difficult to implement due to the complex nature of application and the likelihood for precipitate fouling in injection wells.	High	No - effectiveness on source material has not been demonstrated. Typically requires long-term monitoring and periodic reinstallation of injection points due to fouling.
On-site landfill.	If adequate space is available, this remedy would contain DNAPL and soils impacted above the RSCOs	Constructed with standard equipment and landfill technologies (HDPE liner, leachate collection system, and surface cap). Difficult to implement due to regulatory constraints on landfill placement and volume of impacted material at the site.	High	No - very limited area available at the site. The volume of soil that can be landfilled does not offset the costs of on/off-site treatment/disposal. Requires post closure long-term monitoring program to ensure effectiveness.

Table 1B
Remedial Action Alternatives, Riverside Sediments - Initial Screening
Saranac Street
Plattsburgh, New York

Remedial Action Alternative	Effectiveness	Implementability	Cost	Retained for Detailed Analysis?
Excavation and treatment. Sediments that exceeds site-specific cleanup objectives	Removes major source of impacts to surface water, river sediment, and bedrock. May not reduce all impacted sediments to NYSDEC Sediment Screening Criteria	Accomplished with conventional equipment and installation of a cofferdam system (or equivalent) to deflect Saranac River. Significant dewatering of the work zone to prevent flooding.	High	Yes - high expected effectiveness if exposure pathways are eliminated.

Table 1C
Remedial Action Alternatives, Bedrock Impacts - Initial Screening
Saranac Street
Plattsburgh, New York

Remedial Action Alternative	Effectiveness	Implementability	Cost	Retained for Detailed Analysis?
Continued monitoring and manual removal with installation of additional recovery wells.	Existing recovery wells are removing measurable amounts of DNAPL from bedrock fractures.	Currently being conducted. Installation of additional recovery wells accomplished with conventional drilling equipment.	Low	Yes - effective at the site in removing measurable amounts of tar. In conjunction with source removal, this remedy could become a permanent remedy for material in bedrock
Pressure pulsing.	Could increase the amount of NAPL flowing to wells and improve recovery rates.	This technology could be implemented on existing recovery wells.	Moderate	No - not a proven technology. Potential for mobilization of residual NAPL, causing it to flow away from the wells.

Table 1D
Remedial Action Alternatives, Groundwater Impacts - Initial Screening
Saranac Street
Plattsburgh, New York

Remedial Action Alternative	Effectiveness	Implementability	Cost	Retained for Detailed Analysis?
Post remedy groundwater treatment.	Could be implemented after subsurface soil remedy and could remove/treat remaining impacts to groundwater	Requires pilot test and/or pump test to develop system data. Existing system is inoperative and ineffective.	High	No - existing system did not show improved groundwater quality during operations.
Post-remedy MNA.	Implemented after subsurface soil remedy. Dependant on natural attenuation data/potential of groundwater at the Site.	Use new and/or existing wells to collect MNA parameters and pre-/post-remedy groundwater samples.	Moderate	Yes - after subsurface soil remedy, on-going groundwater impacts will be much reduced. Groundwater in the area is not used; therefore, monitored natural attenuation should be conducted to document groundwater quality improvement levels consistent with the NYSDEC Water Quality Standards.

Table 2
Estimated Remedial Component Costs
Saranac Street
Plattsburgh, New York

Remedial Area	Remedial Action	Estimated Remedial Component Cost (millions of dollars)				
		Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	Alternative 4
		No Action	Excavate to TAGM Levels	Excavate Source Material	Excavate Source Material and Stabilize Fringe Materials	Stabilize Source Material
Main Landside Excavation, Including Containment Cell	Excavate, treat & dispose, clean surface barrier	NA	50	12	12	4.1
	Shallow soil cement stabilization	NA	NA	NA	0.3	3.2
Excavation of Northeast Bank of Saranac River	Excavate, treat & dispose	NA	0.4	0.4	0.4	0.4
Excavation of River Adjacent to Main Landside Excavation	Excavate, treat & dispose	NA	2.7	2.7	2.7	2.7
Excavation North of Wood-deck Bridge	Excavate, treat & dispose, clean surface barrier	NA	0.2	0.2	0.2	0.2
Excavation South of Wood-deck Bridge	Excavate, treat & dispose, clean surface barrier	NA	0.5	0.5	0.5	0.5
Groundwater and Bedrock Monitoring Program	Continued groundwater monitoring and NAPL removal	0.1	0.1	0.3	0.3	0.3
Relocation of Existing Substation and Utility Transmission Tower	Relocation to facilitate additional remedial activities in vicinity of the active substation and tower	NA	0.4	0.4	0.4	0.4
Costs common to all alternatives	Site preparation and mobilization, design, 25% contingency	0	17.3	6.8	6.9	6.2
TOTALS		0.1	71.6	23.4	23.8	18.0

Note: Differences between total costs and sum of component costs are due to rounding.

Table 3
Landside Impacts Remedial Action Alternatives – Detailed Analysis
Saranac Street
Plattsburgh, New York

Criteria	Sub-Criteria	Rating[1] Alt. 2 Excavate to TAGM Levels	Alt. 3A Excavate Source Material	Alt. 3B Excavate Source Material and Stabilize Fringe Materials	Alt. 4 Stabilize Source Material	Comparison Statement
Site-Specific SCGs	Subsurface Soil	1	2	2	3	Alternative 2 explicitly achieves SCGs. The other alternatives approach the SCGs to differing degrees. Stabilization ranked lowest because it leaves source material on site.
	Groundwater	1	1	1	2	The excavation options will be similarly effective in reducing impacts to groundwater. However, more uncertainty regarding potential leaching is associated with the stabilization alternative.
	Sediments	1	1	1	1	Sediment removal component is the same for all alternatives.
	Score	**3**	**4**	**4**	**6**	
Overall Protection of Human Health and the Environment		1	1	1	2	All of the excavation alternatives are similarly protective of protective of human health and the environment based on source reduction and exposure pathway elimination criteria. However, more uncertainty regarding potential leaching is associated with the stabilization alternative.
	Score	**1**	**1**	**1**	**2**	
Cost	Capital Costs	3	2	2	1	Capital construction, dewatering, and treatment of impacted soils costs drive the remedy costs. Alternatives with large excavation and/or disposal volumes have increased associated capital costs.
	O&M costs	1	1	1	1	All alternatives will require similar post remedy monitoring programs.
	Score	**4**	**3**	**3**	**2**	

Table 3 (continued)
Landside Impacts Remedial Action Alternatives – Detailed Analysis
Saranac Street
Plattsburgh, New York

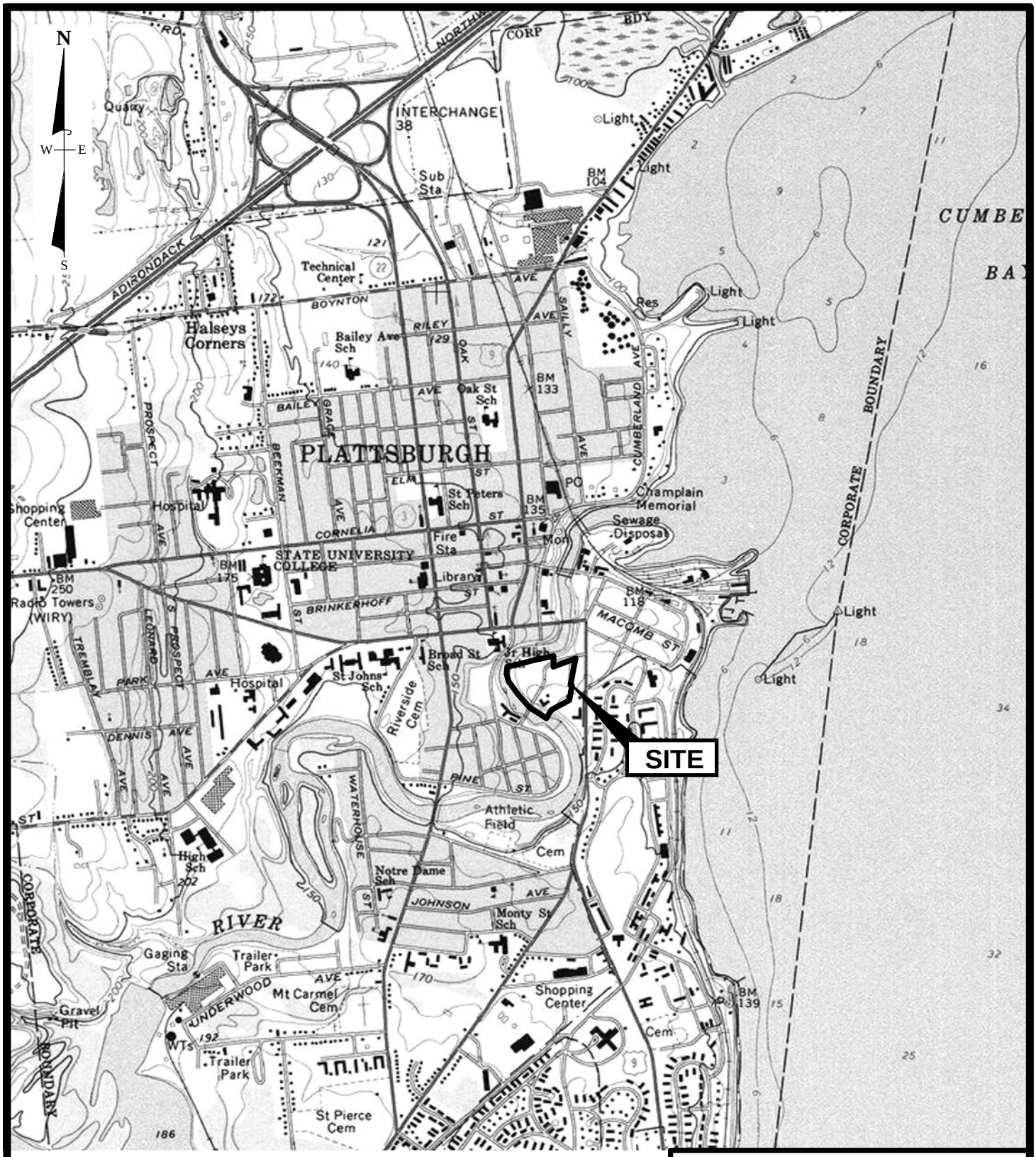
Criteria	Sub-Criteria	Rating[1] Alt. 2 Excavate to TAGM levels	Alt. 3A Excavate Source Material	Alt. 3B Excavate Source Material and Stabilize Fringe	Alt. 4 Stabilize Source Material	Comparison Statement
Short-Term Impacts and Effectiveness	Protection of Community during RAs	3	2	2	1	All alternatives require excavation and transport of impacted soils. This may affect the community and require application of controls during construction (air monitoring, dust suppression, etc.). The stabilization alternatives offer lower risk due to the decrease in excavation required. Alternative 2 has higher risk due to much larger excavation volume.
	Environmental Impacts	2	1	1	1	There are no apparent adverse environmental impacts for any alternative for subsurface soils. Removal of sediments from the Saranac River could mobilize currently contained sediments requiring measures to mitigate this issue.
	Time Required Meet Remedial Objectives	3	1	1	2	Alternative 3A and 3B would more rapidly achieve the Remedial Objectives due to the smaller excavation volume and reduced dewatering requirements.
	Protection of Workers	1	1	1	1	All of the options involve potential exposure to source materials during excavation or as stabilization spoils. Appropriate measures to protect worker safety (air monitoring, PPE) would have to be implemented for all alternatives.
	Score	**9**	**5**	**5**	**5**	
Long-Term Effectiveness and Permanence	Permanence of Remedial Alternative	1	2	2	3	All of the alternatives are expected to be a permanent remedy for the Site. However, Alternative 2 leaves the least amount of residual material on site. Stabilization is less permanent than the excavation options because potential voids between soil stabilization columns could result in future NAPL migration
	Magnitude of Remaining Risk	1	2	2	3	Alternative 2 poses the least risk that additional remediation work will be required in the future.
	Adequacy of Controls	1	2	2	2	Alternative 2 does not require long-term controls. For alternatives 2, 3A, 3B, and 4, the surface cap and any necessary Deed/Land Use Restriction placed on the Site will adequately control potential future exposures to remaining impacts.
	Reliability of Controls	1	2	2	2	Alternative 2 does not require long-term controls. All of the other alternatives include the same controls and thus have the same reliability.
	Score	**4**	**8**	**8**	**10**	

Table 3 (continued)
Landside Impacts Remedial Action Alternatives – Detailed Analysis
Saranac Street
Plattsburgh, New York

Criteria	Sub-Criteria	Rating[1] Alt. 2 Excavate to TAGM levels	Alt. 3A Excavate Source Material	Alt. 3B Excavate Source Material and Stabilize Fringe Materials	Alt. 4 Stabilize Source Material	Comparison Statement
Reduction of Toxicity, Mobility, and Volume	Amount of material destroyed or treated	1	2	2	3	All alternatives result in the removal/stabilization of source material. However, a larger volume of soil is destroyed or treated with Alternatives 2, 3A, and 3B.
	Degree of Toxicity, Mobility, or Volume reduced	1	2	2	3	Alternative 2 reduces mass the most. All of the alternatives reduce mobility to a similar degree. However, the degree of uncertainty associated with stabilization is higher due to the potential for source materials to from voids.
	Irreversibility	1	1	1	2	Alternatives that require stabilization of the subsurface soils will be the least reversible final remedies.
	Residuals Remaining	1	2	2	3	Alternative 2 would remove the largest volume of impacted materials from the Site.
	Score	**4**	**7**	**7**	**11**	
Implement-ability	Technical Feasibility	3	1	1	2	All alternatives employ generally recognized and reliable technologies with similar post remedy monitoring considerations. However, the size and scale of the excavation for Alternative 2 makes it substantially more difficult and complex to execute. Stabilization is more difficult that Alternatives 3A and 3B due to the longer timeframe and potential difficulty managing subsurface obstructions.
	Administrative Feasibility	2	1	1	1	All alternatives require significant coordination with the PMLD and other adjacent property owners. Due to its significantly longer implementation timeframe, Alternative 2 will require more community coordination, may be more difficult to permit, and may be subject to more work restrictions.
	Availability of Services	1	1	1	1	All of the alternatives rely on readily available equipment and construction techniques..
	Score	**6**	**3**	**3**	**4**	
Total Score (Lower score is better)		**30**	**30**	**30**	**39**	

Note:
1. Score is based on a qualitative scale (1 = better; 5 = worse)

Figures



2000 1000 0 2000 4000

GRAPHIC SCALE IN FEET

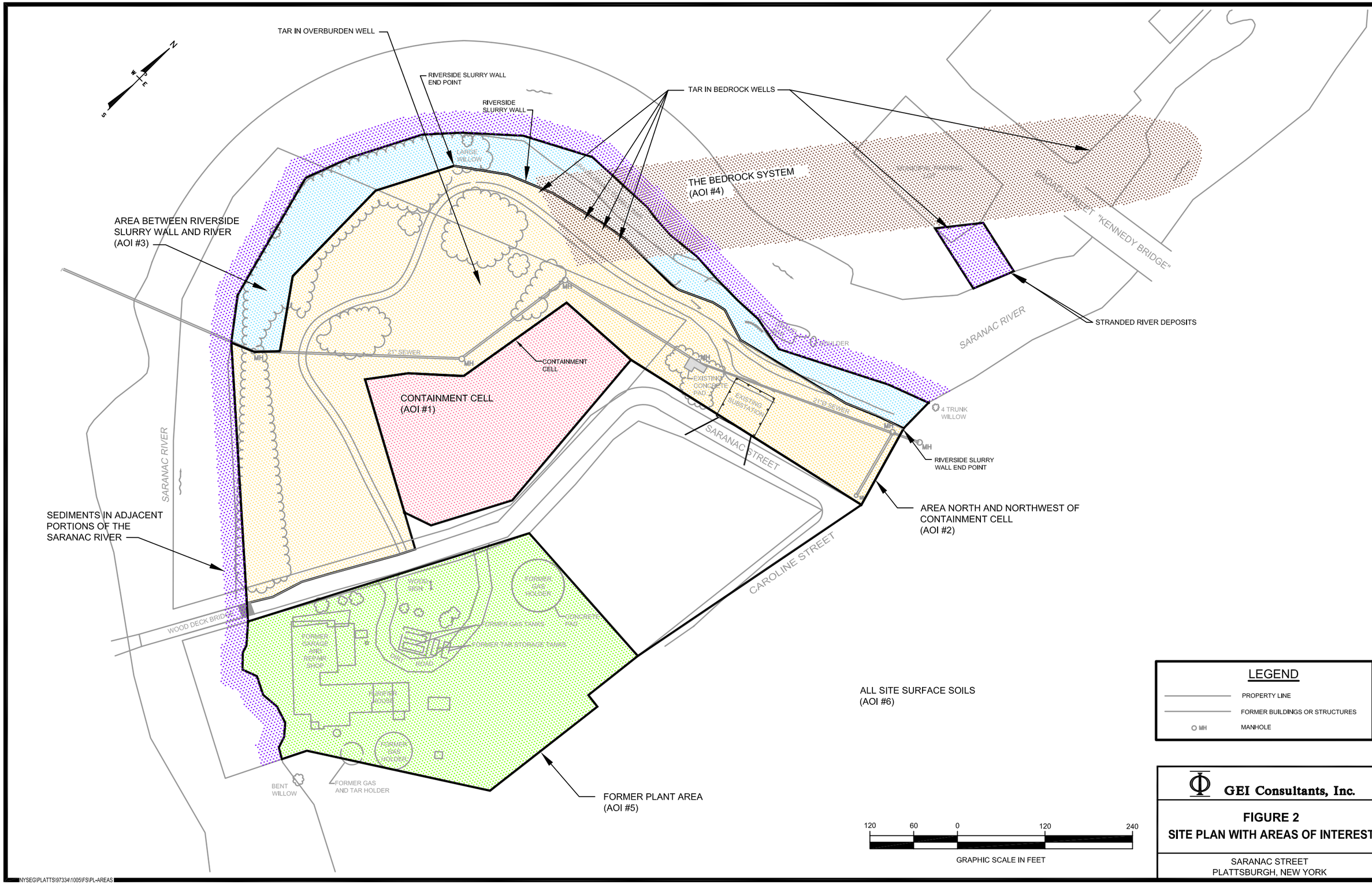
SOURCE: USGS TOPOGRAPHIC MAP, PLATTSBURGH, N.Y.-VT., 1966

GEI Consultants, Inc.

FIGURE 1
SITE LOCATION MAP

SARANAC STREET
PLATTSBURGH, NEW YORK

NYSEG\PLATTS\97334\1005\FS\PL-SLOC.PPT



LEGEND

- PROPERTY LINE
- FORMER BUILDINGS OR STRUCTURES
- MH MANHOLE

120 60 0 120 240

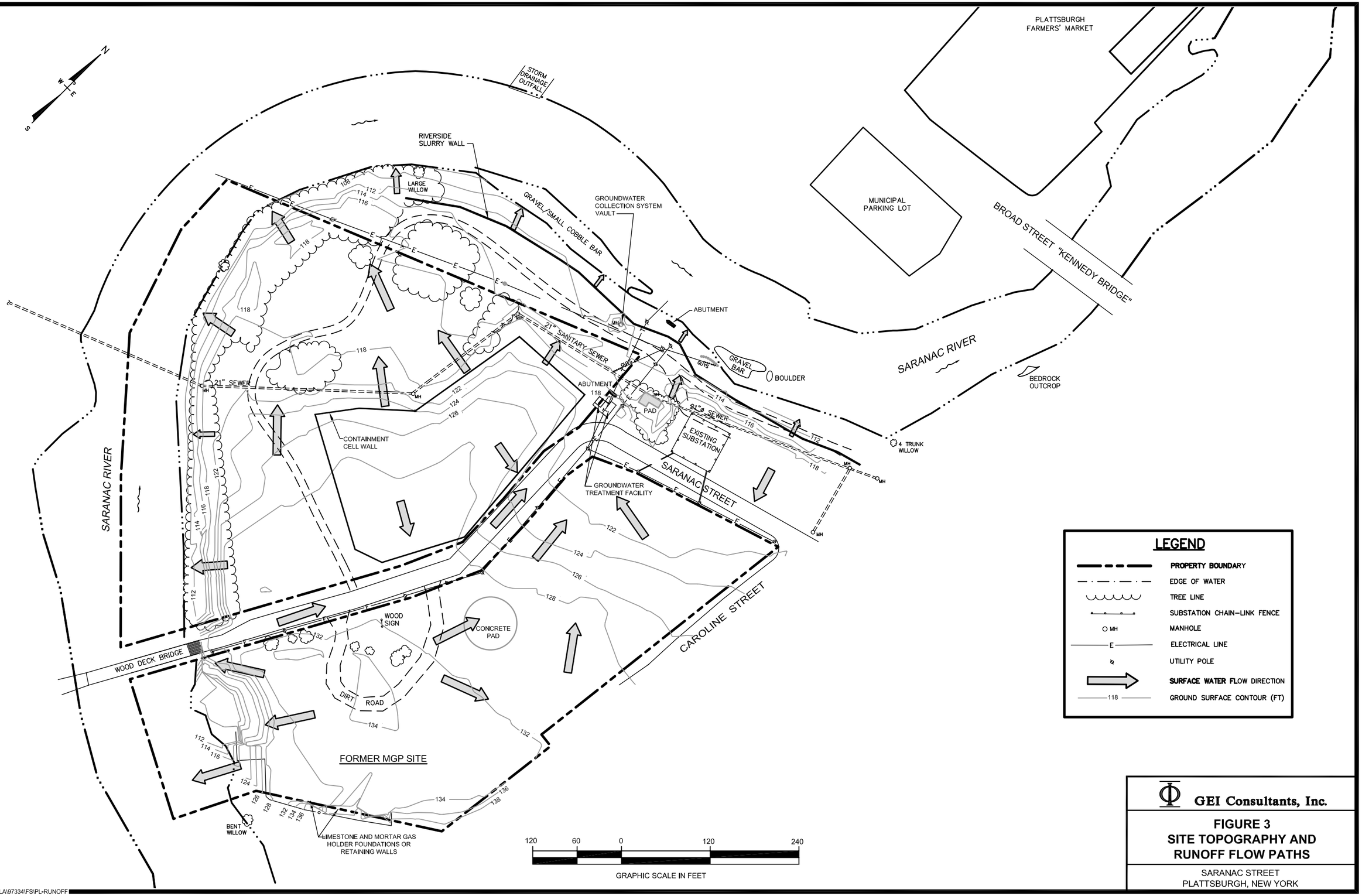
GRAPHIC SCALE IN FEET

GEI Consultants, Inc.

FIGURE 2
SITE PLAN WITH AREAS OF INTEREST

SARANAC STREET
PLATTSBURGH, NEW YORK

NYSEG\PLATTS\97334\1005\FS\PL-AREAS

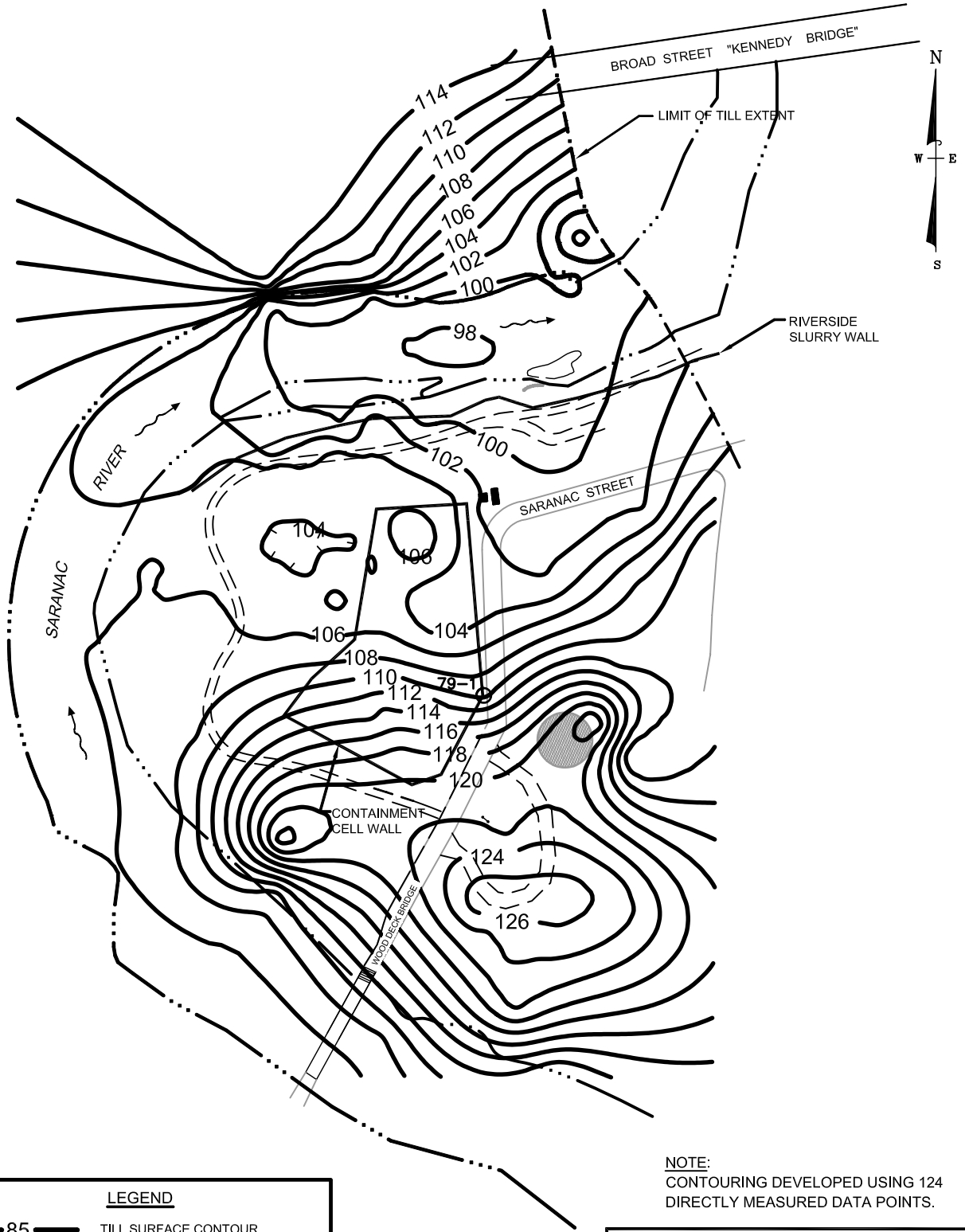


GEI Consultants, Inc.

FIGURE 3
SITE TOPOGRAPHY AND RUNOFF FLOW PATHS

SARANAC STREET
PLATTSBURGH, NEW YORK

NYSEG\PLA\97334\FS\PL-RUNOFF



LEGEND

85 — TILL SURFACE CONTOUR (FEET ABOVE MEAN SEA LEVEL)

200 100 0 200 400

GRAPHIC SCALE IN FEET

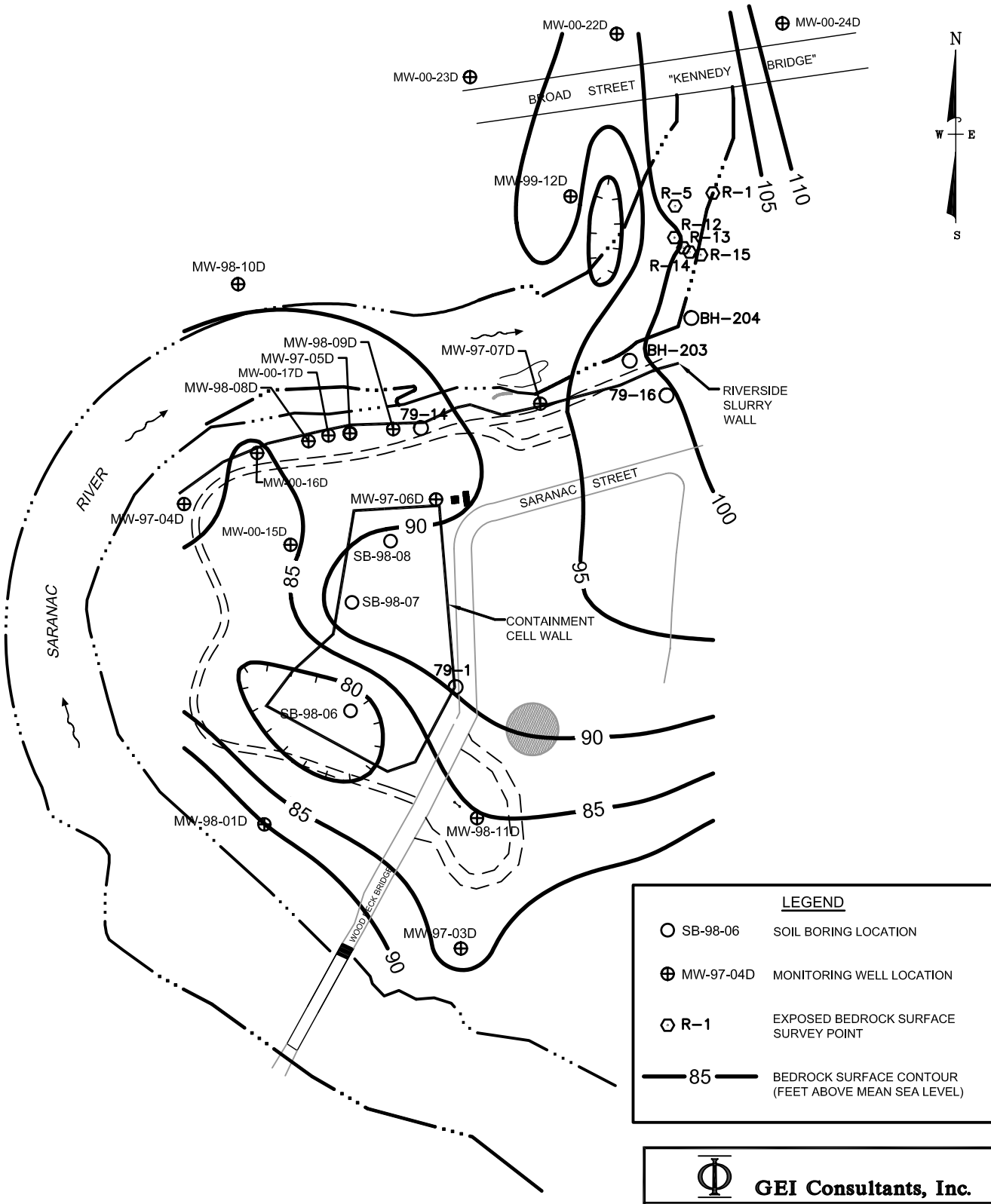
NOTE:
CONTOURING DEVELOPED USING 124 DIRECTLY MEASURED DATA POINTS.

GEI Consultants, Inc.

FIGURE 4
TILL SURFACE CONTOUR MAP

SARANAC STREET
PLATTSBURGH, NEW YORK

NYSEG\PLA\97334\1005\FS\PL-TILL

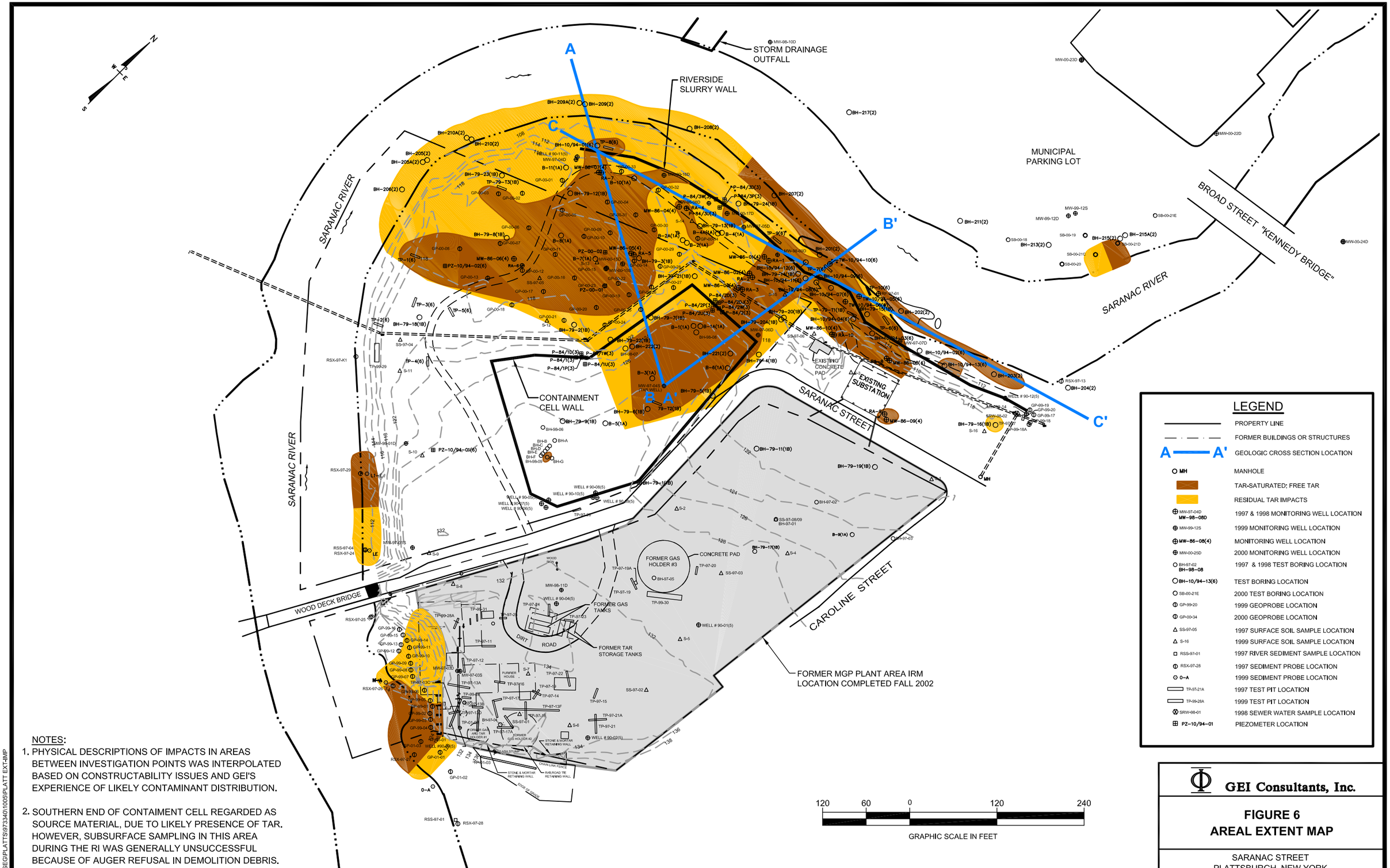


GEI Consultants, Inc.

FIGURE 5
BEDROCK SURFACE CONTOUR MAP

SARANAC STREET
PLATTSBURGH, NEW YORK

NY\SEG\PLA\97334\1005\FS\PL-5EDR



NOTES:

1. PHYSICAL DESCRIPTIONS OF IMPACTS IN AREAS BETWEEN INVESTIGATION POINTS WAS INTERPOLATED BASED ON CONSTRUCTABILITY ISSUES AND GEI'S EXPERIENCE OF LIKELY CONTAMINANT DISTRIBUTION.

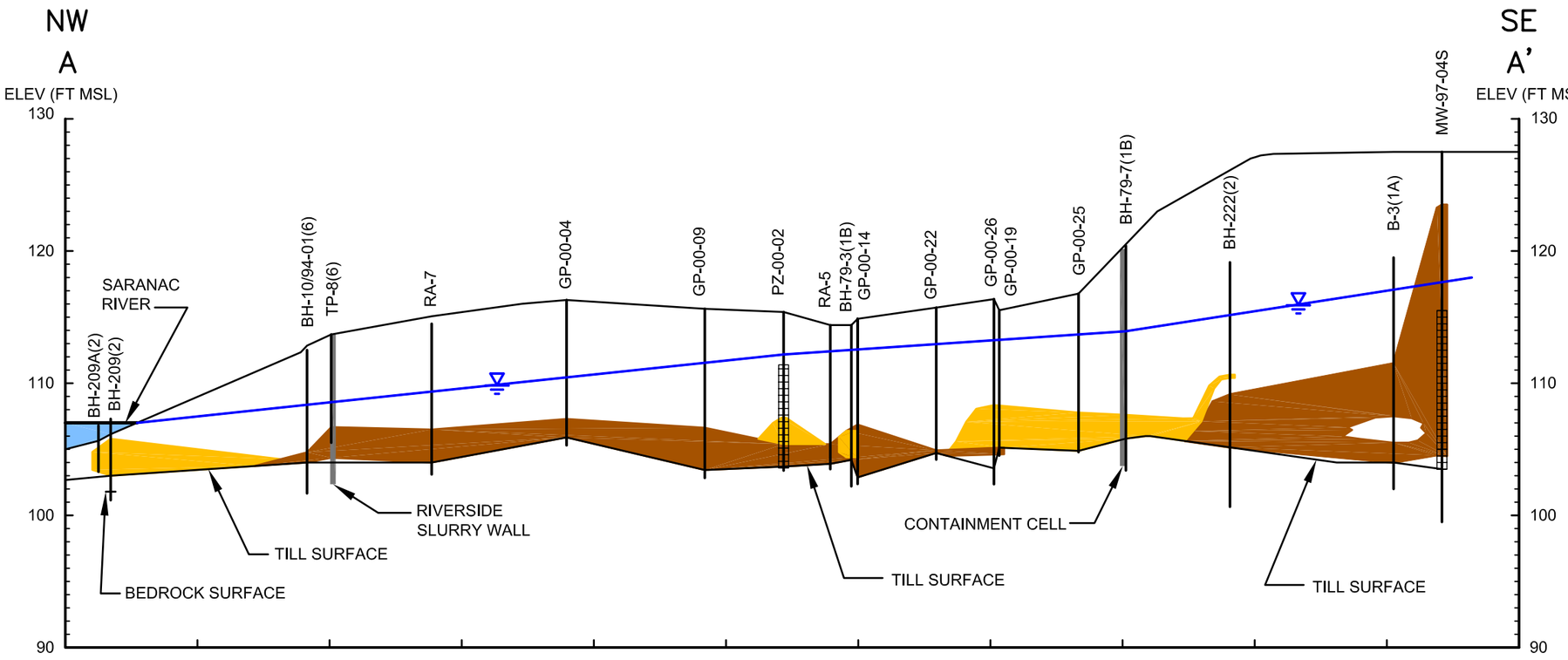
2. SOUTHERN END OF CONTAIMENT CELL REGARDED AS SOURCE MATERIAL, DUE TO LIKELY PRESENCE OF TAR. HOWEVER, SUBSURFACE SAMPLING IN THIS AREA DURING THE RI WAS GENERALLY UNSUCCESSFUL BECAUSE OF AUGER REFUSAL IN DEMOLITION DEBRIS.

NYSEG\PLATTS\97334\01005\PLATT EXT4MP

GEI Consultants, Inc.

FIGURE 6
AREAL EXTENT MAP

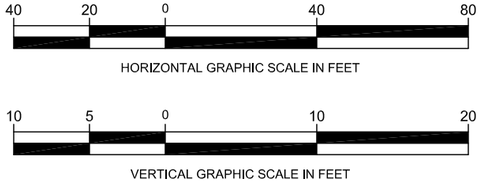
SARANAC STREET
PLATTSBURGH, NEW YORK



NOTE:

1. PHYSICAL DESCRIPTIONS OF IMPACTS IN AREAS BETWEEN INVESTIGATION POINTS WAS INTERPOLATED BASED ON CONSTRUCTABILITY ISSUES AND GEI'S EXPERIENCE OF LIKELY CONTAMINANT DISTRIBUTION.

2. TILL SURFACE ELEVATIONS ARE BASED ON 124 DIRECT MEASURED DATA POINTS. SITE SURFACE TOPOGRAPHY HAS BEEN CHANGED AS A RESULT OF FORMER REMEDIAL ACTIVITIES AND THE ELEVATION OF TAR SATURATED; FREE TAR AND RESIDUAL TAR IMPACTS ARE PROJECTED UP FROM THE TILL SURFACE.



LEGEND:

- TAR–SATURATED; FREE TAR
- RESIDUAL TAR IMPACTS
- APPROXIMATE GROUNDWATER TABLE

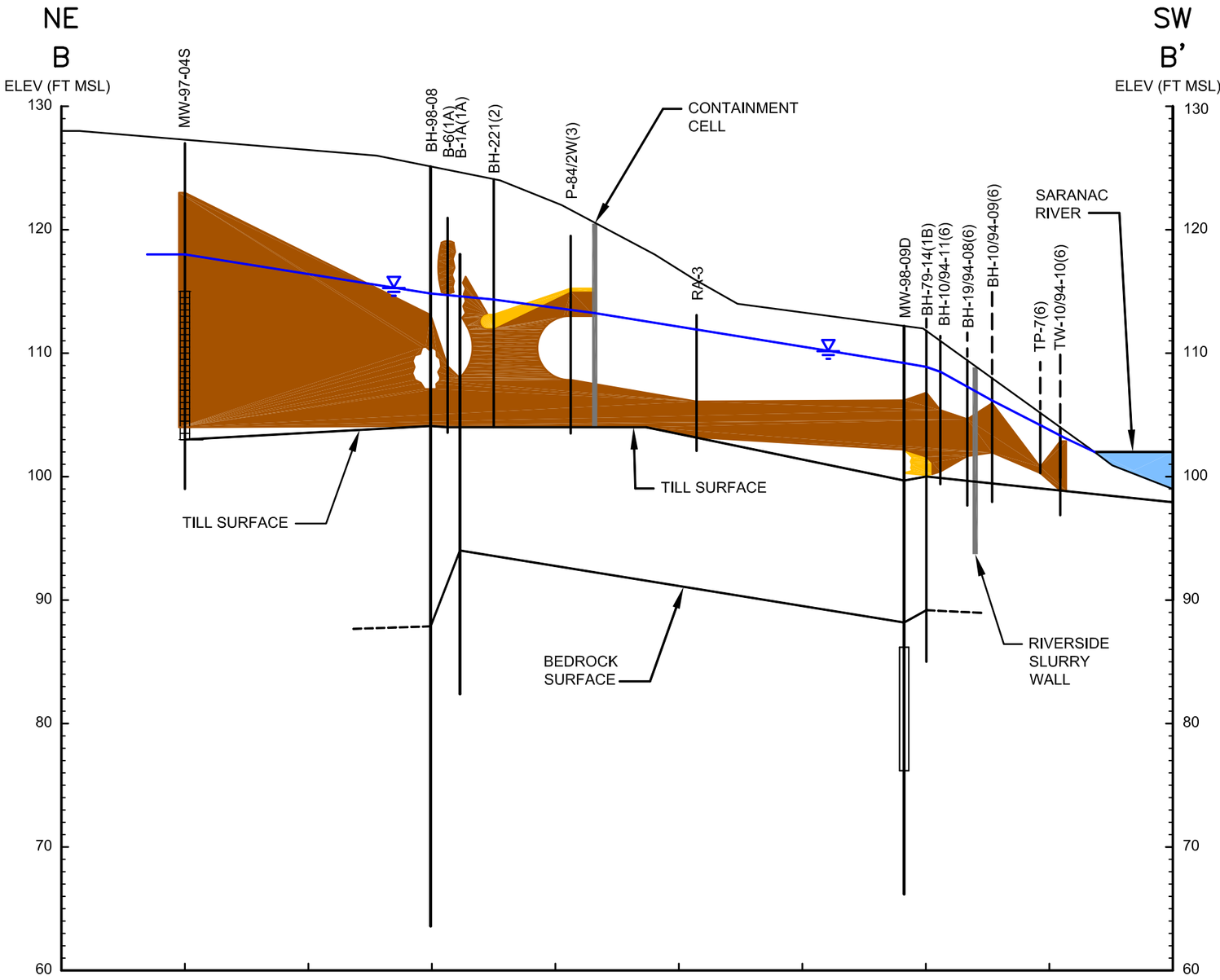
GEI Consultants, Inc.

FIGURE 7

CROSS-SECTION A-A'

SARANAC STREET
PLATTSBURGH, NEW YORK

NYSE6\PLATTS\97334001005\FS\PLATT-XSEC



NOTE:

1. PHYSICAL DESCRIPTIONS OF IMPACTS IN AREAS BETWEEN INVESTIGATION POINTS WAS INTERPOLATED BASED ON CONSTRUCTABILITY ISSUES AND GEI'S EXPERIENCE OF LIKELY CONTAMINANT DISTRIBUTION.

2. TILL SURFACE ELEVATIONS ARE BASED ON 124 DIRECT MEASURED DATA POINTS. SITE SURFACE TOPOGRAPHY HAS BEEN CHANGED AS A RESULT OF FORMER REMEDIAL ACTIVITIES AND THE ELEVATION OF TAR SATURATED; FREE TAR AND RESIDUAL TAR IMPACTS ARE PROJECTED UP FROM THE TILL SURFACE.

40 20 0 40 80

HORIZONTAL GRAPHIC SCALE IN FEET

10 5 0 10 20

VERTICAL GRAPHIC SCALE IN FEET

LEGEND:

- TAR–SATURATED; FREE TAR
- RESIDUAL TAR IMPACTS
- APPROXIMATE GROUNDWATER TABLE

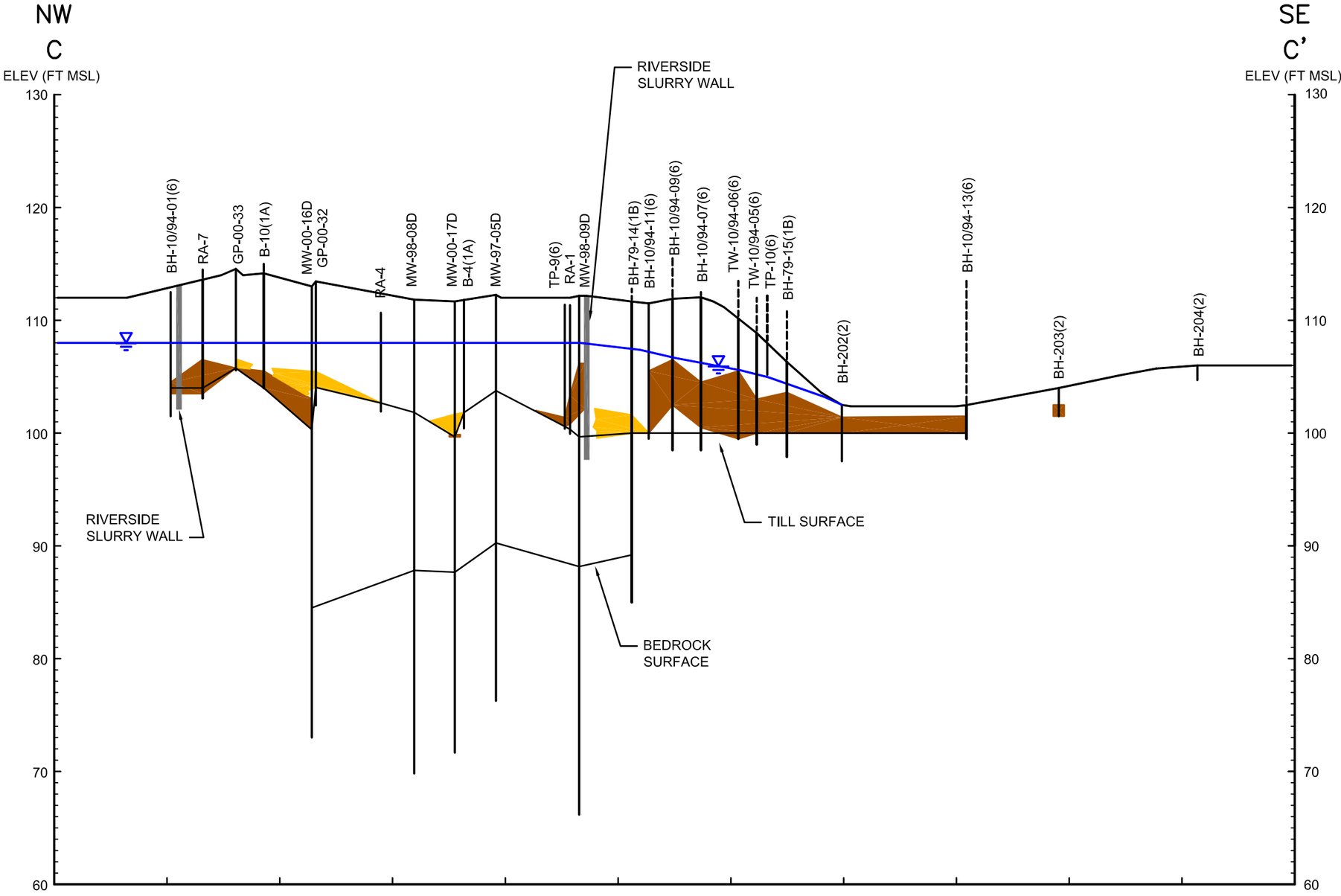
GEI Consultants, Inc.

FIGURE 8

CROSS-SECTION B-B'

SARANAC STREET
PLATTSBURGH, NEW YORK

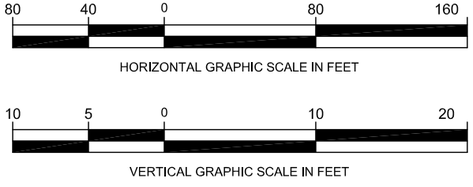
NYSEG\PLATTS\973340\1005\FS\PLATT-XSEC



NOTE:

1. PHYSICAL DESCRIPTIONS OF IMPACTS IN AREAS BETWEEN INVESTIGATION POINTS WAS INTERPOLATED BASED ON CONSTRUCTABILITY ISSUES AND GEI'S EXPERIENCE OF LIKELY CONTAMINANT DISTRIBUTION.

2. TILL SURFACE ELEVATIONS ARE BASED ON 124 DIRECT MEASURED DATA POINTS. SITE SURFACE TOPOGRAPHY HAS BEEN CHANGED AS A RESULT OF FORMER REMEDIAL ACTIVITIES AND THE ELEVATION OF TAR SATURATED; FREE TAR AND RESIDUAL TAR IMPACTS ARE PROJECTED UP FROM THE TILL SURFACE.



LEGEND:

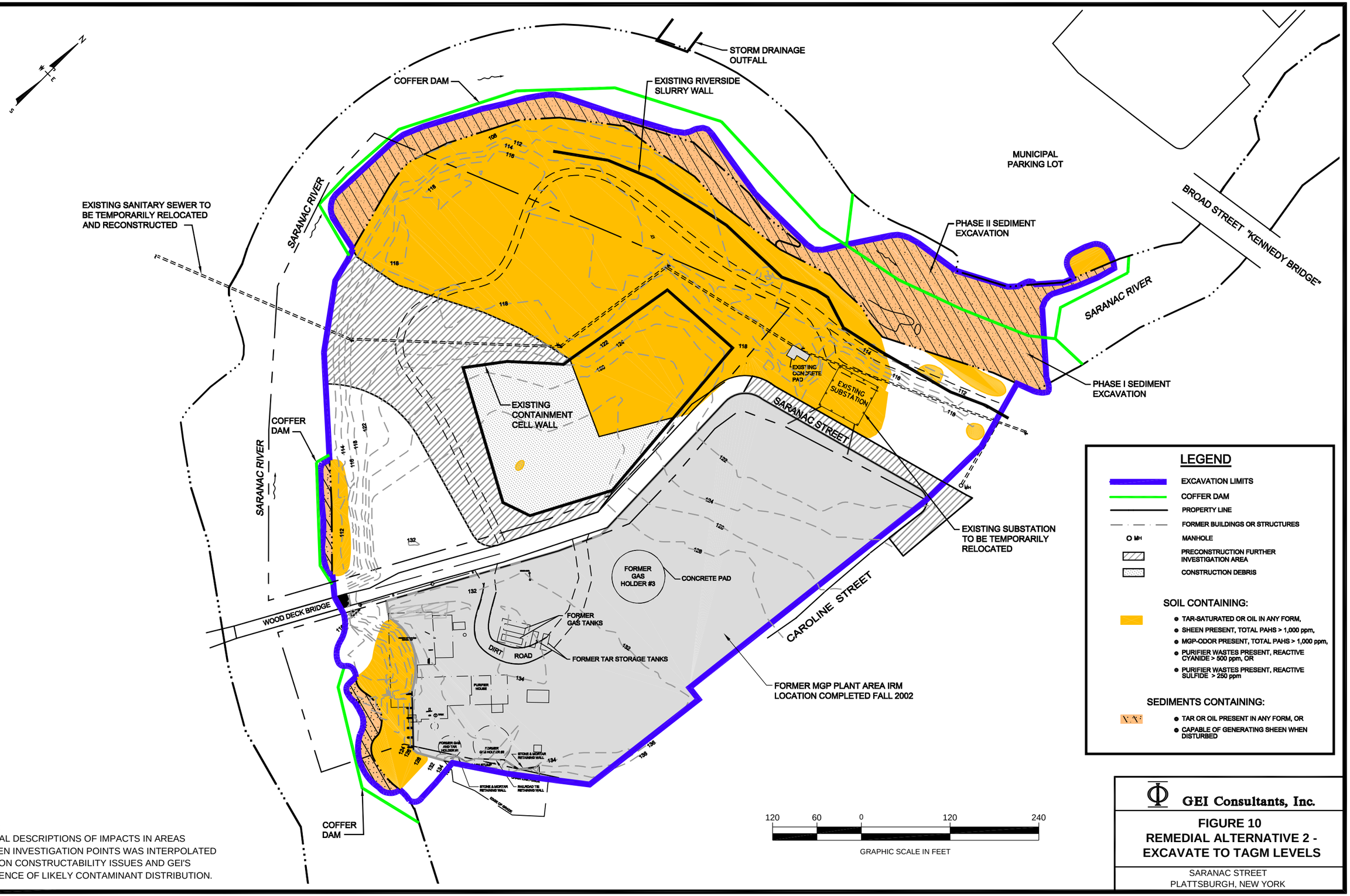
- TAR–SATURATED; FREE TAR
- RESIDUAL TAR IMPACTS
- APPROXIMATE GROUNDWATER TABLE

GEI Consultants, Inc.

FIGURE 9
CROSS-SECTION C-C'

SARANAC STREET
PLATTSBURGH, NEW YORK

NYSEG\PLATTS\97334\100\5\FS\PLATT-XSEC



NOTES:

1. PHYSICAL DESCRIPTIONS OF IMPACTS IN AREAS BETWEEN INVESTIGATION POINTS WAS INTERPOLATED BASED ON CONSTRUCTABILITY ISSUES AND GEI'S EXPERIENCE OF LIKELY CONTAMINANT DISTRIBUTION.

GEI Consultants, Inc.

FIGURE 10
REMEDIAL ALTERNATIVE 2 - EXCAVATE TO TAGM LEVELS

SARANAC STREET
PLATTSBURGH, NEW YORK

NYSEG\PLATTS\973340\1005\FS\FS-0503PLATT REM-ALT

STORM DRAINAGE OUTFALL

COFFER DAM

EXISTING RIVERSIDE SLURRY WALL

MUNICIPAL PARKING LOT

EXISTING SANITARY SEWER TO BE TEMPORARILY RELOCATED AND RECONSTRUCTED

SARANAC RIVER

PHASE II SEDIMENT EXCAVATION

BROAD STREET "KENNEDY BRIDGE"

SARANAC RIVER

EXISTING CONCRETE PAD

EXISTING SUBSTATION

PHASE I SEDIMENT EXCAVATION

EXISTING CONTAINMENT CELL WALL

SARANAC STREET

COFFER DAM

SARANAC RIVER

MH

EXISTING SUBSTATION TO BE TEMPORARILY RELOCATED

FORMER GAS HOLDER #3

CONCRETE PAD

WOOD DECK BRIDGE

FORMER GAS TANKS

DIRT ROAD

FORMER TAR STORAGE TANKS

CAROLINE STREET

FORMER MGP PLANT AREA IRM LOCATION COMPLETED FALL 2002

COFFER DAM

LEGEND

- SURFACE CAP
- EXCAVATION LIMITS
- COFFER DAM
- PROPERTY LINE
- FORMER BUILDINGS OR STRUCTURES
- MH MANHOLE
- PRECONSTRUCTION FURTHER INVESTIGATION AREA
- CONSTRUCTION DEBRIS

SOIL CONTAINING:

- TAR-SATURATED OR OIL IN ANY FORM,
- SHEEN PRESENT, TOTAL PAHS > 1,000 ppm,
- MGP-ODOR PRESENT, TOTAL PAHS > 1,000 ppm,
- PURIFIER WASTES PRESENT, REACTIVE CYANIDE > 500 ppm, OR
- PURIFIER WASTES PRESENT, REACTIVE SULFIDE > 250 ppm

SEDIMENTS CONTAINING:

- TAR OR OIL PRESENT IN ANY FORM, OR
- CAPABLE OF GENERATING SHEEN WHEN DISTURBED

NOTES:

1. PHYSICAL DESCRIPTIONS OF IMPACTS IN AREAS BETWEEN INVESTIGATION POINTS WAS INTERPOLATED BASED ON CONSTRUCTABILITY ISSUES AND GEI'S EXPERIENCE OF LIKELY CONTAMINANT DISTRIBUTION.

120 60 0 120 240

GRAPHIC SCALE IN FEET

GEI Consultants, Inc.

FIGURE 11
REMEDIAL ALTERNATIVE 3A - EXCAVATE SOURCE MATERIAL

SARANAC STREET
PLATTSBURGH, NEW YORK

NYSEG\PLATTS\973340\1005\FS\FS-0503PLATT REM-ALT

STORM DRAINAGE OUTFALL

COFFER DAM

EXISTING RIVERSIDE SLURRY WALL

MUNICIPAL PARKING LOT

EXISTING SANITARY SEWER TO BE TEMPORARILY RELOCATED AND RECONSTRUCTED

SARANAC RIVER

PHASE II SEDIMENT EXCAVATION

BROAD STREET "KENNEDY BRIDGE"

SARANAC RIVER

EXISTING CONCRETE PAD

EXISTING SUBSTATION

PHASE I SEDIMENT EXCAVATION

EXISTING CONTAINMENT CELL WALL

SARANAC STREET

COFFER DAM

SARANAC RIVER

EXISTING SUBSTATION TO BE TEMPORARILY RELOCATED

WOOD DECK BRIDGE

FORMER GAS HOLDER #3

CONCRETE PAD

FORMER GAS TANKS

DIRT ROAD

FORMER TAR STORAGE TANKS

CAROLINE STREET

FORMER MGP PLANT AREA IRM LOCATION COMPLETED FALL 2002

COFFER DAM

LEGEND

- STABALIZE
- SURFACE CAP
- EXCAVATION LIMITS
- COFFER DAM
- PROPERTY LINE
- FORMER BUILDINGS OR STRUCTURES
- MH MANHOLE
- PRECONSTRUCTION FURTHER INVESTIGATION AREA
- CONSTRUCTION DEBRIS

SOIL CONTAINING:

- TAR-SATURATED OR OIL IN ANY FORM,
- SHEEN PRESENT, TOTAL PAHS > 1,000 ppm,
- MGP-ODOR PRESENT, TOTAL PAHS > 1,000 ppm,
- PURIFIER WASTES PRESENT, REACTIVE CYANIDE > 500 ppm, OR
- PURIFIER WASTES PRESENT, REACTIVE SULFIDE > 250 ppm

SEDIMENTS CONTAINING:

- TAR OR OIL PRESENT IN ANY FORM, OR
- CAPABLE OF GENERATING SHEEN WHEN DISTURBED

NOTES:

1. PHYSICAL DESCRIPTIONS OF IMPACTS IN AREAS BETWEEN INVESTIGATION POINTS WAS INTERPOLATED BASED ON CONSTRUCTABILITY ISSUES AND GEI'S EXPERIENCE OF LIKELY CONTAMINANT DISTRIBUTION.

120 60 0 120 240

GRAPHIC SCALE IN FEET

GEI Consultants, Inc.

FIGURE 12
REMEDIAL ALTERNATIVE 3B - EXCAVATE SOURCE MATERIAL AND STABILIZE FRINGE

SARANAC STREET
PLATTSBURGH, NEW YORK

NYSEGPLATTS\973340\1005\IFS\FS-0503PLATT REM-ALT

STORM DRAINAGE OUTFALL

COFFER DAM

EXISTING RIVERSIDE SLURRY WALL

MUNICIPAL PARKING LOT

EXISTING SANITARY SEWER TO BE TEMPORARILY RELOCATED AND RECONSTRUCTED

SARANAC RIVER

PHASE II SEDIMENT EXCAVATION

BROAD STREET "KENNEDY BRIDGE"

SARANAC RIVER

EXISTING CONCRETE PAD

EXISTING SUBSTATION

PHASE I SEDIMENT EXCAVATION

EXISTING CONTAINMENT CELL WALL

SARANAC STREET

COFFER DAM

SARANAC RIVER

EXISTING SUBSTATION TO BE TEMPORARILY RELOCATED

FORMER GAS HOLDER #3

CONCRETE PAD

WOOD DECK BRIDGE

FORMER GAS TANKS

DIRT ROAD

FORMER TAR STORAGE TANKS

CAROLINE STREET

FORMER MGP PLANT AREA IRM LOCATION COMPLETED FALL 2002

COFFER DAM

LEGEND

- STABALIZE
- SURFACE CAP
- EXCAVATION LIMITS
- COFFER DAM
- PROPERTY LINE
- FORMER BUILDINGS OR STRUCTURES
- MH MANHOLE
- PRECONSTRUCTION FURTHER INVESTIGATION AREA
- CONSTRUCTION DEBRIS

SOIL CONTAINING:

- TAR-SATURATED OR OIL IN ANY FORM,
- SHEEN PRESENT, TOTAL PAHS > 1,000 ppm,
- MGP-ODOR PRESENT, TOTAL PAHS > 1,000 ppm,
- PURIFIER WASTES PRESENT, REACTIVE CYANIDE > 500 ppm, OR
- PURIFIER WASTES PRESENT, REACTIVE SULFIDE > 250 ppm

SEDIMENTS CONTAINING:

- TAR OR OIL PRESENT IN ANY FORM, OR
- CAPABLE OF GENERATING SHEEN WHEN DISTURBED

NOTES:

1. PHYSICAL DESCRIPTIONS OF IMPACTS IN AREAS BETWEEN INVESTIGATION POINTS WAS INTERPOLATED BASED ON CONSTRUCTABILITY ISSUES AND GEI'S EXPERIENCE OF LIKELY CONTAMINANT DISTRIBUTION.

120 60 0 120 240

GRAPHIC SCALE IN FEET

GEI Consultants, Inc.

FIGURE 13
REMEDIAL ALTERNATIVE 4 - STABILIZE SOURCE MATERIAL

SARANAC STREET
PLATTSBURGH, NEW YORK

NYSEGPLATTS\973340\1005\IFS\FS-0503PLATT REM-ALT

Appendix A

GEI Consultants, Inc., *Feasibility Study Meeting Summary*, October 8, 2002;

NYSDEC, *Draft Feasibility Study Report, Plattsburgh (Saranac Street) Former Manufactured Gas Plant Site Operable Unit 1*, March 12, 2003;

GEI Consultants, Inc., *Draft Feasibility Study Report Comment Response Letter*, May 15, 2003

NYSDEC, *Draft Feasibility Study Report, Plattsburgh (Saranac Street) Former Manufactured Gas Plant Site Operable Unit 1*, June 26, 2003

Zak, Jerry. jzak@geiconsultants.com. (22 August 2003) RE: OU-1 FS.

Cross, Gardiner. gwcross@gw.dec.state.ny.us. (23 August 2003) RE: OU-1 FS.

GEI Consultants, Inc.

October 8, 2002
Project 97334

1021 Main Street
Winchester, MA 01890-1970
781•721•4000
781•721•4073 Fax

Mr. Gardiner Cross
Engineering Geologist
New York State Department of Environmental Conservation
Bureau of Western Remedial Action
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7013

Dear Mr. Cross:

Re: Feasibility Study Meeting Summary
Plattsburgh Former Manufactured Gas Plant Site
Operable Unit 1 (OU-1)

GEI Consultants, Inc. (GEI) is pleased to provide the New York State Department of Environmental Conservation (NYSDEC) this preliminary summary of options that will be explored as part of the Feasibility Study (FS) for the above-referenced site (the Site). This summary has been developed based upon discussion with you and Mr. Bob Schick at your Albany office on September 24, 2002. This summary is not intended to limit the FS to the options discussed herein, but to focus our FS analysis.

The FS for Operable Unit 1 (OU-1) will include discussions of both the land side of the Site and the adjacent portions of the Saranac River (the River) upstream of the Broad Street "Kennedy Bridge." This area has been included in Operable Unit 2 (OU-2) in previous reports based on investigation methods and risk management issues; however, practical considerations for remediation dictate that this area would be best addressed in conjunction with the remediation of the River bank. It is our understanding that the NYSDEC agrees with this position and sees a discussion of the remediation of the adjacent portions of the River as an integral piece of the OU-1 FS with respect to providing a means of measuring the success of potential remedies. This issue will be further discussed below.

The issues discussed at the meeting are key to focusing the FS on potential remedies that are ultimately acceptable to the NYSDEC. These issues include the four areas where tar has been observed (bedrock, shallow soils, till micro fractures, and the River bank) and groundwater impacts.

The current tar removal program at the Site will be evaluated as part of the FS, as well as a more aggressive tar removal program. This discussion will likely include potential additional recovery wells and active recovery in areas known to produce significant rechargeable tar, possible final weak acid flushing of the bedrock fractures to remove residual tar, and/or monitored natural attenuation. Tar in the bedrock is not discharging to the River and does not pose a significant heath risk; therefore, significant discussion of options other than recovery will not be addressed in the FS.

The FS will include an evaluation of technologies geared toward achieving the NYSDEC policy of preventing further discharge from the shallow soils above the till and micro fractures in the till to the River. We expect that the removal of the more mobile tar identified in the Remedial Investigation (RI) and the stabilization/removal/treatment of the residual tar will remove the driving head and potential continuing source of tar to the micro fractures in the till. Additional analyses will focus on the potential of removing transport pathways where applicable. We will also consider the distribution of contaminant mass when evaluating the relative effectiveness of remedial options in shallow soil.

NYSDEC understands New York State Electric & Gas Corporation's (NYSEG's) concern that it may not be possible to prevent all tar migration to the River immediately upon completion of remedial construction. This is because some of the micro fractures in the till may continue to drain small amounts of residual tar even after the known tar sources are removed/stabilized/ treated. As such, determining the success of the selected remedy will require long-term monitoring of the adjacent portions of the River.

NYSEG does not intend to directly remediate groundwater at the Site independently of the contaminated soil. Rather, NYSEG will focus on stabilization/removal/treatment remedies that reduce the ongoing sources of groundwater contamination and enhance existing natural attenuation processes. Further discussion of this issue will be included in the FS.

We understand that NYSDEC weighs the future land use of the Site in the ultimate approval of any remediation. Therefore, NYSEG has accelerated its discussions with the City of Plattsburgh (the City) to explore possible future land use(s) for both City-owned and NYSEG-owned properties.

The NYSDEC expressed concern regarding remediation of the active substation area. The FS will include an analysis of both permanent and temporary relocation of the substation to facilitate the remediation of this area, as well as other remedial options that will achieve the remedial action objectives without need for relocation of the substation.

Both NYSEG and NYSDEC agree that remedial solutions that are primarily dependent on the repair/upgrade of the current riverside slurry wall or containment cell will not be explored as a final remedy for this Site. However, the FS may evaluate barrier technologies in conjunction with other remedial alternatives.

Please call me at 781.721.4011 if you have any questions or require additional information.

Sincerely,

GEI CONSULTANTS, INC.

Thomas W. Kahl

Thomas W. Kahl, P.E.
Senior Project Manager

TWK:lek
c: Tracey Blazicek, NYSEG
Matt O'Neil, GEI
Jerry Zak, GEI
M:\PROJECT\1997\97334\Mtng Memo-D 100802.doc

New York State Department of Environmental Conservation

Division of Environmental Remediation

Bureau of Western Remedial Action
625 Broadway, Albany, New York 12233-7017

Phone: (518) 402-9662 · **FAX:** (518) 402-9679

Website: www.dec.state.ny.us

March 12, 2003

Mr. Tracy Blazicek
Senior Environmental Specialist
NYSEG
Corporate Drive-Kirkwood Industrial Park
P.O. Box 5224
Binghamton, NY 13902-5224

Re: Draft Feasibility Study Report, Plattsburgh (Saranac Street) Former Manufactured Gas Plant Site Operable Unit 1

Dear Mr Blazicek:

The New York State Departments of Environmental Conservation (NYSDEC) and Health (NYSDOH) have reviewed the above-referenced Feasibility Study Report. The following comments must be addressed to the Departments' satisfaction before the report can be accepted.

General:

1) The descriptions of contamination and remedial alternatives in the area of the electrical substation need to be clarified. High levels of contamination surround this property on at least three sides. Although the draft report contains a cost estimate for removal/relocation of this facility, the figures showing the extent of contamination (Figure 6) and the figures showing the extent of the proposed remedies (Figures 10-14) imply that this area is not contaminated. Since this parcel is municipally owned, the handling of this issue is likely to be of great interest to the City and the public at large.

   Although the Department recognizes that some uncertainty exists regarding the distribution of contamination in this area, it is very likely that it will need to be included in whatever remediation strategy is adopted for the remainder of the site. The draft report must be revised to directly discuss the likelihood of contamination in this area, and the strategies proposed for resolving the uncertainties and remediating the area if necessary.

2) The current definition of Operable Unit 1 includes the Saranac River as far downstream as the Kennedy Bridge. However, the discussion of contamination and the discussion of potential remedies only address contamination along a portion of the river bank closest to

the site. It is essential that the remaining portion of the river bed be addressed.

Tar contaminated sediment was identified from bank to bank along river transects A and C during the Operable Unit 2 Remedial Investigation. This material creates a sheen on the water surface when disturbed, which is a violation of New York State Ambient Water Quality Standards. As written, the FS appears to ignore this material–the "Areal Extent Map" shown on Figure 6 does not acknowledge its presence, and none of the remedial alternatives address it. The lack of ecological risk argued for in the Operable Unit 2 is irrelevant in this case–due to the contravention of promulgated water quality standards, this sediment must be addressed.

Figure 6 also fails to accurately depict the extent of contamination along the west side of the site. The gap shown on this map between the small zone of contamination north of the wood deck bridge and the main body of contamination farther downstream is directly contradicted by Plate 4 of the Operable Unit 2 RI. Tar contamination was reported in sediments along the river bank from every transect in this area, except for one. The one exception occurred in an area (transect K1) where there appeared to be no sediment. NYSDEC personnel also found an intermittent seep in this area during one field visit. Consequently, the Department considers the entire river bank along the western side of the site to be contaminated. All remedial alternatives which propose to excavate river sediments must be revised to include this area.

3) The discussion of institutional controls needs to be expanded significantly. In particular, the imposition of deed restrictions on property not owned or controlled by NYSEG may prove infeasible if the landowners refuse.

4) The definitions of "source material" and "residually impacted" materials need to be refined, and the significance of the distinction between these materials needs to be clearly explained. Any soil, debris, or other material encountered which contains NAPL which is mobile or potentially mobile must be removed for proper treatment and disposal. Under most circumstances, visual examination is sufficient to make the determination of mobility, using the following guidelines. Materials which are grossly tar contaminated, with PAH levels above 1000 ppm are included as source material as well.

Direct Observation of NAPL Soils which contain a visibly observable separate phase product are considered source material and should be removed. It is not necessary for the materials to be visibly "tar saturated" in order to qualify for removal.

Exclusions Materials exhibiting odors, staining, and/or sheens (but no observable separate phase liquids) will be considered as source material only if the exceed 1000 ppm total PAH. Lumps of hardened tar will not be considered as mobile NAPL.

Indirect Evidence NAPL coatings on sampling and excavation equipment such as backhoe buckets and split spoon samplers will be considered as evidence of NAPL mobility. Likewise, accumulation of NAPL in monitoring wells will be considered evidence of NAPL mobility, regardless of the physical appearance of the materials sampled during installation, or those immediately surrounding the well during excavation

Chemical Evidence The Department has applied a total PAH threshold of 1000 ppm at other sites to assist in defining source material. This has been based on generalized observations, and is intended to provide a base level of conservatism.

5) The Department is in the process of adopting generic Remedial Action Objectives for hazardous waste sites statewide, which are specified in the attached Appendix. These RAOs must be incorporated into the FS as appropriate.

Specific Comments:

Section 1.1 The statement in this section that "The IRM is the Final Remedy for this portion of the site and this FFS does not propose further remedial activities in this area" is potentially misleading. As noted in Section 1.2 of the IRM Final Engineering Report, "The north and northeast sides of the purifier waste deposit could not be excavated due to its proximity and apparent continuation under Saranac and Caroline Streets. These areas will be evaluated as part of the final remedy for the site." As we note later in this letter, the Department does not accept the evaluation of this contamination presented in Section 3.2.5, and consequently, we do not consider the IRM as a complete final remedy for this portion of the site.

Section 2.8 The statement that "If necessary, deed restrictions will be recorded for the NYSEG and PMLD portions of the Site to ensure that the future land use of the Site will not result in an unacceptable risk to human health or the environment" is vague and insufficient. Has NYSEG begun a dialog with the PMLD about the possibility of deed restrictions on their portion of the site? Is the PMLD willing to accept deed restrictions and the responsibility for maintaining them? Has the input of the City of Plattsburgh been solicited to gauge their willingness/ability to enforce deed restrictions?

It is essential that institutional controls be evaluated as thoroughly as other components of remedial alternatives. The evaluation must include a clear statement of the controls' objectives, how they fit into the overall remedy, whether the controls can be implemented and enforced, and what parties will be responsible for implementation and enforcement. Failure to conduct this evaluation could jeopardize the effectiveness of the entire remedy.

If the final remedy for the site includes institutional controls to prevent exposure to residual contamination, then a soils management plan will need to be developed. Additionally, NYSEG will be required to certify to the State, on an annual basis, that the institutional controls remain in place and effective.

Section 3.2.5 For completeness, the report should note that while all soil to a depth of 4 feet was initially removed, most of that soil was backfilled on the site. Only tar and tar-saturated soil was removed for off-site disposal. The present wording implies that all soil from 0-4 feet was sent off-site for disposal.

The discussion of remaining contamination along Caroline and Saranac Streets is inadequate. Purifier waste was left in this area during the IRM, and the extent of

this contamination beyond the site boundary remains unknown. If the purifier waste extends beneath and beyond Caroline Street, it could present an exposure risk to residences located in this area, or to underground utility workers. Further investigation to determine the extent of this material, combined with an assessment of exposure potential, must be included in the remedial alternatives. If excavation is required, the additional volume should be modest, so excavation and treatment costs will probably not require modification.

Section 3.2.7 The tar-bearing materials described in the Stranded River Deposits appear to have been largely covered with anthropogenic fill. The description of this overlying material as "more recent sediment deposits" implies that this was deposited naturally by the river.

Section 3.3 The presence of sheens on the water surface of the Saranac River must be included in the last sentence in this section, with an acknowledgment that these sheens constitute a violation of New York State Ambient Water Quality Standards.

Section 4.2.3 The statement that tar impacts to the bedrock are adequately addressed with existing or slightly expanded tar recovery efforts is not necessarily correct. Dissolved phase contamination needs to be considered too, especially in areas not under NYSEG ownership. Although deed restrictions and natural attenuation can be considered as components of a remediation strategy for these areas, other alternatives should be evaluated as well.

At a minimum, it will be necessary for NYSEG to demonstrate that adequate institutional controls are in place to prevent exposure to contaminated drinking water.

Bedrock NAPL contamination appears to be largely confined to a small number of clearly defined, near-horizontal bedrock fractures. Once NAPL production from these fractures ceases, it may be possible to employ low-cost techniques to flush the fractures and thus minimize the chances that pools of NAPL still remain between the collection wells. Acid flushing of the fractured limestone should be evaluated. Air sparging of the fractures should also be considered.

Section 5.3.1 Treatment and disposal options for excavated soils need to be specified more clearly. It is not acceptable to lump together on-site and off-site disposal. These must be evaluated as separate alternatives, since costs and community acceptance are likely to be significantly different. Likewise, if on-site thermal treatment is considered (as opposed to on-site blending or stabilization) this will need to be evaluated as a separate alternative.

The assumption that only the top two feet of excavated material would be used for backfill artificially raises the estimated cost of the excavation alternatives. Many of the soil borings in AOI #2 (between the containment cell and the barrier wall) show much greater thicknesses of unimpacted soil which will likely be acceptable

for on site use. A more refined volume estimate should be used to estimate costs for the excavation alternatives.

The estimated excavation, sorting and stockpiling costs of $20.00 per ton appear to be unjustifiably high. Considerable economies of scale should be possible given the large volumes of soil involved.

Section 5.3.2 Classification of sediment impacts using the same "source" or "residually impacted" criteria applied to subsurface soils is inappropriate. The criteria by which contamination in these two materials must be judged are quite different.

In subsurface soils, the principal issue is mobility of the NAPL. Subsurface soils which have suffered contamination from MGP tars can (under some circumstances) be allowed to remain on site provided that exposure to these soils is eliminated, and the tar can be prevented from moving and creating exposures elsewhere.

In the case of contaminated sediments, the exposure is already present–the tar impacted sediment is already in a location where human and ecological exposure is likely. Consequently, it makes no sense to distinguish whether (for example) the NAPL drops in the sediment are mobile or not. Exposure is very likely regardless. The critical issue in sediments is whether the contamination violates Ambient Surface Water Standards (such as producing a sheen on the water surface) or presents other human and ecological risks.

Consequently, the creation of two separate Remedial Action Alternatives for sediments, based on a distinction between source material and residually impacted material is inappropriate. A single alternative, excavation of MGP impacted sediment, should be presented instead. Given the shallow, sharply defined bottom of the sediment contamination, and the relatively small volumes of sediment involved, this definition should be easy to apply in the field.

Section 6.0 For purposes of achieving compliance with the National Contingency Plan (NCP), a no-action alternative needs to be prepared.

An additional alternative, calling for excavation of all contamination above TAGM levels must be prepared as well. Due to the large volumes of soil involved, it is highly unlikely that such an alternative would actually be implemented. However, for purposes of public communication, it is necessary to demonstrate that all alternatives for dealing with the site have been examined.

Section 6.1 The statement that "All alternatives include the excavation of source and residually impacted materials on the north bank of the Saranac River..." appears to refer only to the stranded deposits, and not to contaminated sediments along the north bank. Please clarify this statement, so that it is more readily apparent what "materials" are being referred to.

Section 6.2 Please clarify how the dewatering costs for the excavation remedies were derived.

Section 6.2.4 Have the long term hydrogeological impacts of the stabilized fringe zone been evaluated? It appears that this zone may redirect groundwater flow sufficiently to create seeps in areas not currently subject to seepage. This seepage water would likely contain at least some low-level BTEX contamination.

Please revise the Feasibility Study Report in accordance with these comments and resubmit to the Department within 30 days of your receipt of this letter. If you have any questions, I can be reached at (518) 402-9662 until March 13. I will return from vacation on April 3; in my absence, questions can be addressed to Bob Schick.

Sincerely,

Gardiner Cross
Engineering Geologist 2
MGP Remedial Section
Division of Environmental Remediation

cc: C. Dowd, DFWMR
R. Wagner, Reg. 5
D. Crosby

GEI Consultants, Inc.

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May 15, 2003
Project 97334-0

Mr. Gardiner Cross
Engineering Geologist 2
MGP Remedial Section
Division of Environmental Remediation
Bureau of Western Remedial Action
New York State of Environmental Conservation
625 Broadway
Albany, NY 12233-7017

Dear Mr. Cross:

Re: Draft Feasibility Study Report
Plattsburgh (Saranac Street) Former Manufactured Gas Plant Site
Operable Unit 1

NYSEG and GEI Consultants, Inc. (GEI) have received and reviewed your letter, dated March 12, 2003, that provides the New York State Department of Environmental Conservation (NYSDEC) comments on our draft Feasibility Study (FS) for Operating Unit 1 (OU-1) at the Saranac Street site. To a certain extent, the NYSDEC comments provided a basis for the discussion we had at your offices on April 15, 2003. This letter provides GEI's formal response, on behalf of NYSEG, to your comments.

As in the past, the NYSDEC comment is presented in **bold** font, followed by the NYSEG/GEI response in *italics*.

General:

1. **The descriptions of contamination and remedial alternatives in the area of the electrical substation need to be clarified. High levels of contamination surround this property on at least three sides. Although the draft report contains a cost estimate for removal/relocation of this facility, the figures showing the extent of contamination (Fig. 6) and the figures showing the extent of the proposed remedies (Figs. 10 through 14) imply that this area is not contaminated. Since this parcel is municipally owned, the handling of this issue is likely to be of great interest to the City and the public at large.**

   Although the Department recognizes that some uncertainty exists regarding the distribution of contamination in this area, it is very likely that it will need to be included in whatever remediation strategy is adopted for the remainder of the site. The draft report must be revised to directly discuss the likelihood of contamination in

this area, and the strategies proposed for resolving the uncertainties and remediating the area, if necessary.

The revised FS for OU-1, to be provided to NYSDEC by NYSEG/GEI 30 days after you approve these proposed responses, will be revised to include the substation in the area to be remediated. Any doubts regarding the extent of contamination at that location should be resolved during pre-construction sampling activities or during the remedial action itself.

2. **The current definition of Operable Unit 1 includes the Saranac River as far downstream as the Kennedy Bridge. However, the discussion of contamination and the discussion of potential remedies only address contamination along a portion of the riverbank closest to the site. It is essential that the remaining portion of the riverbed be addressed.**

   Tar contaminated sediment was identified from bank to bank along river transects A and C during the Operable Unit 2 Remedial Investigation. This material creates a sheen on the water surface when disturbed, which is a violation of New York State Ambient Water Quality Standards. As written, the FS appears to ignore this material–the "Area Extent Map" shown on Figure 6 does not acknowledge its presence, and none of the remedial alternatives address it. The lack of ecological risk argued for in the Operable Unit 2 is irrelevant in this case–due to the contravention of promulgated water quality standards, this sediment must be addressed.

   We recognize that sediments in that area have been responsible for creation of sheens and acknowledge that NYS ambient water quality standards prohibit surface water sheens. And we agree that areas of the river adjacent to the Saranac Street, including the north side of the river, may be better addressed as part of the OU-1Feasibility Study. Therefore, we will revise the OU-1 FS to include areas of the river adjacent to the site that are most practical to address in conjunction with the proposed OU-1 landside remediation work. To do so, we assume that NYSDEC has provided approval of the OU-2 data and information presented near the site. Please confirm that this is true and that additional investigation in this area of the river is not required.

   Figure 6 also fails to accurately depict the extent of contamination along the west side of the site. The gap shown on this map between the small zone of contamination north of the wood deck bridge and the main body of contamination farther downstream is directly contradicted by Plate 4 of the Operable Unit 2 RI. Tar contamination was reported in sediments along the riverbank from every transect in this area, except for one. The one exception occurred in an area (transect K1) where there appeared to be no sediment. NYSDEC personnel also found an intermittent seep in this area during one field visit. Consequently, the Department considers the entire riverbank along the western side of the site to be contaminated. All remedial alternatives, which propose to excavate river sediments, must be revised to include this area.

   As we confirmed with you in our April 15 meeting, NYSDEC was mistaken about the presence of tar in this area. As such, this information will not be revised.

The discussion of institutional controls needs to be expanded significantly. In particular, the imposition of deed restrictions on property not owned or controlled by NYSEG may prove infeasible if the landowners refuse.

NYSEG met with the Mayor of Plattsburgh prior to our April 15 meeting and confirmed that the City of Plattsburgh understands the application, maintenance, and significance of deed restrictions. The Mayor indicated the city is willing to accept and maintain deed restriction, as necessary, on the City property as long as all options for placement of buildings are not given up. The revised OU-1 FS will include this information.

3. **The definitions of "source material" and "residually impacted" materials need to be refined, and the significance of the distinction between these materials needs to be clearly explained. Any soil, debris, or other material encountered that contains NAPL, which is mobile or potentially mobile, must be removed for proper treatment and disposal. Under most circumstances, visual examination is sufficient to make the determination of mobility, using the following guidelines. Materials that are grossly tar contaminated, with PAH levels above 1000 ppm are included as source material as well.**

   <u>Direct Observation</u> of NAPL Soils that contain a visibly observable separate-phase product is considered source material and should be removed. It is not necessary for the materials to be visibly "tar saturated" in order to qualify for removal.

   <u>Exclusions</u> Materials exhibiting odors, staining, and/or sheens (but no observable separate-phase liquids) will be considered as source material only if they exceed 1000 ppm total PAH. Lumps of hardened tar will not be considered as mobile NAPL.

   <u>Indirect Evidence</u> NAPL coatings on sampling and excavation equipment such as backhoe buckets and split spoon samplers will be considered as evidence of NAPL mobility. Likewise, accumulation of NAPL in monitoring wells will be considered evidence of NAPL mobility, regardless of the physical appearance of the materials sampled during installation, or those immediately surrounding the well during excavation

   <u>Chemical Evidence</u> The Department has applied a total PAH threshold of 1000 ppm at other sites to assist in defining source material. This has been based on generalized observations, and is intended to provide a base level of conservatism.

   NYSEG/GEI interpret the comments above as a NYSDEC proposal for defining MGP-impacted soils that require removal and treatment at the Saranac Street site. While we may not agree with NYSDEC's apparent definitions of "source" and "residual" materials, we do agree that a transparent and practical protocol for identifying materials for removal is required, both for text in the FS, and for application and guidance during remedial actions. It is further the understanding of NYSEG/GEI that this mutually agreed upon criteria for targeting materials for removal will also be applied to identify soils for reuse at the site. As such, the revised FS will assume that soils with no visible indications of tar will be reused as backfill.

   However, NYSEG/GEI does not agree with the NYSDEC position that odors, not in the presence of visual impacts, represent a significant mass of contaminant and should be

described as source material. Isolated odors without visual impacts are typically associated with dissolved phase impacts, which will be addressed by the removal of upgradient source materials. We also believe that staining should be eliminated entirely because: a) staining does not represent a significant enough mass to be considered a source and b) the definition of staining is too subjective a criteria to practically employ during remediation. In our experience "staining" can result from natural conditions (metal oxides), non-MGP materials (charcoal, ash), and sorbed film coatings resulting from water table fluctuations during excavations.

Therefore, NYSEG/GEI will re-evaluate the definition of "source" material presented in the draft FS based on the proposed NYSDEC criteria and our concerns cited in the previous paragraphs.

4. **The Department is in the process of adopting generic Remedial Action Objectives for hazardous waste sites statewide, which are specified in the attached Appendix. These RAOs must be incorporated into the FS as appropriate.**

The RAOs will be incorporated into the OU-1 FS, as appropriate.

Specific Comments:

Section 1.1 **The statement in this section that "The IRM is the Final Remedy for this portion of the site and this FFS does not propose further remedial activities in this area" is potentially misleading. As noted in Section 1.2 of the IRM Final Engineering Report, "The north and northeast sides of the purifier waste deposit could not be excavated due to its proximity and apparent continuation under Saranac and Caroline Streets. These areas will be evaluated as part of the final remedy for the site." As we note later in this letter, the Department does not accept the evaluation of this contamination presented in Section 3.2.5, and consequently, we do not consider the IRM as a complete final remedy for this portion of the site.**

The draft FS contains provisions for "Pre-construction sampling"(Table D-1, in the FS). We will conduct additional soil borings and sampling in front of Caroline Street residences to determine whether purifier waste is present in the subsurface as part of the pre-design sampling. The findings will be used for completing the final remedial design. The revised FS will include new text that clearly explains these intentions.

Section 2.8 **The statement that "If necessary, deed restrictions will be recorded for the NYSEG and PMLD portions of the Site to ensure that the future land use of the Site will not result in an unacceptable risk to human health or the environment" is vague and insufficient. Has NYSEG begun a dialog with the PMLD about the possibility of deed restrictions on their portion of the site? Is the PMLD willing to accept deed restrictions and the responsibility for maintaining them? Has the input of the City of Plattsburgh been solicited to gauge their willingness/ability to enforce deed restrictions?**

As mentioned above, NYSEG met with the Mayor of Plattsburgh prior to our April 15, 2003 meeting with NYSDEC, to expand on a dialog begun even earlier. The outcome of the expanded dialog follows.

- *The City of Plattsburgh (COP)/PMLD has stated that they understand the benefits of deed restrictions with respect to an economical remedial solution and the associated benefits of reuse of their portion of the site.*
- *The COP/PMLD has agreed in principle to accept deed restrictions on their portion of the site.*
- *The COP/PMLD has agreed in principle to accept the responsibility for maintaining deed restrictions on their portion of the site.*

The COP/PMLD has not specifically been queried about enforcement of deed restrictions. However, the properties to potentially be deed restricted are owned by the COP and enforcement of the restrictions should be relatively simple.

It is essential that institutional controls be evaluated as thoroughly as other components of remedial alternatives. The evaluation must include a clear statement of the controls' objectives, how they fit into the overall remedy, whether the controls can be implemented and enforced, and what parties will be responsible for implementation and enforcement. Failure to conduct this evaluation could jeopardize the effectiveness of the entire remedy.

If the final remedy for the site includes institutional controls to prevent exposure to residual contamination, then a soils management plan will need to be developed. Additionally, NYSEG will be required to certify to the State, on an annual basis, that the institutional controls remain in place and effective.

The revised FS will include a new subsection that addresses all these requests.

Section 3.2.5 **For completeness, the report should note that while all soil to a depth of 4 feet was initially removed, most of that soil was backfilled on the site. Only tar and tar-saturated soil was removed for off-site disposal. The present wording implies that all soil from 0 to 4 feet was sent off-site for disposal.**

The revise FS will provide the clarified information, as requested.

The discussion of remaining contamination along Caroline and Saranac Streets is inadequate. Purifier waste was left in this area during the IRM, and the extent of this contamination beyond the site boundary remains unknown. If the purifier waste extends beneath and beyond Caroline Street, it could present an exposure risk to residences located in this area, or to underground utility workers. Further investigation to determine the extent of this material, combined with an assessment of exposure potential, must be included in the remedial alternatives. If excavation is required, the additional volume should be modest, so excavation and treatment costs will probably not require modification.

As described above, additional sampling will be conducted in the pre-design stage to delineate any remaining purifier waste. The final design will include appropriate plans to adequately address the purifier waste issue.

Section 3.2.7 **The tar-bearing materials described in the Stranded River Deposits appear to have been largely covered with anthropogenic fill. The description of this overlying material as "more recent sediment deposits" implies that this was deposited naturally by the river.**

The description will be adjusted in the revised FS to include the presence of miscellaneous fill materials.

Section 3.3 **The presence of sheens on the water surface of the Saranac River must be included in the last sentence in this section, with an acknowledgment that these sheens constitute a violation of New York State Ambient Water Quality Standards.**

The presence of sheen and the associated violation of the New York State Ambient Water Quality Standards will be acknowledged in the revised FS.

Section 4.2.3 **The statement that tar impacts to the bedrock are adequately addressed with existing or slightly expanded tar recovery efforts is not necessarily correct. Dissolved phase contamination needs to be considered too, especially in areas not under NYSEG ownership. Although deed restrictions and natural attenuation can be considered as components of a remediation strategy for these areas, other alternatives should be evaluated as well.**

At a minimum, it will be necessary for NYSEG to demonstrate that adequate institutional controls are in place to prevent exposure to contaminated drinking water.

We have been investigating relevant COP, county, regional, and state institutional controls. The revised FS will include text that describes our findings.

Bedrock NAPL contamination appears to be largely confined to a small number of clearly defined, near-horizontal bedrock fractures. Once NAPL production from these fractures ceases, it may be possible to employ low-cost techniques to flush the fractures and thus minimize the chances that pools of NAPL still remain between the collection wells. Acid flushing of the fractured limestone should be evaluated. Air sparging of the fractures should also be considered.

As discussed in our April 15, 2003 meeting, NYSEG/GEI plans to install two additional bedrock wells along the existing fracture that contains tar. When tar removal efforts via pumping/bailing clearly demonstrate diminished returns, additional low cost technologies will be evaluated for application. The revised FS will describe this plan.

Section 5.3.1 **Treatment and disposal options for excavated soils need to be specified more clearly. It is not acceptable to lump together on-site and off-site disposal. These must be evaluated as separate alternatives, since costs and community acceptance are likely to be significantly different. Likewise, if on-site thermal treatment is considered (as opposed to on-site blending or stabilization) this will need to be evaluated as a separate alternative.**

NYSEG/GEI will define a more specific plan to manage excavated soil in the revised FS, including a comparative evaluation of on-site treatment vs. off-site disposal.

The assumption that only the top two feet of excavated material would be used for backfill artificially raises the estimated cost of the excavation alternatives. Many of the soil borings in AOI #2 (between the containment cell and the barrier wall) show much greater thicknesses of unimpacted soil that will likely be acceptable for on site use. A more refined volume estimate should be used to estimate costs for the excavation alternatives.

The revised FS will include a more refined cost estimate for excavation alternatives based on this request.

The estimated excavation, sorting and stockpiling costs of $20.00 per ton appear to be unjustifiably high. Considerable economies of scale should be possible given the large volumes of soil involved.

The cost cited is actually $20.00 per cubic yard, or about $13.00 per ton, and is based on actual experience managing similar debris encountered in the summer 2002 IRM at the site.

Section 5.3.2 **Classification of sediment impacts using the same "source" or "residually impacted" criteria applied to subsurface soils is inappropriate. The criteria by which contamination in these two materials must be judged are quite different.**

In subsurface soils, the principal issue is mobility of the NAPL. Subsurface soils which have suffered contamination from MGP tars can (under some circumstances) be allowed to remain on site provided that exposure to these soils is eliminated, and the tar can be prevented from moving and creating exposures elsewhere.

In the case of contaminated sediments, the exposure is already present–the tar-impacted sediment is already in a location where human and ecological exposure is likely. Consequently, it makes no sense to distinguish whether (for example) the NAPL drops in the sediment are mobile or not. Exposure is very likely regardless. The critical issue in sediments is whether the contamination violates Ambient Surface Water Standards (such as producing a sheen on the water surface) or presents other human and ecological risks.

Consequently, the creation of two separate Remedial Action Alternatives for sediments, based on a distinction between source material and residually impacted material is inappropriate. A single alternative, excavation of MGP impacted sediment, should be presented instead. Given the shallow, sharply defined bottom of the sediment contamination, and the relatively small volumes of sediment involved, this definition should be easy to apply in the field.

NYSEG/GEI acknowledge the critical issue of whether contaminated sediments, when disturbed, can create a sheen. However, it is important to point out that some impacted sediments, as characterized in 1999 and 2000, are beneath several feet of overlying coarse sediments. As such, a unilateral assumption that all impacted sediments can be disturbed and will generate a sheen may be inaccurate.

However, we acknowledge that impacted sediments adjacent to the site, on both the north and south sides of the river require removal because they represent a source of impacts to the downstream portion of the river and to Lake Champlain, and the FS will be revised to make this clear. But the downstream portion of the river has sustained only scattered impacts, the worst of which are typically located beneath several feet of sediments. These impacted materials would not be released into the environment except under extreme weather events. Finally, the disturbance required to remove these isolated points is worse than leaving them in place.

NYSEG/GEI plans to resample Saranac River sediments at several locations sampled in 1999 and 2000. The results of this effort will support evaluation of whether significant seasonal disturbance/mobilization of deeply buried sediment impacts actually occurs. The work plan describing the re-sampling effort as part of the OU-2 remedial investigation will be provided to NYSDEC under separate cover. Until the results are available, we will clarify the issue and make the distinction in the revised FS.

Section 6.0 **For purposes of achieving compliance with the National Contingency Plan (NCP), a no-action alternative needs to be prepared.**

An additional alternative, calling for excavation of all contamination above TAGM levels must be prepared as well. Due to the large volumes of soil involved, it is highly unlikely that such an alternative would actually be implemented. However, for purposes of public communication, it is necessary to demonstrate that all alternatives for dealing with the site have been examined.

As requested, the revised FS will include evaluation of the "no-action" alternative. It will also include an evaluation of excavation of all contamination above the TAGM levels. The TAGM level scenario will assume that that TAGM levels are exceeded in all overburden at the site.

Section 6.1 **The statement that "All alternatives include the excavation of source and residually impacted materials on the north bank of the Saranac River..." appears to refer only to the stranded deposits, and not to contaminated sediments along the north bank. Please clarify this statement, so that it is more readily apparent what "materials" are being referred to.**

This statement will be clarified in the revised FS, such that the referred to materials are more apparent.

Section 6.2 **Please clarify how the dewatering costs for the excavation remedies were derived.**

Dewatering volumes and costs were based on an assumed excavation sequence and duration combined with the daily costs of equipment, personnel, monitoring, and POTW discharge fees to treat the estimated flow rates. Volumes were calculated using idealized well and flux boundary methods. Hydraulic conductivities used in the analyses varied depending on whether or not the excavation was surrounded by stabilized soil.

Section 6.2.4 **Have the long-term hydrogeological impacts of the stabilized fringe zone been evaluated? It appears that this zone may redirect groundwater flow sufficiently to create seeps in areas not currently subject to seepage. This seepage water would likely contain at least some low-level BTEX contamination.**

The impacts were not explicitly evaluated for the draft FS. NYSEG/GEI will reconsider the need for hydrogeologic modeling after we have re-evaluated the effectiveness and/or long-term value of a stabilized fringe in light of the NYSDEC's previous comments regarding proposed cleanup criteria. If a stabilized fringe similar to the one proposed in the draft FS is maintained, an analysis demonstrating that redirected groundwater will not cause surface flooding or other similar negative impacts will be included in the revised FS.

We plan to revise the Feasibility Study Report in accordance with these responses and resubmit to the Department within 30 days of your approval of the proposed responses contained in this letter. I can be reached at (301) 824-7879 if you have any questions. Tom Kahl is at (781) 721-4011.

Sincerely,

GEI CONSULTANTS, INC.

Thomas W. Kahl

Gerard F. Zak FOR
Project Manager

Sincerely,

GEI CONSULTANTS, INC.

Thomas W. Kahl

Thomas W. Kahl, P.E.
Remedial Engineer

TWK:lek
c: T. Blazicek, NYSEG
M:\PROJECT\1997\97334\FS comment-response letter 051403.doc

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014
Phone: (518) 402-9662 • FAX: (518) 402-9679
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

August 21, 2003

Mr. Tracy L. Blazicek
Senior Environmental Specialist
New York State Electric and Gas Corp.
Corporate Drive - Kirkwood Industrial Park
P.O. Box 5224
Binghamton, NY 13902-5224

Re: Draft Feasibility Study Report Plattsburgh (Saranac Street)
Former MGP Site Operable Unit 1 Plattsburgh, NY June 26, 2003

Dear Mr. Blazicek:

The New York State Departments of Health (NYSDOH) and Environmental Conservation (NYSDEC) have reviewed the above-referenced document. With the following revisions, the Feasibility Study Report will be acceptable.

Executive Summary:
In the fourth bullet item, please revise the text to state: "Recording deed restrictions for the site, including areas affected by the site and not owned by NYSEG, that restrict certain uses and construction". This is true for city-owned property, including the farmer's market that operates across the Saranac River.

Section 3.3 Risk Characterization:
With the refinement of boundary between Operable Units 1 and 2, the statement in the second paragraph of this section that "...there has never been any evidence of stress or animal kills" can no longer be considered correct. Dead and intoxicated crayfish and dead juvenile fish have been observed and photographed in the immediate vicinity of the Saranac River tar seeps on two separate occasions.

The final two sentences in this paragraph should be rewritten to state: "No adverse impacts on terrestrial wildlife have been observed on the site; however, any animals which visit the site and attempt to drink from the Saranac River in the vicinity of the tar seeps will probably be exposed to site contaminants. On two occasions, NYSDEC personnel have observed dead and/or intoxicated aquatic wildlife in the vicinity of the seeps."

The last sentence in the fourth paragraph of this section should be revised. Groundwater, by definition, is considered part of the environment. The revised sentence should read: "Therefore, contaminated groundwater at the site is not considered a risk to human health."

Section 6.2, Description of Alternatives:

a. Page 31, third paragraph. Please insert the following at the end of the first sentence: "ir such form that the NYSDEC shall approve".

b. Page 31, second bullet. Please insert "or other contamination remains" at the end of the sentence.

c. At the end of the section discussion institutional controls, please add a bullet that states: "a soil management plan, in the event that contaminated materials are disturbed".

Please revise the Feasibility Study Report in accordance with these comments and resubmit to the Department for final approval within two weeks of receipt of this letter. The Department will commence preparation of the Proposed Remedial Action Plan (PRAP) for public comment upon receipt and approval of the final report.

Thank you for your cooperation in this matter.

Sincerely,

Gardiner Cross
Engr. Geologist 2
Remedial Bureau C
Division of Environmental Remediation

ec: G. Harris
R. Schick

cc: L. Rafferty, DOH
J. Zak, GEI ✓

From: Jerry Zak
To: Cross, Gardiner
Date: 8/22/03 3:38:36 PM
Subject: Re: OU-1 FS

Gardiner:

I have discussed the comments with Tracy Blazicek at NYSEG. We agree with the spirit and theme of all the comments, but request that you allow us one revision to your requested text changes, as presented below:

NYSDEC Comment:
Section 3.3 Risk Characterization:
"No adverse impacts on terrestrial wildlife have been observed on the site; however, any animals which visit the site and attempt to drink from the Saranac River in the vicinity of the tar seeps will probably be exposed to site contaminants. On two occasions, NYSDEC personnel have observed dead and/or intoxicated aquatic wildlife in the vicinity of the seeps."

Requested Revision:
"No adverse impacts on terrestrial wildlife have been observed on the site; however, any animals which visit the site and attempt to drink from the Saranac River in the vicinity of the tar seeps may possibly be exposed to site contaminants. While it may only be coincidental, it is important to note that NYSDEC personnel have observed dead and/or intoxicated aquatic wildlife in the vicinity of the seeps on two occasions"

All other requests will be made to the Final FS. Please let me know if our requested revision is acceptable. If so, we will begin producing the Final OU-1 FS, for delivery to you and other parties by September 4, 2003. You and I need to put our heads together again on who gets how many copies.

Also, can you provide any indication of the status of the OU-2 workplan? Time keeps going by. Thanks.

Jerry

>>> "Gardiner Cross" <gwcross@gw.dec.state.ny.us> 8/22/03 10:06:35 AM >>>
Attached is an electronic version of the OU1 FS comments. Hard copy
will follow.

Gardiner Cross
Engineering Geologist 2
NYSDEC-Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7017
518.402.9662

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From: "Gardiner Cross" <gwcross@gw.dec.state.ny.us>
To: <jzak@geiconsultants.com>
Date: 8/23/03 1:22:00 PM
Subject: Re: OU-1 FS

That FS language is acceptable.

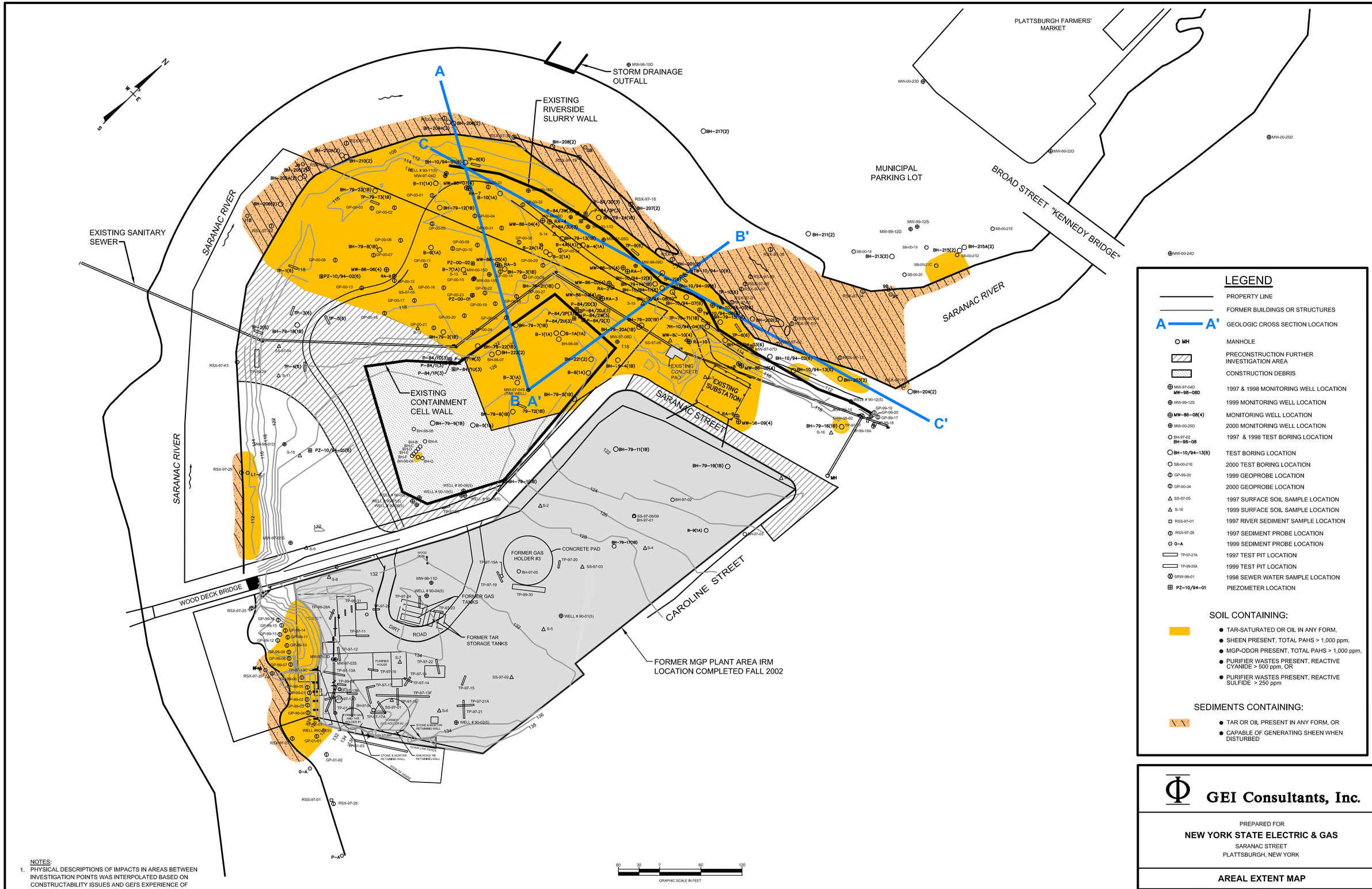
Regarding OU 2, I received our Fish and Wildlife division's comments on the additional field work a few days ago, and was originally intending to send out comments to you today. However, there's one DFW comment regarding sampling technique that I simply don't understand, and I'll have to wait until Monday to get a clarification.

Overall, the OU 2 comments are minor.

Gardiner Cross
Engineering Geologist 2
NYSDEC-Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7017
518.402.9662

Appendix B

Boring, Test Pit, and Monitoring Well Logs



NOTES:

1. PHYSICAL DESCRIPTIONS OF IMPACTS IN AREAS BETWEEN INVESTIGATION POINTS WAS INTERPOLATED BASED ON CONSTRUCTABILITY ISSUES AND GEI'S EXPERIENCE OF LIKELY CONTAMINANT DISTRIBUTION.

LEGEND

- PROPERTY LINE
- FORMER BUILDINGS OR STRUCTURES
- A — A' GEOLOGIC CROSS SECTION LOCATION
- MH MANHOLE
- PRECONSTRUCTION FURTHER INVESTIGATION AREA
- CONSTRUCTION DEBRIS
- MW-97-04D / MW-98-08D 1997 & 1998 MONITORING WELL LOCATION
- MW-99-12S 1999 MONITORING WELL LOCATION
- MW-86-08(4) MONITORING WELL LOCATION
- MW-00-25D 2000 MONITORING WELL LOCATION
- BH-97-02 / BH-98-08 1997 & 1998 TEST BORING LOCATION
- BH-10/94-13(6) TEST BORING LOCATION
- SB-00-21E 2000 TEST BORING LOCATION
- GP-99-20 1999 GEOPROBE LOCATION
- GP-00-34 2000 GEOPROBE LOCATION
- SS-97-05 1997 SURFACE SOIL SAMPLE LOCATION
- S-16 1999 SURFACE SOIL SAMPLE LOCATION
- RSS-97-01 1997 RIVER SEDIMENT SAMPLE LOCATION
- RSX-97-28 1997 SEDIMENT PROBE LOCATION
- 0-A 1999 SEDIMENT PROBE LOCATION
- TP-97-21A 1997 TEST PIT LOCATION
- TP-99-28A 1999 TEST PIT LOCATION
- SRW-98-01 1998 SEWER WATER SAMPLE LOCATION
- PZ-10/94-01 PIEZOMETER LOCATION

SOIL CONTAINING:

- TAR-SATURATED OR OIL IN ANY FORM,
- SHEEN PRESENT, TOTAL PAHS > 1,000 ppm,
- MGP-ODOR PRESENT, TOTAL PAHS > 1,000 ppm,
- PURIFIER WASTES PRESENT, REACTIVE CYANIDE > 500 ppm, OR
- PURIFIER WASTES PRESENT, REACTIVE SULFIDE > 250 ppm

SEDIMENTS CONTAINING:

- TAR OR OIL PRESENT IN ANY FORM, OR
- CAPABLE OF GENERATING SHEEN WHEN DISTURBED

GEI Consultants, Inc.

PREPARED FOR

NEW YORK STATE ELECTRIC & GAS

SARANAC STREET
PLATTSBURGH, NEW YORK

AREAL EXTENT MAP

DATE: MAY 2003	SCALE: 1"=60'	**SHEET 1 OF 1**
PROJECT NO.: 973340-1005		

GEI\NYSEG\PLATTS\973341\1005\FS\FS-0503\PLATT EXT-IMP

GEI Consultants, Inc.
188 Norwich Avenue • P.O. Box 297
Colchester, CT 06415
Phone: (860) 537-0751
Fax: (860) 537-6347

TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9711
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Former MGP Area - Investigation
ASSISTANT: Bob Prentiss
OTHERS: Dave Crosby - NYSDEC
DATE: October 21, 1997
SURFACE ELEVATION: 133.7
TIME OPENED: 1410 **TIME CLOSED:** 1510
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-1.2':	**FILL.** Black ash and cinders. No odor.
1.2'-4.4':	Clean brown **SAND.** Pipe at 2.0 feet.
4.4'-10.0':	Grey clayey **SILT.** Strong fuel odor. Perched water at 4.4'. OVM not functioning. Head space reading from archive on October 22, 1997 was 70 ppm.
10.0'-11.0':	**TILL.** Grey, compact, few stones. No odor.
11.0':	End.

VIDEO DOCUMENTED: YES ____ NO X
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: 4.4 FT (perched)

NAPL SEEPAGE: YES ____ NO X
BULK SAMPLES: YES ____ NO X
QUANTITY: ____

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188 Norwich Avenue • P.O. Box 297
Colchester, CT 06415
Phone: (860) 537-0751
Fax: (860) 537-6347

TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9712
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Former MGP Area Investigation
ASSISTANT: Bob Prentiss
OTHERS: Dave Crosby - NYSDEC
DATE: October 21, 1997
SURFACE ELEVATION: 131.6
TIME OPENED: 1535 **TIME CLOSED:** 1610
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-3.0':	**FILL.** Ash, cinders, loam, and stones. No odor.
3.0'-8.0':	Grey clayey **SILT.** Slight fuel and tar odor. Tar seep at 7.0 feet in sand mixed with clayey silt. Collected sample from seep (TP9712 at 1620). Strong tar odor from seep. OVM not functioning. Head space reading from archive on November 22, 1997 was 360 ppm.
8.0'-9.0:	**TILL.** Grey, compact, few stones. No odor.
9.0':	End.

VIDEO DOCUMENTED: YES ____ NO X
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: Unknown FT

NAPL SEEPAGE: YES X NO ____
BULK SAMPLES: YES ____ NO X
QUANTITY: ____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9713C
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Southwest Edge of Former MGP Buildings
ASSISTANT: Bob Prentiss
OTHERS: Bill Zeppetelli - NYSDEC
DATE: October 24, 1997
SURFACE ELEVATION: 129.2
TIME OPENED: 0820 **TIME CLOSED:** 0900
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-2.0':	**FILL.** Loam and cinders. No odor. 0 ppm.
2.0'-7.0':	Brown **SILT** and stones. No odor. 0 ppm.
7.0'-8.0':	**TILL.** Grey compact. Slight naphthalene odor. 12 ppm.
8.0':	End.
NOTE:	Initial excavations (TP9713A, TP9713B) were refused due to concrete and rock rubble in the shallow subsurface.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES X NO
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: Unknown FT

NAPL SEEPAGE: YES NO X
BULK SAMPLES: YES NO X
QUANTITY:

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9713D
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Former MGP Area Investigation
ASSISTANT: Bob Prentiss
OTHERS: Bill Zeppetelli - NYSDEC
DATE: October 24, 1997
SURFACE ELEVATION: 131.02
TIME OPENED: 0900 **TIME CLOSED:** 0945
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-2.0':	**FILL**. Cinders, loam, crushed brick, and fire brick. No odor. 0 ppm.
2.0'-5.0':	Grey and brown clayey **SILT**. No odor. Broke pipe oriented north/south at 4.0 feet. Water and tar impacted material in pipe.
5.0':	Ceased excavation due to broken pipe.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES X NO
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: Unknown FT

NAPL SEEPAGE: YES NO X
BULK SAMPLES: YES NO X
QUANTITY:

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9713E
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Investigation Former MGP Site
ASSISTANT: Bob Prentiss
OTHERS: Bill Zeppetelli - NYSDEC
DATE: October 24, 1997
SURFACE ELEVATION: 131.55
TIME OPENED: 0950 **TIME CLOSED:** 1030
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-3.5':	**FILL.** Primarily traprock. No odor. 0 ppm. Pipes at 2.9 feet and 3.3 feet (west end) Two other pipes at east end.
3.5'-5.0':	Grey clayey **SILT.** No odor. 0 ppm.
5.0':	Terminated pit due to broken clay pipe spilling sheeny water with naphthalene odor into pit.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES X NO
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: Unknown FT

NAPL SEEPAGE: YES NO X
BULK SAMPLES: YES NO X
QUANTITY:

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9713F
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Investigate Former MGP Site
ASSISTANT: Bob Prentiss
OTHERS: Bill Zeppetelli - NYSDEC
DATE: October 24, 1997
SURFACE ELEVATION:
TIME OPENED: 1130 **TIME CLOSED:**
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

Test pit TP9713F was 78 feet long. For most of its length, depth was limited by subsurface structures or pipes. Therefore, excavation did not encounter the till layer which was generally observed at depths beyond 9.0 feet. Sample TP97-13F was collected 3.3 feet below ground surface from a seam of residual tar in soil matrix. This sample was approximately 30 feet from the west end of TP97-13F.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES X NO
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: FT

NAPL SEEPAGE: YES NO
BULK SAMPLES: YES NO
QUANTITY:

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9714
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Former MGP Area Investigation
ASSISTANT: Bob Prentiss
OTHERS:
DATE: October 22, 1997
SURFACE ELEVATION: 132.75
TIME OPENED: 0830 **TIME CLOSED:** 0920
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-4.0':	**FILL.** Brick, sand, cinders, and silt. No odor. Two steel pipes within 2.0 feet of surface.
4.0'-7.0':	Grey clayey **SILT.** Water and slight tar seep at 6.0 feet. Moderate tar odor. OVM not functioning. Collected TP9714 from 6.0 feet at 0930. Standard analytical and TCLP benzene.
7.0'-8.0':	**TILL.** Grey, compact. No odor.
8.0':	End.
NOTE:	Test pit appears to be within the foundation of a structure.

VIDEO DOCUMENTED: YES ____ NO X
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: 6.0 FT

NAPL SEEPAGE: YES X NO ____
BULK SAMPLES: YES ____ NO X
QUANTITY: ____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9715
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Area of Former Tar Pit
ASSISTANT: Bob Prentiss
OTHERS: Bill Zeppetelli - NYSDEC
DATE: October 24, 1997
SURFACE ELEVATION: 133.8
TIME OPENED: _____ **TIME CLOSED:** _____
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-3.6':	**FILL.** Loam, cinders, and traprock. No odor. 0 ppm.
3.6'-8.5':	Grey clayey **SILT.** No odor. 0 ppm. Trace of reddish/purple purifier material which was also observed in TP9721. Trace water at 8.5 feet.
8.5'-9.0':	**TILL.** Grey, compact. No odor. 0 ppm
9.0':	End.

VIDEO DOCUMENTED: YES X NO _____
PHOTOGRAPHED: YES X NO _____
PIEZOMETER NO. USED IN BACKFILL: _____

NAPL SEEPAGE: YES ___ NO X
BULK SAMPLES: YES ___ NO X
QUANTITY: _____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9716
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Former MGP Area Investigation
ASSISTANT: Bob Prentiss
OTHERS: Dave Crosby - NYSDEC
DATE: October 22, 1997
SURFACE ELEVATION: 133.15
TIME OPENED: 0800 **TIME CLOSED:** 0825
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-3.5':	**FILL.** Loam, sand, silt, and cinders (0 ppm OVM). No odor.
3.5'-8.5':	Grey clayey **SILT.** Slight fuel odor (8 ppm OVM). Water seep with trace free tar at 8.0' (10 ppm OVM).
8.5'-9.5':	**TILL.** Grey, compact, few stones. No odor.
9.5':	End.

VIDEO DOCUMENTED: YES _____ NO X
PHOTOGRAPHED: YES X NO _____
PIEZOMETER NO. USED IN BACKFILL: _____
DEPTH TO WATER: 8.0 FT

NAPL SEEPAGE: YES X NO _____
BULK SAMPLES: YES _____ NO X
QUANTITY: _____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9717
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Investigate Smaller Gas Holder Foundation
ASSISTANT: Bob Prentiss
OTHERS: Dave Crosby, Tracy Blazicek
DATE: October 22, 1997
SURFACE ELEVATION: 131.6
TIME OPENED: 1110 **TIME CLOSED:** 1300
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

OUTSIDE HOLDER

0-8.0':	**FILL.** Wood, bricks, firebrick, traprock, and wood. Some immobile tar, in soil at 2.0'. Water at 4.0'. Moderate tar odor. OVM not functioning.
8.0':	**TILL.** Grey, compact, few stones.
8.5':	End.
NOTE:	Collected sample TP9717 outside of holder structure at 2.0 feet at 1230. Analyzed for typical parameters and TCLP benzene.

INSIDE HOLDER

0-1.5':	**FILL.** Sand and brick.
1.5-3.2':	**FILL.** Thin layer of residual tar in soil just above concrete slab.
3.2':	Concrete slab. End of excavation.

VIDEO DOCUMENTED: YES ____ NO X
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: 4.0 FT

NAPL SEEPAGE: YES ____ NO X
BULK SAMPLES: YES ____ NO X
QUANTITY: ____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9718
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Larger Holder
ASSISTANT: Bob Prentiss
OTHERS: Dave Crosby, Tracy Blazicek
DATE: October 22, 1997
SURFACE ELEVATION:
TIME OPENED: 1300 **TIME CLOSED:** 1415
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

OUTSIDE HOLDER

0-2.0':	**FILL.** Traprock and silt. No odor. 0 ppm.
2.0'-10.0':	Grey clayey **SILT.** No odor. 0 ppm.
10.0'-15.0':	Grey, moist soft clay. No odor. 0 ppm.
15.0'-16.0':	**TILL.** Grey, compact, few stones. No odor. 0 ppm.
16.0':	End.

INSIDE HOLDER

0-3.6':	**FILL.** Bricks, stones, and sand. No odor. 0 ppm.
3.6':	Concrete slab. End.

VIDEO DOCUMENTED: YES ____ NO X
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: Unknown FT

NAPL SEEPAGE: YES ____ NO X
BULK SAMPLES: YES ____ NO X
QUANTITY: ____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9719
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Investigate Former Holder
ASSISTANT: Bob Prentiss
OTHERS: Dave Crosby - NYSDEC
DATE: October 22, 1997
SURFACE ELEVATION: 132.55
TIME OPENED: 1440 **TIME CLOSED:** 1505
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-3':	**FILL.** Ash, cinders, brick. No odor. 0 ppm.
3-6.5':	Grey clayey **SILT.** No odor. 0 ppm.
6.5-80':	**TILL.** Grey, compact. No odor. 0 ppm.
8.0':	End.

VIDEO DOCUMENTED: YES ____ NO ____
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: 6.5 FT

NAPL SEEPAGE: YES ____ NO X
BULK SAMPLES: YES ____ NO X
QUANTITY: ____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9719A
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Drip Box at Holder Pad
ASSISTANT: Bob Prentiss
OTHERS: Dave Crosby - NYSDEC
DATE: October 22, 1997
SURFACE ELEVATION:
TIME OPENED: 1540 **TIME CLOSED:** 1600
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-5.0':	**FILL.** Sand, brick, cinders, and stones. Water at 5.0 feet. Some tar in fill at 6.0'.
6.0':	End due to standing water in pit.

VIDEO DOCUMENTED: YES ____ NO X
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: 5.0 FT

NAPL SEEPAGE: YES ____ NO X
BULK SAMPLES: YES ____ NO ____
QUANTITY: ____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9720
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Investigate Holder Pad
ASSISTANT: Bob Prentiss
OTHERS:
DATE: October 22, 1997
SURFACE ELEVATION: 129.6
TIME OPENED: 1505 **TIME CLOSED:** 1540
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-1.0':	**FILL.** Cinders and silt. No odor. 0 ppm.
1.0'-5.7':	Brown silty **CLAY.** Moist. No odor. 0 ppm.
5.7'-7.0':	**TILL.** Grey, compact, few stones. No odor. 0 ppm.
7.0':	End.

VIDEO DOCUMENTED: YES ____ NO X
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: Unknown FT

NAPL SEEPAGE: YES ____ NO X
BULK SAMPLES: YES ____ NO X
QUANTITY: ____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9721
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Oil House
ASSISTANT: Bob Prentiss
OTHERS: Bill Zeppetelli - NYSDEC
DATE: October 23, 1997
SURFACE ELEVATION: 133.70
TIME OPENED: 1145 **TIME CLOSED:** 1230
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

Test pit roughly oriented north/south.

0-8.0': Clayey silt. **FILL.** Traces of peat and small amounts of reddish purifier waste. Faint fuel odor.

8.0': End.

No sign of former oil house structure. Moved backhoe to end of pit and began another pit (TP-97-21A) oriented east/west.

VIDEO DOCUMENTED: YES _____ NO X
PHOTOGRAPHED: YES X NO _____
PIEZOMETER NO. USED IN BACKFILL: _____
DEPTH TO WATER: _____ FT

NAPL SEEPAGE: YES ___ NO X
BULK SAMPLES: YES ___ NO X
QUANTITY: _____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9721A
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Oil House
ASSISTANT: Bob Prentiss
OTHERS: Bill Zeppetelli - NYSDEC
DATE: October 23, 1997
SURFACE ELEVATION: 133.73
TIME OPENED: 1230 **TIME CLOSED:** 1300
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

Test pit roughly oriented east/west.

0-1.0':	Loam and traprock. **FILL.**
1.0'-6.0':	Layering of silt, cinders, and ash. **FILL.** 0 ppm.
6.0'-10.0':	Gray clayey fine-grained sand. Moist. No odor.
10.0-12.0':	**TILL.** More firm with increasing depth.
12.0':	End.

VIDEO DOCUMENTED: YES _____ NO X
PHOTOGRAPHED: YES X NO _____
PIEZOMETER NO. USED IN BACKFILL: _____
DEPTH TO WATER: _____ FT

NAPL SEEPAGE: YES ___ NO X
BULK SAMPLES: YES ___ NO X
QUANTITY: _____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9722
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Near Former Purifier House
ASSISTANT: Bob Prentiss
OTHERS: Bill Zeppetelli - NYSDEC
DATE: October 23, 1997
SURFACE ELEVATION: 133.75
TIME OPENED: 1110 **TIME CLOSED:** 1140
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-4.0':	**FILL.** Ash and cinders to 2.5'. Orange sand and gravel to 4.0'. No odor. Two steel pipes oriented east/west at 2.0'.
4.0'-7.0':	Grey, clayey **SILT** . No odor. 0 ppm.
7.0'-8.0':	**TILL.** Grey, more soft than typically encountered. Slight fuel odor. 5 ppm.
8.0':	End.

VIDEO DOCUMENTED: YES ____ NO X
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: Unknown FT

NAPL SEEPAGE: YES ___ NO X
BULK SAMPLES: YES ___ NO X
QUANTITY: ____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9723
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Near Former USTs
ASSISTANT: Bob Prentiss
OTHERS: Bill Zeppetelli - NYSDEC
DATE: October 23, 1997
SURFACE ELEVATION: 133.72
TIME OPENED: 0820 **TIME CLOSED:** 850
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-2.5':	**FILL.** Traprock, ash, cinders, asphalt. No odor. 0 ppm.
2.5'-9.0':	Grey and brown clayey **SILT**, trace pebbles. Moister with depth. No odor. 0 ppm. 6-inch steel pipe oriented north/south at 3.9'.
9.0'-10.0':	**TILL.** Grey, compact, few stones. No odor. 0 ppm. Water seeping into pit at 9.0'.
10.0':	End.

VIDEO DOCUMENTED: YES ____ NO X
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: 9.0 FT

NAPL SEEPAGE: YES ___ NO X
BULK SAMPLES: YES ___ NO ___
QUANTITY: ____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9724
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Near Former USTs
ASSISTANT: Bob Prentiss
OTHERS: Bill Zeppetelli - NYSDEC
DATE: October 23, 1997
SURFACE ELEVATION: 133.86
TIME OPENED: 0910 **TIME CLOSED:** 1010
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-6.0':	**FILL.** Bricks and broken concrete. No odor. OVM not functioning. Water seep at 6.0.
6.0'-8.5':	Grey clayey **SILT.** Moist. Fuel odor. Collected sample TP9724 (at 1010) and duplicate TP9724A (called time 1100) from odiferous silt interval.
8.5'-9.0':	**TILL.** Grey. Less hard than typically encountered.
9.0':	End.

VIDEO DOCUMENTED: YES ____ NO X
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: 6.0 FT

NAPL SEEPAGE: YES ____ NO X
BULK SAMPLES: YES ____ NO X
QUANTITY: ____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9725
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Near Former USTs
ASSISTANT: Bob Prentiss
OTHERS: Bill Zeppetelli - NYSDEC
DATE: October 23, 1997
SURFACE ELEVATION: 133.15
TIME OPENED: 1350 **TIME CLOSED:** 1440
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-2.5':	**FILL.** Cinders, ash, orange sand and gravel. No odor. 0 ppm.
2.5'-5.5':	Grey clayey **SILT.** Slight fuel odor. 0 ppm. Broke tile pipe at 2.7'. Tarry sludge in pipe. 19 ppm. Water also wept from pipe.
5.5'-6.0':	**TILL.** Grey, compact. No odor. 0 ppm.
6.0':	End.

VIDEO DOCUMENTED: YES ____ NO X
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: Unknown FT

NAPL SEEPAGE: YES ____ NO X
BULK SAMPLES: YES ____ NO X
QUANTITY: ____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9726
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Near Former USTs
ASSISTANT: Bob Prentiss
OTHERS: Bill Zeppetelli - NYSDEC
DATE: October 23, 1997
SURFACE ELEVATION: 129.57
TIME OPENED: 1450 **TIME CLOSED:** 1545
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-2.0':	**FILL.** Loam and cinders. No odor. 0 ppm.
2.0'-11.0':	Brown and grey clayey **SILT.** Strong petroleum odor. 74 ppm. Collected TP 9726 from 5.0 to 6.0 feet at 1530, for typical parameters and TCLP benzene analysis.
11.0'-12.0':	**TILL.** Grey, compact. No odor.
12.0':	End.

VIDEO DOCUMENTED: YES ____ NO X
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: ____ FT

NAPL SEEPAGE: YES ____ NO X
BULK SAMPLES: YES ____ NO X
QUANTITY: ____

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Fax: (860) 537-6347

TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9727
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Along Sewer Trunk, To Inspect Bedding Material for Coal Tar
ASSISTANT: Bob Prentiss
OTHERS: Dave Crosby, Tracy Blazicek
DATE: October 22, 1997
SURFACE ELEVATION: 131.6
TIME OPENED: 1110 **TIME CLOSED:** 1300
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-6.0': Olive/brown fine sand and silt. Some gravel and cobbles. **FILL.** No odors or sheens. 18-inch sewer pipe encased in concrete from 2.5 to 5.5 feet. Water table at 5.0 feet.

VIDEO DOCUMENTED: YES ____ NO X
PHOTOGRAPHED: YES X NO ____
PIEZOMETER NO. USED IN BACKFILL: ____
DEPTH TO WATER: 5.0 FT

NAPL SEEPAGE: YES ___ NO X
BULK SAMPLES: YES ___ NO X
QUANTITY: ____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9929
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Northern side of Saranac Street near sewer
ASSISTANT:
OTHERS:
DATE: June 29, 1999
CONTRACTOR: Aquifer Drilling & Testing
TIME OPENED: 0710 **TIME CLOSED:** 0745
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-4.5': Fine sandy brown silt. Dry. No odor. **ALLUVIUM.**

4.5-12.5': Very cobbly dark grey **TILL.** No odor.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES NO X
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: NA FT

NAPL SEEPAGE: YES X NO
BULK SAMPLES: YES X NO
QUANTITY:

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER: 97334
TEST PIT NUMBER: TP9930
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Along above-grade holder slab
ASSISTANT:
OTHERS:
DATE: June 23, 1999
CONTRACTOR: Aquifer Drilling & Testing
TIME OPENED: 1100 **TIME CLOSED:** 1200
EQUIPMENT: John Deere Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-2.0':	Dry brown silt, cinders, ash. **FILL.** No odor.
2.0-8.5':	Brown sandy silt. Firm. Dry. No odor. 4-inch clay pipe oriented north/south at approximately 8.0 feet below ground surface. Broke pipe. Pipe full of water and other dark liquid. Begins filling pit. Sheen on water, with naphthalene odor. **FILL.**
8.5:	**TILL.** Dark grey. Dry. Fill note to stop water flow.
	Move south, along edge of holder pad. Continue excavating. Lithology as above. Find 16-inch cast iron pipe oriented roughly east/west. Pipe apparently stable and undamaged.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES NO X
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: NA FT

NAPL SEEPAGE: YES X NO
BULK SAMPLES: YES X NO
QUANTITY:

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG-Plattsburgh
PROJECT NUMBER.: 97334
TEST PIT NUMBER: TP-01-01
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Former Gas Plant Area
ASSISTANT: Luck Brothers
OTHERS: NYSDEC
DATE: 11/13/01
SURFACE ELEVATION: 130.16
TIME OPENED: _____ **TIME CLOSED:** _____
EQUIPMENT: John Deere Excavator

In the space provided below, note what was found in the test pit, soil types, and waste. Note any buried metal objects.

Test pit excavated to confirm no significant source areas in overburden at former gas works location.

0 – 1.0: Dry loam with roots. No physical evidence of MGP impacts. 0 ppm PID.

1.0 – 4.0: Reworked layers of silt; banded at varying angles 5 to 20 degrees from horizontal. Gravel scattered throughout. No physical evidence of MGP impacts. 0 ppm PID.

4.0 – 12.0: As above. Very hard. Stones of gravel to cobble size scattered throughout. General hydrocarbon odors throughout. 2 ppm PID.

12.0 – 19.0: Till. Strong naphthalene odor. Microfracture in till with tar coating 35 feet from corner of fence. 75 ppm PID.

VIDEO DOCUMENTED: YES ☐ NO ☒
PHOTOGRAPHED: YES ☒ NO ☐
PIEZOMETER NO. USED IN BACKFILL: _____
DEPTH TO WATER: >19.0 FT

NAPL SEEPAGE: YES ☐ NO ☒
BULK SAMPLES: YES ☐ NO ☒
QUANTITY: _____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG - Plattsburgh
PROJECT NUMBER.: 97334
TEST PIT NUMBER: TP-01-02
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE: Former Gas Plant Area
ASSISTANT: Luck Brothers
OTHERS: NYSDEC and NYSEG
DATE: 11/13/01
SURFACE ELEVATION: 132.0
TIME OPENED: _____ **TIME CLOSED:** _____
EQUIPMENT: John Deere Excavator

In the space provided below, note what was found in the test pit, soil types, and waste. Note any buried metal objects.

0.0 – 12.5 Dry, tightly packed silt. Some gravel. No physical evidence of contamination.

12.5 – 14.5 Till. One cobble in the till with a thin tar coating.

Moved toward smaller holder. Same as above, until we reach the edge. A pile of fire brick with tar seeps is noted.

VIDEO DOCUMENTED: YES ☐ NO ☒
PHOTOGRAPHED: YES ☒ NO ☐
PIEZOMETER NO. USED IN BACKFILL: _____
DEPTH TO WATER: >14.5 FT

NAPL SEEPAGE: YES ☒ NO ☐
BULK SAMPLES: YES ☐ NO ☒
QUANTITY: _____

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TEST PIT DESCRIPTION SHEET

CLIENT/SITE: NYSEG-Plattsburgh
PROJECT NUMBER.: 97334
TEST PIT NUMBER: TP-01-03
OBSERVER: Jerry Zak
GENERAL LOCATION AND/OR PURPOSE
Southeastern side of smaller holder
ASSISTANT: Luck Brothers
OTHERS: NYSDEC and NYSEG
DATE: 11/14/01
SURFACE ELEVATION: 138.31
TIME OPENED: _____ **TIME CLOSED:** _____
EQUIPMENT: John Deere Excavator

In the space provided below, note what was found in the test pit and sketch dimensions, soil types, and waste. Note any buried metal objects.

0.0 – 1.0	Loose, silty loam. Dark brown. Dry.
1.0 – 2.5	Light brown dry silt.
2.5 – 17.0	Hard, dry, brown silt and clay.
17.0 – 19.0	Till. Moist.

No physical evidence of contamination anywhere in pit. 0 ppm PID throughout.

VIDEO DOCUMENTED: YES ☐ NO ☒
PHOTOGRAPHED: YES ☒ NO ☐
PIEZOMETER NO. USED IN BACKFILL: _____
DEPTH TO WATER: >19.0 FT

NAPL SEEPAGE: YES ☐ NO ☒
BULK SAMPLES: YES ☐ NO ☒
QUANTITY: _____

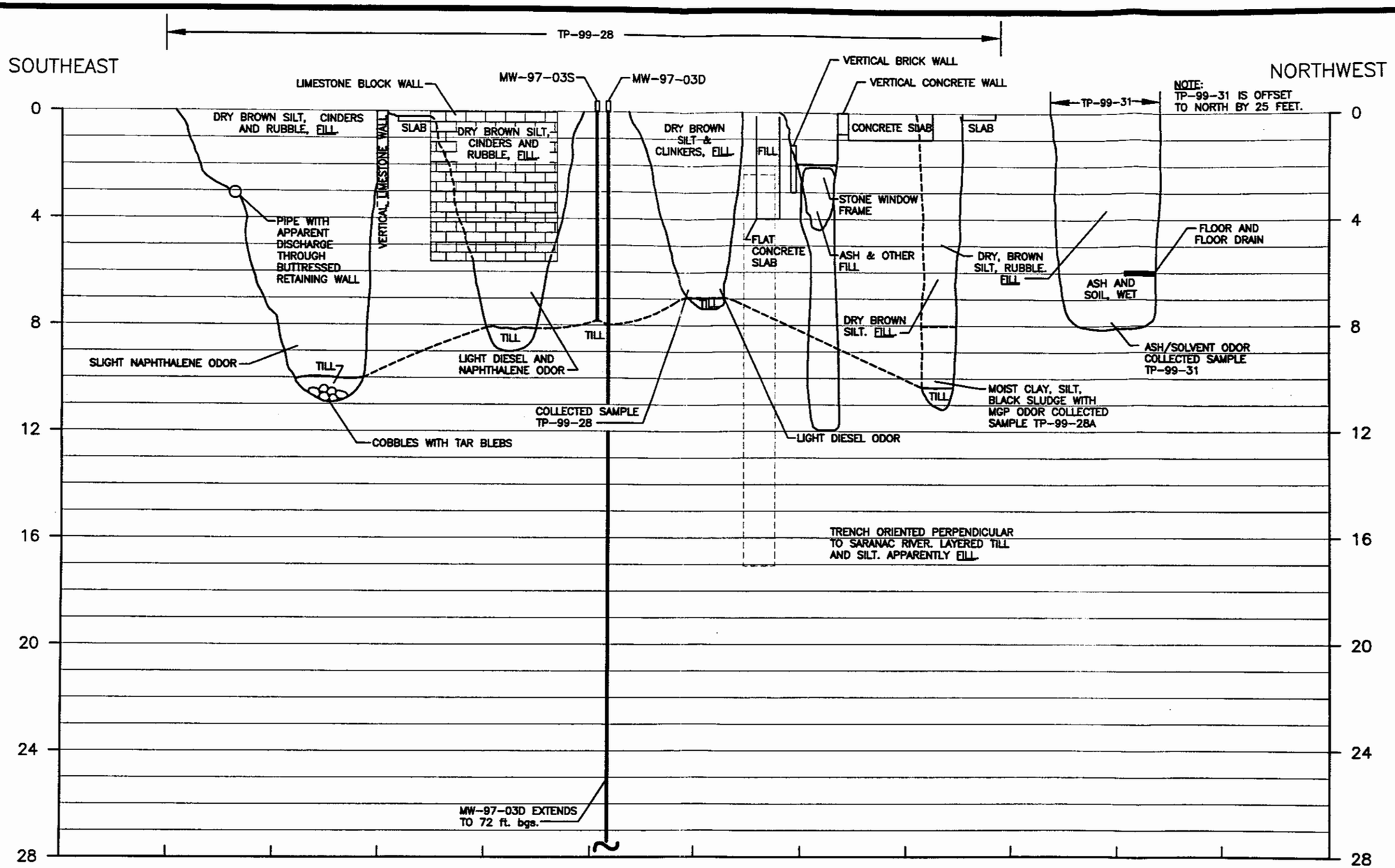

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FIGURE C-1
CROSS SECTION OF TP-99-28 AND TP-99-31

SARANAC STREET
PLATTSBURGH, NEW YORK

BORING BH9701

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: In purifier waste area
DATE STARTED: 11/18/97
DATE COMPLETED: 11/18/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Vince Prue

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 125.26
WEATHER:
INSPECTOR: Jerry Zak
CHECKED BY:

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	VISUAL CONTAM. STAIN	VISUAL CONTAM. SHEEN	VISUAL CONTAM. HEAVY	ODOR NONE	ODOR SLIGHT	ODOR MODERATE	ODOR HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
															0
0-2	6,6 8,9	90	-	Ash, cinders, wood chips, FILL.	■				■						
2-4	7,9 12,12	50	-	Alternating layers of clayey silt and clayey or silty fine to coarse sands. Silts are red or brown. Sands are brown to nearly black. 1/4 inch peat lense at 6.95.	■				■						
4-6	5,7 7,6	70	-		■				■						5
6-8	4,5 5,9	55	-		■				■						
8-10	5,5 9,12	35	-	Alternating layers of moist brown silty clay and black, well decomposed, dry peat. Peat has naphthalene odor. Collected peat sample from 10.3-10.55.	■				■				■		
10-12	5,5 7,9	60	-		■				■				■		10
12-14	8,8 10,14	100	-	Moist brown clayey silt with gravel.	■				■				■		
14-16	7,7 14,100/.5	60	-	Wash.	■				■				■		15
16-16.5	125/.5	100	-	Till. Hard, dry. Refusal at 16.0 in till. Grouted hole to surface.	■				■				■		
				End of boring at 16.5 feet.											

GEI Φ ATLANTIC

BORING BH9703

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Near Caroline Street
DATE STARTED: 11/19/97
DATE COMPLETED: 11/19/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Vince Prue

DRILLING METHOD: HSA
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 124.71
WEATHER:
INSPECTOR: Jerry Zak
CHECKED BY: Anna Sullivan

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
0-2	9,6 6,5	80	0	Roots, cinders, ash, clinkers. FILL.	■				■				
2-4	7,8 8,6	45	0		■				■				
4-6	8,8 11,19	50	0	Brown fine to medium SAND. Grades into grey fine sandy silt with trace of gravel at 6.6 feet. Water saturated at 8.0 feet. Till-like from 10.0 to 12.0 feet.	■				■				
6-8	10,12 13,10	65	0		■				■				
8-10	9,11 11,14	95	0		■				■				
10-12	10,16 20,28	65	0		■				■				
12-14	13,27 43,85	75	0	Till. Terminated boring.	■				■				
				End of boring at 14 feet.									

LITHOLOGY

DEPTH (FT.): 0, 5, 10, 15

GEI Φ ATLANTIC

BORING BH9704

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Small holder
DATE STARTED: 11/20/97
DATE COMPLETED: 11/20/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Vince Prue

DRILLING METHOD: HSA
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 131.48
WEATHER:
INSPECTOR: Jerry Zak
CHECKED BY: Anna Sullivan

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
0-5				Augered to concrete pad (test pitting had provided shallow characterization). Augered through concrete pad. Pad 17" thick.									
				Fine to medium SAND. Pore spaces full of tar.				■				■	
5-7	28,53 39,51	55	143	Moist olive SILT and GRAVEL. Trace tar in interior of matrix. Matrix similar to till.			■				■		
7-9	11,27 23,25	45			■								
				Till. Terminated boring. Grouted hole.	■				■				
9-11	18,20 27,37	75			■				■				
				End of boring at 11 feet.									

LITHOLOGY

DEPTH (FT.): 0, 5, 10, 15

GEI Φ ATLANTIC

BORING BH9705

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Large holder pad near Saranac Street
DATE STARTED: 12/1/97
DATE COMPLETED: 12/2/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Vince Prue/Derek Walker

DRILLING METHOD: HSA
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 130.22
WEATHER:
INSPECTOR: Jerry Zak/Kyle Sullivan
CHECKED BY: Anna Sullivan

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN
				Initially drilled in valve box near center of pad. Box filled with apparently clean debris - sand, wood - no tar, sheen, or odor. 0 ppm on OVM. Then moved away from valve box and drilled through concrete holder pad. Pad is 8 inches thick.
0-1				Tan and grey fine sand and clay. Faint tar odor from 3.1 to 3.2 feet.
1-3	4,6 7,9	70	0	
3-5	4,8 13,49	100	0	
5-7	7,23 39,56	100	0	
7-9	38,49 51,62	85	0	
				Till. Terminated boring. Grouted to surface.
9-10.4	61,89 100/.4	78	0	
				End of boring at 10.4 feet. Grouted hole.

VISUAL CONTAM.: NONE, STAIN, SHEEN, HEAVY
ODOR: NONE, SLIGHT, MODERATE, HEAVY
SAMPLE ANALYSIS
LITHOLOGY
DEPTH (FT.): 0, 5, 10, 15

GEI Φ ATLANTIC

BORING BH9806

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Southern end of containment cell
DATE STARTED: 3/9/98
DATE COMPLETED: 5/6/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ Wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 124.84
WEATHER:
INSPECTOR: Jerry Zak
CHECKED BY: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
0-2	2,2 3,5	55	0	Brown sand. FILL.	■				■				
2-4	11,50/.1	40	0	Silt and sand. FILL. Auger refusal at 4.0. Moved rig several times until sampling could proceed beyond 4.0.			■			■			
4.5-6	36,60 65	35	19	Sand, silt, and stones, some residual tar. FILL.			■					■	
6-8	23,26 17,44	35	4				■				■		
8-10	31,30 30,78	70	14	Brown/grey clay, sand, traprock, some broken limestone. FILL.	■		■		■		■		
10-12	27,46 58,79	60	0	Till. Clean. Augered to 15.0. Grouted outer casing. Allowed grout to cure. Used roller bit to bore through grout and till to 18.0. Monitored water level in casing. No change. Began till sampling with 2-inch spoons.	■		■		■		■		
12-14	18,27 47,71	47	0		■		■		■		■		
18-18.9		100	0	Till. Rolled and washed to 21.0.	■		■		■		■		
21-21.5	100/.4			Till. Rolled and washed to 23.0.	■		■		■		■		
23-23.5	100/.5	100	0	AA. Rolled and washed to 26.0.	■		■		■		■		
26-26.6	100/.5	100	0	AA. Rolled and washed to 28.0.	■		■		■		■		
28-29	34,100/.3	1	0	AA. Rolled and washed to 31.0.	■		■		■		■		
31-31.7	73,100/.2	100	0	AA. Rolled and washed to 33.0.	■		■		■		■		
		100	0	AA. 33.0-33.4. Rolled and washed to 36.0.	■		■		■		■		
36-36.5	100/.4	100	0	AA. Rolled and washed to 40.0.	■		■		■		■		

LITHOLOGY

DEPTH (FT.): 0, 5, 25, 30, 35, 40

GEI Φ ATLANTIC

BORING BH9806

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Southern end of containment cell
DATE STARTED: 3/9/98
DATE COMPLETED: 5/6/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ Wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 124.94
WEATHER:
INSPECTOR: Jerry Zak
CHECKED BY: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	VISUAL CONTAM. STAIN	VISUAL CONTAM. SHEEN	VISUAL CONTAM. HEAVY	ODOR NONE	ODOR SLIGHT	ODOR MODERATE	ODOR HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
		80	0	AA. 40.0-40.4. Rolled and washed to 43.0.	■				■						40
43-43.8	100/.5	100	0	AA. Rolled and washed to 48.0.	■				■						45
48-48.5	100/.3	100	0	AA. Refusal on bedrock at 48.5'. Reamed hole to 53.0. Grouted inner casing. Allowed to cure. Used roller bit to bore through grout to 53.0. Began curing.	■				■						50
53-63		87	0	Dark gray limestone. No tar, sheen, or odor. RQD=87%.	■				■						55 60
63-73		73	0	AA. RQD may be artificially low, due to probable machine breaks. RQD=73%. Grouted hole to surface.	■				■						65 70
				End of boring at 73 feet.											75 80

GEI Φ ATLANTIC

BORING BH9807

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Near middle of containment cell
DATE STARTED: 3/16/98
DATE COMPLETED: 5/11/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ Wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 123.51
WEATHER:
INSPECTOR: Jerry Zak
CHECKED BY: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	VISUAL CONTAM. STAIN	VISUAL CONTAM. SHEEN	VISUAL CONTAM. HEAVY	ODOR NONE	ODOR SLIGHT	ODOR MODERATE	ODOR HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
0-2	32,50/2	25		Frozen loam. Rock at mouth of spoon. FILL.	■					■					0
2-4	10,100/.4	45		Fine sand and silt. Brown to black. Liner at 2.65. FILL.	■					■	■				
4-6	12,21 27,32	75			■					■	■	■			5
6-8	12,17 18,19	75		Fine sand, silt, and some ash. Scattered wood. FILL.	■						■	■			
8-10	18,13 12,10	70			■						■	■			10
10-12	5,6 6,7	85			■							■			
12-14	15,18 25,22	70	74			■	■					■			15
14-16	22,23 17,19		14			■	■					■			
16-17.7	19,12 33,100/.3	36	65			■	■					■			
		100		TILL. Augered to 21.5 feet. Grouted in outer casing. Allowed grout to cure. Used roller bit to bore through grout to till. Faint odor in wash water. Changed water. Began till sampling.		■	■					■			20
23-24	42,100/.3	100	0	TILL. Rolled and washed to 27.0.	■				■						
		100	0	AA. 27.0-27.1. Rolled and washed to 32.0.											25
		100	0	AA. 32.0-32.4. Rolled and washed to 37.0.	■										30
		100	0	AA. 37.0-37.2 Bedrock at 38.0. Cut socket in bedrock to 41.0. Grouted in inner casing. Allowed to cure. Used roller bit to bore through grout to 41. Began coring.	■										35
															40

GEI Φ ATLANTIC

BORING BH9807

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Near middle of containment cell
DATE STARTED: 3/16/98
DATE COMPLETED: 5/11/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ Wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 123.51
WEATHER:
INSPECTOR: Jerry Zak
CHECKED BY: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	VISUAL CONTAM. STAIN	VISUAL CONTAM. SHEEN	VISUAL CONTAM. HEAVY	ODOR NONE	ODOR SLIGHT	ODOR MODERATE	ODOR HEAVY	SAMPLE ANALYSIS	LITHOLOGY
41-51		102	0	Dark grey limestone. Bedding planes horizontal or nearly horizontal. RQD=100%.										
51-61		100	0	AA. RQD=100%.										
				End of boring at 61 feet.										

DEPTH (FT.): 40, 45, 50, 55, 60, 65, 70, 75, 80

GEI Φ ATLANTIC

BORING BH9808

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Southern end of containment cell
DATE STARTED: 3/11/98
DATE COMPLETED: 5/5/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ Wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 128.97
WEATHER:
INSPECTOR: Jerry Zak
CHECKED BY: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	VISUAL CONTAM. STAIN	VISUAL CONTAM. SHEEN	VISUAL CONTAM. HEAVY	ODOR NONE	ODOR SLIGHT	ODOR MODERATE	ODOR HEAVY	SAMPLE ANALYSIS
0-2	31,53 20/.2	62		Frozen sand and silt. OVM not functional. FILL.	■					■			
				Grey silt and gravel. Trace tar odor. Liner at 1.0. Refusal at 1.25. Augered to 3.0. FILL.									
3-4		50		Dry black silt and stones. Trace brick. Tar odor. Auger refusal at 4.0. Move rig approximately 20 feet. Augered to 4.0. FILL.	■						■		
4-6	47,51 41,40	70		Sand, gravel, wood. Sheen on rock. Trace residual tar. Tar odor. FILL.			■					■	
6-8	15,27 42,39	75		Black fine sand and silt. Trace wood. Tar odor. FILL.	■								
8-10	13,15 23,17	90											
10-12	35,71 100/.5	0		No recovery.									
12-14	7,12 15,17	90		Wood chips and shredded wood. Fine sand with residual tar. One foot lense of greasy material. FILL.				■				■	
14-16	8,13 15,4	55	30	Black silt and stones with shredded wood. Strong tar odor. 33 ppm. FILL.		■							
16-18	5,8 19,21			No recovery.									
18-20	18,39 21,51	45	35	Sand and gravel. Thin layer of tar on gravel surfaces. FILL.				■				■	
20-22	26,27 34,100/.5	90	35	Till. Clean. Augered to 23.0. Grouted outer steel casing. Allowed grout to cure. Used rolelr bit to bore through grout and till to 24.0. Monitored water level for 35 minutes. No change. Began sampling with 2" split spoon.	■					■			
22-22.8	54,100/.5												
24-24.8	74,100/.5	160	0	Till. Some tar and sheen on return water. Flushed hole with clean water and changed water.			■				■		
		100	0										
26.5-28	38,48 100	100	0	Till and broken limestone. Used roller bit to cut through rock. Till. Rolled and washed to 30.0.	■				■				
		100	0	Till. 30.0 - 30.3. Rolled and washed to 32.0.	■				■				
32-32.6	67,50/.1	500	0	Till. Rolled and washed to 35.0.	■				■				
35-35.9	100/.4	100	0	Till. Rolled and washed to 38.0.	■				■				
38-38.9	37,100/.4	100	0	Broken limestone and chips. Clean. Cut socket into bedrock to 41.5. Grouted inner casing. Allowed to cure. Used roller bit to bore through grout to 41.5 feet. Began coring.	■				■				

LITHOLOGY

DEPTH (FT.): 0, 5, 10, 15, 20, 25, 30, 35, 40

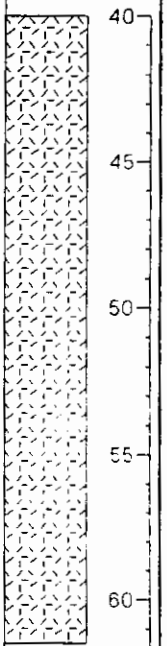
GEI Φ ATLANTIC

BORING BH9808

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Southern end of containment cell
DATE STARTED: 3/11/98
DATE COMPLETED: 5/5/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ Wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 128.97
WEATHER:
INSPECTOR: Jerry Zak
CHECKED BY: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
41.5-51.5		98	0	Dark grey limestone. Bedding planes nearly level. Some brecchia at 42.0 and 46.0. No tar sheen or odor. RQD=95%	■				■						
51.5-61.5		101	0	As above. Grouted borehole to surface. RQD=94%	■				■						
				End of boring at 61.5 feet.											



BORING BH9809

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Southern end of containment cell
DATE STARTED: 5/19/98
DATE COMPLETED: 5/19/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ Wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 129.65
WEATHER:
INSPECTOR: Kyle Sullivan
CHECKED BY: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	VISUAL CONTAM. STAIN	VISUAL CONTAM. SHEEN	VISUAL CONTAM. HEAVY	ODOR NONE	ODOR SLIGHT	ODOR MODERATE	ODOR HEAVY	SAMPLE ANALYSIS
0-2	3,4 6,6	100	0	Loam, topsoil, roots. Tan and brown medium to fine sand. FILL.	■				■				
2-4	20,21 50/.5	45	60	Brown silt, trace clay and fine sand. Moderate to strong naphthalene odors throughout. Trace free tar. FILL.	■		■	■	■		■	■	
4-6	15,17 19,54	55	79										
6-8	67,69 43,41	70	38										
8-10	13,17 6,4	65	179										
10-12	3,4 9,9	65	5	Olive brown clay. Trace silt and fine sand. No odor. Moist. FILL. Olive brown fine sand grading to grey till. No odor. Moist. FILL.	■			■				■	
12-14	3,8 7,13	50	0	TILL.									
14-16	3,8 13,29	70	0										
16-18	11,45 46,57	50	0										
				End of boring at 18 feet.									

LITHOLOGY

DEPTH (FT.): 0, 5, 10, 15, 20

GEI Φ ATLANTIC

WELL MW9701S

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: North side of Saranac St. near Woodbridge
DATE STARTED: 11/19/97
DATE COMPLETED:
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Vince Prue

DRILLING METHOD: HSA
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 130.89
WELL ELEVATION:
DATUM:
INSPECTOR: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
0-2	6,9 12,16	40	0	Loam, roots, cinders, coal fragments. FILL.	■				■				
2-4	8,8 10,7	45	0	Brown and orange sandy silt and silt. Trace roots and pebbles.	■				■				
4-6	4,4 6,7	30	0		■				■				
6-8	12,12 43,20	70	0	Light brown fine sandy silt with gravel. Some mottling. Moist.	■				■				
8-10	18,30 64,43	55	0		■				■				
10-12	28,33 18,15	55	0		■				■				
12-14	22,34 57,33	50	0		■				■				
14-16	42,28 43,37	90	0	Till. Terminated boring. Installed well.	■				■				
				End of boring at 16 feet.									

LITHOLOGY

DEPTH (FT.): 0, 5, 10, 15

WELL CONSTRUCTION

2" PVC 20-slot

#1 Sand

#00 Sand

Hydrated Bentonite

Grout

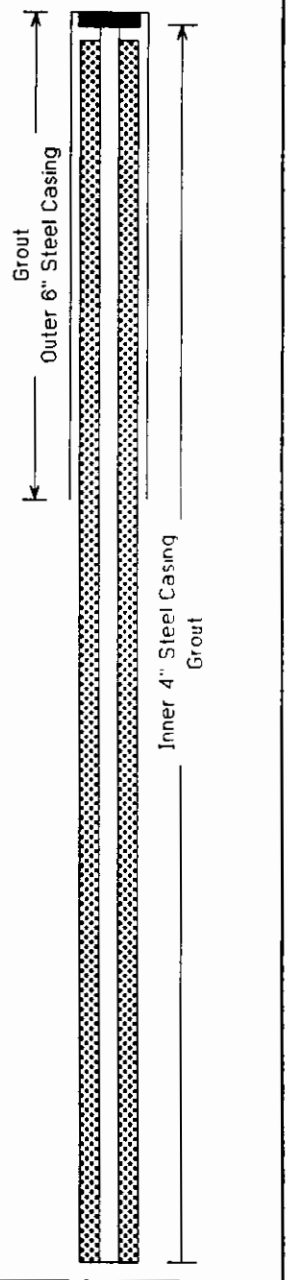
GEI Φ ATLANTIC

WELL MW9801D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: On riverbank near wood deck bridge
DATE STARTED: 3/18/98
DATE COMPLETED: 5/4/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 136.23
WELL ELEVATION: TOC 138.79
DATUM: MSL
INSPECTOR: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.				ODOR				SAMPLE ANALYSIS
					NONE	STAIN	SHEEN	HEAVY	NONE	SLIGHT	MODERATE	HEAVY	
0-2	2,4 6,6	55		Brown fine sand and silt with gravel. FILL.	■				■				
2-4	5,6 5,5	85			■				■				
4-6	37,7 40,61	75			■				■				
6-8	43,100/.2	5			■				■				
8-10	-,- -,-	60			■				■				
10-12	21,45 52,69	80		TILL. Augered to 13.8 feet. Grouted in outer steel casing. Allowed grout to cure. Used roller bit to bore through grout to 14.0. Monitored water level. No change.	■				■				
14-16	22,46 63,91	65	0	Began sampling till. Slight coal tar odor from borehole.	■				■				
				TILL.									
18-19.2		10	0	AA. Roll and wash to 21.0.	■				■				
21-21.8	90,100/.3	100	0	AA. Roll and wash to 26.0.	■				■				
		100	0	AA. 26.0-26.4. Roll and wash to 31.0.	■				■				
		100	0	AA. 31.0-31.2. Roll and wash to 36.0.	■				■				
36-36.5	100/.5	80	0	AA. Roll and wash to 41.0.	■				■				



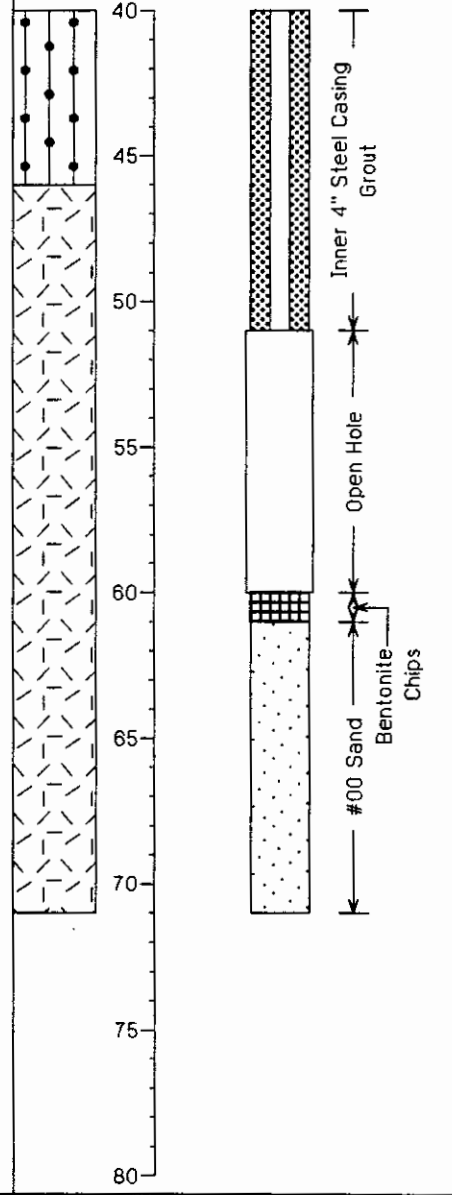
GEI Φ ATLANTIC

WELL MW9801D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: On riverbank near wood deck bridge
DATE STARTED: 3/19/98
DATE COMPLETED: 5/4/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 136.23
WELL ELEVATION: TOC 138.79
DATUM: MSL
INSPECTOR: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
		66	0	AA. 41.0-41.3. Roll and wash to 46.0.									
		50	0	AA. Bedrock encountered at 46.2. Broken up until 49. Cut rock socket to 51. Grouted inner steel casing. Allowed to cure. Used roller bit to bore through grout. Began coring at 51.									
51-61		98		Dark grey limestone. Bedding planes level or nearly level. RQD=97%.									
61-71		101		AA. RQD=98.1.									
				End of boring at 71 feet. Originally backfilled hole to 60 feet with bentonite. Bentonite then removed for borehole geophysical studies in December 1999.									



GEI Φ ATLANTIC

WELL MW9703S

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Near MW9703D, above flume
DATE STARTED: 12/01/97
DATE COMPLETED: 12/01/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Derek Walker

DRILLING METHOD: HSA
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 130.88
WELL ELEVATION:
WATER TABLE ELEVATION:
DATUM:
INSPECTOR: Kyle Sullivan

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.	ODOR	SAMPLE ANALYSIS	LITHOLOGY
					NONE / STAIN / SHEEN / HEAVY	NONE / SLIGHT / MODERATE / HEAVY		
0-7		100	-	Adequate soil data from MW9703D. Augered to 7.0 feet. Collected split-spoon sample.				
7-8.4	72,76 54,82			Olive and tan fine sandy SILT. Trace angular gravel. Dry.	■	■		
				TILL. Slightly moist. Terminated boring. Installed well at 8.0 feet.	■	■		
				End of boring at 8.4 feet.				

DEPTH (FT.): 0, 5, 10

WELL CONSTRUCTION: 2" PVC Riser; 2" PVC Screen; Grout; Bentonite; #00 Sand; #1 Sand

GEI Φ ATLANTIC

BORING MW9703D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Old Plant Site, above former flume
DATE STARTED: 10/3/97
DATE COMPLETED: 11/26/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington/Derek Walker

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 130.36
WEATHER: Varied
INSPECTOR: Jerry Zak/Kyle Sullivan
CHECKED BY:

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
0-2	11,11 13,12	65	0	Loam, brick fragments. FILL.	■				■				
2-4	13,14 10,10	25	0		■				■				
4-6	13,10 60,44	55	0	Hard, brown, dry clayey SILT.	■				■				
6-8	23,54 76,72	76	0		■				■				
8-10	27,32 46,100/.4	60	1.1	TILL. Cleaned hole to 9.0. Grouted 6 inch ID steel casing at 9.0. Allowed grout to cure over 48 hours. Cleaned out to 10.2. Ran vertical permeability test.	■					■			
10.3-11.2	92,100/.4	39	0	TILL. Cut through till and stone to 12.5.	■				■				
12.5-14.5	37,33 38,42	45	0	TILL. Cleaned out to 14.5.	■				■				
14.5-15.2	25,13	71	0	TILL. Cleaned out to 15.2. Ran horizontal permeability test.	■				■				
15.2-17.3	15,21 34,46	40	0	TILL. Cut till to 18.0.	■				■				
18-19.7	23,30 41,50/.1	35	0	TILL. Cut till to 21.0.	■				■				
21-21.9	77,100/.4	89	0	TILL. Cut till to 23.0.	■				■				

LITHOLOGY

DEPTH (FT.)
0
5
10
15
20

GEI Φ ATLANTIC

BORING MW9703D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Old Plant Site, above former flume
DATE STARTED: 10/3/97
DATE COMPLETED: 11/26/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington/Derek Walker

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 130.36
WEATHER: Varied
INSPECTOR: Jerry Zak/Kyle Sullivan
CHECKED BY:

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
															22
23-24.3	33,78 100/.3	54	0	TILL. Cut till to 25.0.											
25-25.5	100/.5	100	0	TILL. Cut till to 26.0.											
26-26.3	100/.3	100	0	TILL. Cut till to 28.0											27
28-29.4	67,70 100/.4	100	0	TILL. Cut till to 32.0.											
32-32.9	64,100/.4	100	0	TILL. Cut till to 35.0.											32
35-35.9	67,100/.4	100	0	TILL. Cut till to 40.0.											
		100	0	TILL. Cut till to 42.0. Bored through rock to 43.0. Cut till to 48.0. Bedrock at 48.0. Cut bedrock socket to 52.0.											37
															42

GEI Φ ATLANTIC

BORING MW9703D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Old Plant Site, above former flume
DATE STARTED: 10/3/97
DATE COMPLETED: 11/26/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington/Derek Walker

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 130.36
WEATHER: Varied
INSPECTOR: Jerry Zak/Kyle Sullivan
CHECKED BY:

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
															44
				Dark grey crystalline limestone. RQD=94%.											49
52-62.4		100	0												54
															59
				AA. RQD=99%.											64
62.4-72.4															

BORING MW9703D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Old Plant Site, above former flume
DATE STARTED: 10/3/97
DATE COMPLETED: 11/26/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington/Derek Walker

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 130.36
WEATHER: Varied
INSPECTOR: Jerry Zak/Kyle Sullivan
CHECKED BY:

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
62.4-72.4		100	0		■				■						66
				End of boring at 72.4 feet. Originally backfilled hole to 62 feet with bentonite. Bentonite then removed for borehole geophysical studies in December 1999.											71 76 81 86

GEI Φ ATLANTIC

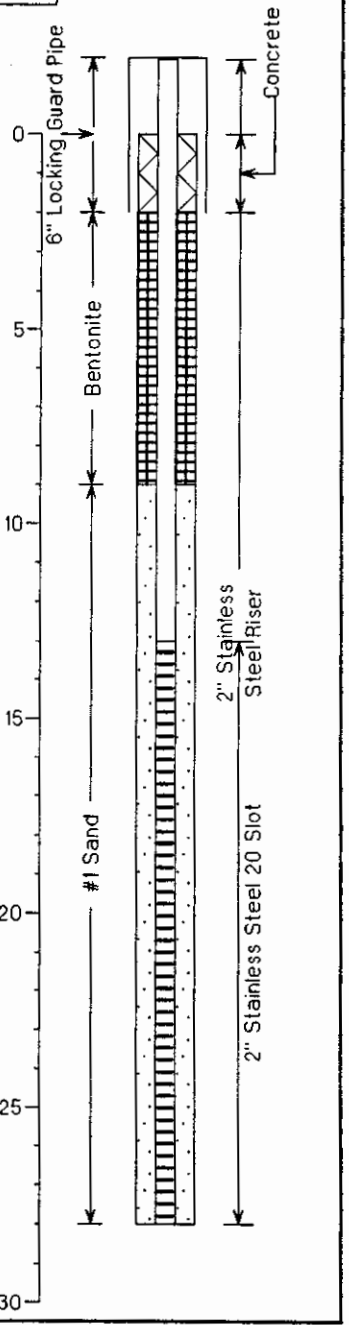
WELL MW9804S

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: In containment cell
DATE STARTED: 5/12/98
DATE COMPLETED: 5/12/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HG wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 127.50
WELL ELEVATION: TOC 129.41
DATUM: MSL
INSPECTOR: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN
0-3.5				Augered through liner, moderate coal tar odors.
4-4.6	25,50/1	20	336	Black silt, trace fine and coarse sand, trace gravel, trace wood debris. Moderate coal tar/naphtha odors, free phase product. FILL.
5-7	11,39 49,48	50	68	AA.
				Sand, slight naphthalene odor.
7-9	44,36 32,38	80	226	Black silt, trace fine and coarse sand, trace gravel, trace wood debris. Moderate coal tar/naphtha odors, free phase product. FILL.
9-11	20,30 29,22	75	546	Bluish black wood, coal, and ash fragments, [porcelain insulation (?)] Strong odors, dry.
11-13	18,12 19,21	70	877	AA but saturated with tar, free flowing.
13-15	?,13 10,12	25	349	Sand, moist, FILL. Strong naphtha odors.
15-17	5,8 7,9	45	837	Wet, free phase product.
17-19	?,2 2,3	65	1049	Dark stained fine sand, some coarse material, trace silt, saturated with product, odors.
19-21	3,4 12,12	53	588	
21-23	15,17 23,30	60	706	
		NR		
25-27	28,29 29,73	60	73	Sand and silt, trace coarse material, moist, TILL. Used to 3" split spoon to create opening to 28.0.
				End of boring at 28 feet.

VISUAL CONTAM.: NONE, STAIN, SHEEN, HEAVY
ODOR: NONE, SLIGHT, MODERATE, HEAVY
SAMPLE ANALYSIS
LITHOLOGY
DEPTH (FT.): 0, 5, 10, 15, 20, 25, 30



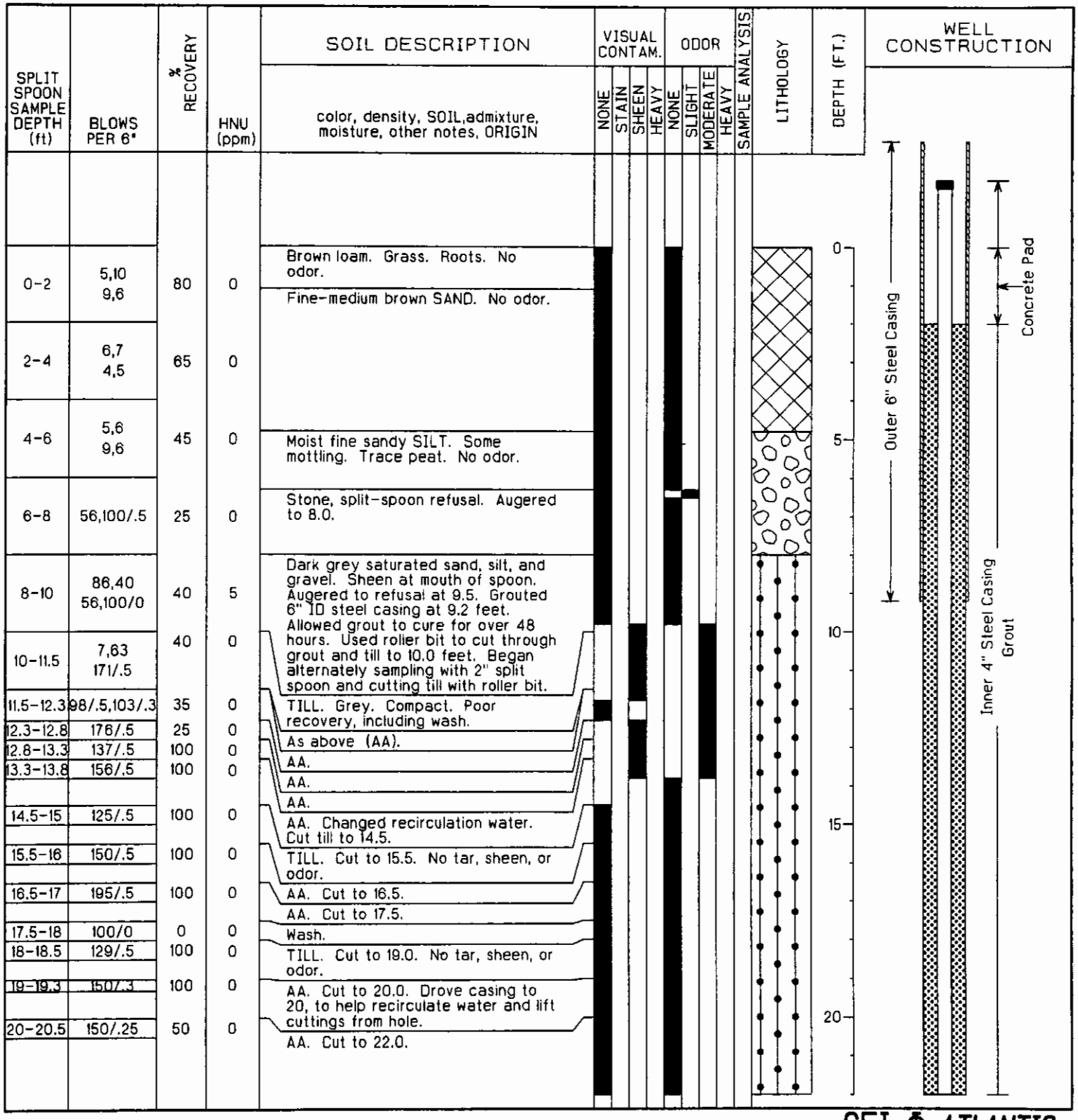
GEI Φ ATLANTIC

WELL MW9704D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Near west end of river slurry wall
DATE STARTED: 10/29/97
DATE COMPLETED: 11/11/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 115.89
WELL ELEVATION:
WATER TABLE ELEVATION:
DATUM:
INSPECTOR: Jerry Zak/Kyle Sullivan

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL,admixture, moisture, other notes, ORIGIN
0-2	5,10 9,6	80	0	Brown loam. Grass. Roots. No odor.
2-4	6,7 4,5	65	0	Fine-medium brown SAND. No odor.
4-6	5,6 9,6	45	0	Moist fine sandy SILT. Some mottling. Trace peat. No odor.
6-8	56,100/.5	25	0	Stone, split-spoon refusal. Augered to 8.0.
8-10	86,40 56,100/0	40	5	Dark grey saturated sand, silt, and gravel. Sheen at mouth of spoon. Augered to refusal at 9.5. Grouted 6" ID steel casing at 9.2 feet.
10-11.5	7,63 171/.5	40	0	Allowed grout to cure for over 48 hours. Used roller bit to cut through grout and till to 10.0 feet. Began alternately sampling with 2" split spoon and cutting till with roller bit.
11.5-12.3	98/.5,103/.3	35	0	TILL. Grey. Compact. Poor recovery, including wash.
12.3-12.8	176/.5	25	0	As above (AA).
12.8-13.3	137/.5	100	0	AA.
13.3-13.8	156/.5	100	0	AA.
				AA.
14.5-15	125/.5	100	0	AA. Changed recirculation water. Cut till to 14.5.
15.5-16	150/.5	100	0	TILL. Cut to 15.5. No tar, sheen, or odor.
16.5-17	195/.5	100	0	AA. Cut to 16.5.
				AA. Cut to 17.5.
17.5-18	100/0	0	0	Wash.
18-18.5	129/.5	100	0	TILL. Cut to 19.0. No tar, sheen, or odor.
19-19.3	150/.3	100	0	AA. Cut to 20.0. Drove casing to 20, to help recirculate water and lift cuttings from hole.
20-20.5	150/.25	50	0	AA. Cut to 22.0.



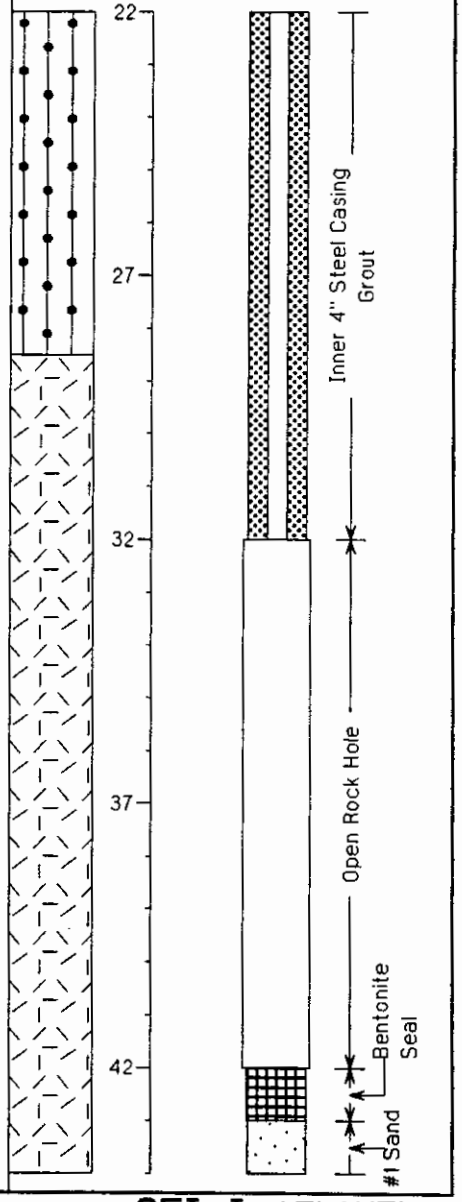
GEI Φ ATLANTIC

WELL MW9704D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Near west end of river slurry wall
DATE STARTED: 10/29/97
DATE COMPLETED: 11/11/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 115.89
WELL ELEVATION:
WATER TABLE ELEVATION:
DATUM:
INSPECTOR: Jerry Zak/Kyle Sullivan

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
22-22.5	165/.5	100	0	AA. Cut till to 24.0									
24-24.5	150/.4	80	0	AA. Cut till to 26.0.									
26-26.3	150/.3	100	0	AA. Cut till to 28.5.									
28.5-28.9	100/.4	100	0	AA. One piece of stone. Cut till to 30.0. Very hard; limestone chips in return mud. Continue rolling to 32.0 feet for bedrock socket. Installed grouted 4-inch ID steel casing at 32.0. Allowed grout to cure for over 48 hours. Coring begins at 31.2 with NQ wireline.									
31.2-41.2		100	0	First 1.1 feet is grout. Remaining is dark grey limestone. Bedding lanes nearly horizontal. Small fracture at 35.8. Fractured area from 38.9 to 39.5. RQD=87%. No odor or fluorescence. No water lost during coring.									
41.2-51.2				AA. RQD=100%.									



GEI Φ ATLANTIC

WELL MW9704D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Near west end of river slurry wall
DATE STARTED: 10/29/97
DATE COMPLETED: 11/11/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 115.89
WELL ELEVATION:
WATER TABLE ELEVATION:
DATUM:
INSPECTOR: Jerry Zak/Kyle Sullivan

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
41.2-51.2		100	0	End of boring at 51.2 feet. Originally backfilled hole to 62 feet with bentonite. Bentonite then removed for borehole geophysical studies in December 1999.											44 49 54 59 64	#1 Sand

GEI Φ ATLANTIC

WELL MW9705D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Land side of slurry wall, downstream of 04D
DATE STARTED: 10/30/97
DATE COMPLETED: 11/25/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

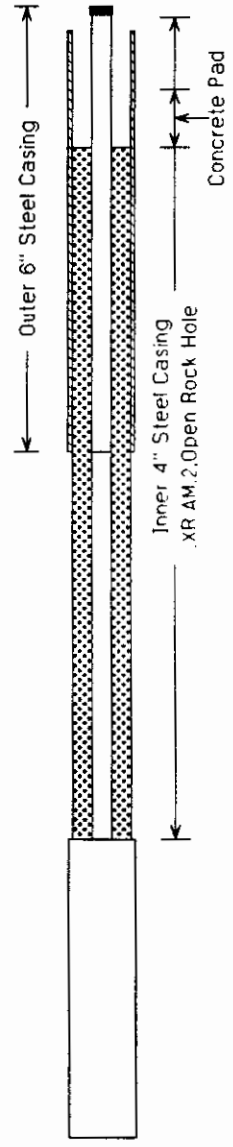
DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 112.26
WELL ELEVATION:
DATUM:
INSPECTOR: Jerry Zak/Kyle Sullivan

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
0-2	40,15 65,53	85	0	Very fine to coarse sand. Silty fine sand, stones, charred wood in deeper intervals. Trace peat. FILL. Faint sulfur odor @ 6.0.									
2-4	39,57 72,-	70	0										
4-6	17,34 15,16	75	0										
6-8	31,31 31,43	60	0										
8-10	19,37 100/.3	43	4	TILL. Augered to 12.0. Installed 6" steel out casing at 12.0. Allowed grout to cure for over 48 hours. Casing came loose. Overbored hole with 8" roller bit, to 12.5. Set casing at 12.5. Allowed grout to cure for over 48 hours. Rolled to 13.0.									
10-12	50/.2	10											
12-13													
13-14.4		57		TILL. Rolled to 16.0.									
14.4-16													
16-16.5	100/.5	100		AA. Rolled to 18.0.									
16.5-18													
18.3-20		100		AA. Rolled to 20.0. AA. Rolled to 22.0.									
20.4-22		100											
22-22.7	89/.5,100/.2	100		AA. Began rolling to 24. Very hard going. Return water full of black stone chips. In bedrock. Roll bedrock socket to 26.0. Set 4-inch ID steel casing at 25.8. Allow grout to cure for over 48 hours. Began coring at 26.0. Sheen and naphthalene odors at 30.0. Trace tar in return water.									
22.7-26													
26-31		100		Dark grey crystalline limestone. RQD=90%. No fluorescence under black light.									
31-36		100		AA. 100% RQD.									
				End of boring at 36 feet.									

LITHOLOGY

DEPTH (FT.): 0, 5, 10, 15, 20, 25, 30, 35, 40

WELL CONSTRUCTION



GEI Φ ATLANTIC

WELL MW9706D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Outside NE corner of containment
DATE STARTED: 10/28/97
DATE COMPLETED: 11/10/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 120.52
WELL ELEVATION:
WATER TABLE ELEVATION:
DATUM:
INSPECTOR: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL,admixture, moisture, other notes, ORIGIN
0-2	3,2 3,3	64	0	Silty fine brown SAND grading into medium brown sand, sand silt, wood chips and fiber. FILL.
2-4	7,7 7,5	64	0	
4-6	4,4 3,3	17	0	
6-8	7,11 17,12	38	0	
8-10	-,-	79	15-90	
10-12	9,9 11,12	87	25-45	
12-14	7,11 23,34	42	25	
14-16	14,14 26,42	33	25	Medium to coarse SAND and GRAVEL. Strong odor. Residual tar in pore spaces.
16-18	22,100/.4	50	25	WASH. Refusal on boulder. Auger past boulder.
18-18.7	74,86			TILL. grey, compact. Dry. Top 0.2 has residual tar. Remaining till clean.
18.7-19.2		33	25	
19.2-21.2	61,67 78,89	80	0	Augered to 19.0. Installed grouted 6" ID steel casing at 19.0. Allowed grout to cure for over 48 hours. Used roller bit to cut through cap and grout to 19.2. Began alternately sampling and cutting till.
21.2-22.2	54,100/.5	50	0	
22.2-23.6				TILL. Grey. Compact. Slight tar odor in return water.
23.6-25	49,89 100/.4	60	0	As above (AA). No fluorescence of till. Used roller bit to cut till to 23.6'.
25-26				
26.3-27		100	0	AA. Cut till to 26.0'.
27-27.4	100/.4	100	0	AA. Cut till to 27.0'.
27.4-28		100	0	AA. Cut till to 28.0'. Replaced water.
28.2-30				AA. Cut till to 30.0'. No odor.

VISUAL CONTAM.: NONE, STAIN, SHEEN, HEAVY
ODOR: NONE, SLIGHT, MODERATE, HEAVY
SAMPLE ANALYSIS
LITHOLOGY
DEPTH (FT.): 0, 5, 10, 15, 20, 25, 30

WELL CONSTRUCTION
Concrete Pad
Outer 6" Steel Casing
Inner 4" Steel Casing
Grout

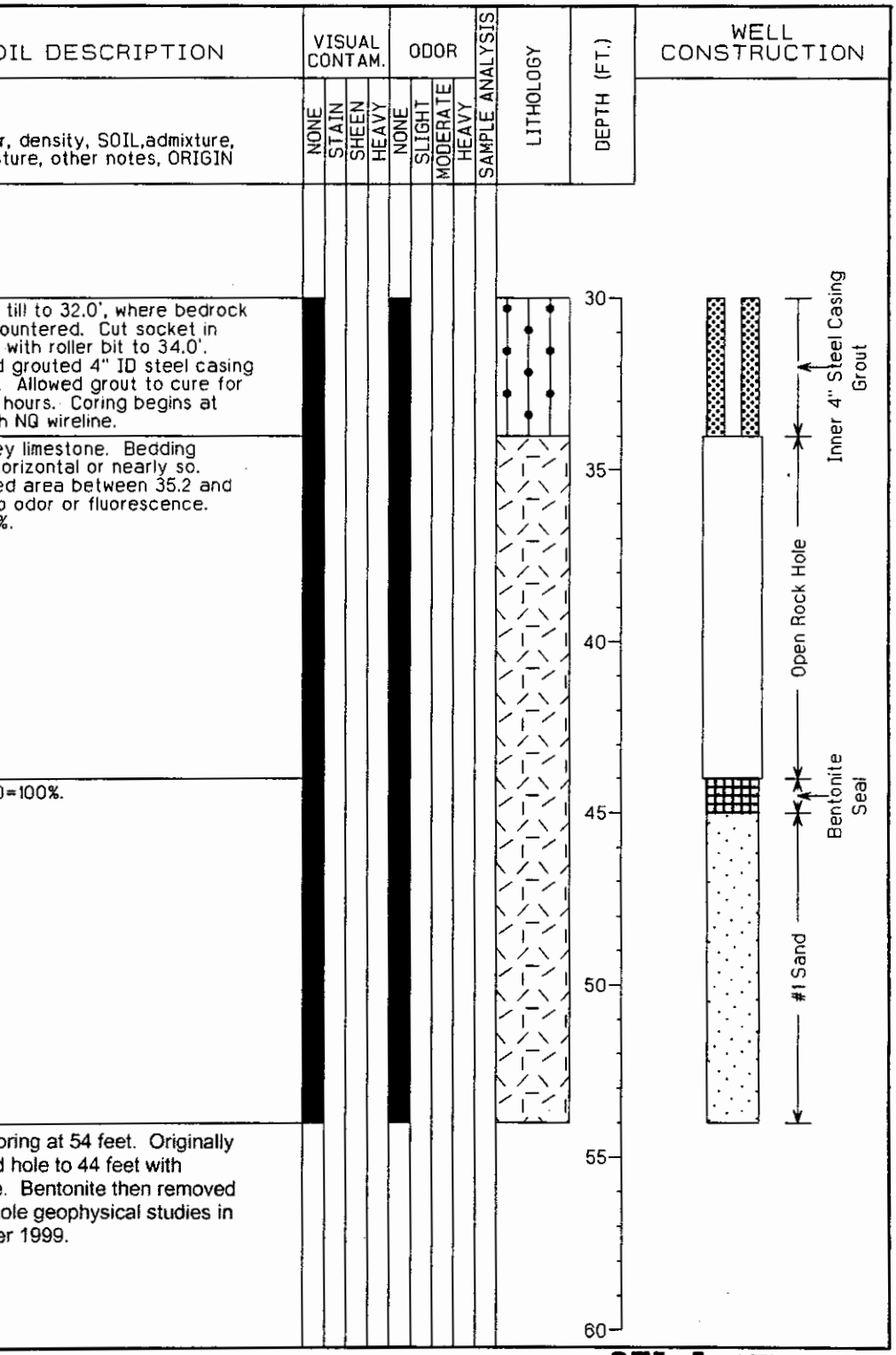
GEI Φ ATLANTIC

WELL MW9706D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Outside NE corner of containment
DATE STARTED: 10/28/97
DATE COMPLETED: 11/10/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 120.52
WELL ELEVATION:
WATER TABLE ELEVATION:
DATUM:
INSPECTOR: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
30-30.4	100/7.4	100	0	AA. Cut till to 32.0', where bedrock was encountered. Cut socket in bedrock with roller bit to 34.0'. Installed grouted 4" ID steel casing at 34.0'. Allowed grout to cure for over 48 hours. Coring begins at 34.0 with NQ wireline.					■				
30.4-34													
34-44		99	0	Dark grey limestone. Bedding planes horizontal or nearly so. Fractured area between 35.2 and 36.6. No odor or fluorescence. RQD=82%.					■				
44-54		100	0	AA. RQD=100%.					■				
				End of boring at 54 feet. Originally backfilled hole to 44 feet with bentonite. Bentonite then removed for borehole geophysical studies in December 1999.									



GEI Φ ATLANTIC

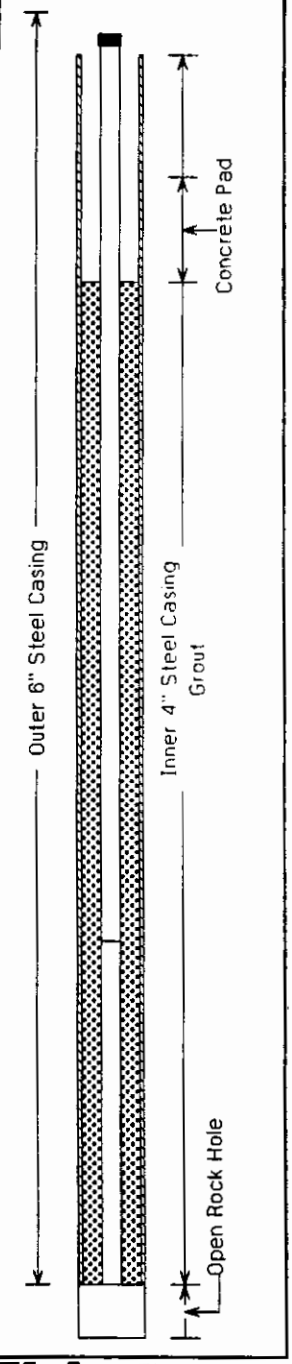
WELL MW9707D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Behind substation, river side of surry wall
DATE STARTED: 10/30/97
DATE COMPLETED: 11/20/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 112.36
WELL ELEVATION:
WATER TABLE ELEVATION:
DATUM:
INSPECTOR: Jerry Zak/Kyle Sullivan

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN
0-2	3,2 3,3	50	0	Loam, sand, gravel at shallower depths. Fine to coarse sand at deeper intervals - FILL, due to slurry wall construction. Water saturated at 10.0.
2-4	7,7 7,5	10	0	
4-6	4,4 3,3	70	0	
6-8	7,11 17,12	70	2.5	
8-10	-,-	75	7	
10-12	9,9 11,12	20	29	
12-14	7,11 23,34	60	40	Till. No fluorescence. Augered to 14.5. Grouted 6-inch ID outer steel casing at 14.5. Allowed grout to set over 48 hours.
14-16	14,14 26,42	45	75	Till. Inner till, no fluorescence. Cut till to 16.5 with roller bit.
16-18	22,100/.4	-	0	AA.
18-18.7	74,86			AA. Cut till to 18.5.
18.7-19.2				AA. Cut till to 18.9. On bedrock. Cut bedrock socket to 21.0. Installed 6" steel casing. Allowed grout to cure. Began coring. Began coring.
19.2-21.2	61,67 78,89			
21.2-22.2	54,100/.5			Dark grey limestone bedrock. Bedding planes nearly horizontal. RQD=100%.

VISUAL CONTAM.: NONE | STAIN | SHEEN | HEAVY
ODOR: NONE | SLIGHT | MODERATE | HEAVY
SAMPLE ANALYSIS
LITHOLOGY
DEPTH (FT.): 0, 5, 10, 15, 20



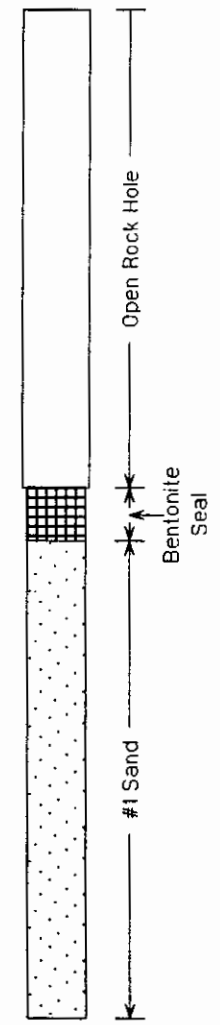
GEI Φ ATLANTIC

WELL MW9707D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Behind substation, river side of surry wall
DATE STARTED: 10/30/97
DATE COMPLETED: 11/20/97
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 112.36
WELL ELEVATION:
DATUM:
INSPECTOR: Jerry Zak/Kyle Sullivan

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.	ODOR	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
					NONE / STAIN / SHEEN / HEAVY	NONE / SLIGHT / MODERATE / HEAVY				
22.2-23.6									22	
23.6-25	49,89 100/.4									
25-26										
26-26.3	100/.3	100	0							
26.3-27										
27-27.4	100/.4								27	
27.4-28										
28.2-30										
30-30.4	100/.4									
30.4-34				AA. RQD=100%.					32	
34-41		100	0						37	
				End of boring at 51 feet. Originally backfilled to 31 feet with betonite. Bentonite then removed for borehole geophysical studies in December 1999.					42	



GEI Φ ATLANTIC

WELL MW9808D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Near river, west of MW-97-05D
DATE STARTED: 3/18/98
DATE COMPLETED: 4/29/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

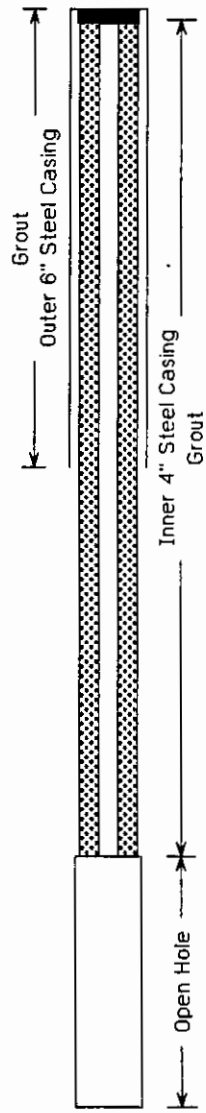
DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoon
GROUND ELEVATION: 111.83
WELL ELEVATION: TOC 113.95
DATUM: MSL
INSPECTOR: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
0-2	6,25 50/.4	50		Sand, gravel, brick fragments, wood fragments, FILL.									
2-4	37,24 25,16	75	0		■				■				
4-6	20,18 17,15	0		No recovery.									
6-8	11,20 16,9	60		Sand and gravel. FILL.	■				■				
8-10	11,16 25,50/.2	40	10				■			■			
10-12	23,139			TILL. Augered to 14.0. Grouted steel outer casing. Allowed grout to cure. Used roller bit to bore through grout to 17. Monitoring water level. No change. Began sampling till.			■				■		
		100		TILL. 17.0-17.4. Roll and wash to 20.0.	■				■				
		67		AA. 20.0-20.3. Roll and wash to 23.0.	■				■				
		33		AA. Bedrock encountered at 24. Bored rock socket to 28. Grouted in steel casing. Allowed grout to cure. Used roller bit to bore through grout. Began coring at 28.									
28-35		100		Dark grey limestone. Bedding planes nearly horizontal. RQD=65%. Trace tar in return water.	■	■			■				
35-37		100		AA. RQD=90%. Halted coring when water level in MW-97-05D rose above its inner casing, due to apparent hydraulic connection between MW-98-08D and MW-97-05D.									
37-42		100		AA. RQD=77%. Boring complete at 42 feet bgs.									

LITHOLOGY

DEPTH (FT.): 0, 5, 10, 15, 20, 25, 30, 35, 40

WELL CONSTRUCTION



GEI Φ ATLANTIC

WELL MW9809D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Along river, east of MW9705D
DATE STARTED: 3/18/98
DATE COMPLETED: 4/29/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

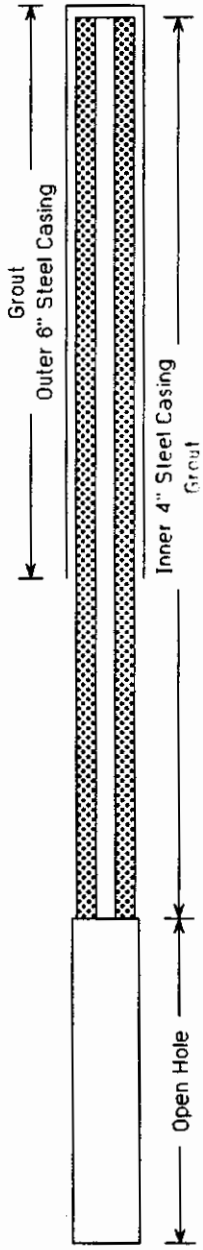
DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 112.17
WELL ELEVATION: TOC 114.04
DATUM: MSL
INSPECTOR: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
0-2	6,25 39,23	75	0	Medium to coarse sand and gravel. FILL.	■				■				
2-4	15,19 25,39	60	0	Interbedded sand and peat lense. FILL.	■				■				
4-6	16,9 12,11	60	2.3		■				■				
6-8	15,29 52,53	55	30	Tarry sand and gravel. FILL.	■				■			■	
8-10	20,29 100/.4	10	3		■				■			■	
10-12	100/.5	10	-		■				■			■	
		65	-	Till. Augured to 15.5. Grouted 6" casing at 15.5. Allowed grout to cure. Used roller bit to bore through grout into till. Began sampling till.	■				■				
18-18.6	-	100	-	TILL. Roll and wash to 20.0.	■				■				
20-20.8	63,100/.3	100	-	TILL. Roll and wash to 23.0.	■				■				
23-23.7	Till	85	-	TILL. Used roller bit to advanced bedrock encountered at 24. Used roller bit to cut socket in bedrock to 26. Grouted inner steel casing. Allowed to cure. Used roller bit to bore through grout. Began coring.	■				■				
26-28.7		85		Dark grey limestone. Bedding planes horizontal or nearly so. Core barrel blocked off. RQD=40%.	■				■				
28.7-33.9		106		AA. Significant fracturing between 29.7 and 30.4. Blocked off. RQD=73%.	■				■				
33-42				AA. RQD=100%.	■				■				

LITHOLOGY

DEPTH (FT.): 0, 5, 10, 15, 20, 25, 30, 35

WELL CONSTRUCTION



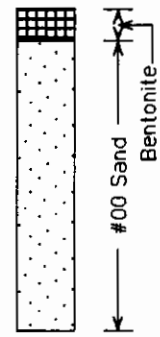
GEI Φ ATLANTIC

WELL MW9809D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Along river, east of MW9705D
DATE STARTED: 3/18/98
DATE COMPLETED: 4/29/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 112.17
WELL ELEVATION: TOC 114.04
DATUM: MSL
INSPECTOR: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
33-42		101			■				■							
42-46		100		AA. RQD=98%.	■				■							
				End of boring at 46 feet. Originally backfilled hole to 36 feet with bentonite. Bentonite then removed for borehole geophysical studies in December 1999.												



GEI Φ ATLANTIC

BORING MW9810D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: North of river
DATE STARTED: 5/13/98
DATE COMPLETED: 5/17/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 131.70
WEATHER: Sunny, light breeze 70s
INSPECTOR: Jerry Zak
CHECKED BY: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
0-2	2,5 6,6	70	0	SILT (black-grey-brown), dense, fine to coarse sand, gravel, roots and organic material. FILL.	■				■						0
2-4	5,5 4,7	25	0	Clinkers and ash, some organic material, crushed bricks, moist, fill.	■				■						
4-6	2,2 3,6	10	0		■				■						5
6-8	8,3 3,3	30	0		■				■						
8-10	4,12 15,16	45	0.5		■				■						
10-12	5,6 9,12	60	0	Medium brown silt, little fine sand, stiff gravel, dry.	■				■						10
12-14	16,16 22,23	75	0	Medium brown silt, little fine and coarse sand, clay, organic material moist, stiff trace gravel.	■				■						
14-16	24,33 52,48	80	0		■				■						15
16-17.5		75	0	TILL. Left augers at 14', ADT dropping 4" casing to rollerbit through till, grey fine sand and silt, trace medium sand, coarse sand and gravel, dry, very stiff, no odors. Roll and wash to 23.0.	■				■						
23-23.7	51,100/2	30	0	AA. Roll and wash to 28.0.	■				■						20
		30	0	AA. 28.0-28.4. Roll and wash to 33.0.	■				■						25
		20	0	AA. 33.0-33.3. Roll and wash to 38.0.	■				■						30
		10	0	AA. 38.0-38.2. Roll and wash to bedrock at 41.0.	■				■						35
38.2-43				Bedrock socket to 43', set 4" casing to 43', grouted and set.											40
43-53				Dark grey limestone. RQD=93%.											45

GEI Φ ATLANTIC

BORING MW9810D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: North of river
DATE STARTED: 5/13/98
DATE COMPLETED: 5/17/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 131.70
WEATHER: Sunny, light breeze 70s
INSPECTOR: Jerry Zak
CHECKED BY: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
															45
43-53		102													50
53-63		100		AA. RQD=100%.											55
63-73		102		AA. RQD=100%.											65
73-83				AA. RQD=98%.											70
83-88		104		AA. RQD=100%.											75
88-98		96		AA. RQD=100%.											80
															85
															90

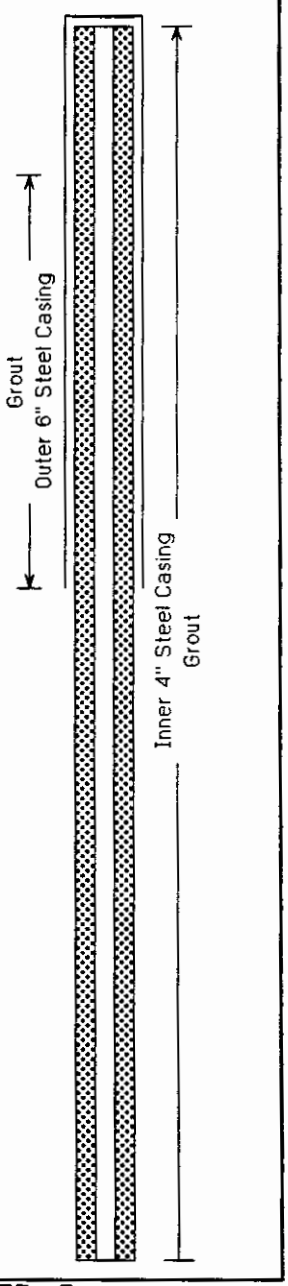
GEI Φ ATLANTIC

WELL MW9811D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Southern portion of site, near wood sign
DATE STARTED: 3/20/98
DATE COMPLETED: 5/5/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 133.70
WELL ELEVATION: TOC 136.07
DATUM: MSL
INSPECTOR: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
0-2	45,61 12,10	75		Brown sand with some silt and trace of gravel. FILL.	■				■				
2-4	6,9 8,8	50			■				■				
4-6	8,9 7,10				■				■				
6-8	4,12 32,24	85		Silty clay grey/brown trace gravel.	■				■				
8-10	12,25 37,42	80		Brown sand, trace clay.	■				■				
10-12	17,41 99	70			■				■				
12-13.4		85		Brown till.	■				■				
14-15	47,100/.5	100		Grey till. Augured to 17'. Grouted in 6" outer casing. Allowed grout to cure. Bored through grout with roller bit to 20.0.	■								
20-20.6	49,100/.1	17		Grey till. Roll and wash to 23.0.					■				
23-23.9	47,100/.4	56		AA. Roll and wash to 26.0.					■				
26-27.3		38		AA. Roll and wash to 28.0.					■				
		0		No recovery from 28.0 - 31.0 (roll and wash to 31.0).									
31-31.5		60		Grey till; limestone rock fragment.									
33-34	50,100/.5			Grey till, sand, silt, clay. Bored through boulder and more till to 46.0. Bedrock at 46.0. Cut rock socket and grouted in 4" inner steel casing. Allowed grout to cure. Bored at grout and began coring at 49.0.									



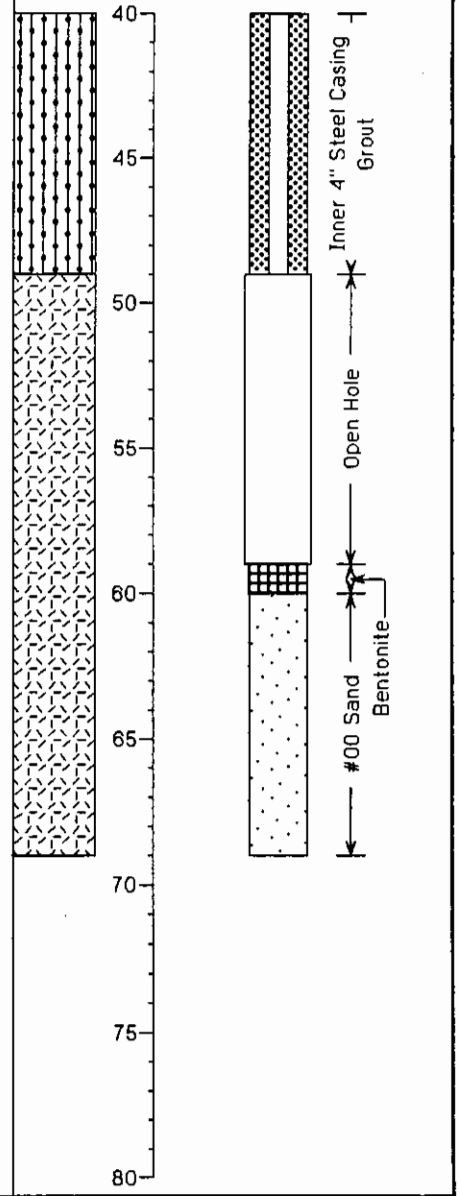
GEI Φ ATLANTIC

WELL MW9811D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Southern portion of site, near wood sign
DATE STARTED: 3/20/98
DATE COMPLETED: 5/5/98
DRILLING CONTRACTOR: Aquifer Testing and Drilling
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 133.70
WELL ELEVATION: TOC 136.07
DATUM: MSL
INSPECTOR: Jerry Zak

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
49-59		99.5		Dark grey limestone, 8 pieces, very broken 5.5-6.8. RQD=77%				■			■		
59-69		100		Dark grey limestone, 5 pieces. RQD=79.1.									
				End of boring at 69 feet. Originally backfilled to 59 feet with bentonite. Bentonite then removed for borehole geophysical studies in December 1999.									



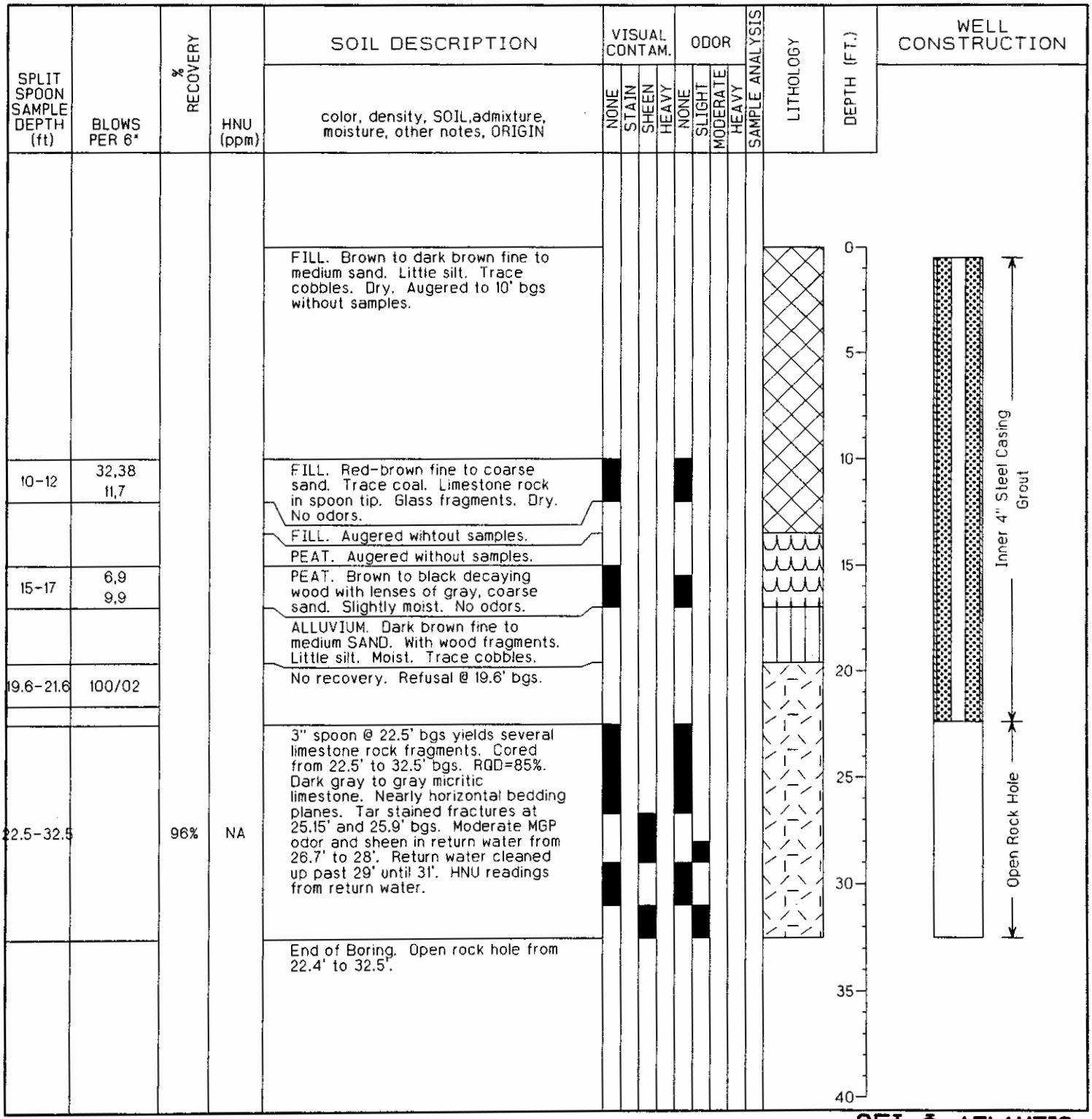
GEI Φ ATLANTIC

WELL MW99-12S

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Municipal Parking lot
DATE STARTED: 6/21/99
DATE COMPLETED: 6/24/99
DRILLING CONTRACTOR: Aquifer Drilling and Testing
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ Wireline
SAMPLING METHOD: 3" Split Spoons
GROUND ELEVATION: 116.56
WELL ELEVATION:
DATUM: MSL
INSPECTOR: Carolyn Verdon

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
				FILL. Brown to dark brown fine to medium sand. Little silt. Trace cobbles. Dry. Augered to 10' bgs without samples.									
10-12	32,38 11,7			FILL. Red-brown fine to coarse sand. Trace coal. Limestone rock in spoon tip. Glass fragments. Dry. No odors.	■				■				
				FILL. Augered wihtout samples.									
				PEAT. Augered without samples.									
15-17	6,9 9,9			PEAT. Brown to black decaying wood with lenses of gray, coarse sand. Slightly moist. No odors.	■				■				
				ALLUVIUM. Dark brown fine to medium SAND. With wood fragments. Little silt. Moist. Trace cobbles.									
19.6-21.6	100/02			No recovery. Refusal @ 19.6' bgs.									
22.5-32.5		96%	NA	3" spoon @ 22.5' bgs yields several limestone rock fragments. Cored from 22.5' to 32.5' bgs. RQD=85%. Dark gray to gray micritic limestone. Nearly horizontal bedding planes. Tar stained fractures at 25.15' and 25.9' bgs. Moderate MGP odor and sheen in return water from 26.7' to 28'. Return water cleaned up past 29' until 31'. HNU readings from return water.	■		■		■	■			
				End of Boring. Open rock hole from 22.4' to 32.5'.									



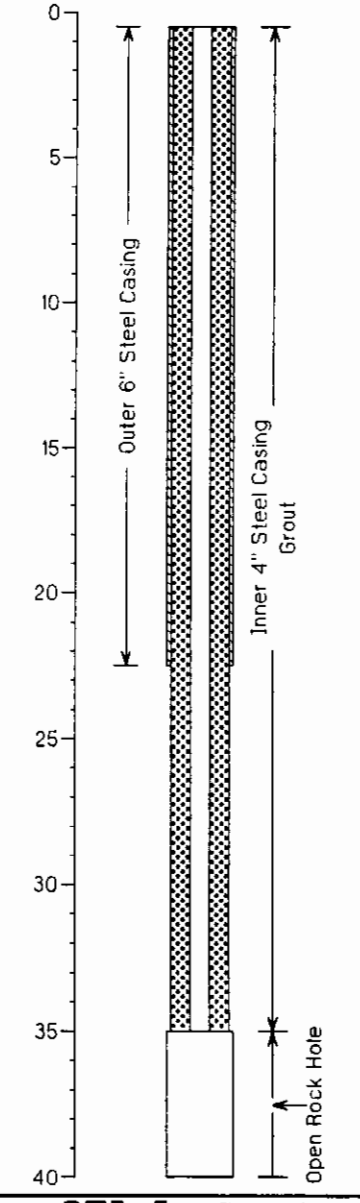
GEI Φ ATLANTIC

WELL MW99-12D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Municipal Parking lot
DATE STARTED: 6/28/99
DATE COMPLETED: 7/6/99
DRILLING CONTRACTOR: Aquifer Drilling and Testing
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ Wireline
SAMPLING METHOD: Auger (no samples)
GROUND ELEVATION: 116.80
WELL ELEVATION:
DATUM: MSL
INSPECTOR: Carolyn Verdon

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
				Augered to refusal on limestone bedrock at 19.50.					■	■	■	■			0	
				Roller bit to 22.5 bgs.	■										5	
		97%	NA	Installed 6" casing and allowed grout to dry for 48 hours.	■										10	
		100%	NA	Dark gray limestone. RQD=100%. Percent Recovery =97%. No tar, sheen or odor.	■										15	
		100%	NA		■		■		■	■					20	
		91%	NA	Dark gray limestone. Spots of sheen @ 30'bgs. Some grout in fracture @ 29.50'bgs. RQD=75%. Percent Recovery=100%.			■		■	■					25	
		99%	NA	No apparent odor or sheen. RQD=94%. Percent Recovery=91%. Installed 4" casing and allowed grout to core for 48 hrs. Continued to bedrock coring.	■				■						30	
															35	
															40	



GEI Φ ATLANTIC

WELL MW99-12D

PROJECT: NYSEG Plattsburgh Former MGP
PROJECT NO: 97334
LOCATION: Municipal Parking lot
DATE STARTED: 6/28/99
DATE COMPLETED: 7/6/99
DRILLING CONTRACTOR: Aquifer Drilling and Testing
DRILLER: Martin Harrington

DRILLING METHOD: HSA/HQ Wireline
SAMPLING METHOD: Auger (no samples)
GROUND ELEVATION: 116.80
WELL ELEVATION:
DATUM: MSL
INSPECTOR: Carolyn Verdon

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL,admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
															40	
		100%	NA	Dark gray limestone. RQD=100%. Percent Recovery=100%. No odor or sheen.	■				■						45	
		100%	NA	Dark gray limestone. RQD=100%. Percent Recovery=100%. No odor or sheen.	■				■						50	
					■				■						55	
				End of boring at 60 feet bgs.	■				■						60	Open Rock Hole
															65	
															70	
															75	
															80	

GEI Φ ATLANTIC

GEI Consultants, Inc.

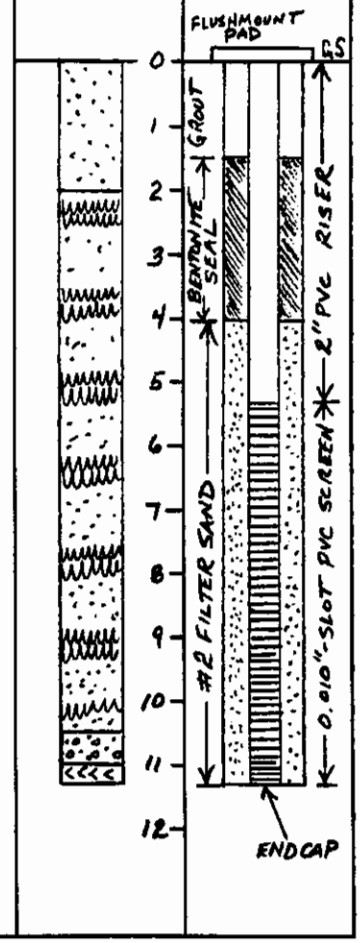
MONITORING WELL LOG (MW-99-14S)

Boring/Well ID:	MW-99-14S	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	J. Zak	**Location:**	Downstream Terminus of Slurry Wall
Date Started:	6/25/99	**Contractor:**	ADT, Albany
Date Completed:	6/30/99	**Driller:**	M. Harrington
Total Depth:	11.3 feet	**Drilling Method:**	Hollow Stem Auger

Ground Surface Elevation: **Measuring Point Elevation:**	111.43 feet (MSL) 111.19 feet (MSL)	**Well Construction:** 2" PVC with 10-slot screen. 1" Cap/Sump at bottom. Screen from 5.3'-11.3' bgs. #2 sand from 4'-11.3' bgs. Bentonite chips 1.5'-4' bgs. Grout and Pad from 0'-1.5'.	**Notes:** Well installed where GP-99-20 was previously sampled. Lithology is from GP-00-20

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description
0 - 4	NA	2'8"	NA	0 - 1'2" Dry loam. No odors. 1'2" - 2' Dry sand and gravel. No odors. 2' - 2'8" Peat and roots and very fine sand. No odors.
4 - 8	NA	2'4"	NA	0 - 4" Peat as above. No odors. 4" - 2'4" mm-scale inter-bedded fine brown sand and peat with trace roots. Moist. Decaying organic odor.
8 - 11	NA	3'	NA	0 - 10" Slough from above. 10" - 2'8" mm-scale beds as above (4'-2'4"). 2'8" - 3' Coarse sand and gravel. Moderate tar odor. No visual signs of impacts. Geoprobe™ Refused at 11'. Roller bit into bedrock with Auger rig; refusal at 11.3' bgs. Installed well with Auger rig.

Lithology (not to scale) / Well Construction



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GEI Consultants, Inc.

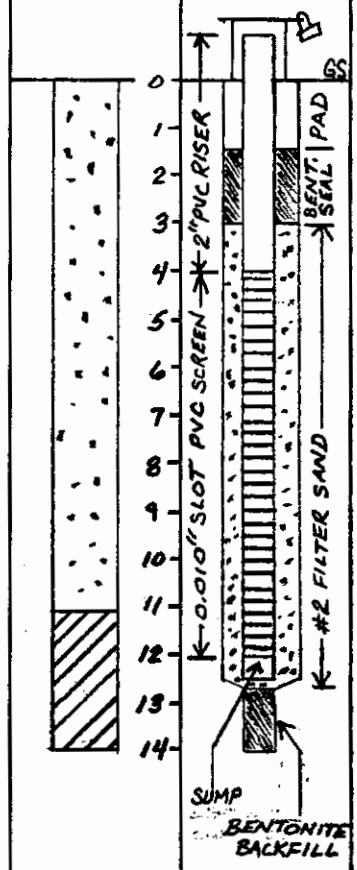
MONITORING WELL LOG (PZ-00-01)

Boring/Well ID:	PZ-00-01	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Andrew Brey	**Location:**	Northwest of Containment Cell, 'Area 2'
Date Started:	8/24/00	**Contractor:**	ADT, Albany
Date Completed:	8/24/00	**Driller:**	M. Harrington
Total Depth:	14 feet	**Drilling Method:**	Hollow Stem Auger, 2" split-spoons

Ground Surface Elevation: **Measuring Point Elevation:**	116.11 feet (MSL) 119.13 feet (MSL)	**Well Construction:** 2" PVC with 10-slot screen. Sump from 12'-12.5' bgs. Screen from 4'-12' bgs. #2 sand from 3'-12.5' bgs. Bentonite chips 1.5'-3' bgs.	**Notes:** Located exactly where GP-00-23 was initially sampled from 0' to 12' bgs. 12' to 14' bgs sampled with auger rig. Lithology of 0'-12' taken from GP-00-23.

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description
0 - 4	NA	2.8	0.0	0 – 2.0': Tan fine-grained sand and silt. Trace coarse sand. Dry. Loose. No odors.
			202	2.0' – 4.0': Black, silty, fibrous, fluffy material. Moist. Very, very strong tar odor. Heavy sheen.
4 – 8	NA	2.2	180	4.0' – 6.0': As above. Very, very strong tar odor. Black-stained.
			49	6.0' – 8.0': Dark brown and olive fine-grained sand and silt. Moist. Moderate tar odor. Trace black stains throughout.
8 - 12	NA	2.0	40	8.0' – 11.1': Black, tarry, coarse-grained sand and gravel. Little fines. Wet. Loose. Tar is dripping off of gravels and flowing into pools on Geoprobe™ sleeve. Strong tar odor.
				11.1' – 11.8': Mushy, wet till. Gray and black-stained. Structure is the same as the hard, dry till. Staining and residual tar blebs throughout. Strong tar odor. No sheens.
				11.8' – 12.0': Gray limestone discs filling up the tip of the sampling barrel. Hard. Wet. Light sheen and tar blebs on the rock faces. Strong tar odor from above (?). Refusal on a boulder or cobble present in the top of the hard till.
				Refusal at 104.1' MSL. End of Geoprobe™ Boring, start of split-spoon sampling (see next page).

Lithology (not to scale) / **Well Construction**



GEI Consultants, Inc.

MONITORING WELL LOG (PZ-00-01)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
12 - 14	21 48 44 75	2.0	0.0	Sampling for PZ-00-01 completion done with split-spoon sampler and augers at GP-00-23 location on 8/24/00. 12.0' - 14.0': Gray, dense till. Silt and very fine-grained sand. Trace coarse sands and fine gravels of varying lithology. No fractures in till; one piece. Very slightly moist. No odors or tar within till. Till surface at 104.1' MSL. End of Boring.		

GEI Consultants, Inc.

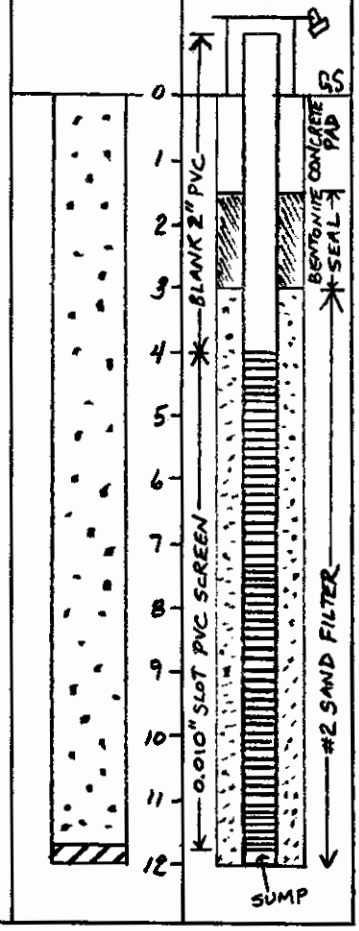
MONITORING WELL LOG (PZ-00-02)

Boring/Well ID:	**PZ-00-02**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date Started:	**8/25/00**	**Contractor:**	**ADT, Albany**
Date Completed:	**8/25/00**	**Driller:**	**M. Harrington**
Total Depth:	**12 feet**	**Drilling Method:**	**Hollow Stem Auger, 2" split-spoons**

Ground Surface Elevation: **Measuring Point Elevation:**	**115.39 feet (MSL)** **118.50 feet (MSL)**	**Well Construction:** **2" PVC with 10-slot screen.** **Sump: 11.8' - 12' bgs.** **Screen: 4' - 11.8' bgs.** **#2 sand: 3' - 12' bgs** **Bentonite seal: 1.5' - 3' bgs**	**Notes: Sump comprised of endcap on PVC.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description
0 - 6	NA	NA	NA	No sampling from 0' – 6' bgs because no impacts were found in shallow soil at nearby, previous Geoprobe™ points.
6 - 8	2 2 2 1	1.1	0.0	6.0' – 8.0': Moist, brown-orange very fine to fine-grained sand. Some medium sand. Trace rootlets. Cohesive. No odors or visual impacts.
8 - 10	13 15 63 36	0.8	0.4 - 2.2	8.0' – 10.0': Wet, brown and gray fine to medium-grained sand and gravel. Fairly loose. Few tar blebs throughout. Light sheen in some spots. Light tar odor.
10 - 12	40 33 22 40	2.0	6.9	10.0' – 11.7': Gray, broken gravel and silt. Wet. Firm. Non-cohesive. Light sheen and light tar coating gravels from 10' to 11.4'. Heavy black tar coating from 11.4' to 11.7'. Moderate tar odor throughout.
			0.4	11.7' – 12.0': Light gray, dense silt with trace coarse-grained sands and fine gravel. Slightly moist. Compact. One piece. No visual tar impacts within the till. Light tar odor. Till surface at 103.7' MSL. End of Boring.

Lithology (not to scale)



Well Construction

GEI Consultants, Inc.

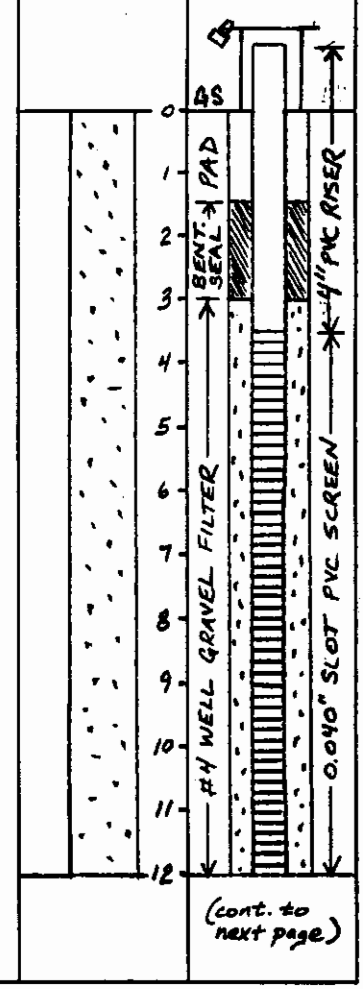
MONITORING WELL LOG (MW-00-15S)

Boring/Well ID:	MW-00-15S	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Andrew Brey	**Location:**	Northwest of Containment Cell, 'Area 2'
Date Started:	8/23/00	**Contractor:**	ADT, Albany
Date Completed:	8/23/00	**Driller:**	M. Harrington
Total Depth:	15.3 feet	**Drilling Method:**	Hollow Stem Auger, 2" split-spoons

Ground Surface Elevation: **Measuring Point Elevation:**	115.78 feet (MSL) 118.75 feet (MSL)	**Well Construction:** 4" PVC with 40-slot screen. Sump from 13.5'-14.5' bgs. Screen from 3.5'-13.5' bgs. #4 sand from 14.5'-3.0' bgs. Bentonite from 3'-1.5' bgs.	**Notes:** Located in 'Area 2', northwest of containment cell

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description
0 - 2	1 6 22 10	2.0	NA	0 – 2.0': Dry, brown loam with grass at top. Trace coarse-grained sand-size coal and cinder fragments. Loose. No odors or visual impacts.
2 - 4	3 7 6 5	1.2	NA	2.0' – 3.0': As above, no grass. No odors. 3.0' – 3.3': Dark brown, moist, very grained-sand and silt. Cohesive. Trace rusty-colored mottles. No odors. 3.3' – 4.0': Light brown, fine to very-fine sand. Firm. Cohesive. Moist. No odors.
4 - 6	4 3 4 4	1.7	NA	4.0' – 6.0': As above. No odors or visual impacts.
6 - 8	2 4 7 6	1.1	NA	6.0' – 8.0': As above with trace rusty-colored mottles. Some medium to coarse, various-colored sand at 8'. No odors.
8 - 10	8 3 2 11	0.85	NA	8.0' – 8.7': Light brown and various-colored medium to coarse-grained sand. Wet. Loose. No odors. 8.7' – 10.0': Dark gray, fine to medium-grained sand. Wet. Loose. Slight tar odor.
10 - 12	2 3 21 18	0.2	NA	10.0' – 12.0': Gray, fine gravel and coarse-grained sand. Wet. Loose. Some tar blebs and light sheen. Moderate tar odor.

Lithology (not to scale) / **Well Construction**



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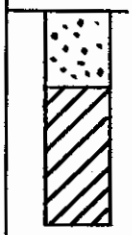
MONITORING WELL LOG (MW-00-15S)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
12 – 13.4	12 20 60 / 0.4	1.5	NA	12.0' – 13.2': As above. Tar-saturated layer from 12.5' to 13.2' bgs, atop till. 13.2' – 13.4': Light gray till. Dense. Tight. No tar in till. Slight tar odor. Till surface at 102.6' MSL.		(cont.) 
14 – 14.2	50 / 0.2'	0.0	NA	No recovery. Some sandy slough in spoon (0.2').		
15 – 15.3	50 / 0.3'	0.3	NA	15.0' – 15.3': Dry, gray till. Silt with trace coarse to medium-grained sands. No gravels. Dense. Tight. No odors or visual impacts. End of Boring.		

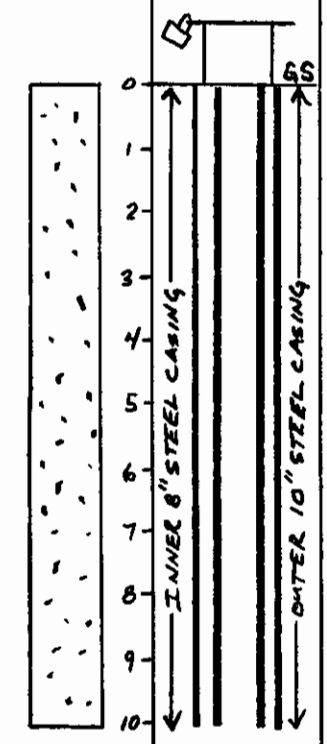
GEI Consultants, Inc.

MONITORING WELL LOG (MW-00-15D)

Boring/Well ID:	MW-00-15D	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Andrew Brey	**Location:**	Northwest of Containment Cell, 'Area 2'
Date Started:	8/28/00	**Contractor:**	ADT, Albany
Date Completed:	10/10/00	**Driller:**	M. Harrington, D. Walker
Total Depth:	60 feet	**Drilling Method:**	HSA, Drive/Wash, HQ-wireline

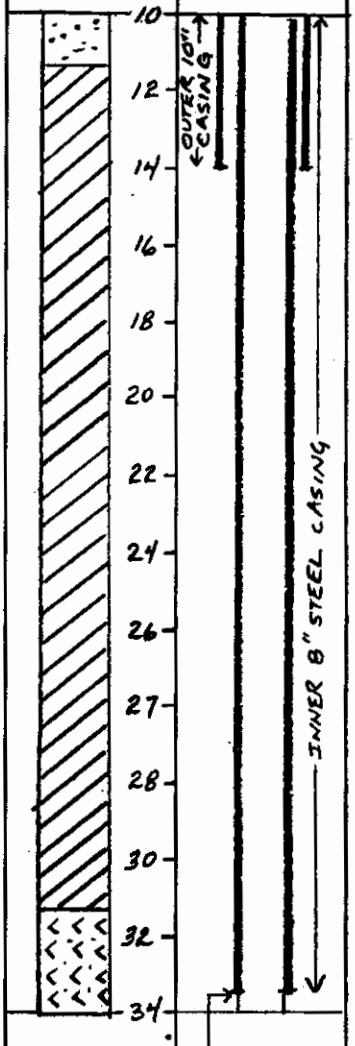
Ground Surface Elevation: **Measuring Point Elevation:**	115.24 feet (MSL) 117.31 feet (MSL)	**Well Construction:** 10" steel casing grouted to 14' bgs. 8" steel casing grouted to 33.5' bgs. 8" open-rock hole to 60' bgs.	**Notes:**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
0 - 2	12 15 11 8	1.6	NA	0 – 0.5': Dry, brown loam and roots. Loose. No odors. 0.5' – 1.0': Gray and white gravel and fine sand. Dry. Loose. No odors. 1.0' – 2.0': Orange-rust fine-grained sand. Uniform. Dry. Loose. No odors or impacts.		
2 - 4	6 3 19 9	1.3	NA	2.0' – 4.0': Orange-rust fine sand as above. No odors.		
4 - 6	17 40 48 17	0.6	NA	4.0' – 6.0': Brown to light-brown fine to medium-grained sand. Few coarse sands and gravels. Rock stuck in tip. Dry. Loose. No odors or visual impacts.		
6 - 8	15 9 9 13	1.5	NA	6.0' – 8.0': Brown and rust-orange, fine to medium-grained sand. Some coarse-grained sands. Few fine gravels. Poorly sorted. Loose. Dry to moist by 7.5' bgs. No odors or visual impacts.		
8 - 10	5 12 15 14	0.6	NA	8.0' – 10.0': Brown, coarse-grained sand and fine gravel. Some medium to fine sands. Wet. Loose. Heavy sheens. Tar blebs throughout. Strong tar odor.		



MONITORING WELL LOG (MW-00-15D)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
10 - 11.8	57 45 31 50 / 0.3'	1.3	NA	10.0' - 11.4': Gray, fine to coarse-grained sands and fine to medium gravels. Wet. Heavy sheen. Blebs to 10.5'. Hot-Asphalt-like tar impacts and tar-coated gravels from 10.5' to 11.4' bgs. Strong tar odor.		
				11.4' - 11.8': Gray, dense till (gravelly silt). Slightly moist. Top 0.1' is black-stained. No tar impacts below 11.5' bgs.		
				Till surface at 103.8' MSL.		
				Set and grout 10" steel casing to 14' bgs on 9/7/00 via 12" mud rotary.		
				Begin sampling the till via 4" drive and wash on 9/11/00.		
14 - 15.3	NA	1.3	0.0	14.0' - 15.3': Gray till comprised of silt and clay, trace fine gravels and coarse sands. Dense. Very cohesive. Slightly moist. One piece. No odors or impacts within the till.		
16 - 16.3	NA	0.3	0.0	16.0' - 16.3': Gray till as above. No odors or impacts.		
18 - 18.4	NA	0.4	0.0	18.0' - 18.4': Gray till as above. One coarse sand of red siltstone lithology. Dense. Cohesive. No odors or impacts.		
20 - 21.2	NA	1.2	0.0	20.0' - 21.2': Gray till as above. No odors or impacts.		
22 - 23.4	NA	1.5	0.0	22.0' - 23.4': Gray till as above. One piece. No odors or impacts.		
24 - 24.8	NA	1.2	0.0	24.0' - 24.8': Gray till. Silt with trace fine gravel and coarse sands. Very cohesive. Dense. Slightly moist. No odors or impacts.		
26 - 26.4	NA	0.4	0.0	26.0' - 26.4': Dense, gray till comprised of silt and clay with trace gravel and sand. Slightly moist. Very cohesive. No odors or impacts.		
28 - 28.8	NA	0.6	0.0	28.0 - 28.8': Gray till as above. No odors or impacts.		
30 - 30.7	NA	0.7	0.0	30.0' - 30.7': Gray till comprised of silt and fine-grained sand with trace fine gravel and coarse-grained sands. Dense. Moist within the till. No odors or visual impacts.		
				Drive and wash to 31.5' bgs, where top of limestone bedrock was encountered. Top of bedrock at 83.74' MSL.		
				No impacts observed in wash water through till unit.		



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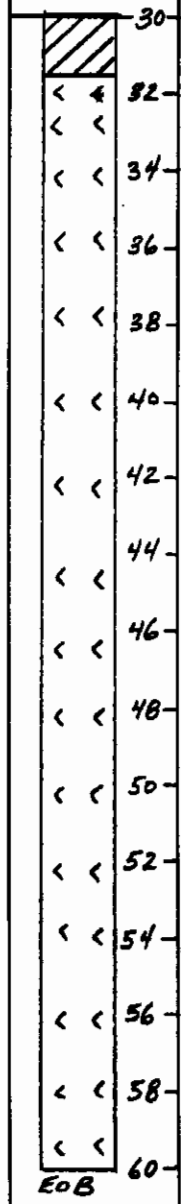
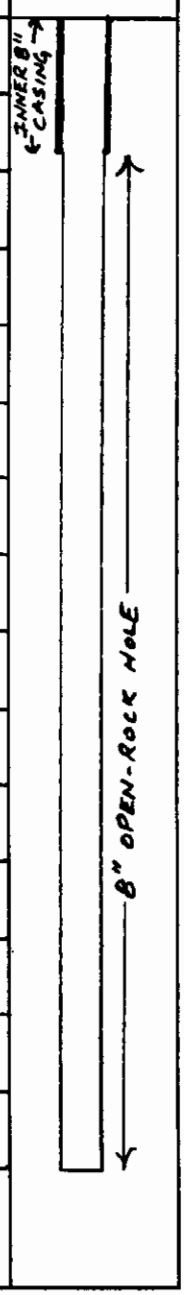
MONITORING WELL LOG (MW-00-15D)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
				Set and grout 8" steel casing to 33.5' bgs via 10" mud rotary on 9/15/00. Begin coring bedrock via HQ-wireline at 33.5' bgs on 9/18/00.		
33.5 - 40	NA	6.5	NA	33.5' - 40.0': **1st RUN** RQD = 95% Dark gray, micritic limestone. Bedding planes almost horizontal, but slightly undulatory. Near horizontal fractures at 33.8', 34.8' and 35.2' bgs. No tar, odors or sheens in return water or in rock core.		
40 - 50	NA	10.0	NA	40.0' - 50.0': **2nd RUN** RQD = 99% Dark gray, micritic limestone. Massive. Bedding planes almost horizontal. Near horizontal fractures at 41.7', 42.8'and 47.1' bgs. Some vertical-trending calcite-healed microfractures throughout. No tar, odors or sheens in return water or in rock core.		
50 - 60	NA	10.0	NA	50.0' - 60.0': **3rd RUN** RQD = 97% Dark gray, micritic limestone. Massive. Bedding planes almost horizontal. Near horizontal fractures at 55.1', 55.4' and 56.5' bgs. One piece, no breaks above/below fracture zone (55.1'-56.5'). No tar, odors or sheens in return water or in rock core. End of Boring at 60' bgs (55.24' MSL). Used 8" roller bit to overbore bedrock to 60' bgs on 10/10/00.		

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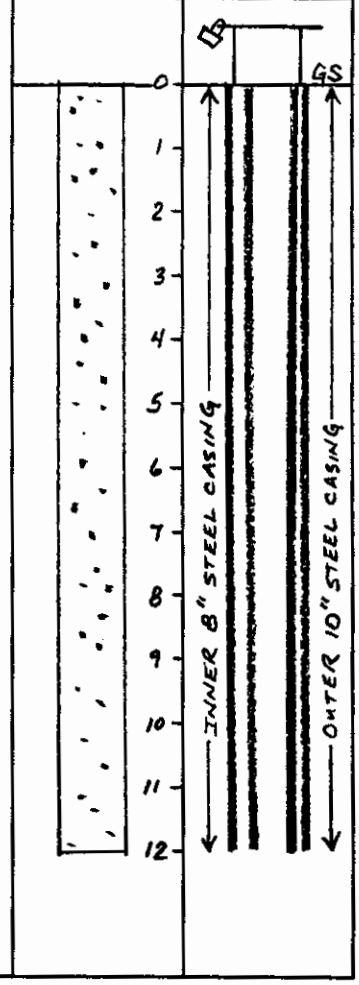
MONITORING WELL LOG (MW-00-16D)

Boring/Well ID:	**MW-00-16D**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**North Edge of Site, Next to River**
Date Started:	**8/28/00**	**Contractor:**	**ADT, Albany**
Date Completed:	**10/12/00**	**Driller:**	**M. Harrington, D.Walker**
Total Depth:	**40 feet**	**Drilling Method:**	**HSA, Drive/Wash, HQ-wireline**

Ground Surface Elevation: **Measuring Point Elevation:**	**113.01 feet (MSL)** **115.15 feet (MSL)**	**Well Construction:** **10" steel casing grouted to 15' bgs.** **8" steel casing grouted to 30.5' bgs.** **8" open-rock hole to 40' bgs.**	**Notes:**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description
0 - 2	3 5 6 9	1.3	0.0	0 - 2.0': Dry, light brown, fine to very fine-grained sand. Loose. Trace rootlets. Trace coarse-grained sand. No odors or visual impacts.
2 - 4	5 7 8 7	0.9	0.0	2.0' - 4.0': Dry, brown-light brown, fine to very fine-grained sand. Some coarse sand. Trace gravel. Loose. No odors or visual impacts.
4 - 6	2 3 7 7	1.6	0.0	4.0' - 6.0': Moist, dark brown, fine to very fine-grained sand. Trace rootlets. Firm. Cohesive. No odors or visual impacts.
6 - 8	7 25 35 41	1.2	0.0	6.0' - 8.0': Wet, dark brown, fine to very fine-grained sand. Trace fine gravel. Cohesive. Firm. Very slight tar odor. No visual impacts.
8 - 10	1 2 4 3	2.0	0.0	8.0' - 10.0': Wet, medium brown and light brown medium-grained to very fine-grained sand. Some silt. Traces of coarse sand and fine gravel of varying lithology. Cohesive. Firm. No odors. Gravel at 9.5' bgs with specks of sheen on faces; no visual impacts otherwise.
10 - 12	1 woh 1 2	2.0	1.2 - 3.2	10.0' - 12.0': Wet, as above. With ½" to 1" patches of black tar at 10', 10.3', 10.7' and 11.2'. Light tar odor throughout.

Lithology (not to scale) / Well Construction



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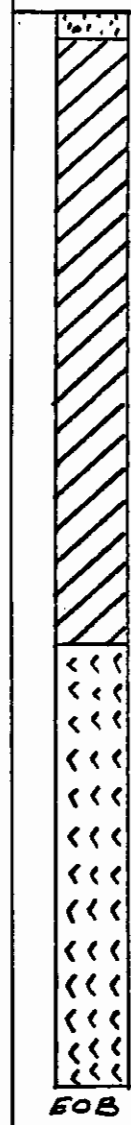
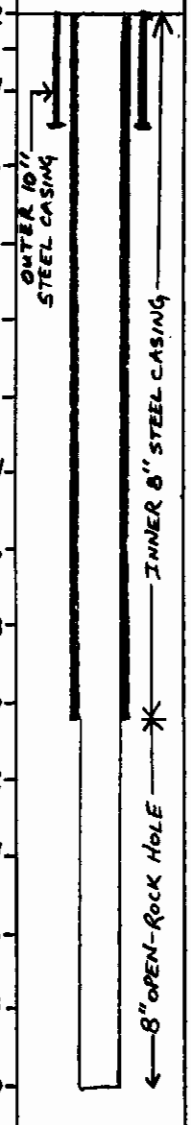
MONITORING WELL LOG (MW-00-16D)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
12 - 13.3	2 17 50 / 0.3'	1.9	43 - 65	0.6' of slough on top. 12.0' - 12.7': As above, with ½" patches of black, hot-asphalt-like tar. Moderate tar odor. 12.7' - 13.3': Gray, dense till. Comprised of silt with trace coarse-grained sands and fine gravel. Very cohesive. Slightly moist. No odors or visual impacts within the till. Till surface at 100.3' MSL. Set and grout 10" steel casing to 15' bgs on 9/5/00 via 12" mud rotary. Begin sampling the till via 4" drive and wash at 5-foot intervals on 9/8/00.		
15 - 15.4	50 / 0.4'	0.4	0.0	15.0' - 15.4': Dry, gray, silt with few coarse sands and fine gravels of limestone lithology. Dense till. Very cohesive. Sample is one piece. No odors or visual impacts.		
20 - 20.5	50 / 0.5'	0.5	0.0	20.0' - 20.5': Dry, gray, gravelly silt. Few coarse-grained sands. Dense till. Very cohesive. LS gravel at 20.2'. No odors or visual impacts in sample or in wash water from 15' to 20'.		
25 - 26.9	45 41 25 50 / 0.4'	1.8	0.0	25.0' - 26.9': Dry, gray, gravelly silt as above with trace coarse-grained sands. Dense till. Very cohesive. Sample is one piece. No odors or visual impacts in sample or in wash water from 20' to 25'. Drive and wash to 28.5' bgs, where top of limestone bedrock was encountered. No odors or impacts observed in wash water or cuttings from 25' to 28.5'. Top of bedrock at 84.5' MSL. Set and grout 8" steel casing to 30.5' bgs via 10" mud rotary on 9/14/00. Begin coring bedrock via HQ-wireline at 30.5' bgs on 9/19/00.		
30.5 - 40	NA	8.9	NA	30.5' - 40.0': 1st RUN RQD = 94% Dark gray, micritic, massive limestone. Bedding planes nearly horizontal. Near horizontal fracture at 32.5' bgs with friable pieces. Tight, near horizontal fractures at 34.6' and 35.8' bgs. No fractures from 35.8' to 40' bgs. Major tar and sheen in return water at 32.5 bgs during coring. End of Boring at 40' bgs (73.01' MSL). Used 8" roller bit to overbore bedrock to 40' bgs on 10/12/00. No tar or sheens present during overboring.		

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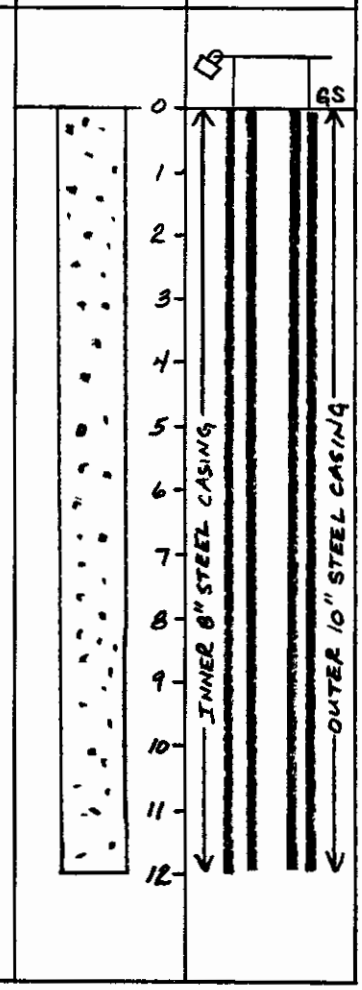
MONITORING WELL LOG (MW-00-17D)

Boring/Well ID:	MW-00-17D	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	A. Brey, J. Zak	**Location:**	North Edge of Site, Next to River
Date Started:	8/28/00	**Contractor:**	ADT, Albany
Date Completed:	10/11/00	**Driller:**	M. Harrington, D. Walker
Total Depth:	40 feet	**Drilling Method:**	HSA, Drive/Wash, HQ-wireline

Ground Surface Elevation: **Measuring Point Elevation:**	111.67 feet (MSL) 113.51 feet (MSL)	**Well Construction:** 10" steel casing grouted to 15' bgs. 8" steel casing grouted to 27'bgs. 8" open-rock hole to 40' bgs.	**Notes:**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
0 - 2	7 40 35 100 / 0.3'	1.3	0.0	0 - 2.0': Dry, brown, very fine-grained sand and silt. Trace rootlets at top. Trace coarse sand. Loose. Refusal on gravel in spoon tip. No odors or visual impacts.		
2 - 4	50 24 40 29	1.4	0.0	2.0' - 4.0': Dry, medium brown fine to medium-grained sand. Some coarse sand. Trace fine gravel. Some red brick throughout. High blows due to brick. No odors or impacts.		
4 - 6	16 16 17 24	1.2	0.0	4.0' - 6.0': Moist, Dark brown fill as above. Trace brick and spent coal. No odors or visual impacts.		
6 - 8	16 7 7 12	0.8	0.0	6.0' - 6.7': Moist, dark brown fill as above. No odors or visual impacts. 6.7' - 8.0': Wet, light brown, mediu to fine-grained sand. Some silts and coarse sand. Trace fine gravels. Loose. No odors or visual impacts.		
8 - 10	15 27 48 25	1.0	8 - 12	8.0' - 10.0': Wet, brown, medium to coarse-grained sand. Some fine-grained gravel. Very loose. Moderate sheen throughout. Trace tar blebs (2 blebs only). Moderate tar odor.		
10 - 12	24 50 / 0.4'	0.8	15 - 53	10.0' - 12.0': Wet, dark brown, coarse-grained sand and fine to medium gravel. Medium dense. Moderate sheen. Trace tar blebs to heavy tar coating all grains in last 0.2' of sample. Strong tar odor.		



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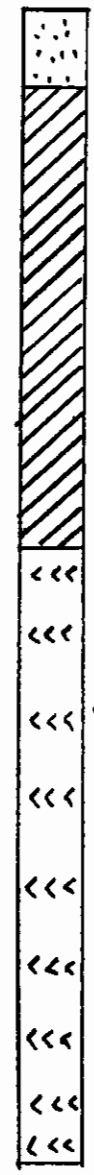
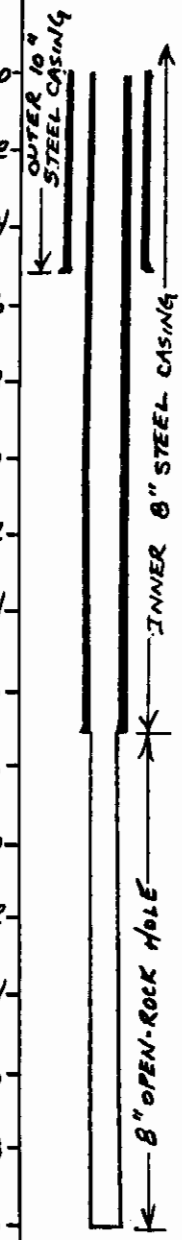
MONITORING WELL LOG (MW-00-17D)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
12 - 12.4	75 / 0.4'	0.6	2.0	0.2' of gravelly slough. 12.0' - 12.4': Gray, dense till. Silt with trace gravels. Slightly moist. No visual impacts within till. Slight tar odor. Till surface at 99.67' MSL. Set and grout 10" steel casing to 15' bgs on 9/6/00 via 12" mud rotary. Begin sampling the till at 15' bgs via 4" drive and wash on 9/12/00 at 5' intervals.		
15 - 16.1	14 37 50 / 0.1'	1.2	NA	15.0' - 16.1': Gray till. No tar, odors or sheens.		
20 - 22	33 35 43 34	1.9	NA	20.0' - 22.0': Gray till. No tar, odors or sheens. Bedrock encountered at 24' bgs. Continued with roller bit to 25' bgs to ensure bedrock. No impacts in wash water. Top of Bedrock at 87.67' MSL. Set and grout 8" steel casing to 27' bgs on 9/15/00 via 10" mud rotary. Begin coring bedrock via HQ-wireline at 27' bgs on 9/19/00.		
27 - 35	NA	7.7	NA	27.0' - 35.0': 1st RUN RQD = 86% Dark gray, micritic limestone. Bedding planes almost horizontal. Fractured zone at 28.5'-28.7' with approximate 30° dips. Fracture at 30.4' with approx. 30° dip. Nearly horizontal fractures at 29.2' and 30.8'. Fractured, friable zone at 31.3'-31.8'. Massive below 31.8' bgs. Speck of sheen on fracture face at 31.4' bgs. Sheens and slight tar odor in return water at just before 35' bgs during coring.		
35 - 40	NA	5.0	NA	35.0' - 40.0': 2nd RUN RQD = 100% Dark gray, micritic limestone. Massive. Near horizontal bedding planes. Slickenside fracture with striations on faces at 39.5' bgs with nearly horizontal orientation. No tar, odors or sheens in return water or in rock core. End of Boring at 40' bgs (71.67' MSL). Used 8" roller bit to overbore bedrock to 40' bgs on 10/11/00.		

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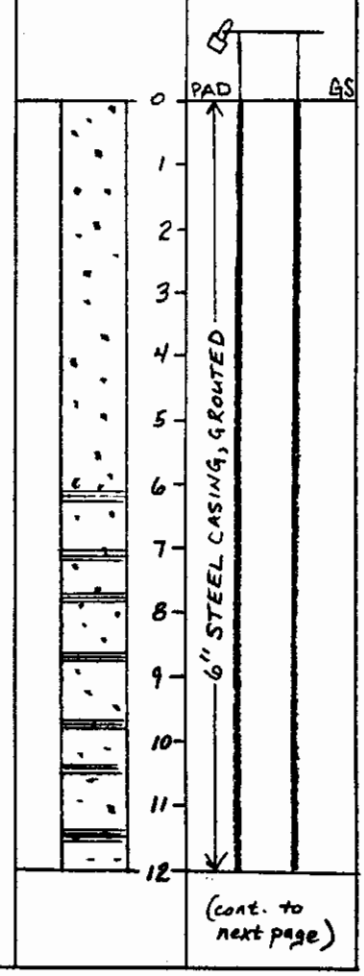
MONITORING WELL LOG (MW-00-22D)

Boring/Well ID:	**MW-00-22D**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Southeast Corner of Farmer's Market**
Date Started:	**8/23/00**	**Contractor:**	**ADT, Albany**
Date Completed:	**8/31/00**	**Driller:**	**M. Harrington**
Total Depth:	**91.5 feet**	**Drilling Method:**	**Hollow Stem Auger, HQ-wireline**

Ground Surface Elevation: **Measuring Point Elevation:**	**116.01 feet (MSL)** **118.22 feet (MSL)**	**Well Construction:** **6" steel casing grouted to 19.5' bgs.** **4" open-rock hole to 91.5' bgs.**	**Notes:**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description
0 - 2	2 5 4 5	0.9	0.0	0 – 2.0': Dry, light brown, loam with trace roots. Loose. No odors or impacts.
2 - 4	6 5 6 8	0.8	0.0	2.0' – 4.0': Dry, as above with trace gravels. No odors or impacts.
4 - 6	8 6 8 6	1.4	0.0	4.0' – 4.7': Moist, as above. No odors or impacts. 4.7' – 6.0': Moist, dark brown and dark gray, fine to medium-grained sand with few fine gravels. Trace red brick fragments. Slightly cohesive. No odors or impacts.
6 - 8	5 4 6 3	0.4	0.0	6.0' – 8.0': Very moist, light brown and dark brown, laminated silts and fine/very fine sands. Millimeter-scale laminations. No odors or impacts.
8 - 10	5 5 4 5	1.7	0.0	8.0' – 8.5': Moist, dark brown clay with some fine to very fine-grained sand. Trace twigs. Cohesive. No odors or visual impacts. 8.5' – 10.0': Moist, brown, light brown and rust-orange, laminated fine sands and silts. Millimeter to inch-scale laminations. Slightly cohesive. No odors or visual impacts.
10 - 12	4 5 6 6	1.5	0.0	10.0' – 12.0': Moist, as above. Laminations are mostly inch-scale. Wood piece at 11' bgs. No odors or impacts.

Lithology (not to scale) / Well Construction



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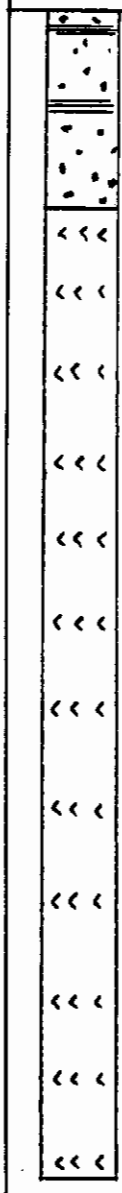
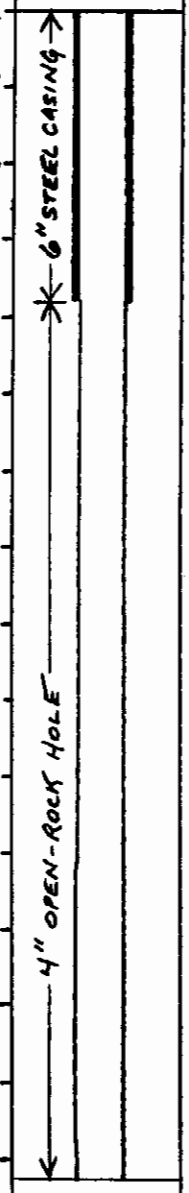
MONITORING WELL LOG (MW-00-22D)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
12 - 14	4 4 4 5	2.0	0.0	12.0' – 14.0': Laminated silts and fine to very fine-grained sands as above. Well graded. Several wood pieces. No odors or impacts.		
14 - 16	5 8 10 5	1.3	0.0	14.0' – 15.5': As above. Very moist. No odors or impacts. 15.5' – 16.0': Wet, gray and brown, very fine-grained sands with trace various-colored medium to coarse sands. Cohesive. Soft. No odors or impacts.		
16 – 17.4	29 34 50 / 0.4'	0.7	0.0	16.0' – 17.2': Wet, gray, silt and angular coarse to medium-grained sand. Trace fine gray gravels. Loose. No odors or impacts. 17.2' – 17.4': Limestone. Rock chips and pieces in spoon. No odors or impacts. Top of Bedrock surface at 98.81' MSL. Set and grout 6" steel casing to 19.5' bgs with 8-1/4 inch augers and 8-inch air hammer to make socket in rock on 8/24/00. Begin coring at 19.5' bgs via HQ-wireline on 8/30/00.		
19.5 – 22.5	NA	2.7	NA	19.5' – 22.5': 1st RUN RQD = 59.7% Dark gray, fine-grained, limestone. Several tight fractures throughout. Well-fractured zone between 19.5'-19.9' bgs, which may be broken up due to air hammer, which cut the casing socket. Nearly horizontal bedding planes. No signs of tar, odors or sheens thru run or in rock core.		
22.5 – 32.5	NA	9.9	NA	22.5' – 32.5': 2nd RUN RQD = 93.4% Dark gray, micritic limestone. Nearly horizontal bedding planes. Nearly horizontal, tight, fractures at 25.2', 25.4', 25.8', and 31.3' bgs. No signs of tar, odors or sheens thru run or in rock core.		
32.5 – 42.5	NA	10.0	NA	32.5' – 42.5': 3rd RUN RQD = 58% Dark gray, micritic limestone. Bedding planes are slightly undulatory, though nearly horizontal. Two near-horizontal fractures at 34.2'-34.5' and 36.4'-36.6' bgs. Sub-vertical to vertical jointing/fractures from 38.2'-41.2' bgs (3-foot zone). No signs of tar, odors or sheens thru run or in rock core.		

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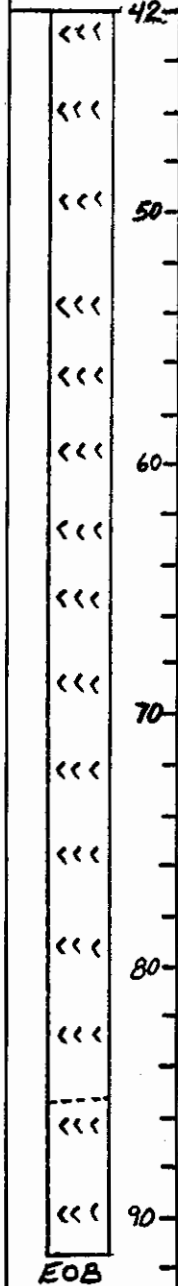
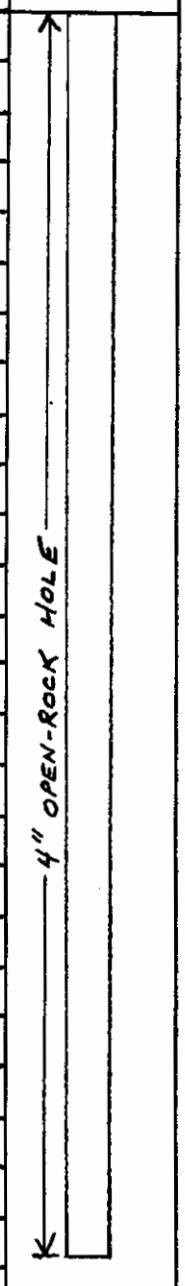
MONITORING WELL LOG (MW-00-22D)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
42.5 - 52.5	NA	10.0	NA	42.5' - 52.5': **4th RUN** RQD = 44.6% Dark gray, micritic limestone. Wavy/undulatory bedding at near-horizontal orientation. Very fractured and friable except for massive zones at 42.5'-43.4' and 48.2'-52.1'. Sub-vertical trending, white, mm-thick, calcite-healed bands from 50'-52.1'. No signs of tar, odors or sheens thru run or in rock core.		
52.5 - 62.5	NA	9.9	NA	52.5' - 62.5': **5th RUN** RQD = 97.5% Dark gray, micritic limestone. Near-horizontal bedding planes. Friable zone from 52.5'-52.75'. Rest of core is massive from 52.75'-62.5'. One thin fracture at 57.0'. Sub-vertical trending, white, mm-thick, calcite-healed bands from 52.5'-54.5'. No signs of tar, odors or sheens thru run or in rock core.		
62.5 - 71.4	NA	8.8	NA	62.5' - 71.4': **6th RUN** RQD = 72% Block-off at 71.4' Dark gray, micritic limestone. Sub-vertical joint/fracture from 64.3'-65.8' with white calcite on edges. Sub-vertical joint/fracture from 69.1'-69.7'. Rest of run is massive with nearly horizontal bedding planes. No signs of tar, odors or sheens thru run or in rock core.		
71.4 - 81.5	NA	10.1	NA	71.4' - 81.5': **7th RUN** RQD = 100% Massive, dark gray, micritic limestone. Nearly horizontal bedding planes. No fractures throughout run. No signs of tar, odors or sheens thru run or in rock core.		
81.5 - 91.5	NA	10.0	NA	81.5' - 91.5': **8th RUN** RQD = 100% Massive, dark gray, micritic limestone. Nearly horizontal bedding planes. One slickenside fracture at 85.4' bgs (30.6' MSL) with nearly horizontal orientation (< 10°). Striations are not well-developed, yet clearly visible. Recrystallized calcite associated with fracture. 2 mm-size, round, spots of hydrocarbon sheen on bottom face of slickenside. No other fractures. Sheen spots at 85.4'(30.6' MSL) are only impacts observed thru run or in core. End of Boring at 91.5' bgs (24.5' MSL). Open rock hole from 19.5'-91.5' bgs.		

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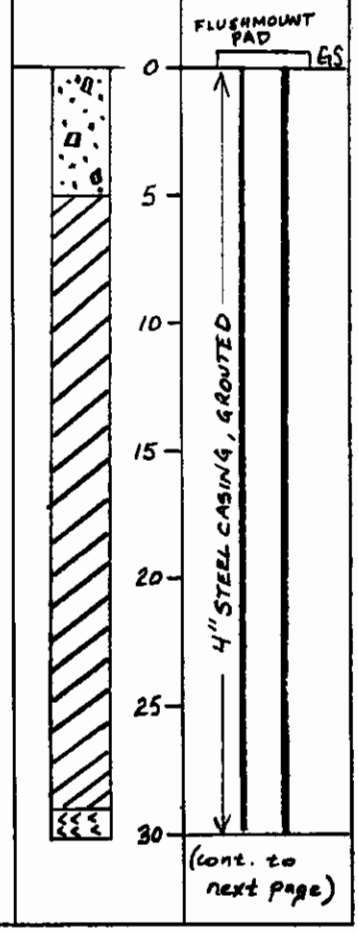
MONITORING WELL LOG (MW-00-23D)

Boring/Well ID:	MW-00-23D	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Andrew Brey	**Location:**	Corner of Durkee St. and Broad St.
Date Started:	10/9/00	**Contractor:**	ADT, Albany
Date Completed:	10/17/00	**Driller:**	L. Darrow
Total Depth:	101 feet	**Drilling Method:**	Hollow Stem Auger, HQ-wireline

Ground Surface Elevation: **Measuring Point Elevation:**	120.04 feet (MSL) 119.33 feet (MSL)	**Well Construction:** 4" steel casing grouted to 31' bgs. 4" open-rock hole open to 101' bgs.	**Notes:** Sampled overburden and till with augers and 2" split-spoons at 5 foot intervals.

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description
0 - 5	NA	NA	NA	0 – 5': Combination of hand digging and augering due to large rubble and asphalt content. Old asphalt layer at 1' bgs. Rest of interval is a mix of full bricks, large cobbles, asphalt pieces, gravel and brown sand. Fill is dry. No impacts or odors observed in cuttings.
5 - 7	10 25 28 28	1.2	0.0	5.0' – 7.0': Slightly moist, olive-brown, silt and clay with few medium to coarse sands and fine gravels of varying lithology. Dense till. Very compact. Very cohesive. No odors or impacts. Till surface at 5' bgs (115.04' MSL).
10 - 11.3	21 57 50 / 0.3'	1.0	0.0	10.0' – 11.3': Moist, as above. At 11' bgs, color of till changes to gray from olive-brown. No odors or impacts.
15 - 15.3	50 / 0.3'	0.3	0.0	15.0' – 15.3': Moist, gray till as above. Slightly pliable. No odors or impacts.
20 - 21.4	30 53 50 / 0.4'	1.2	0.0	20.0' – 21.4': Moist, gray silt and very fine-grained sand. Few to trace coarse sands and fine gravels of varying lithology. Dense till. Very cohesive. No odors or impacts.
25 - 25.7	50 60 / 0.2'	0.7	0.0	25.0' – 25.7': Almost dry, gray, very fine-grained sand. Some silt. Trace coarse sand, fine gravels. Cohesive. Firm. Dense. No odors or impacts. Augers shake and grind at 28' bgs; bang 2" spoon.
28 - 29.6	36 45 48 50 / 0.1'	1.5	0.0	28.0' – 29.6': Dark gray, friable, weathered limestone. Wet. Gets harder, less friable toward 29.6'. No odors or impacts. Bedrock surface at 28' bgs (92.04' MSL). Install and grout 4" steel casing to 31' bgs into 6" rock socket.

Lithology (not to scale) / **Well Construction**



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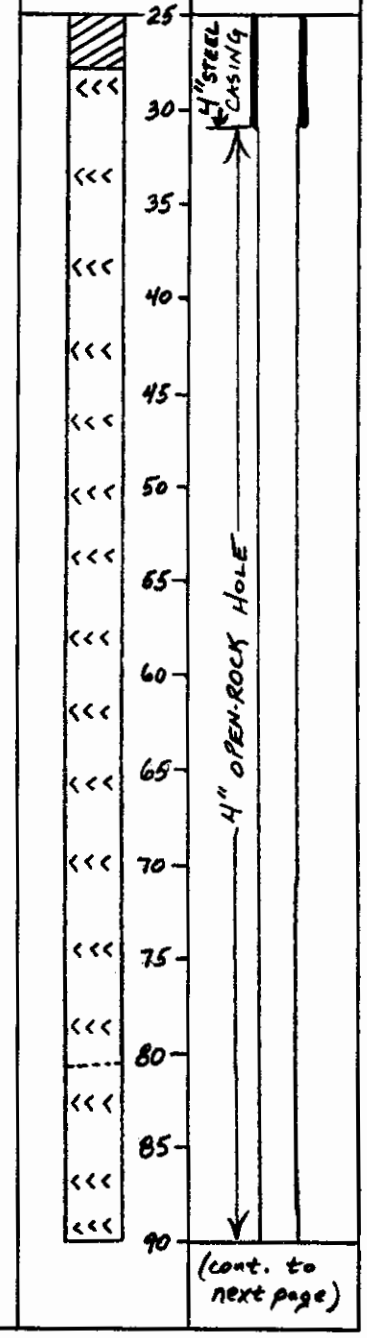
MONITORING WELL LOG (MW-00-23D)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
				Begin coring at 31' bgs via HQ-wireline on 10/16/00.		
31 - 41	NA	9.8	NA	31.0' - 41.0': **1st RUN** RQD = 44% Dark gray, micritic limestone. Nearly horizontal bedding planes. Nearly horizontal fractures throughout. Broken, friable zone from 39.5'-40'. Vertical fracture/joint at 40'-41'. Many sub-vertical, white, mm-thick, calcite-healed bands. No signs of tar, odors or sheens thru run or in rock core.		
41 - 51	NA	10.0	NA	41.0' - 51.0': **2nd RUN** RQD = 87% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Tight, nearly horizontal fractures at 42.5', 42.8', 43.9' and 44.8' bgs. Near vertical joint/fracture from 46'-47.2' bgs. Many sub-vertical, white, mm-thick, calcite-healed bands. No signs of tar, odors or sheens thru run or in rock core.		
51 - 61	NA	10.0	NA	51.0' - 61.0': **3rd RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Out of core barrel in 2 pieces, with one near horizontal fracture at 54.8' bgs. Few sub-vertical, white, mm-thick, calcite-healed bands. No signs of tar, odors or sheens thru run or in rock core.		
61 - 71	NA	10.0	NA	61.0' - 71.0': **4th RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Trace sub-vertical, white, mm-thick, calcite-healed bands. One tight fracture at 62.25' bgs with near-horizontal orientaion (2° at most); no other fractures. No signs of tar, odors or sheens thru run or in rock core.		
71 - 81	NA	10.0	NA	71.0' - 81.0': **5th RUN** RQD = 99% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Few sub-vertical, white, mm-thick, calcite-healed bands. At 80.55' bgs (39.5' MSL), a slickenside fracture with well-defined striations on both faces at an angle of about 2°-4° off horizontal is present. No other fractures. No signs of tar, odors or sheens thru run or in rock core.		
81 - 91	NA	10.2	NA	81.0' - 91.2': **6th RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Trace sub-vertical, white, mm-thick, calcite-healed bands. No natural fractures. No signs of tar, odors or sheens thru run or in rock core.		

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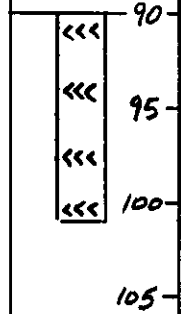
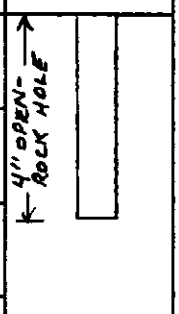
MONITORING WELL LOG (MW-00-23D)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
91 - 101	NA	9.7	NA	91.2' - 101.0': 7th RUN RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Trace sub-vertical, white, mm-thick, calcite-healed bands. No natural fractures. No signs of tar, odors or sheens thru run or in rock core. End of Boring at 101.0' bgs (19.04' MSL). Open-rock hole from 31' - 101' bgs.		

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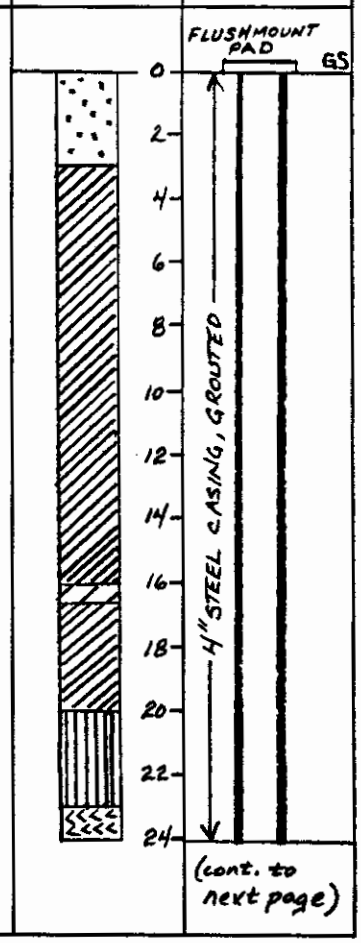
MONITORING WELL LOG (MW-00-24D)

Boring/Well ID:	**MW-00-24D**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**East of Kennedy Bridge, Top of Bank**
Date Started:	**10/11/00**	**Contractor:**	**ADT, Albany**
Date Completed:	**10/19/00**	**Driller:**	**L. Darrow**
Total Depth:	**85 feet**	**Drilling Method:**	**HSA, HQ-wireline**

Ground Surface Elevation: **Measuring Point Elevation:**	**135.56 feet (MSL)** **135.04 feet (MSL)**	**Well Construction:** **4" steel casing grouted to 25' bgs.** **4" open-rock hole to 85' bgs.**	**Notes: Sampled overburden with augers and 2-inch split spoons at 5-foot intervals.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
0 - 2	NA	NA	NA	0 – 2.0': Dry, dark brown top-soil. No odors or impacts. Checked auger cuttings as they came up out of ground.		
5 - 7	3 2 4 5	2.0	0.0	5.0' - 7.0': Dry, brown clay. Trace micro-rootlets. Dense. Compact. Non-pliable. Non-plastic. No odors or impacts.		
10 - 12	1 3 4 6	2.0	0.0	10.0' – 12.0': Slightly moist, brown and beige clay. Dense. Fat. Very cohesive. Pliable and plastic. Uniform. No odors or impacts.		
15 - 17	2 4 8 5	2.0	0.0	15.0' – 16.0': Moist, gray clay. Very cohesive. Pliable. Fat. No odors or impacts. 16.0' – 16.5': Slightly moist, gray silty clay. Trace angular fine to coarse-grained sand. Firm. Cohesive. No odors or impacts. 16.5' – 17.0': Moist, gray clay. Very cohesive. Pliable. Fat. No odors or impacts.		
20 - 22	5 9 13 19	1.0	0.0	20.0' – 22.0': Dry, light gray very fine-grained sand and silt. Trace medium to coarse sand and fine, angular gravel. Cohesive. Firm, yet easily parted. No odors or impacts. Augers grind and shake at 23' bgs; bang 2" split spoon.		
23 – 23.1	50 / 0.1'	0.0	NA	23.0' – 23.1': Only recovery is several black/dark gray limestone rock chips. Split-spoon was bouncing immediately on the bedrock surface. Bedrock surface at 23' bgs (112.56' MSL). Install and grout 4" steel casing to 25' bgs into 6" rock socket.		



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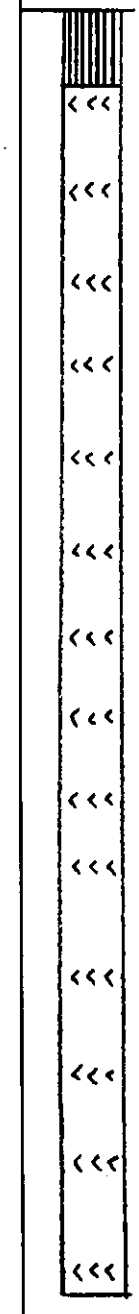
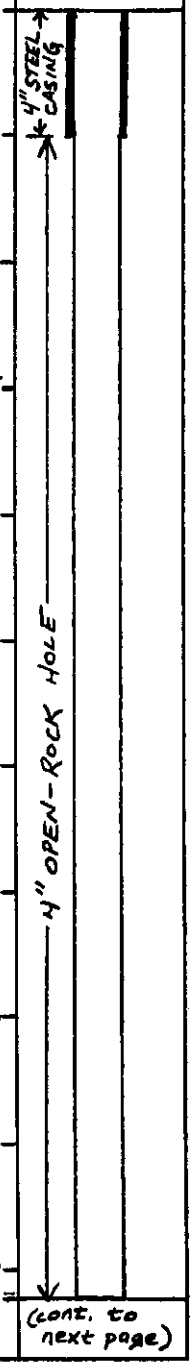
MONITORING WELL LOG (MW-00-24D)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
				Begin coring rock at 25' bgs via HQ-wireline on 10/18/00.		
25 - 31	NA	5.6	NA	25.0' - 31.0': **1st RUN** RQD = 88% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Several mm-thick, discontinuous, white, calcite-healed bands. Conchoidal fracture with sub-vertical orientation from 30.6'-31' (continues to next run). No signs of tar, odors or sheens thru run or in rock core.		
31 - 41	NA	10.0	NA	31.0' - 41.0': **2nd RUN** RQD = 90% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Conchoidal fracture with sub-vertical orientation from 31.0' - 31.9' (continued from last run). At 36.5' bgs is a slickenside fracture with a nearly horizontal dip. Recrystallized calcite and striations lightly visible on bottom face. At 40' bgs is a ¼"-thick clay-filled seam. Clay is gray and very pliable. No signs of tar, odors or sheens thru run or in rock core.		
41 - 51	NA	9.95	NA	41.0' - 51.0': **3rd RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. 3 machine breaks, no natural fractures. At 50.2' bgs is the cast of a fossilized Trilobite (Trilobita) on the faces of a machine break. No signs of tar, odors or sheens thru run or in rock core.		
51 - 57.2	NA	6.2	NA	51.0' - 57.2': **4th RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Several machine breaks; no natural fractures. No signs of tar, odors or sheens thru run or in rock core.		
57.2 - 61	NA	3.7	NA	57.2' - 61.0': **5th RUN** RQD = 78% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Brittle, friable zone from 60.1'-60.5' bgs. No signs of tar, odors or sheens thru run or in rock core.		
61 - 71	NA	10.0	NA	61.0' - 71.0': **6th RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Machine breaks along several sub-vertical, mm-thick, discontinuous, white, calcite-healed bands. No natural fractures. No signs of tar, odors or sheens thru run or in rock core.		

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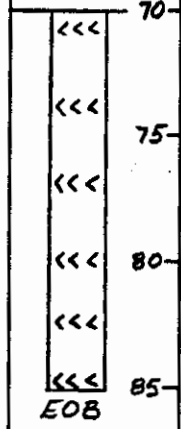
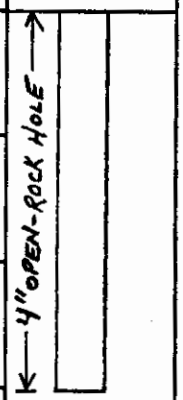
MONITORING WELL LOG (MW-00-24D)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
71 - 81	NA	10.1	NA	71.0' – 81.0': 7th RUN RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. No fractures. Out of core barrel in one piece. No signs of tar, odors or sheens thru run or in rock core.		
81 - 85	NA	3.9	NA	81.0' – 85.0': 8th RUN RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. No fractures. No signs of tar, odors or sheens thru run or in rock core. End of Boring at 85.0' bgs (50.56' MSL). Open-rock hole from 25' – 85' bgs.		

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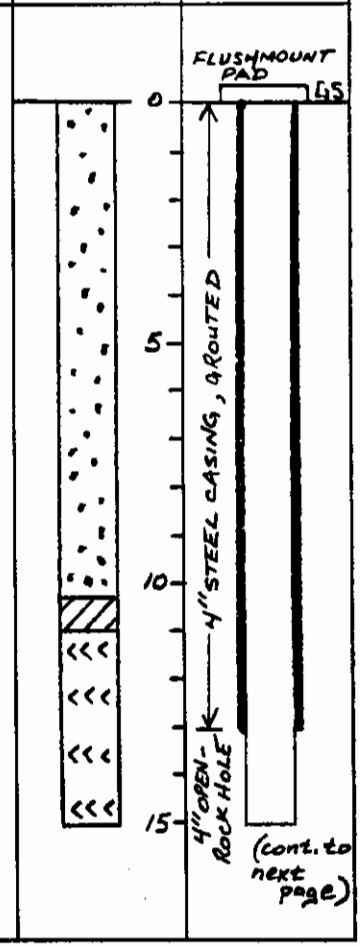
MONITORING WELL LOG (MW-00-25D)

Boring/Well ID:	MW-00-25D	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Andrew Brey	**Location:**	East Bank of River on Pond St.
Date Started:	10/12/00	**Contractor:**	ADT, Albany
Date Completed:	10/24/00	**Driller:**	L. Darrow
Total Depth:	110 feet	**Drilling Method:**	HSA, HQ-wireline

Ground Surface Elevation: **Measuring Point Elevation:**	118.99 feet (MSL) 118.49 feet (MSL)	**Well Construction:** 4" steel casing grouted to 13' bgs. 4" open-rock hole to 110' bgs.	**Notes: Sampled overburden with augers and 2-inch split spoons at 5-foot intervals.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description
0 - 2	NA	NA	NA	0 – 2.0': Soils are dark brown sand and silt with few gravels and cobbles. Dry to slightly moist by 2'. Logged soil cuttings coming up auger flights. No odors or impacts.
5 - 7	6 14 21 33	0.5	0.0	5.0' – 7.0': Dry, loamy brown fine-grained sand. Trace rootlets. Loose. Rock in spoon tip. No odors or impacts.
10 - 11	33 62 R / 0.0'	0.8	0.0	10.0' – 10.3': Dry, light brown loamy sand. Cohesive. No odors or impacts. 10.3' – 11.0': Slightly moist, gray silt with few fine-grained gravels and coarse sand. Cohesive. Firm. Till. No odors or impacts. Split spoon refusal at 11' bgs is solid and immediate. Couple of solid, dark gray limestone discs in end of spoon. Auger refusal at 11' bgs as well. Bedrock surface at 11' bgs (107.99' MSL). Install and grout 4" steel casing to 13' bgs into 6" rock socket. Begin coring rock at 13' bgs via HQ-wireline on 10/20/00.
13 - 15	NA	2.0	NA	13.0' – 15.0': **1st RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. One tight fracture at 14.6' bgs aligned with bedding planes. No other breaks of fractures in core. No signs of tar, odors or sheens thru run or in core.



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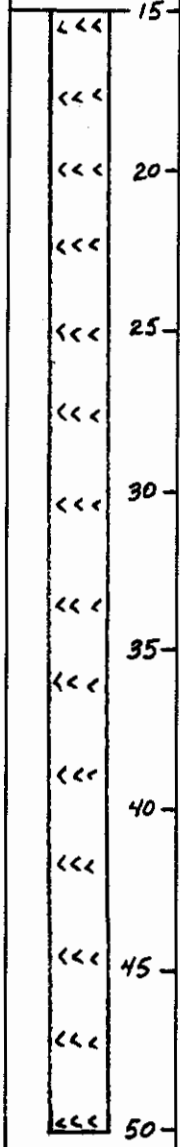
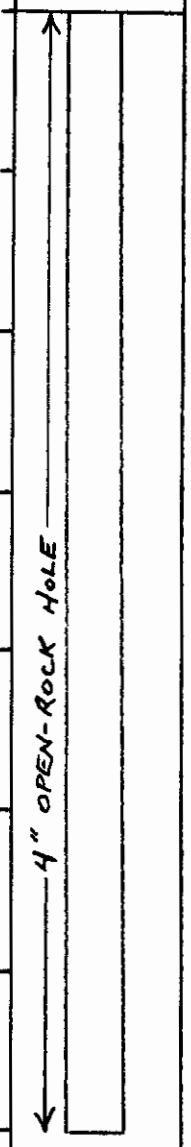
MONITORING WELL LOG (MW-00-25D)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
15 - 20	NA	5.0	NA	15.0' - 20.0': **2nd RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. One tight fracture at 18.4' bgs aligned with bedding planes. No other breaks or fractures in core. No signs of tar, odors or sheens thru run or in core.		
20 - 30	NA	9.8	NA	20.0' - 30.0': **3rd RUN** RQD = 68% Dark gray, micritic limestone. Nearly horizontal bedding planes. Few mm-thick, discontinuous, white, calcite-healed bands with sub-vertical orientation. At 20.8' bgs is a tight fracture, approximately 45° off horizontal. Nearly horizontal, tight fracture at 21.9' bgs. Slickenside fracture with recrystallized calcite and visible striations at 22.3' bgs. Massive below 22.3' bgs with 2 sub-vertical, conchoidal fractures (1' in length). No signs of tar, odors or sheens thru run or in core.		
30 - 40	NA	10.0	NA	30.0' - 40.0': **4th RUN** RQD = 97% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Tight, near-horizontal fracture at 33' bgs. Conchoidal, near-vertical fracture from 35.2'-35.5' bgs. Near-horizontal fracture with recrystallized calcite and traces of slickenside striations at 36' bgs. Below 36' bgs is massive with no fractures. No signs of tar, odors or sheens thru run or in core.		
40 - 50	NA	9.9	NA	40.0' - 50.0': **5th RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. No fractures. At 48' bgs is a ½'-thick vein of medium-grained subhedral calcite and tabular anhydrite(?) with accessory pyrite. No signs of tar, odors or sheens thru run or in core.		

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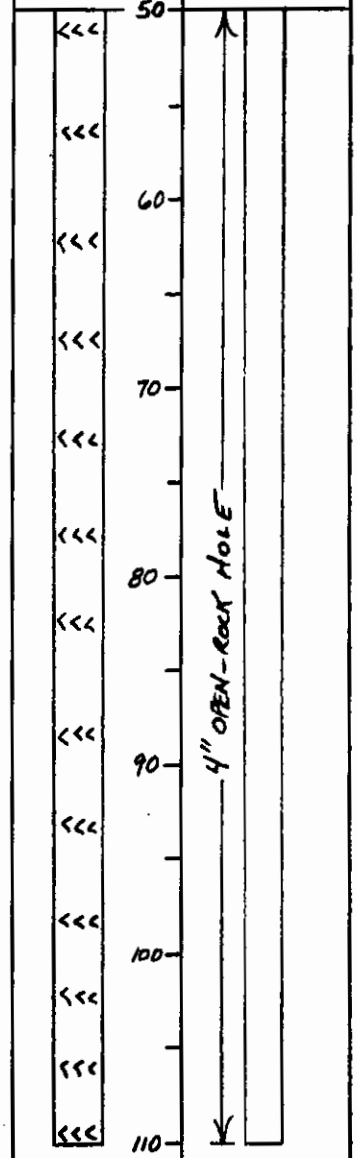
MONITORING WELL LOG (MW-00-25D)

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)	Well Construction
50 - 60	NA	10.1	NA	50.0' - 60.0': **6th RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Trace mm-thick, discontinuous, white, calcite-healed bands with sub-vertical orientation. Core slid out of barrel in one 10'-long piece. No signs of tar, odors or sheens thru run or in core.		
60 - 70	NA	10.0	NA	60.0' - 70.0': **7th RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. One tight fracture at 61.6' bgs with near-horizontal orientation. No signs of tar, odors or sheens thru run or in core.		
70 - 80	NA	10.0	NA	70.0' - 80.0': **8th RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. No fractures. Machine break at 78.7' bgs with a pyritized graptolite fossil on lower face. No signs of tar, odors or sheens thru run or in core.		
80 - 90	NA	10.0	NA	80.0' - 90.0': **9th RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. No fractures. Machine break at 88.6' bgs with a pyritized graptolite fossil on lower face. No signs of tar, odors or sheens thru run or in core.		
90 - 100	NA	10.2	NA	90.0' - 100.0': **10th RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. No fractures. No signs of tar, odors or sheens thru run or in core.		
100 - 110	NA	9.8	NA	100.0' - 110.0': **11th RUN** RQD = 100% Dark gray, micritic, massive limestone. Nearly horizontal bedding planes. Slickenside fracture at 103.2' bgs (15.8' MSL) with recrystallized calcite and well-developed striations on both faces. Fault plane/fracture is at a dip of about 2°-5° off horizontal. No other fractures or breaks. No signs of tar, odors or sheens thru run or in core. End of Boring at 110.0' bgs (8.99' MSL). Open-rock hole from 13' - 110' bgs.		

Soil Boring Logs

GEI Consultants, Inc.

ATLANTIC
ENVIRONMENTAL DIVISION

SOIL BORING LOG (GP-99-01)

Boring/Well ID:	**GP-99-01**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Jerry Zak**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/24/99**	**Contractor:**	**Zebra**
Total Depth:	**6.0 feet**	**Driller:**	**Ethan & Mike**

Ground Surface Elevation:	**113.91 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	4.0	NA	0 - 1.5 Loam, dry peat. 1.5 - 4.0 Dark gray till. Dry. Very slight naphthalene odor at 4.0'. Light tar coating in micro-fractures within the till at 4'.	
4 - 6	NA	2.0	NA	0 - 2.0 Till as above. No odors. End of Boring.	

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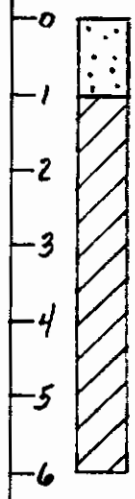
SOIL BORING LOG (GP-99-02)

Boring/Well ID:	**GP-99-02**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Jerry Zak**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/24/99**	**Contractor:**	**Zebra**
Total Depth:	**6.0 feet**	**Driller:**	**Ethan & Mike**

Ground Surface Elevation:	**113.97 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.0	NA	0 - 1.0 Dry loam. 1.0 - 3.0 Gray till. Heavy, asphalt-like tar in upper 6" of till.	
4 - 6	NA	2.0	NA	0 - 2.0 Gray, dry till. No odors. Clean fractures. End of Boring.	



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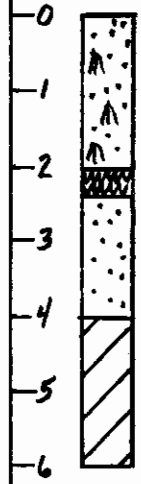
SOIL BORING LOG (GP-99-03)

Boring/Well ID:	**GP-99-03**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Jerry Zak**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/24/99**	**Contractor:**	**Zebra**
Total Depth:	**6.0 feet**	**Driller:**	**Ethan & Mike**
Ground Surface Elevation:	**114.11 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	1.75	NA	0 - 1.0 Dry loam, roots, etc. Trace gravel. 1.0 - 1.3 Peat. 1.3 - 1.75 Asphalt-like tar and stone. Strong odor.	
4 - 6	NA	2.0	NA	0 - 0.7 Asphalt-like tar, sand and gravel. All slough. 0.7 - 2.0 Dry, gray till. Slight odor from dirty sleeve. Till is clean. End of Boring.	

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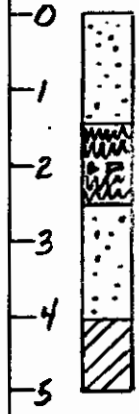
SOIL BORING LOG (GP-99-04)

Boring/Well ID:	**GP-99-04**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Jerry Zak**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/24/99**	**Contractor:**	**Zebra**
Total Depth:	**5.0 feet**	**Driller:**	**Ethan & Mike**
Ground Surface Elevation:	**113.75 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.5	NA	0 - 1.2 Dry loam and silt. No odors. 1.2 - 2.0 Peat and coal fragments with gravel. 2.0 - 2.5 Sand. Tar present. Not asphalt-like, but still fairly viscous. Strong odor.	
4 - 6	NA	1.5	NA	0 - 0.5 Sandy slough w/ tar from the top of till. 0.5 - 1.5 Grey till. Dry. No odors or tar within till. End of Boring.	

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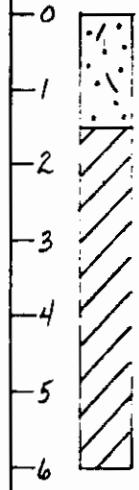
SOIL BORING LOG (GP-99-05)

Boring/Well ID:	GP-99-05	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Jerry Zak	**Location:**	Saranac St. Site by River Edge
Date:	6/24/99	**Contractor:**	Zebra
Total Depth:	6.0 feet	**Driller:**	Ethan & Mike
Ground Surface Elevation:	113.70 feet (MSL)		Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	4.0	NA	0 - 1'7" Dry loamy sticks, etc. No odors. Grades into cinders. 1'7" - 4' Dry till. Gray. Slight naphthalene odor.	
4 - 6	NA	3.0	NA	0 - 1' Slough from above. 1' - 3' Dry till. Grades into moister till by 3'. No odors. End of Boring.	



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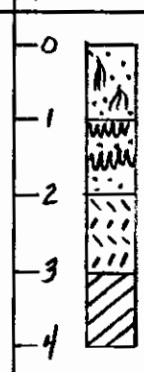
SOIL BORING LOG (GP-99-06)

Boring/Well ID:	GP-99-06	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Jerry Zak	**Location:**	Saranac St. Site by River Edge
Date:	6/24/99	**Contractor:**	Zebra
Total Depth:	4.0 feet	**Driller:**	Ethan & Mike

Ground Surface Elevation:	**114.33 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.0	NA	0 - 1' Dry, brown loam. Roots, stick, etc. No odors. 1' - 1'7" Loam, brick, dry peat. No odors. 1'7" - 2'6" Broken rock. No odors. 2'6" - 3' Till. Dry. No odors. End of Boring.	

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SOIL BORING LOG (GP-99-07)

Boring/Well ID:	GP-99-07	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Jerry Zak	**Location:**	Saranac St. Site by River Edge
Date:	6/24/99	**Contractor:**	Zebra
Total Depth:	1.5 feet	**Driller:**	Ethan & Mike

Ground Surface Elevation:	111.39 feet (MSL)		Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 1.5	NA	none	NA	Refused 3 times. Bit of tar at approximately 1.5' bgs.	0 1 1.5 NO RECOV.

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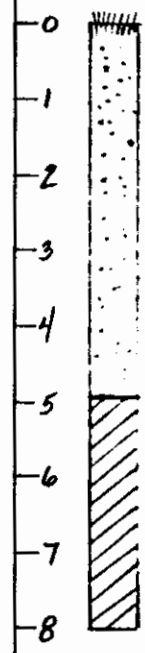
SOIL BORING LOG (GP-99-08)

Boring/Well ID:	**GP-99-08**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Jerry Zak**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/24/99**	**Contractor:**	**Zebra**
Total Depth:	**8.0 feet**	**Driller:**	**Ethan & Mike**
Ground Surface Elevation:	**111.44 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	1'1"	NA	0 - 6" Grass and muck. No odors. 6" - 1'1" Wet sheeny black muck. Moderate tar-like odor. Trace free tar on stone caught in shoe. End of Boring.	
4 - 8	NA	3.0	NA	0 - 10" Saturated black pebbles and coarse sand. Residual tar present. Strong tar odor. 10" - 3' Till. Gray. Gravel lense at 1'3" with trace tar. Clean till the rest of the way down. End of Boring.	



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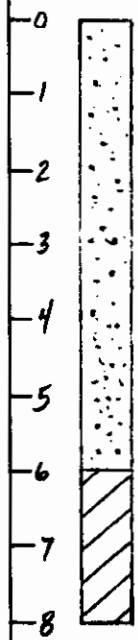
SOIL BORING LOG (GP-99-09)

Boring/Well ID:	**GP-99-09**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Jerry Zak**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/24/99**	**Contractor:**	**Zebra**
Total Depth:	**8.0 feet**	**Driller:**	**Ethan & Mike**
Ground Surface Elevation:	**111.12 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.0	NA	0 - 7" Wet coarse sand, silt and wood debris. 7" - 1' Wet medium sand with trace tar and moderate tar odor. 1' - 1'5" Saturated coarse sand, muck and wood. Some sheens and moderate tar-like odor. 1'5" - 2' Very fine gray sand with some medium to coarse sand.. Wet. Decaying organic odor. No tar.	
4 - 8	NA	2' 10"	NA	0 - 10" Gray sand as above. 10" - 2'10" Till. Gray. Clean. No odors. End of Boring.	

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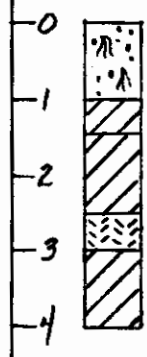
SOIL BORING LOG (GP-99-10)

Boring/Well ID:	**GP-99-10**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Jerry Zak**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/24/99**	**Contractor:**	**Zebra**
Total Depth:	**4.0 feet**	**Driller:**	**Ethan & Mike**

Ground Surface Elevation:	**111.21 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	4.0	NA	0 - 1.0 Brown coarse sand and roots, etc. Grades into black organic soils and coarse sand. 1.0 - 1.5 Soft till. Faint naphthalene and decaying organic odors. 1.5 - 2.5 Till. Hard. Dry. Faint naphthalene odor. 2.5 - 3.0 Broken limestone fragments. 3.0 - 4.0 Till. Hard. Dry. No odors. End of Boring.	

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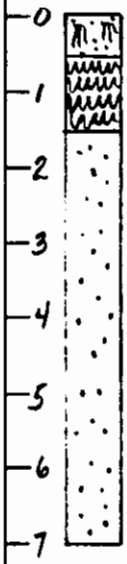
SOIL BORING LOG (GP-99-11)

Boring/Well ID:	GP-99-11	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Jerry Zak	**Location:**	Saranac St. Site by River Edge
Date:	6/24/99	**Contractor:**	Zebra
Total Depth:	7.0 feet	**Driller:**	Ethan & Mike
Ground Surface Elevation:	111.82 feet (MSL)		Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2' 4"	NA	0" - 4" Coarse sand and roots. 4" - 1'2" Peat and wood. Sheens and naphthalene odors. 1'2" - 2'4" Muck, wood and sand. Sheens and naphthalene odors.	
4 - 7	NA	2.0	NA	0 - 2.0 Coarse sand and gravel. Sheens and some free tar in water on top of sample. Strong tar odor. Refused at 7'; End of Boring.	



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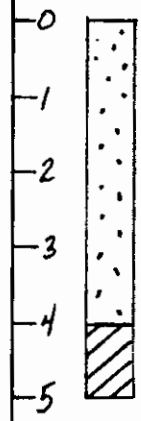
SOIL BORING LOG (GP-99-12)

Boring/Well ID:	**GP-99-12**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Jerry Zak**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/24/99**	**Contractor:**	**Zebra**
Total Depth:	**5.0 feet**	**Driller:**	**Ethan & Mike**
Ground Surface Elevation:	**112.49 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	1.5	NA	0 - 1.0 Dry loam and sand. No odors. 1 - 1.5 Muck and gravel. No odors.	
4 - 5	NA	1.0	NA	0 - 1.0 Till. Hard. Dry. No odors. Refused at 5.0'; End of Boring.	



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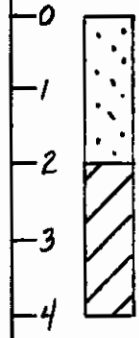
SOIL BORING LOG (GP-99-13)

Boring/Well ID:	**GP-99-13**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Jerry Zak**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/24/99**	**Contractor:**	**Zebra**
Total Depth:	**4.0 feet**	**Driller:**	**Ethan & Mike**
Ground Surface Elevation:	**112.80 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.0	NA	0 - 1.0 Brown coarse sand. No odors. 1.0 - 2.0 Sand and gravel. No odors. 2.0 - 3.0 Gray till. Dry. No odors. End of Boring.	

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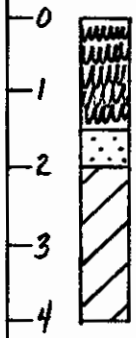
SOIL BORING LOG (GP-99-14)

Boring/Well ID:	**GP-99-14**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Jerry Zak**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/24/99**	**Contractor:**	**Zebra**
Total Depth:	**4.0 feet**	**Driller:**	**Ethan & Mike**
Ground Surface Elevation:	**112.13 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.0	NA	0 - 1.5 Peat and organic matter. Dry. 1.5 - 2.0 Coarse brown sand. Very faint sheen and very faint naphthalene odor. 2.0 - 3.0 Till. Hard. Grey. No odors. End of Boring.	

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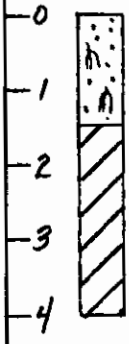
SOIL BORING LOG (GP-99-15)

Boring/Well ID:	GP-99-15	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Jerry Zak	**Location:**	Saranac St. Site by River Edge
Date:	6/24/99	**Contractor:**	Zebra
Total Depth:	4.0 feet	**Driller:**	Ethan & Mike

Ground Surface Elevation:	112.64 feet (MSL)		Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.0	NA	0 - 1.5 Loam, roots and wood. No odors. 1.5 - 3.0 Till. Hard. Dry. Grey. No odors. End of Boring.	

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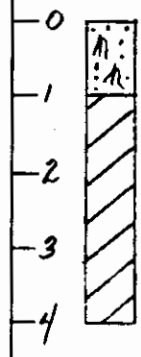
SOIL BORING LOG (GP-99-16)

Boring/Well ID:	**GP-99-16**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Jerry Zak**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/24/99**	**Contractor:**	**Zebra**
Total Depth:	**4.0 feet**	**Driller:**	**Ethan & Mike**

Ground Surface Elevation:	**111.89 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	4.0	NA	0 - 1.0 Loam, wood, roots and stones. No odors. 1.0 - 4.0 Till. Dark gray. Dry. No odors. End of Boring.	

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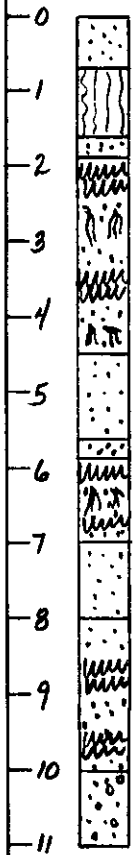
SOIL BORING LOG (GP-99-17)

Boring/Well ID:	**GP-99-17**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Jerry Zak**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/25/99**	**Contractor:**	**Zebra**
Total Depth:	**11.0 feet**	**Driller:**	**Ethan & Mike**
Ground Surface Elevation:	**111.13 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2' 5"	NA	0 - 7" Dry silty loam. No odors. 7" - 1'5" Dry wood. No odors. 1'5" - 1'10" Silty fine sand and roots. No odors. 1'10" - 2' Peat. No odors. 2' - 2'5" Mix of peat, roots and fine gray sand. No odors.	
4 - 8	NA	3'6"	NA	0 - 6" Peat, roots and gray sand as above. No odors. 6" - 1'4" Dry silt grading into fine gray silty moist sand. Decaying organic odor. 1'4" - 1'8" Medium gray sand lense. Decaying organic odor. 1'8" - 3' Fine gray sand with interbedded peat and roots. Decaying organic odor. 3' - 3'6" Very fine brown silty sand. Very moist. Decaying organic odor.	
8 - 11	NA	2'4"	NA	0 - 8" Sand and peat. Deacying organic odor. 8" - 1'11" Interbedded fine gray sand and peat. Wet. Decaying odor. 1'11" - 2'4" Coarse sand and gravel. Black. Wet. Decaying organic odor. Refused at 11'; End of Boring.	

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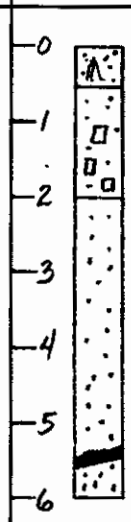
SOIL BORING LOG (GP-99-18)

Boring/Well ID:	**GP-99-18**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Carolyn Verdon**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/25/99**	**Contractor:**	**Zebra**
Total Depth:	**6.0 feet**	**Driller:**	**Ethan & Mike**
Ground Surface Elevation:	**111.36 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.0	NA	0 - 0.5 Brown fine sand with little gravel and trace roots. Dry. No odors. 0.5 - 1.7 Fine brown sand with brick and wood chips. Trace cobbles. Dry. No odors. 1.7 - 2.0 Dark brown fine sand. Dry. No odors.	
4 - 6	NA	1.5	NA	0 - 1.0 Fine to medium sand. Little iron staining. Dry. No odors. 1.0 - 1.5 Brown coarse sand. Piece of black wood at 1.2'. Dry. No odors. Refused at 6'; End of Boring.	

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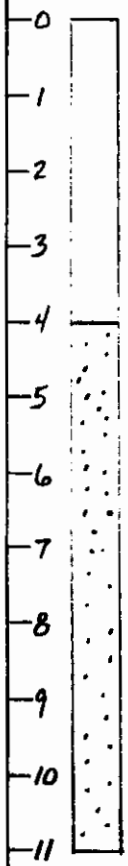
SOIL BORING LOG (GP-99-18A)

Boring/Well ID:	GP-99-18A	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Jerry Zak	**Location:**	Saranac St. Site by River Edge
Date:	6/25/99	**Contractor:**	Zebra
Total Depth:	11.0 feet	**Driller:**	Ethan & Mike

Ground Surface Elevation:	112.27 feet (MSL) Located 1.5' from GP-99-18.		Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	NA	NA	0 - 4 Not sampled. Began sampling at 4' bgs.	
4 - 8	NA	1.7	NA	0 - 0.7 Brown fine sand. Dry. No odors. 0.7 - 1.0 Brown coarse sand. Partially decomposed wood. Dry. No odors. 1.0 - 1.1 Brown coarse sand. No odors. 1.1 - 1.4 Dark brown fine to medium sand. Moist. 1.4 - 1.7 Dark brown fine sand and silt. Trace organic matter. Compact. Moist. No odors.	
8 - 11	NA	1.2	NA	0 - 1.2 Brown fine sand with gravel sized pieces of limestone. Moist. No odors. End of Boring.	



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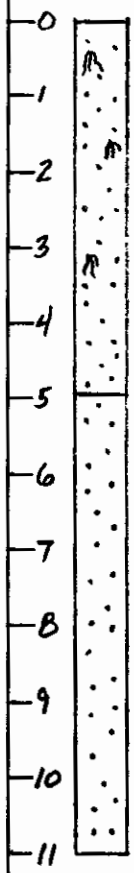
SOIL BORING LOG (GP-99-19)

Boring/Well ID:	**GP-99-19**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Carolyn Verdon**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/25/99**	**Contractor:**	**Zebra**
Total Depth:	**11.0 feet**	**Driller:**	**Ethan & Mike**

Ground Surface Elevation:	**111.16 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.5	NA	0 - 1.4 Brown fine to medium sand. Trace cobbles. Trace roots. Dry. No odors. 1.4 - 2.5 Dark brown fine sand with little silt. Trace roots. Dry. No odors.	
4 - 8	NA	2.3	NA	0 - 0.9 Brown fine sand with trace silt, trace roots. No odors. Dry. 0.9 - 2.3 Dark brown fine sand with little silt. Compact. Moist. Very slight MGP-type odor.	
8 - 11	NA	1.5	NA	0 - 0.7 Dark brown fine sand and little silt. Moist. Compact. Trace organic matter. Very slight MGP-type odors. 0.7 - 1.5 Brown fine sand with gravel size pieces of limestone. Moist. Very slight MGP odor. Refused at 11'; End of Boring.	

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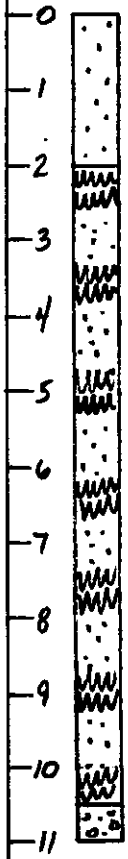
ATLANTIC
ENVIRONMENTAL DIVISION

SOIL BORING LOG (GP-99-20)

Boring/Well ID:	**GP-99-20**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Jerry Zak**	**Location:**	**Saranac St. Site by River Edge**
Date:	**6/25/99**	**Contractor:**	**Zebra**
Total Depth:	**11.0 feet**	**Driller:**	**Ethan & Mike**
Ground Surface Elevation:	**111.43 feet (MSL)**		**Used ATV Geoprobe rig with 4' macro-core sampling tube and acetate sleeves.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2'8"	NA	0 - 1'2" Dry loam. No odors. 1'2" - 2' Dry sand and gravel. No odors. 2' - 2'8" Peat and roots and very fine sand. No odors.	
4 - 8	NA	2'4"	NA	0 - 4" Peat as above. No odors. 4" - 2'4" mm-scale inter-bedded fine brown sand and peat with trace roots. Moist. Decaying organic odor.	
8 - 11	NA	3'	NA	0 - 10" Slough from above. 10" - 2'8" mm-scale beds as above (4'-2'4"). 2'8" - 3' Coarse sand and gravel. Moderate tar odor. No visual signs of impacts. Refused at 11'; End of Boring.	



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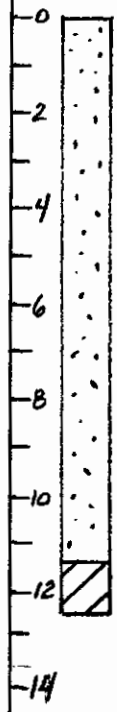
SOIL SAMPLING LOG (GP-00-01)

Boring/Well ID:	**GP-00-01**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/2/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**12.5 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**116.75 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.0	0.0	0 – 4': Brown and light brown banded silt and fine sand. Trace rootlets. Dry. Loose. No odors or impacts.	
4 - 8	NA	2.8	0.0	4' – 7': As above. No odors or impacts.	
				7' – 8': Brown with trace rust-colored mottles, fine-grained sand and silt with few gravels and cobble fragments. Very moist. No odors or impacts.	
8 - 10	NA	0.7	0.0	8' – 9.5': As above.	
				9.5' – 10': Dark gray medium-grained sand and gravel. Loose. Wet. Very slight tar odor. No visual impacts.	
10 – 12.5	NA	2.5	8.0	10' – 11.4': Dark gray medium sand and angular gravel. Wet. Loose. Moderate sheen throughout. Trace tar blebs throughout with several angular gravels having a thin tar coating. Light tar odor.	
			0.0	11.4' – 12.5': Light gray till. Dense, crumbly, dry. Comprised of silt and very fine-grained sand with trace coarse-grained sand (angular to subrounded). No tar, odors or sheens.	
				Till surface at 105.3' MSL. End of Boring.	

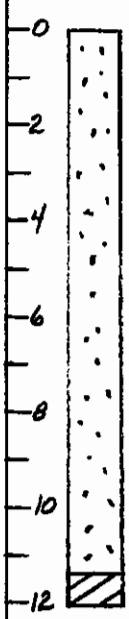


GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-02)

Boring/Well ID:	**GP-00-02**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/2/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**12.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**116.73 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.9	0.0	0 – 4': Brown and light brown banded silt and fine-grained sand. Dry. Loose. Trace roots. No odors or impacts.	
4 - 8	NA	3.0	0.0	4' – 8': As above. Slightly moist below 7.6'. No odors.	
8 - 12	NA	3.4	0.0	8' – 11': As above. Slightly moist. No odors.	
			17.0	11' – 11.4': Dark gray medium-grained sand and angular gravel. Wet. Loose. Moderate sheen. Trace tar blebs. Light tar odor.	
			0.0	11.4' – 12.0': Light gray till. Dense. Dry. Tight. Comprised of silt and very fine-grained sand with trace coarse sands. No tar, odors or sheens.	
				Till surface at 105.3' MSL. End of Boring.	



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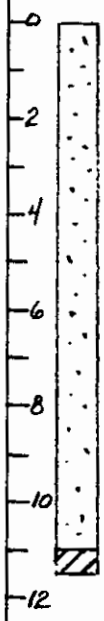
SOIL SAMPLING LOG (GP-00-03)

Boring/Well ID:	**GP-00-03**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/2/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**11.5 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**116.69 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.7	0.0	0 – 4': Brown and light brown banded fine-grained sand and silt. Trace rootlets. Dry. Loose. No odors or impacts.	
4 - 8	NA	3.0	0.0	4' – 6.8': As above, without rootlets. Dry. No odors	
			0.0	6.8' – 8': Dark brown to black silt and very fine-grained sand. Trace coarse to medium-grained sands. Cohesive. Moist. Trace to few rootlets. Trace gravels. Light tar-like odor. No visual impacts. Possible relic soil horizon.	
8 - 11.5	NA	2.5	0.0	8' – 9.5': As above. Light tar-like odor. No visual impacts.	
			20.0	9.5' – 11': Wet, gravel and cobble fragments with 25% fine to coarse-grained sand. Moderate to heavy sheen. Tar blebs and tar streaks throughout on gravels. Light tar odor.	
				11' – 11.5': Light gray till. Comprised of very fine-grained sand and silt with trace gravel and few coarse sand. Cohesive. Dense. Dry. Very slight tar odor. No visual impacts.	
				Refusal at 11.5' bgs. Till surface at 105.7' MSL. End of Boring.	



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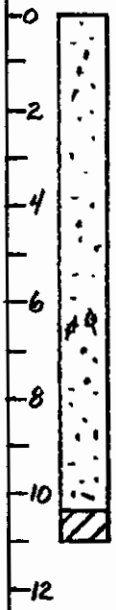
SOIL SAMPLING LOG (GP-00-04)

Boring/Well ID:	**GP-00-04**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/2/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**11.0 feet**	**Driller:**	**Jason**

Ground Surface Elevation:	**116.30 feet (MSL)**	**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.6	0.0	0 – 4': Brown fine-grained sand and silt with trace roots. Dry. Uniform. No odors or impacts.	
4 - 8	NA	3.4	0.0	4' – 6.6': As above with dark brown layers. No odors. No roots. Slightly moist at 6' bgs.	
			0.0	6.6' – 8': Wet, brown and black organic silts and fine-grained sands. Few to some roots and organic detritus (ie. leaves). Mucky odor. No visual impacts or tar-like odors.	
8 - 11	NA	2.6	0.0	8' – 9': Various-colored fine to coarse-grained sand. Loose. Wet. No odors or impacts.	
			45.0	9' – 10.4': Gray and black-stained gravel and coarse-grained sand. Very loose. Saturated with coal tar. Moderate sheens. Strong tar odor.	
			0.0	10.4' – 11': Light gray till. Moist. Dense. Comprised of silt with traces of coarse sands. Slight tar odor. Two near-horizontal fractures in till at 10.5' and 10.7' with residual tar coating the fracture walls; otherwise no tar in till.	
				Refusal at 11' bgs. Till surface at 105.9' MSL. End of Boring.	



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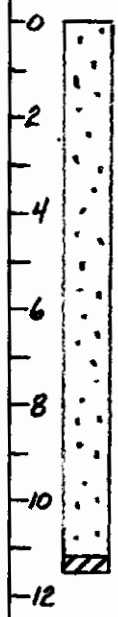
SOIL SAMPLING LOG (GP-00-05)

Boring/Well ID:	**GP-00-05**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/2/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**11.5 feet**	**Driller:**	**Jason**

Ground Surface Elevation:	**116.15 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.7	0.0	0 - 4': Dry, light brown fine-grained sand and silt. Loose. Trace rootlets. No odors or impacts.	
4 - 8	NA	2.1	0.0	4' - 5': As above, without rootlets. No odors or impacts.	
			0.0	5' - 8': Rusty-brown, medium to coarse-grained sand and trace fine-grained gravel. Very loose. Moist. No odors or impacts.	
8 - 11.5	NA	3.0	0.0	8' - 10': As above. Light tar odor. Moist. No visual impacts.	
			25.0	10' - 11.2': Coarse-grained sand and fine-grained gravel. Loose. Heavy tar coating all grains. Light sheen. Wet. Moderate to strong tar odor.	
			0.0	11.2' - 11.5': Gray till. Dry. Dense. No visual impacts within till. Very light tar odor.	
				Till surface at 104.95' MSL. End of Boring.	



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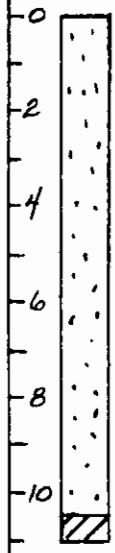
SOIL SAMPLING LOG (GP-00-06)

Boring/Well ID:	**GP-00-06**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/2/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**11.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**116.36 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.6	0.0	0 – 1.2': Dry, brown loam and fill. Trace brick, coal. Loose. No odors or impacts.	
			0.0	1.2' – 4': Brown, light brown and olive banded very fine-grained sand and silt. Cohesive. Moist. Slight tar-like odors throughout. No visual impacts.	
4 - 8	NA	2.9	0.0	4' – 8': Olive, well sorted medium-grained sand with trace very fine-grained sand and silt. Uniform. Moist. Slight tar-like odors throughout. No visual impacts.	
8 - 11	NA	2.1	0.0	8' – 8.6': As above. Slight tar-like odors. No visual impacts.	
			30.0	8.6' – 10.5': Dark gray gravel and medium to coarse-grained sand. Trace cobble fragments. Loose. Wet. Hot-asphalt-like tar impacted. Moderate sheen. Moderate tar odor. All grains are coated with tar.	
			0.0	10.5' – 11': Light gray till. Slightly moist to dry. Light tar odor. Dense. No visual impacts.	
				Till surface at 105.9' MSL. End of Boring.	

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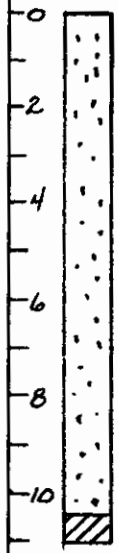
SOIL SAMPLING LOG (GP-00-07)

Boring/Well ID:	**GP-00-07**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/2/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**11.0 feet**	**Driller:**	**Jason**

Ground Surface Elevation:	**117.41 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description
0 - 4	NA	2.8	0.0	0 – 1.0': Light brown loam with few roots. Dry. Loose. No odors.
			0.0	1.0' – 3.0': Mix of brown-light brown fine-grained sand, silt and gravel. Dry. Loose. No roots. No odors.
			0.0	3.0' – 4.0': Dark brown, moist, cohesive silt and fine-grained sand. Soft. Few roots and organic detritus (ie. leaves). Very slight tar odor. No visual impacts.
4 - 8	NA	3.3	13 - 21	4.0' – 8.0': Dark brown and olive fine-grained sand and silt. Cohesive. Moist. Few rootlets throughout. Moderate tar odor. Trace sheens throughout. Trace tar at 8' bgs.
8 - 11	NA	1.7	50 – 80	8.0' – 10.5': Gravel with trace to some sand. Loose. Broken cobble fragments. Heavy sheen. Tar is coating all faces of gravels. Some free tar in interstices. Strong tar odor.
			2 - 7	10.5' – 11.0': Light gray fine-grained sand and silt. Dry. Dense. Compact. Slight tar odor. No visual impacts within till.
				Till surface at 106.9' MSL. End of Boring.

Lithology (not to scale)



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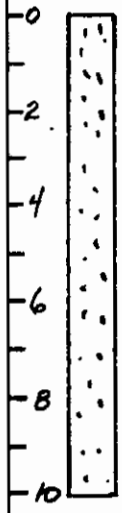
SOIL SAMPLING LOG (GP-00-08)

Boring/Well ID:	**GP-00-08**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/2/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**10.0 feet**	**Driller:**	**Jason**

Ground Surface Elevation:	**117.31 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.5	0.0	0 – 0.8': Light brown loam and roots. Dry. Loose. No odors.	
			0.0	0.8' – 4.0': Mix of brown sand, silt and gravel. Dry. Loose. No odors or visual impacts.	
4 - 8	NA	4.0	9.0	4.0' – 8.0': Brown and olive very fine-grained sand and silt. Cohesive. Trace coarse-grained sand. Moist. Slight tar odor throughout. No visual impacts.	
8 - 10	NA	1.3	55 -70	8.0' – 10.0': Gravel and coarse-grained sand with some fine to medium-grained sand. Dark gray and black-stained. Tar is coating all gravels. Sands have a heavy sheen and have hot-asphalt-like tar impacts. Heavy tar odor.	
				Refused at 10.0' bgs (107.31' MSL).	



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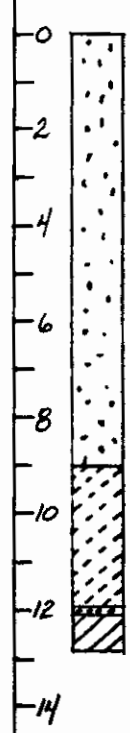
SOIL SAMPLING LOG (GP-00-09)

Boring/Well ID:	**GP-00-09**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/3/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**12.8 feet**	**Driller:**	**Jason**

Ground Surface Elevation:	**115.63 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.3	0.0	0 – 4.0': Brown/light brown fine to very fine-grained sand and silt. Trace coarse-grained, rounded sands. Few roots at top. Dry. No odors or impacts.	
4 - 8	NA	1.7	5.0	4.0' – 8.0': As above, no roots. Moist to wet at 7.5' bgs. Slight tar odor throughout. No visual impacts.	
8 - 12	NA	2.3	4.0	8.0' – 9.0': Brown/light brown, medium to coarse-grained sand. Wet. Light sheens. Light tar odor.	
			17.0	9.0' – 12.0': Wet, gravelly till. Silt matrix with trace coarse-grained sand. *Mushy texture and not tight or compact*. Tar is present throughout with a moderate sheen. Moderate tar odor. Rock recovered in tip of sampler.	
12 - 12.8	NA	1.8		1-foot of slough (tarry sand and gravel on top).	
			70 – 92	12.0' – 12.2': Dark gray, rounded gravel and coarse to medium-grained sand. Loose. Wet. Saturated with tar. Heavy sheen. Strong tar odor.	
			0 – 5.0	12.2' – 12.8': Dark gray clayey silt with trace fine gravel and trace coarse-grained sand. Till. Dense. Slightly moist. Very cohesive. No tar within till. Slight tar odor within till. Till surface at 103.4' MSL. End of Boring.	



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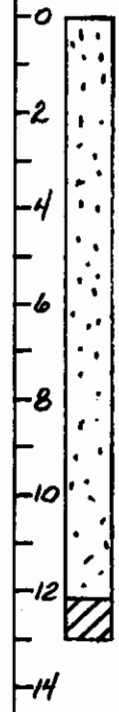
SOIL SAMPLING LOG (GP-00-10)

Boring/Well ID:	GP-00-10	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Andrew Brey	**Location:**	Northwest of Containment Cell, 'Area 2'
Date:	8/2/00	**Contractor:**	Zebra, Worcester
Total Depth:	13.0 feet	**Driller:**	Jason
Ground Surface Elevation:	116.29 feet (MSL)		**Notes:** ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.0	0.0	0 – 4.0': Brown and rusty very fine-grained sand and silt. Few to trace rootlets by 3' bgs. Faint laminations throughout. Dry. Loose. No odors or visual impacts throughout.	
4 - 8	NA	2.9	0.0	4.0' – 8.0': Orange-rust, mottled fine to medium-grained sand with trace silt. Faint laminations. 4.6'-5' is a coarse-grained gravel lense. Very moist to wet at 7.5' bgs. Very slight tar odor at 8.0' bgs. No visual impacts apparent.	
8 – 11	NA	0.8	82	8.0' – 11.0': Dark gray gravel and fine to coarse-grained sand. Loose. Wet. Saturated with tar. Heavy sheen. Strong tar odor.	
11 - 13	NA	1.9	130	11.0' – 12.3': Dark gray gravel and fine to coarse-grained sand. Loose. Wet. Saturated and dripping with tar. Heavy odor. Distinct contact at 12.3' bgs between gravel and till.	
			12.0	12.3' – 13.0': Light gray till comprised of silt and very fine-grained sand with trace coarse-grained sand and fine-grained gravels embedded in matrix. Dense. Slightly moist to dry. Moderate tar odor within the till. Trace gravels in matrix are coated with tar; silts and v.f.g. sands are tight without tar. Till surface at 104.0' MSL. End of Boring.	



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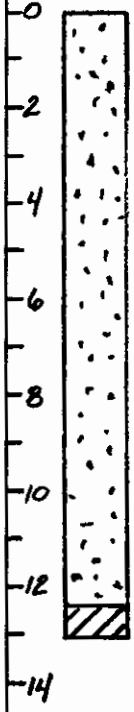
SOIL SAMPLING LOG (GP-00-11)

Boring/Well ID:	**GP-00-11**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/2/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**13.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**117.23 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.1	0.0	0 – 2.6': Light brown very fine-grained sand and silt. Few gravels. Dry. Loose. No odors.	
			11	2.6' – 4.0': Dark brown very fine to medium-grained sand and silt. Moist. Cohesive. Trace garbage. Trace roots. Moderate tar odor. No visual impacts.	
4 - 8	NA	2.1	45	4.0' – 8.0': As above. Trace sheens throughout. Strong tar odor. Very moist.	
8 - 12	NA	0.0	NA	8.0' – 12.0': Pushed rock through interval. Tools went very easy down hole. Geoprobe™ sleeve coated with sheen and few tar blebs.	
12 - 13	NA	1.5		½-foot of slough at top; tarry sand and gravel.	
			90 – 110	12.0' – 12.4': Coarse-grained sand and fine-grained gravel. Little fine-grained sand. Loose. Wet. Saturated with tar. Strong tar odor.	
			15.0	12.4' – 13.0': Light gray till. Dense. Tight. Cohesive. Moderate tar odor. No visual impacts.	
				Till surface at 104.8' MSL. End of Boring.	

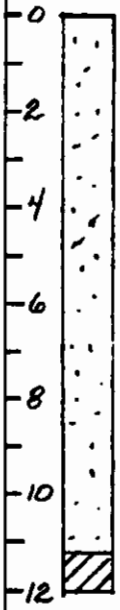


GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-12)

Boring/Well ID:	**GP-00-12**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/3/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**12.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**117.30 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.8	0.0	0 - 2.7': Brown-light brown fine to very fine-grained sand and silt. Trace coarse-grained sand. Dry. Loose. No odors or visual impacts.	
			119	2.7' - 4.0': Dark brown and black-stained fine-grained sand and silt. Some clays. Cohesive. Moist. Trace leaf and root detritus. Trace coal pieces (sand-size). Strong tar odor. Trace tar blebs in matrix; very small (> mm-size).	
4 - 8	NA	2.9	19 - 25	4.0' - 8.0': Brown-olive fine to very fine-grained sand. Trace gravels. Firm. Cohesive. Moist. Trace sheens. Strong tar odor.	
8 - 12	NA	2.4	20.0	8.0' - 8.7': Brown-olive as above. Strong tar odor.	
			7.0 - 19.0	8.7' - 11.4': Dark gray coarse-grained sand and fine gravel. Trace silts. Wet. Loose. Heavy sheen and tar odor. Tar product saturates 75% of pore volume.	
			0.0	11.4' - 12.0': Light gray till. Silt with trace coarse-grained sand and fine-grained gravel. Dense. Very cohesive. Tight. Dry. Slight tar odor. No visual impacts.	
				Till surface at 105.9' MSL. End of Boring.	

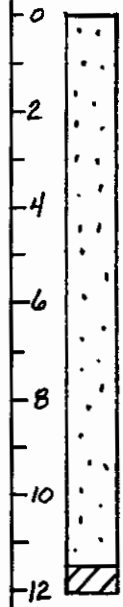


GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-13)

Boring/Well ID:	**GP-00-13**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/3/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**12.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**117.77 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

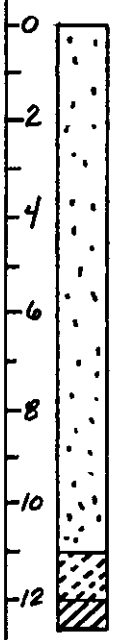
Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.8	0.0	0 – 3.3': Medium-light brown fine-grained sand and silt with few fine gravels and coarse-grained sand. Loose. Dry. No odors or visual impacts.	
			33.0	3.3' – 4.0': Dark brown silt and fine-grained sand. Some roots and twigs. Cohesive due to roots. No visual impacts. Strong tar odor.	
4 - 8	NA	3.4	31 - 41	4.0' – 8.0': Brown-olive fine to very fine-grained sand. Trace silt. Few rootlets and trace twigs. Very moist. Cohesive. Strong tar odor. No visual impacts.	
8 - 12	NA	2.6	5 - 12	8.0' – 11.5': Black, fine to medium-grained gravel and medium to coarse-grained sand. Trace silts. Loose. Wet. Tar product saturates 75% of pore volume. Heavy tar odor.	
				11.5' – 12.0': Light gray till comprised of silt with trace fine gravel and trace coarse-grained sand. Dense. Tight. Very cohesive. Dry. Slight tar odor. No visual impacts.	
				Till surface at 106.3' MSL. End of Boring.	



GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-14)

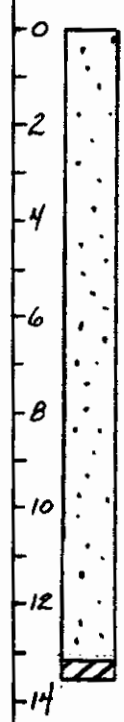
Boring/Well ID:	**GP-00-14**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/3/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**12.5 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**114.87 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.6	0.0	0 – 2.5': Light brown fine-grained sand and silt. Loose. Dry. Trace coarse-grained sand and gravel. No odors or visual impacts.	
			0.0	2.5' – 4.0': Dark brown very-fine-grained sand and silt. Trace roots. Medium firm. Dry. No odors or visual impacts.	
4 - 8	NA	1.9	0.0	4.0' – 6.7': As above. Moist. No odors or visual impacts.	
			12 - 24	6.7' – 8.0': Dark gray coarse-grained sand and fine-grained gravel. Some silt and fine-grained sand. Moderate sheens. Moderate tar odor. Trace tar blebs at 8' bgs.	
8 - 12	NA	1.4	25.0	8.0' – 11.0': Medium to coarse-grained sand and fine-grained gravel. Very loose. Wet. Strong tar odor. Moderate to heavy sheen (full sleeve coated with blebs and sheens). Hot asphalt like tar impacted.	
			41.0	11.0' – 12.0': Gray silt with trace angular coarse-grained sands and fine-grained gravels. Wet. Exhibits till-like structure, yet it is not dense or tight. Cohesive. Tar is present throughout this layer. Moderate sheen. Strong tar odor.	
12 - 12.5	NA	0.4	0.0	12.0' – 12.5': Light gray till comprised of silt and very fine-grained sand with trace coarse sands and fine gravels. Slightly moist. Dense. Tight. No visual impacts. Light tar odor. Hard Till surface at 102.9' MSL. End of boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-15)

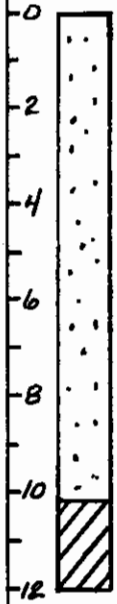
Boring/Well ID:	**GP-00-15**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/3/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**13.5 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**115.91 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.8	0.0	0 – 2.0': Light brown and dark brown fine-grained sand and silt. Dry. Loose. Trace rootlets and roots. Trace coarse sand and gravel. No odors or visual impacts.	
			0.0	2.0' – 4.0': Light brown and medium brown fine-grained sand and silt. Trace rootlets. Trace rust-orange mottling. Medium firm. Moist. No odors or impacts.	
4 - 8	NA	2.3	0.0	4.0' – 8.0': Light brown fine-grained sand and silt. Trace fine gravels. No roots. Trace rust-orange mottles. Medium firm. Moist to wet at 7.8' bgs. No odors or visual impacts.	
8 - 12	NA	1.9	4.0	8.0' – 8.8': As above. Wet. Slight tar odor. No visual impacts.	
			17 - 26	8.8' – 12.0': Gravel and coarse-grained sand. Some fine-grained sand and silt. Very loose. Wet. Strong tar odor. Moderate sheen. Saturated with coal tar.	
12 - 13.5	NA	1.2	40 – 70	12.0' – 13.2': Coarse-grained sand and gravel. Loose. Wet. Completely saturated with low tar. Gravels have a solid coating of tar on all faces. Strong tar odor.	
			2.0	13.2' – 13.5': Medium gray till comprised of silt with trace coarse-grained sand and gravel. Dense. Tight. Slightly moist. One piece of till that is 0.3' in length (no fractures). No tar is present within the till. Moderate tar odor throughout.	
				Till surface at 102.7' MSL. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-16)

Boring/Well ID:	**GP-00-16**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/3/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**12.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**116.55 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

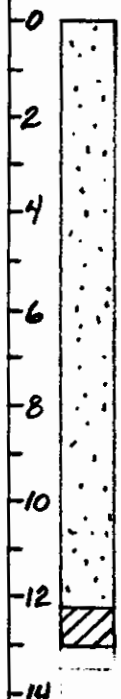
Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.7	0.0	0 - 1.0': Light brown fine-grained silt. Trace roots. Trace gravel and coarse-grained sand. Dry. Loose. No odors or visual impacts.	
				1.0' - 4.0': Dark brown fine to medium-grained sand. Trace gravel. Trace rootlets. Uniform. Moist.	
			0.0	Slight tar odor from 3.5'-4.0'. No visual impacts.	
4 - 8	NA	3.4	29.0	4.0' - 6.3': Olive-brown fine to very fine-grained sand. Some silt. Trace gravel. Medium firm. Very moist. Moderate to strong tar odor. No visual impacts.	
			9.0	6.3' - 6.5': Rounded gravel with some medium to fine-grained sand. Very moist. Loose. Tar present coating all gravels and within sands. Strong tar odor.	
				6.5' - 8.0': Orange-rust, medium to coarse-grained sand.	
			19.0	Well rounded. Uniform. Very moist to wet by 7.8' bgs. Slight tar odor. No visual impacts.	
8 - 12	NA	2.8	5.0	8.0' - 10.2': Dark gray coarse-grained sand and gravel. Some fine grained sand and silts. Loose. Heavy sheen and trace tar to 9.0' bgs. Hot-asphalt-like tar impacts below 9.0' bgs. Strong tar odor throughout.	
			0 - 3.0	10.2' - 12.0': Light gray till comprised of silt with trace coarse-grained sands and gravels. Tight. Dense. Moderate tar odor. Fracture within the till at 11.7' bgs that is coated with tar. Fracture is at an angle of 10°-15°. No other tar impacts within the till.	
				Till surface at 106.35 MSL. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-17)

Boring/Well ID:	**GP-00-17**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/7/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**13.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**117.59 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.0	0.0	0 – 2.9': Brown to dark-brown fine-grained sand and silt. Few coarse-grained sands and fine gravels. Trace rootlets. Dry. Loose. No odors or visual impacts.	
				2.9' – 4.0': Black-stained coarse-grained sand, cinders and coke. Hard. Crumbly. Dry. Moderate tar odor.	
4 - 8	NA	3.8	40.0	4.0' – 8.0': Olive-brown, lightly stained very fine to fine-grained sand and silt. Uniform. Moist. Cohesive. Firm. Strong tar odor.	
8 - 12	NA	1.7	70 - 84	8.0' – 9.0': As above with trace tar blebs. Strong tar odor. Wet.	
			25	9.0' – 11.5': Hot-asphalt-like tar impacted medium to coarse-grained sand. Loose. Wet. Black tar throughout.	
			19 - 27	11.5' – 12.0': Dark gray gravel and coarse-grained sand. Loose with a small piece of reworked till. Heavy sheen. Tar coating everything, but not free flowing. Moderate tar odor.	
12 - 13	NA	1.0	22	12.0' – 12.3': Tar-coated sand and gravel as above. Strong tar odor.	
			0.0	12.3' – 13.0': Light brown and gray till. Comprised of very-fine-grained sand and silt with trace coarse-grained sand. Compact. Dense. Cohesive. Dry. No tar impacts within the till. No odors within the till.	
				Till surface at 105.3' MSL. End of Boring.	



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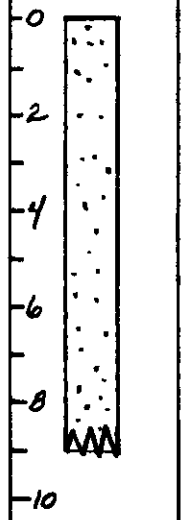
SOIL SAMPLING LOG (GP-00-18)

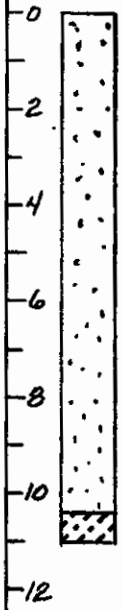
Boring/Well ID:	**GP-00-18**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/7/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**9.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**117.66 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.8	0.0	0 - 2.5': Light brown fine-grained sand and silt. Trace brick. Trace coarse-grained sand. Trace rootlets. Dry. Loose. No odors or visual impacts.	
			40.0	2.5' - 4.0': Dark brown, fine to medium-grained sand. Little silt. Trace rootlets. Moist. Trace sheens. Moderate tar and rotten-egg-like odors.	
4 - 9	NA	3.7	37 - 42	4.0' - 9.0': Olive-dark brown, very fine to fine-grained sand and silt. Trace rootlets. Firm. Cohesive. Uniform. Few patches and stringers of black staining throughout. Light sheen below 7' bgs. Moderate tar odor.	
				Refusal at 9' bgs. No recovery. Concrete piece in tip.	
				Refusals encountered again at other locations: 7' bgs and two more at 9' bgs. No till encountered. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-19)

Boring/Well ID:	**GP-00-19**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/7/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**11.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**115.52 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.5	0.0	0 – 3.5': Brown and dark-brown fine-grained sand and silts. Trace black-stained sands in some laminations. Dry. Loose. Trace roots. No odors.	
			0.0	3.5' – 4.0': Laminated (mm-scale) fine-grained sand and silts. Brown-rust-orange colored lamination/bands. Trace roots. Cohesive. Firm. Moist. No odors or visual impacts.	
4 – 8	NA	2.1	0.0	4.0' – 5.0': Orange-rust, fine to medium-grained sands and silts. Trace coarse-grained sands. Trace fine gravels. Medium firm. Moist. No odors or visual impacts.	
			2 – 7	5.0' – 7.4': Brown, medium to fine-grained sand. Trace silts. Cohesive. Firm. Very moist. Slight tar odor. No visual impacts.	
			0.0	7.4' – 8.0': Dark gray and black, coarse-grained sand and gravel. Some fine-grained sand and silt. Loose. Wet. Trace sheens. Very slight tar odor.	
8 - 11	NA	1.7	22	8.0' – 10.4': Dark gray and black coarse-grained sand and gravel. Trace silts. Wet. Loose. Heavy sheen. Many tar blebs throughout. Strong tar odor.	
			20	10.4' – 10.9': Gray, mushy till. Clay and silt. Structure is the same as the other till, but it is wet with a heavy sheen and tar throughout. Strong tar odor.	
				10.9' – 11.0': Gray limestone discs in tip of barrel. Heavy sheen coating the discs. Likely to be a boulder in the top of hard till. Refusal at 11' bgs. End of Boring.	

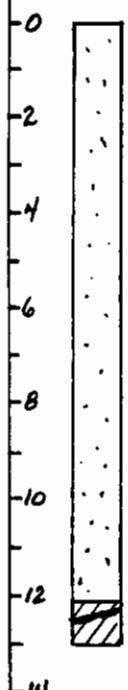
GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-20)

Boring/Well ID:	**GP-00-20**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/7/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**13.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**116.34 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description
0 - 4	NA	3.2	0.0	0 – 4.0': Tan and brown fine-grained sand and silt. Trace brick and coarse sand. Trace fine gravels. Dry. Loose. Rusty mottles from 3.8'-4'. No odors or visual impacts.
4 – 8	NA	3.0	0.0	4.0' – 8.0': Rust-orange fine to medium-grained sand. Some silts. Few long, stringy roots. Moist. Firm. Cohesive. No odors or impacts.
8 - 12	NA	2.8	0.0	8.0' – 9.0': As above. Wet at 8.5' bgs. Slight tar odor.
			26 - 29	9.0' – 12.0': Black-stained and gray gravel and medium to coarse-grained sand. Loose. Wet. Light tar coating on gravels. Sands are hot-asphalt-like tar impacted. Light sheen throughout. Moderate tar odor throughout.
12 - 13	NA	1.2		0.2' of slough at top of sample.'
			39 – 51	12.0' – 12.3': Gravel and sand as above. Saturated with tar; pooling up in bottom or GP™ liner. Little sheen. Little water, mostly tar. Strong tar odor.
				12.3' – 12.6': Gray till comprised of silt with trace coarse sands and gravels. Microfractures with tar coating. Very moist. Till Surface at 104.04' MSL.
				12.6' – 12.7': Fine to medium-grained sand lense that is hot-asphalt-like tar impacted. Lense is at an angle of approximately 45° off horizontal. Strong tar odor.
			0.0	12.7' – 13.0': Gray till as above. Dry. Dense. Trace staining in some microfractures within this section of till.
				Refused at 13' bgs. End of Boring.

Lithology (not to scale)



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SOIL SAMPLING LOG (GP-00-21)

Boring/Well ID:	**GP-00-21**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/7/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**14.5 feet**	**Driller:**	**Jason**

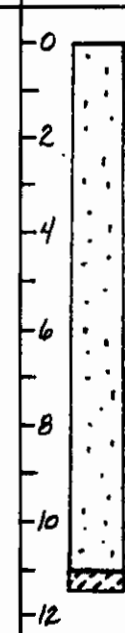
Ground Surface Elevation:	**119.44 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	4.0	0.0	0 - 2.8': Tan and brown fine-grained sand and silt. Trace roots. Trace coarse sand and gravel. Loose. Dry. No odors or visual impacts.	
			0.0	2.8' - 3.5': Multi-colored (brown, tan, orange, dark brown) clay with few coarse-grained sands (Fill). Trace brick pieces. Very hard. Dense. Dry. Slight tar odor. No visual impacts.	
			0.0	3.5' - 4.0': Black fine-grained sand and cinders, spent coal and coke. Loose. Dry. No odors.	
4 - 8	NA	3.1	0.0	4.0' - 4.5': As above. No odors.	
				4.5' - 8.0': Brown and rust, fine to medium-grained sand and silt. Trace long, stringy roots. Moist. Cohesive. Dense. No odors or visual impacts.	
8 - 12	NA	3.1	0.0	8.0' - 12.0': As above. Gravel lenses at 11.3' and 11.8'. Wet at 11.8' bgs. Trace organic detritus (ie. leaves) within gravel lense at 11.8' bgs. No odors or visual impacts throughout.	
12 - 14.5	NA	2.1	2.0	12.0' - 12.5': Brown and various-colored fine to medium-grained sand and silt. Wet. Loose. Trace sheen. Slight tar odor.	
			32 - 37	12.5' - 13.6': Hot-asphalt-like-impacted coarse sand, fine sand and gravel. Loose. Heavy sheen. Strong tar odor.	
			0.0	13.6' - 14.5': Light gray, dense till. Silt with trace coarse-grained sands and trace fine gravels. Tight. Compact. Very cohesive. One solid piece of till; no fractures. Slight tar odor, but no visual impacts.	
				Till surface at 105.8' MSL. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-22)

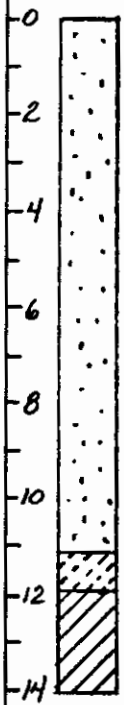
Boring/Well ID:	GP-00-22	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Andrew Brey	**Location:**	Northwest of Containment Cell, 'Area 2'
Date:	8/7/00	**Contractor:**	Zebra, Worcester
Total Depth:	11.5 feet	**Driller:**	Jason
Ground Surface Elevation:	115.72 feet (MSL)		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.7	0.0	0 - 1.5': Tan fine-grained sand and silt. Trace roots. Dry. Loose. No odors or impacts.	
			0.0	1.5' - 4.0': Dark brown, fine-grained sand. Trace silt. Trace coarse sand. Moist. Cohesive. Trace black staining throughout. No odors.	
4 - 8	NA	2.1	0.0	4.0' - 6.0': As above. No odors.	
			0.0	6.0' - 8.0': Various-colored gravels and coarse-grained sand. Some medium to fine-grained sand. Loose. Wet. Gravels are broken up. No odors or visual impacts.	
8 - 11.5	NA	2.2	0.0	8.0' - 8.6': As above. Wet.	
			19 - 27	8.6' - 11.0': Fine gravel and coarse-grained sands. Some silts and fine-grained sands. Wet. Loose. Tar coating on all grains with some free tar at 10.8'-11' bgs. Strong tar odor.	
			10 - 12	11.0' - 11.3': Mushy, very moist till comprised of very fine-grained sands and silts. Trace angular coarse sands. Slightly cohesive. Tar present throughout. Heavy sheen in patches.	
				11.3' - 11.5': Gray limestone discs filling the tip of the sampling barrel. Wet, with moderate sheen and tar blebs on the chips. Likely to be a boulder or cobble in the top of the hard till.	
				Refusal at 11.5' bgs. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-23)

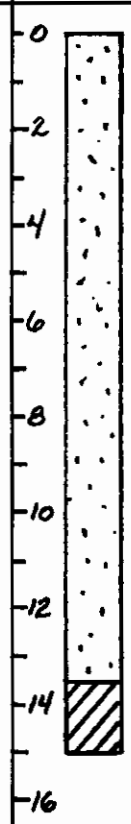
Boring/Well ID:	**GP-00-23**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/7/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**14.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**116.11 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used. 12'-14' sampled with split-spoon.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.8	0.0	0 – 2.0': Tan fine-grained sand and silt. Trace coarse sand. Dry. Loose. No odors.	
			202	2.0' – 4.0': Black, silty, fibrous, fluffy material. Moist. Very, very strong tar odor. Heavy sheen.	
4 – 8	NA	2.2	180	4.0' – 6.0': As above. Very, very strong tar odor. Black-stained.	
			49	6.0' – 8.0': Dark brown and olive fine-grained sand and silt. Moist. Moderate tar odor. Trace black stains throughout.	
8 - 12	NA	2.0	40	8.0' – 11.1': Black, tarry, coarse-grained sand and gravel. Little fines. Wet. Loose. Tar is dripping off of gravels and flowing into pools on Geoprobe™ sleeve. Strong tar odor.	
				11.1' – 11.8': Mushy, wet till. Gray and black-stained. Structure is the same as the hard, dry till. Staining and residual tar blebs throughout. Strong tar odor. No sheens.	
				11.8' – 12.0': Gray limestone discs filling up the tip of the sampling barrel. Hard. Wet. Light sheen and tar blebs on the rock faces. Strong tar odor from above (?). Refusal on a boulder or cobble present in the top of the hard till.	
				Refusal at 104. 1' MSL. End of Geoprobe™ Boring.	
12 - 14	21 48 44 75	2.0	0.0	Sampling for PZ-00-01 completion done with split-spoon sampler and augers at GP-00-23 location on 8/24/00.	
				12.0' – 14.0': Gray, dense till. Silt and very fine-grained sand. Trace coarse sands and fine gravels of varying lithology. No fractures in till; one piece. Very slightly moist. No odors or tar within till. Till surface at 104.1' MSL.	
				End of Boring. See PZ-00-01 log for Piezometer construction details.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-24)

Boring/Well ID:	**GP-00-24**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/22/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**15.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**117.16 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.4	NA	0 - 2.0': Light brown loam with trace rootlets. Dry. Loose. No odors or visual impacts. 2.0' - 4.0': Brown fine to medium-grained sand. Trace coarse-grained sand. Few cinders and spent coal. Dry. Loose. No odors or visual impacts.	
4 - 8	NA	3.2	NA	4.0' - 8.0': Brown-dark brown very fine-grained sand. Trace coarse-grained sands of varying color. Uniform. Firm. Moist. Cohesive. Slight tar odor from 7.5'-8' bgs. No visual impacts.	
8 - 12	NA	1.9	NA	8.0' - 10.5': As above. Slight tar odor. 10.5' - 12.0': Light brown, medium to coarse-grained sand and fine gravel. Wet. Loose. Heavy sheen. Tar blebs throughout. Moderate tar odor.	
12 - 15	NA	3.0	NA	12.0' - 13.6': Sand and gravel as above. Loose. Wet. Tar blebs throughout. Light, patchy tar coating on gravels. 13.6' - 15.0': Gray silt with trace coarse-grained sand and gravels. Till. Dense. Tight. Compact. Moist to slightly moist by 15' bgs. No odors or visual impacts within the till. Till surface at 103.76' MSL. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-25)

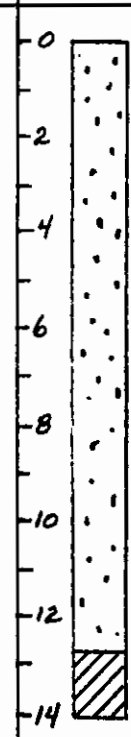
Boring/Well ID:	**GP-00-25**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/22/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**12.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**116.78 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.7	NA	0 – 0.6': Light brown loam. Loose. Dry. No odors. 0.6' – 3.5': Fill comprised of mostly spent coal, cinders and brick with few brown medium to coarse-grained sands. Dry. Loose. No odors or visual impacts. 3.5' – 4.0': Tan-orange/rust fine to medium-grained sand. Uniform. Cohesive. Slightly moist. No odors or visual impacts.	
4 – 8	NA	2.9	NA	4.0' – 8.0': Tan-orange/rust fine to medium-grained sand. Trace rootlets. Firm. Cohesive. Moist. Slight tar odor throughout. Wet at 8' bgs. No visual impacts.	
8 - 12	NA	3.3	NA	8.0' – 9.0': As above. Wet. Slight tar odor. 9.0' – 11.9': Fine to medium gravel with some fine to coarse-grained sand. Trace fine sand and silts. Wet. Loose in most spots. Mostly tar blebs throughout; several spots have a full tar coating on gravel faces. Moderate tar odor. 11.9' – 12.0': Gray till. Dense. Moist. Little free tar atop till. Till surface at 104.9' MSL. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-26)

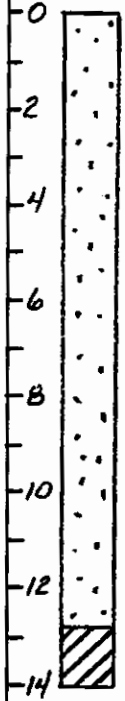
Boring/Well ID:	**GP-00-26**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/22/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**14.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**116.36 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.3	NA	0 – 1.0': Light brown loam. Trace rootlets. Dry. Loose. No odors or visual impacts. 1.0' – 1.5': Dark gray fill comprised of cinders, coke, spent coal. Dry. Loose. No odors. 1.5' – 4.0': Tan-rust/orange fine to medium-grained sand. Dry. Loose. No odors or visual impacts.	
4 – 8	NA	3.2	NA	4.0' – 7.5': As above with trace rootlets. Moist. Cohesive. No odors or visual impacts. 7.5' – 8.0': Light gray fine to medium-grained sand. Trace rusty/mottled spots. Wet. Cohesive. Slight tar odor. No visual impacts.	
8 - 12	NA	1.8	NA	8.0' – 10.0': Brown, medium to coarse-grained sands. Few gravels. Loose. Wet. Trace tar blebs throughout. Moserate tar and rotten-egg-like odor. 10.0' – 12.0': As above with hot-asphalt-like tar impacts. Wet. Loose. 2 tar-coated gravels at 12' bgs. Strong tar odor. Refusal at 12.5' bgs, no recovery. Move hole 3' and restart at 10' bgs.	
10 - 14	NA	2.8	NA	10.0' – 12.8': Gravel and medium to coarse sands (rounded to angular). Wet. Loose. Sands are hot-asphalt-like impacted with tar. Tar streaks and blebs on all gravel faces. Heavy sheen. Moderate to strong tar odor throughout. 12.8' – 14.0': Dark gray, dense, compact till. Moist to dry by 14' bgs. One piece except break at 13.4' bgs (no tar). Slight tar odor. No visual impacts within till. Till surface at 103.56' MSL. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-27)

Boring/Well ID:	**GP-00-27**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/22/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**14.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**117.77 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

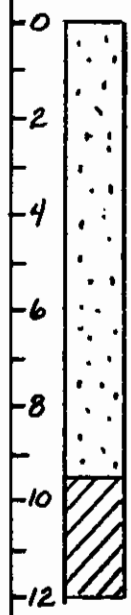
Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.3	NA	0 – 3.3': Light brown loam. Trace coarse sand and rootlets. Dry. Loose. No odors or visual impacts. 3.3' – 4.0': Fill comprised of spent coal, cinders. Few rusty-orange slag pieces. Dry. Loose. No odors or visual impacts.	
4 – 8	NA	3.7	NA	4.0' – 4.6': Fill as above. No odors. 4.6' – 6.3': Light brown fine to very fine-grained sand. Uniform. Firm. Dry. No odors or visual impacts. 6.3' – 8.0': Very dark brown silts. Few bark and wood pieces. Very moist to Wet at 8' bgs. Firm. Cohesive. No odors or impacts.	
8 - 12	NA	1.9	NA	8.0' – 9.7': As above. Wet. Very slight tar odor. 9.7' – 11.2': Brown, medium to coarse-grained sand. Few fine gravels. Loose. Wet. Moderate tar odor. Trace sheens. 11.2' – 12.0': As above. Heavy sheen. Strong tar odor. Few tar blebs and tar streaks on gravel faces. No free tar.	
12 – 14	NA	2.0	NA	12.0' – 12.8': As above. 12.8' – 14.0': Dark gray till comprised of silt with trace coarse sands and gravels. Dense. Tight. Moist to slightly moist by 14'. Slight tar odor. No tar or visual impacts within the till. Till surface at 104.97' MSL. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-28)

Boring/Well ID:	GP-00-28	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Andrew Brey	**Location:**	Northwest of Containment Cell, 'Area 2'
Date:	8/22/00	**Contractor:**	Zebra, Worcester
Total Depth:	12.0 feet	**Driller:**	Jason

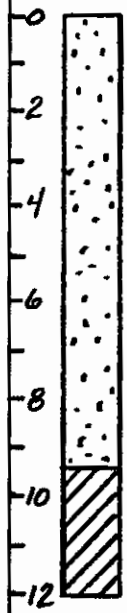
Ground Surface Elevation:	114.57 feet (MSL)		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.7	NA	0 – 4.0': Various shades of brown loam. Trace rootlets. Dry. Loose. No odors or visual impacts.	
4 – 8	NA	3.6	NA	4.0' – 4.8': Brown-rust/orange fine to very fine-grained sand. Uniform. Firm. Moist. No odors or visual impacts. 4.8' – 8.0': Dark brown organic silts with few bark and woof pieces. Very moist to Wet at 7.5' bgs. Cohesive. Slight burnt odor. No visual impacts.	
8 - 12	NA	3.1	NA	8.0' – 9.5': Gray and various-colored coarse-grained sand and fine to medium gravels. Loose. Wet. Strong to moderate tar odor. Heavy sheen. Few tar blebs and tar streaks on gravel faces. 9.5' – 12.0': Gray till comprised of silt with trace coarse to medium-grained sand and fine gravels. Few clayey sections. Very dense. Very tight. Extremely compact. One piece. No odors or visual impacts within the till. Till surface at 105.07' MSL. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-29)

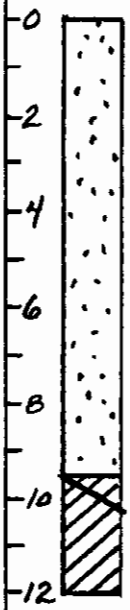
Boring/Well ID:	**GP-00-29**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/22/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**12.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**114.60 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.0	NA	0 - 1.0': Brown loam. Trace rootlets. Dry. Loose. No odors. 1.0' - 4.0': Brown-rust/orange fine to medium-grained sand. Trace rootlets. Firm. Slightly moist. No odors or visual impacts.	
4 - 8	NA	1.2	NA	4.0' - 7.0': As above with trace fine gravels. No odors or visual impacts. 7.0' - 8.0': Black fine to very-fine-grained sands and few silts. Wet. Loose. Light sheen. Moderate tar and rotten egg odor.	
8 - 9	NA	0.9	NA	8.0' - 9.0': Brown and various-colored medium-grained sand. Few silts. Moderate tar odor throughout. No tar. From 8.5'-8.6' bgs is a silt lense with black-staining and light sheen. Refusal at 9' bgs.	
9 - 12	NA	2.8	NA	9.0' - 9.4': Gray and black coarse-grained sand and gravel. Loose. Wet. Tar blebs throughout. Moderate to heavy sheen. Moderate tar odor. 9.4' - 12.0': Dark gray till comprised of silt with traces of gravel and coarse-grained sand. Dense. Tight. Moist. Very clayey from 11.8'-12' bgs. Slight odor in till. Gravels from 9.4'-9.6' have tar stains from above. No visual impacts below 9.6' bgs. Till surface at 105.2' MSL. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-30)

Boring/Well ID:	**GP-00-30**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/22/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**12.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**113.81 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.0	NA	0 – 4.0': Various shades of brown and rust/orange medium to fine-grained sand. Trace coarse-grained sand. Moist. Firm. No odors or visual impacts.	
4 – 8	NA	1.7	NA	4.0' – 7.0': Brown and various-colored coarse-grained sand and fine gravels. Few medium to fine sands. Loose. Very moist. No odors or visual impacts. 7.0' – 8.0': As above. Wet. Moderate sheen and trace tar blebs. Light tar odor.	
8 - 12	NA	4.0	NA	8.0' – 9.5' : As above. Trace tar blebs and moderate sheen. Light tar odor throughout. 9.5' – 12.0': Gray till. Dense. Tight. Moist to dry by 12' bgs. Near vertical fracture from 9.5'-10.1' with black-staining on walls. No tar impacts below 10.1' bgs. No odors within the till. Till surface at 104.3' MSL. End of Boring.	

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SOIL SAMPLING LOG (GP-00-31)

Boring/Well ID:	GP-00-31	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Andrew Brey	**Location:**	Northwest of Containment Cell, 'Area 2'
Date:	8/22/00	**Contractor:**	Zebra, Worcester
Total Depth:	12.0 feet	**Driller:**	Jason

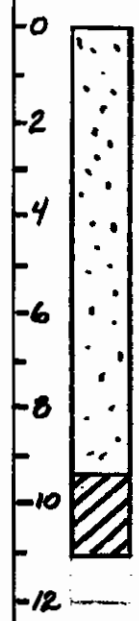
Ground Surface Elevation:	115.68 feet (MSL)		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	1.9	NA	0 – 4.0': Brown-rust/orange fine to medium-grained sand. Trace fine gravels. Dry. Loose. No odors or visual impacts.	
4 – 8	NA	2.1	NA	4.0' – 8.0': As above. Dry. Loose. No odors or visual impacts.	
8 - 11	NA	1.3	NA	8.0' – 8.5': Gravel and coarse-grained sand. Few medium to fine-grained sands. Loose. Moist. No odors or impacts. 8.5' – 10.5': As above. Wet. No odors or impacts. 10.5' – 11.0': As above with few tar blebs and light sheen. Strong tar odor. Refusal twice at 11' bgs. Third try works (10' – 12').	
10 - 12	NA	2.0	NA	10.0' – 10.5': Gravel and coarse-grained sand. Few medium to fine-grained sands. Wet. Loose. Trace tar blebs. Some tar patches on gravel faces. Light sheen next to tar patches. 0.05' thick layer of asphalt-like-tar-impacted sands directly on top of till surface. 10.5' – 12.0': Dark gray till comprised of silt with trace gravels and coarse sands. Dense. Moist to dry by 12' bgs. One piece of till below 10.8' bgs (no fractures or breaks). No odors or tar impacts within the till. Till surface at 105.2' MSL. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-32)

Boring/Well ID:	**GP-00-32**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/22/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**11.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**113.48 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

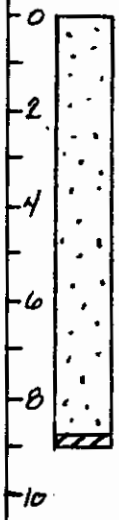
Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.8	NA	0 – 4.0': Brown-rust/orange fine to medium-grained sand. Trace rootlets. Dry. Loose. No odors or visual impacts.	
4 – 8	NA	2.1	NA	4.0' – 6.0': As above. No odors or impacts. 6.0' – 8.0': Brown and various-colored medium to coarse-grained sand. Some fine sand. Trace gravels. Moist to wet at 8' bgs. No odors or visual impacts.	
8 - 9	NA	0.0	NA	Refusal at 9' bgs; no recovery. Move over and resample.	
8 - 11	NA	3.0	NA	8.0' – 9.4': Gravel and sand. Wet. Loose. Trace tar blebs. Light sheen. Moderate tar odor. 9.4' – 11.0': Gray till. Dense. Tight. No tar odors or sheens. Sample was disturbed upon removal, but it appears to be on soil piece. No tar within the till. Till surface at 104.1' MSL. Refusal at 11' bgs; End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-33)

Boring/Well ID:	**GP-00-33**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/22/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**9.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**114.56 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

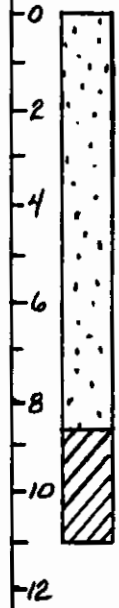
Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.5	NA	0 – 4.0': Brown-tan-rust/orange fine sand. Some silt. Laminations from 3'-4'. Dry. Loose. No odors.	
4 – 8	NA	4.0	NA	4.0' – 6.1': As above with laminations. Slightly moist. No odors or visual impacts. 6.1' – 7.4': Dark brown silt with trace rootlets. Cohesive. Wet. No odors. 7.4' – 8.0': Gray silt and very fine to fine-grained sand. Trace fine gravels. Wet. Cohesive. Moderate tar odor. No visual impacts.	
8 - 9	NA	0.6	NA	8.0' – 8.8': Coarse-grained sand and fine gravel. Some fine to medium-grained sand. Wet. Trace tar blebs. Light sheen. Moderate tar odor. 8.8' – 9.0': Gray till. No tar in till. Slight odor from above. Till surface at 105.76' MSL. Refusal at 9'; End of Boring.	



GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-00-34)

Boring/Well ID:	**GP-00-34**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Northwest of Containment Cell, 'Area 2'**
Date:	**8/22/00**	**Contractor:**	**Zebra, Worcester**
Total Depth:	**11.0 feet**	**Driller:**	**Jason**
Ground Surface Elevation:	**113.42 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

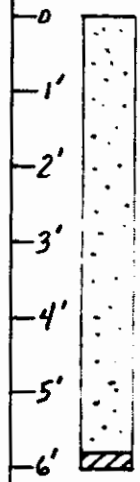
Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.2	NA	0 – 3.0': Light brown loam. Trace roots. Dry. Loose. No odors or impacts. 3.0' – 4.0': Black-stained fine to very fine-grained sand with 50% soft, stained wood. Moist. Very strong tar odor.	
4 – 8	NA	1.3	NA	4.0' – 8.0': Black-stained fine-grained sand. Few fine gravels and coarse sands. Heavy sheen. Some tar blebs throughout. Strong tar odor. Wet.	
8 - 11	NA	3.0	NA	8.0' – 8.8': Fine to medium-grained sand and gravels. Wet. Loose. Heavy sheen. Few tar blebs throughout. Strong tar odor. From 8.7'-8.8' bgs is hot-asphalt-like tar impacted sands directly on top of the till surface. 8.8' – 11.0': Gray till comprised of silt with trace coarse sands and gravels. Dense. Tight. Slightly moist. Two near horizontal fractures in the till at 9.2' and 10' bgs; no tar in fractures. No odors or tar in the till when parted. Refused at 11' bgs. Till surface at 104.6' MSL. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (SB-00-18)

Boring/Well ID:	**SB-00-18**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Near Municipal Lot, North Side of River**
Date:	**8/4/00**	**Contractor:**	**Zebra**
Total Depth:	**6 feet**	**Driller:**	**Mike Flynn**

Ground Surface Elevation:	**101.25 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.6	NA	0 – 1.5': Moist, dark brown fine sand and silt. Trace roots and wood pieces. No odors or impacts. 1.5' – 4': Medium brown and tan silt and very fine sand. Few coarse-grained sands. Dense. Cohesive. Moist. No odors or impacts.	
4 - 6	NA	2.0	NA	4' – 5.8': Medium to light gray clay and silt. Trace to few fine gravels and coarse-grained sands. Very moist. Pliable. Cohesive. No odors or impacts. 5.8' – 6': Light gray, dry, dense silt and clay. Trace fine gravel and coarse-grained sands. Very cohesive and compact. TILL. No odors or impacts. Refusal at 6' bgs (95.25' MSL)	

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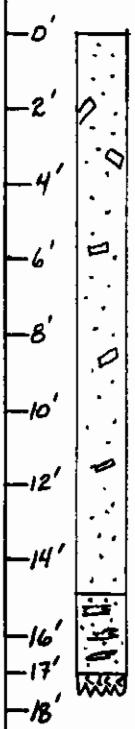
SOIL SAMPLING LOG (SB-00-19)

Boring/Well ID:	SB-00-19	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Andrew Brey	**Location:**	Near Municipal Lot, North Side of River
Date:	8/4/00	**Contractor:**	Zebra
Total Depth:	17.1 feet	**Driller:**	Mike Flynn

Ground Surface Elevation:	109.97 feet (MSL)		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.2	NA	0 – 4': Brown silt and fine-grained sand. Trace gravel and coarse sand. Dry. Loose. Some brick fragments. No odors or impacts.	
4 - 8	NA	3.6	NA	4' – 8': As above (Fill). Moist at 6'. Cohesive. No odors or impacts.	
8 - 12	NA	2.2	NA	8' – 12': As above (Fill). Moist to wet at 11'. No odors or impacts.	
12 - 16	NA	1.4	NA	12' – 14.8': As above (Fill). Wet. No odors or impacts. 14.8' – 16': Black wood with little fine to medium sand. Moist. No odors or impacts.	
16 – 17.1	NA	1.1	NA	16' – 17': Sand and wood as above. Wet. Loose. No odors or impacts. 17' – 17.1': Dark gray limestone discs/chips in end of core barrel. No odors or impacts. Refusal on weathered bedrock surface at 17' bgs (92.97' MSL).	

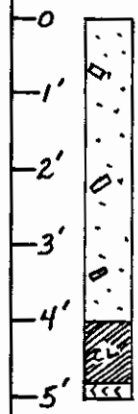
GEI Consultants, Inc.

SOIL SAMPLING LOG (SB-00-20)

Boring/Well ID:	**SB-00-20**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Near Municipal Lot, North Side of River**
Date:	**8/4/00**	**Contractor:**	**Zebra**
Total Depth:	**5 feet**	**Driller:**	**Mike Flynn**

Ground Surface Elevation:	**100.52 feet (MSL)**		**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	1.6	NA	0 – 4': Clayey silt and fine-grained sand. Trace coarse-grained sand and brick fragments. Moist. No odors. Wet at 3.5'. No odors or visual impacts.	
4 - 5	NA	0.7	NA	4' – 4.9': Gray, wet Clay. Pliable. Cohesive. No odors or visual impacts. 4.9' – 5': Dark gray, friable discs of weathered limestone in end of core barrel. No odors or impacts. Refusal at 5' bgs (95.5' MSL). End of Boring.	



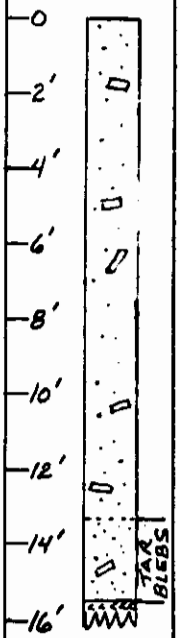
GEI Consultants, Inc.

SOIL SAMPLING LOG (SB-00-21C)

Boring/Well ID:	**SB-00-21C**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Near Municipal Lot, North Side of River**
Date:	**8/4/00**	**Contractor:**	**Zebra**
Total Depth:	**15.5 feet**	**Driller:**	**Mike Flynn**

Ground Surface Elevation:	**106.21 feet (MSL)**	**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used. SB-00-21 and 21B had refusal on brick fill at 2' and 5' bgs in same area.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.8	NA	0 - 3.3': Light brown fine sand and silt. Trace roots, brick and glass. Dry. Loose. No odors or impacts. 3.3' - 4': Light brown, tan and white-gray laminated silts and very fine-grained sand (mm-scale lam's). Dry. Cohesive. No odors or impacts.	
4 - 8	NA	3.7	NA	4' - 7.4': Mix of brown silt and gray concrete fragments. Trace brick pieces. Dry. Loose. No odors or impacts. 7.4' - 8': Dark brown silt and fine to coarse-grained sand. Moist. Cohesive. Trace brick and cinders. No odors or impacts.	
8 - 12	NA	1.6	NA	8' - 9.5': As above (7.4'-8') No odors or impacts. 9.5' - 12': Brown and various-colored coarse-grained sand and fine gravel. Trace fines. Trace brick pieces. Wet. Loose. No odors or impacts.	
12 - 15.5	NA	1.5	NA	12' - 13.6': As above. Wet. 13.6' - 15.5': Black coarse-grained sand and gravel. Trace porcelain and wood fragments. Loose. Wet. Heavy sheen. Trace blebs of coal tar throughout. Moderate MGP/tar odor. Refusal at 15.5' bgs (90.7' MSL); gray limestone chips in the end of the core barrel, top of bedrock.	



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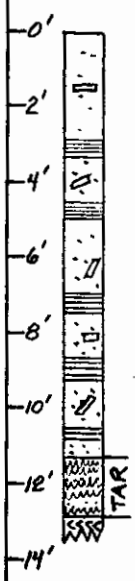
SOIL SAMPLING LOG (SB-00-21D)

Boring/Well ID:	**SB-00-21D**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Near Municipal Lot, North Side of River**
Date:	**8/4/00**	**Contractor:**	**Zebra**
Total Depth:	**13 feet**	**Driller:**	**Mike Flynn**

Ground Surface Elevation:	**106.64 feet (MSL)**	**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used. SB-00-21 and 21B had refusal on brick fill at 2' and 5' bgs in same area.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	2.6	NA	0 – 4': Light brown to dark brown silt and fine-grained sand. Trace gravels and brick pieces. Silts are laminated from 3 - 3.5'. Dry. Brick piece lodged in end of core barrel. No odors or impacts.	
4 - 8	NA	3.0	NA	4' – 8': Fill and laminated silts as above. Moist. Slightly cohesive. No odors or impacts.	
8 - 12	NA	2.9	NA	8' – 11.3': Fill and laminated silts as above. Moist to Wet at 11.2' bgs. No odors or impacts. 11.3' – 12': Wet, dark brown wood with medium to coarse-grained sand. Wood and sands are inter-bedded. Wood has spots of oozing, high-viscosity tar. Moderate tar odor.	
12 - 13	NA	0.6	NA	12' – 12.9': Wood and medium to coarse sand as above. Loose. Black. Free-flowing, medium-viscosity tar present throughout. Moderate tar odor and light sheen. 12.9' – 13': Gray limestone discs/chips. Sheens present on chips. Refusal at 13' bgs (93.6' MSL), weathered bedrock surface.	

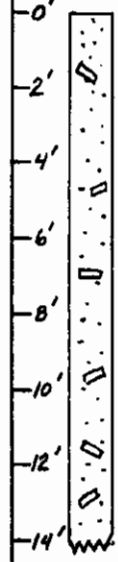


GEI Consultants, Inc.

SOIL SAMPLING LOG (SB-00-21E)

Boring/Well ID:	**SB-00-21E**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Near Municipal Lot, North Side of River**
Date:	**8/4/00**	**Contractor:**	**Zebra**
Total Depth:	**14 feet**	**Driller:**	**Mike Flynn**

Ground Surface Elevation:	**107.06 feet (MSL)**	**Notes: ATV Geoprobe™ Rig with 4' macro-core sampling tube and acetate sleeves used. SB-00-21 and 21B had refusal on brick fill at 2' and 5' bgs in same area.**

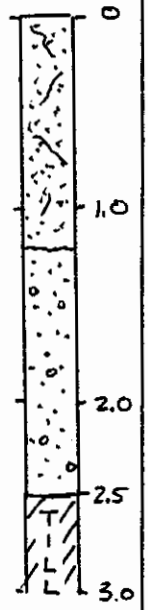
Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 4	NA	3.5	NA	0 – 4': Brown silt and fine sand. Loose. Dry. Trace coarse-grained sand and gravel. Trace brick. No odors or impacts.	
4 - 8	NA	3.6	NA	4' – 7.3': As above, exactly. 7.3' – 8': Dry, red brick. No odors or impacts.	
8 - 11	NA	2.7	NA	8' – 10.1': Brick fill as above. 10.1' – 10.4': Decaying Razor Blades, black and silver. Stacked together with no sands or silts. *Personna*® brand, double blade. No odors or impacts. 10.4' – 11': Concrete pieces and coarse to medium sand. Wet. No odors or impacts. Refused at 11' bgs; move over and blind probe to 11' and re-start sampling.	
11 - 14	NA	1.3	NA	11' – 14': Dark gray and brown coarse-grained sand and fine gravel with brick and concrete fragments. Trace medium to fine-grained sands. Loose. Wet. No odors or impacts. Refusal at 14' bgs twice in same area; suspected bedrock surface at 93.1' MSL. End of Boring.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-01-01)

Boring/Well ID:	**GP-01-01**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Edge of Saranac River, below former**
Date:	**10/4/01**	**Contractor:**	**MGP**
Total Depth:	**2.5 feet**	**Observers:**	**Zebra Environmental, Inc. NYSEG and NYSDEC**

Ground Surface Elevation:	**113.68 feet (MSL)**		**Notes: ATV Geoprobe Rig with 2' large bore sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 2	NA	1.8	0.0	0.0 – 1.2 Dark brown silt and decayed wood. No physical evidence of MGP impacts.	
			0.0	1.2 – 1.8 Dry grey silt and fine sand. Trace fine gravel. No physical evidence of MGP impacts.	
			0.0	Large bore GeoProbe sampler anchored below ground surface in till. Hand dig to retrieve it. Dug to till surface at 2.5 feet bgs. No physical evidence of MGP impacts.	

GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-01-02)

Boring/Well ID:	**GP-01-02**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Edge of Saranac River, below former**
Date:	**10/4/01**	**Contractor:**	**MGP**
Total Depth:		**Observers:**	**Zebra Environmental, Inc.**

Ground Surface Elevation:	**114.14 feet (MSL)**		**Notes: ATV Geoprobe Rig with 2' large bore sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 – 2	NA	1.9	0.0	0.0 – 1.5 Light brown loam silt and decayed wood. No physical evidence of MGP impacts.	
			0.0	1.5 – 1.9 Light grey rock disks. No physical evidence of MGP impacts.	
				Two rod threads on GeoProbe break during attempts to penetrate deeper. Attempt again nearby.	
0 – 2	NA	1.2	0.0	Light brown loam and trace of roots and fine gravel. Dry. No physical evidence of MGP impacts.	
2 – 3	NA	2.0	0.0	1 foot of slough.	
			0.0	1.0 – 1.2 Light brown loam and trace of roots and fine gravel. Dry. No physical evidence of MGP impacts.	
			0.0	1.2 – 2.0 Till. No physical evidence of MGP impacts.	

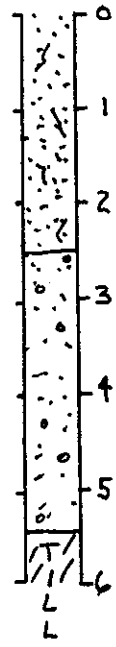
GEI Consultants, Inc.

SOIL SAMPLING LOG (GP-01-03)

Boring/Well ID:	**GP-01-02**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Edge of Saranac River, below former**
Date:	**10/4/01**	**Contractor:**	**MGP**
Total Depth:		**Observers:**	**Zebra Environmental, Inc.**

Ground Surface Elevation:	**113.46 feet (MSL)**		**Notes: ATV Geoprobe Rig with 2' large bore sampling tube and acetate sleeves used.**

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Soil Description	Lithology (not to scale)
0 - 2	NA	1.2	0.0	0.0 - 0.7 Dark brown fine sand with roots and decayed wood. Dry. No physical evidence of MGP impacts.	
			0.0	0.7 - 1.2 Light grey/light brown fine to medium sand. Trace fine gravel. Dry. No physical evidence of MGP impacts.	
				Refusal at 2.1 bgs. Off-set 5 feet toward river.	
0 - 2	NA	1.8	0.0	0.0 - 1.8 Mix of brown and dark brown loam with trace of clay and trace of fine gravel and roots. No physical evidence of MGP impacts.	
2 - 4	NA	1.1	0.0	0.0 - 0.8 As above.	
			7.1	0.8 - 1.1 Dark grey fine sand and gravel. Wet. Slight sheen. Very slight tar odor. No other physical impacts apparent.	
				GeoProbe rods break and are lodged in till. Based on drilling behavior, till present at 5.5 feet bgs. Possible that approximately 1.5 feet impacted soil above till.	



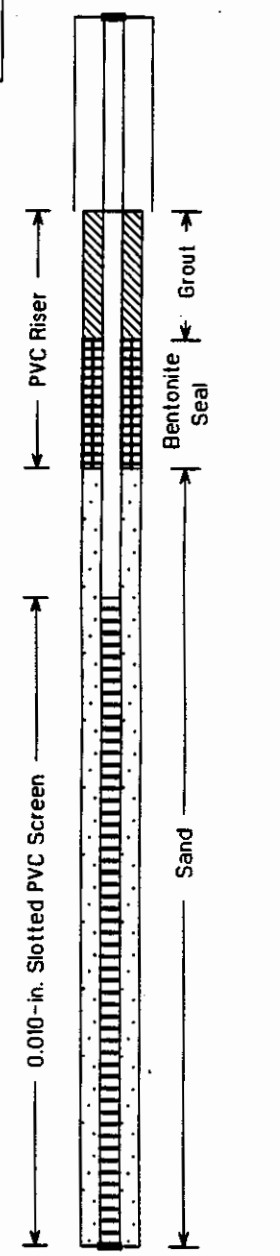
PZ 10/94 - 01

PROJECT: Plattsburgh MGP Site
PROJECT NO: 1284-18-02
LOCATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-24-94
DATE COMPLETED: 10-24-94
DRILLING CONTRACTOR: Northstar Drilling, Inc.
DRILLER: Joe Ely, Richard Mitchell

DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION: ~~127.68~~ 128.44' MSL
WELL ELEVATION:
WATER TABLE ELEVATION:
WEATHER: Cloudy, 60°
INSPECTOR: Martin Brogie

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
0-2	2,2 2,3	50	0	Brown, loose, fine sandy LOAM with organic matter.				■				■			0
2-4	5,6 4,12	5	0	Brown, loose, fine sandy LOAM with organic matter.				■				■			
4-6	15,20 18,19	80	0	Light brown to grey, dense, silty fine SAND with dark grey gravel (till), slight solvent-like odor.				■		■					
6-8	33,35 30,28	75	.3	Light brown to grey, dense, silty fine SAND with dark grey gravel and some orange mottling in fractures (till), slight solvent-like odor.				■		■					5
8-10	15,19 23,36	80	0	Light brown to grey, dense, silty fine SAND with dark grey gravel and some orange mottling in fractures (till), moist to wet, slight solvent-like odor.				■		■					
10-12	20,23 30,24	80	0	Brown, dense, silty fine SAND with dark grey gravel and some orange mottling in fractures (till), wet, slight solvent-like odor.				■		■					10
12-14	21,30 37,50/2	65	0	Grey brown, dense, silty fine SAND with dark grey gravel and some orange mottling in fractures (till), wet.				■				■			
14-16	50/3,- -,-	10	0	Dark grey, dense, silty coarse SAND with dark grey angular gravel (till), wet, trace clay.				■				■			15
				END OF BORING AT 16.0 FEET.											

WELL CONSTRUCTION



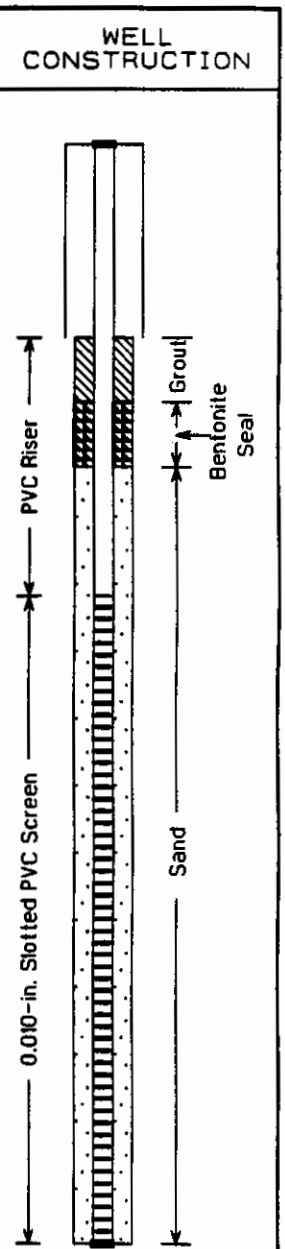
ATLANTIC

PZ 10/94 - 02

PROJECT: Plattsburgh MGP Site
PROJECT NO: 1284-18-02
LOCATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-24-94
DATE COMPLETED: 10-24-94
DRILLING CONTRACTOR: Northstar Drilling, Inc.
DRILLER: Joe Ely, Richard Mitchell

DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION: 117.68'
WELL ELEVATION:
WATER TABLE ELEVATION:
WEATHER: Cloudy, 60°
INSPECTOR: Martin Brogie

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
0-5	Augered	-	100	Brown, fine SAND, (fill), strong naphtha odor.									
5-10	Augered	-	55	Orange, medium to coarse, SAND and GRAVEL, slight naphtha odor.									
10-12	7,8 14,18	55	200	Black, loose, medium to coarse SAND and GRAVEL, wet, visible tar, tar odor.									
				Grey, dense, fine silty SAND and GRAVEL (till), moderate tar odor.									
12-14	52,55 50/2,-	35	70	Grey, dense, fine silty SAND and GRAVEL (till), visible tar in sandy fractures of till, moderate tar odor.									
				END OF BORING AT 14.0 FEET.									



ATLANTIC

BH 10/94 - 01

PROJECT: Plattsburgh MGP Site
OJECT NO: 1284-18-02
CATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-25-94
TE COMPLETED: 10-25-94
ILLING CONTRACTOR: Northstar Drilling, Inc.

DRILLER: Joe Ely, Richard Mitchell
DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION:
WEATHER: Clear 45°
INSPECTOR: Martin Brogie

SPLIT POON MPLE EPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
															0
0-5	Augered			Augered to 5.0 feet.											
-7	5,8 7,7	50	0	Light brown/grey, loose fine to medium SAND, some orange mottles, moist.	■				■						5
7-9	6,9 5,14	35	48	Orange brown, medium SAND and GRAVEL, loose, slight tar odor. Black, medium to coarse SAND and GRAVEL, loose, heavy tar odor, visible tar. Augers indicate till at 8.5 feet.	■			■	■			■			
-11	51, 100/3	50	0	Dense, grey, fine, silty SAND and GRAVEL (till).	■				■						10
				END OF BORING AT 11.0 FEET.											15

ATLANTIC

BH 10/94 - 02

PROJECT: Plattsburgh MGP Site
OJECT NO: 1284-16-02
CATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-25-94
TE COMPLETED: 10-25-94
ILLING CONTRACTOR: Northstar Drilling, Inc.

DRILLER: Joe Ely, Richard Mitchell
DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION:
WEATHER: Clear, 55°
INSPECTOR: Martin Brogie

SPLIT POON MPLE EPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
															0
0-2	3,6 9,14	50	.5	Dark brown fine sandy LOAM, with organic matter and gravel, moist. Orange brown, loose medium SAND and GRAVEL, moist.	■				■						
2-4	15,19 23,27	20	2		■				■						
4-6	60/2	20	1.5		■				■						5
6-8	28,27 22,17	30	0	Dark brown, loose medium to coarse SAND and GRAVEL, trace silt, trace organic matter, moist to wet.	■				■						
8-10	26,19 23,17	80	2.5	Light brown, fine to medium SAND, moist to wet, orange mottling.	■				■						
10-12	18,24 17,12	5	0		■				■						10
12-14	24,20 21,19	35	40	Brown, fine to medium SAND and GRAVEL, trace clay, wet, moderate tar odor, sheen.	■		■		■		■				
14-16	28,67 50/3	35	3.2	Black, fine to medium SAND and GRAVEL, strong tar odor. Grey, medium to coarse SAND and GRAVEL, sheen, moderate tar odor. Dense, grey, fine to medium, silty SAND and GRAVEL (till), no odor.	■	■	■	■	■	■	■	■			15
				END OF BORING AT 16.0 FEET.											20

ATLANTIC

BH 10/94 – 03

PROJECT: Plattsburgh MGP Site
ROJECT NO: 1284-18-02
CATION: Saranac Street, Plattsburgh, New York
ATE STARTED: 10-25-94
TE COMPLETED: 10-25-94
RILLING CONTRACTOR: Northstar Drilling, Inc.

DRILLER: Joe Ely, Richard Mitchell
DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION:
WEATHER: Cloudy, 50°
INSPECTOR: Martin Brogie

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
0-2	7,15 21,25	75	0	Dark brown, medium SAND and GRAVEL, organics. Dark brown, medium to coarse SAND and GRAVEL, some mottling.		■				■					0
2-4	25,37 31,27	40	0			■				■					
4-6	26,28 7,8	40	0	Dark brown organic horizon. Dark brown and grey, fine to medium SAND, wet at 6.0 feet.		■				■					5
6-8	5,6 6,8	90	1.5	Slight tar odor.		■				■					
8-10	5,9 16,18	55	47	Light brown, fine SAND, grading to black medium to coarse sand and gravel, black staining, heavy sheen, heavy tar odor, trace tar.		■	■	■			■	■			
10-12	15,17 28,21	40	123	Dark grey, fine to medium SAND and crushed COBBLES, heavy tar odor and sheen. Visible tar.		■	■	■			■	■			10
12-14	12,17 28,21	40	51			■	■	■			■	■			
14-16	48,56 50/2	55	21	Dense grey, fine to medium SAND and GRAVEL (till), slight tar odor.		■				■					15
				END OF BORING AT 16.0 FEET.											

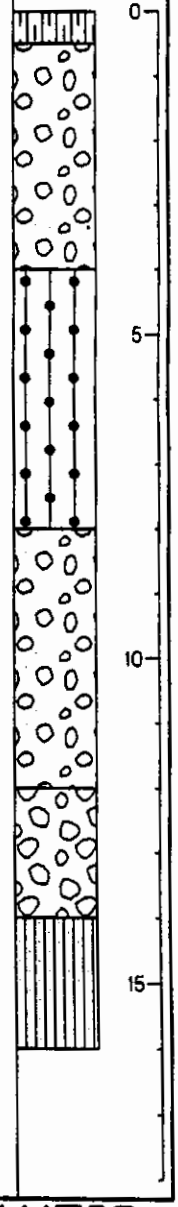
ATLANTIC

BH 10/94 - 04

PROJECT: Plattsburgh MGP Site
:OJECT NO: 1284-18-02
CATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-25-94
ATE COMPLETED: 10-25-94
ILLING CONTRACTOR: Northstar Drilling, Inc.

DRILLER: Joe Ely, Richard Mitchell
DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION:
WEATHER: Partly cloudy, 60°
INSPECTOR: Martin Brogie

SPLIT POON AMPLE EPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	VISUAL CONTAM. STAIN	VISUAL CONTAM. SHEEN	VISUAL CONTAM. HEAVY	ODOR NONE	ODOR SLIGHT	ODOR MODERATE	ODOR HEAVY	SAMPLE ANALYSIS
				Dark brown, fine sandy LOAM, with organics.									
0-2	3,12 32,32	55	0	Loose, orange brown, medium to coarse SAND and GRAVEL.									
2-4	27,33 32,31	45	0										
4-6	9,9 7,5	55	1.6	Light brown and dark brown striated, fine, medium and coarse SAND, wet, slight tar odor.									
6-8	21,6 6,4	55	2.1	Sheening at bottom of sample.									
8-10	16,15 12,8	35	64	Black medium to coarse SAND and GRAVEL, visible tar, heavy tar odor, sheen.									
10-12	26,50/3 -,-	33	67										
12-14	50/2,- -,-	0	-	No split-spoon recovery, BOULDERS and COBBLES.									
14-16	38,49 50/3	25	39	Dense grey, fine SAND and GRAVEL, trace silt (till), slight tar odor.									
				END OF BORING AT 16.0 FEET.									



ATLANTIC

TW 10/94 - 05

PROJECT: Plattsburgh MGP Site
PROJECT NO: 1284-18-02
LOCATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-24-94
DATE COMPLETED: 10-24-94
DRILLING CONTRACTOR: Northstar Drilling, Inc.
DRILLER: Joe Ely, Richard Mitchell

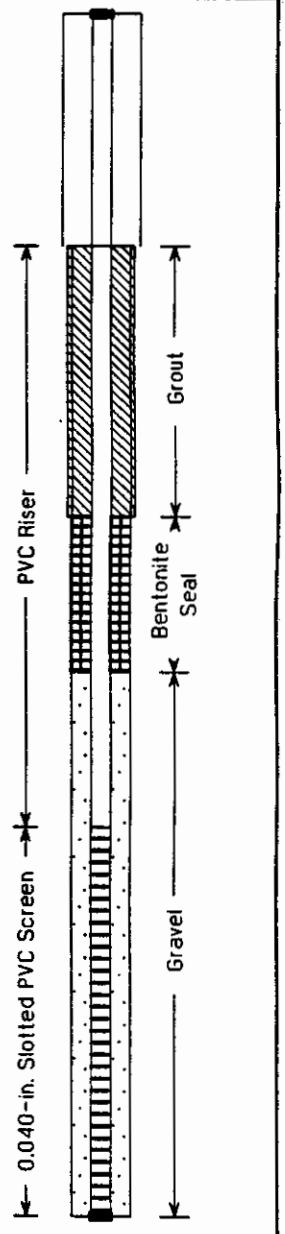
DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION:
WELL ELEVATION:
WATER TABLE ELEVATION:
WEATHER: Partly cloudy, 60°
INSPECTOR: Martin Brogie

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
0-2	2,12 50/2,-	5	0	Dark brown, fine sandy LOAM.	■								
-	-	-	-	Augered.									
3-5	17,50/3 -,-	0	-	No description.									
-7	2,2 2,3	50	2.8	Orange, fine to medium SAND.	■				■				
				Dark brown to black-stained, medium SAND, slight tar odor.		■				■			
7-9	2,3 7,10	50	47	Orange to black-stained WOOD CHIPS.		■				■		■	
				Black, medium to coarse SAND and GRAVEL, heavy tar odor and sheening.		■	■			■		■	
-11	17,30 22,27	35	130	Heavy contamination visually (tar), strong tar odor.		■	■	■		■		■	
11-13	27,50 50/2,-	100	170	Dense, grey, fine to medium SAND and GRAVEL, trace clay, moderate tar odor.	■						■	■	
				END OF BORING AT 13.0 FEET.									

LITHOLOGY

DEPTH (FT.): 0, 5, 10, 15

WELL CONSTRUCTION



ATLANTIC

TW 10/94 - 06

PROJECT: Plattsburgh MGP Site
PROJECT NO: 1284-18-02
LOCATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-25-94
DATE COMPLETED: 10-26-94
DRILLING CONTRACTOR: Northstar Drilling, Inc.
DRILLER: Joe Ely, Richard Mitchell

DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION:
WELL ELEVATION:
WATER TABLE ELEVATION:
WEATHER: Partly cloudy, 60°
INSPECTOR: Martin Brogie

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
				Dark brown, fine sandy LOAM.									
0-2	3,10 18,14	50	0	Orange brown, medium to coarse SAND and GRAVEL.									
2-4	12,8 6,6	5	0										
4-6	3,2 3,3	0	-	No recovery.									
6-8	8,50/2	50	2.7	Dark brown, fine to medium SAND and dark brown SAWDUST, with sheen, wet.									
				Black, fine SAND, GRAVEL and WOOD FRAGMENTS, heavy tar odor and sheen.									
8-10	12,20 50/2	45	153	Black, fine SAND and GRAVEL, heavy tar odor, sheen and visible tar.									
10-12	14,11 50/3	25	46										
12-14	74,51 64	45	173	Black, medium to coarse SAND and GRAVEL with cobbles and boulders, sheen, visible tar, heavy odor.									
				Grey, dense, silty fine SAND and GRAVEL (till), moderate tar odor.									
				END OF BORING AT 14.0 FEET.									

LITHOLOGY

DEPTH (FT.): 0, 5, 10, 15

WELL CONSTRUCTION: PVC Riser; 0.040-in. Slotted PVC Screen; Grout; Bentonite Seal; Gravel

ATLANTIC

BH 10/94 – 07

PROJECT: Plattsburgh MGP Site
OJECT NO: 1284-18-02
CATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-26-94
TE COMPLETED: 10-26-94
ILLING CONTRACTOR: Northstar Drilling, Inc.

DRILLER: Joe Ely, Richard Mitchell
DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION:
WEATHER: Partly cloudy, 45°
INSPECTOR: Martin Brogie

SPLIT OON MPLE EPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
				Dark brown, fine sandy LOAM.											0
0-2	2,3 2,4	25	0	Orange brown, medium to coarse SAND.											
-4	3,1 1,1	60	12.3	Dark brown, fine, medium, and coarse SAND, grading to dark grey, moderate tar odor, wet.											
4-6	2,2 5,7	55	26	Two-inch wood chip/dust horizon.											
-8	7,5 7,14	52	13	Black/dark grey, fine to medium sand and wood fragments, moderate tar odor, sheen.											5
-10	32,41 22,27	60	196	Black, medium to coarse SAND and GRAVEL, with cobbles, wet. Heavy tar odor, sheen, visible tar.											
-12	75,50/2 -,-	33	140												10
				Augered through boulders.											
-14	16,47 48,-	55	21	Dense, grey, silty fine SAND and GRAVEL (till), slight odor.											
				END OF BORING AT 14.0 FEET.											15

ATLANTIC

BH 10/94 - 08

PROJECT: Plattsburgh MGP Site
ROJECT NO: 1284-18-02
OCATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-26-94
ATE COMPLETED: 10-26-94
RILLING CONTRACTOR: Northstar Drilling, Inc.

DRILLER: Joe Ely, Richard Mitchell
DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION:
WEATHER: Sunny, 65°
INSPECTOR: Martin Brogie

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
				Dark brown, fine sandy LOAM.											0
0-2	2,3 4,3	50	11	Light brown, fine to medium and coarse SAND, moist to wet.											
2-4	3,3 4,3	55	12	Slight tar odor, wet.											
4-6	2,2 8,12	33	32	Wood chips/dust horizon. Black stained and grey fine SAND, heavy odor.											5
6-8	5,8 12,15	30	45	Sheening. Black stained, medium to coarse SAND and GRAVEL, with cobbles, visible tar, sheen, heavy odor.											
8-10	12,20 27,28	50	43												10
10-12	50/3,- -,-	0	-	No recovery.											
12-14	32,47 50/3,-	60	7.9	Dense, grey, silty fine SAND and GRAVEL (till), slight tar odor.											
				END OF BORING AT 14.0 FEET.											15

ATLANTIC

BH 10/94 - 09

PROJECT: Plattsburgh MGP Site
PROJECT NO: 1284-18-02
LOCATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-26-94
DATE COMPLETED: 10-26-94
DRILLING CONTRACTOR: Northstar Drilling, Inc.

DRILLER: Joe Ely, Richard Mitchell
DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION:
WEATHER: Sunny, 65°
INSPECTOR: Martin Brogie

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
				Light grey, wet, BENTONITE and SOIL/CEMENT mixture (slurry), muddy.	■				■						0
0-9	Augered														5
9-11	1,1 1,1	100	88	Visible tar and sheen from 9 to 13 feet. Moderate odor to 17 feet.			■	■			■	■			10
11-13	1,1 1,1	100	45												
13-15	1,1 1,1	100	115	Light grey, wet, BENTONITE and SOIL/CEMENT mixture, more dense, no visible tar, sheen from 13 to 15, slight odor.			■			■					15
15-17	2,2 8,20	75	11				■	■		■					
				Dense, grey, silty fine SAND and GRAVEL (till). Small amount of visible tar at slurry wall/till interface.											
				END OF BORING AT 17.0 FEET.											20

ATLANTIC

TW 10/94 - 10

PROJECT: Plattsburgh MGP Site
ROJECT NO: 1284-18-02
OCATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-26-94
ATE COMPLETED: 10-26-94
RILLING CONTRACTOR: Northstar Drilling, Inc.
DRILLER: Joe Ely, Richard Mitchell

DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION:
WELL ELEVATION:
WATER TABLE ELEVATION:
WEATHER: Sunny, 65°
INSPECTOR: Martin Brogie

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS
0-5	Augered			Light brown, fine to medium SAND and GRAVEL.	■				■				
5-7	2,2 1,2	25	47	Black stained, fine, medium and coarse SAND and GRAVEL, trace silt, wet, heavy odor. Visible tar.		■		■		■		■	
7-9	1,2 1,1	20	27					■		■		■	
9-11	17,50/2 -,-	80	128					■		■		■	
11-13	20,40 50/3,-	35	11	Dense, dark grey, silty fine SAND and GRAVEL (till).	■			■	■			■	
				END OF BORING AT 13.0 FEET.									

LITHOLOGY

DEPTH (FT.): 0, 5, 10, 15

WELL CONSTRUCTION: PVC Riser; 0.040-in. Slotted PVC Screen; Grout; Bentonite Seal; Gravel

ATLANTIC

BH 10/94 – 11

PROJECT: Plattsburgh MGP Site
PROJECT NO: 1284-18-02
LOCATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-27-94
DATE COMPLETED: 10-27-94
DRILLING CONTRACTOR: Northstar Drilling, Inc.

DRILLER: Joe Ely, Richard Mitchell
DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION:
WEATHER: Partly cloudy, 45°
INSPECTOR: Martin Brogie

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	ODOR NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
															0
0-2	3,5 7,5	10	0	Dark brown, fine sandy LOAM. Orange brown fine medium coarse SAND and GRAVEL.	■				■						
2-4	5,5 2,2	5	0		■				■						
4-6	2,6 1,2	50	56	Black fine to medium sand, ORGANIC MATTER and WOOD CHIPS, moderate tar odor and sheen, wet. Light brown fine to medium SAND, and moderate odor and sheen.		■	■				■				5
6-8	8,14 14,14	50	46	Black, fine, medium and coarse SAND and GRAVEL, trace silt, visible tar. Visible tar.		■	■	■			■	■			
8-10	25,40 50/1,-	50	46					■				■			10
10-12	27,42 100/4,-	33	39					■				■			
				Dense, grey, silt, fine SAND and GRAVEL (till). END OF BORING AT 12.0 FEET.	■				■						15

ATLANTIC

BH 10/94 - 12

PROJECT: Plattsburgh MGP Site
ROJECT NO: 1284-18-02
OCATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-27-94
ATE COMPLETED: 10-27-94
RILLING CONTRACTOR: Northstar Drilling, Inc.

DRILLER: Joe Ely, Richard Mitchell
DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION:
WEATHER: Partly cloudy, 50°
INSPECTOR: Martin Brogie

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN	VISUAL CONTAM.: NONE	STAIN	SHEEN	HEAVY	ODOR: NONE	SLIGHT	MODERATE	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
															0
0-2	3,3 [illegible]	50	0	Dark brown, fine sandy LOAM, with organic matter. Brown, fine to medium SAND, trace organics.	■				■						
2-4	4,7 5,2	50	2.3	Dark brown, fine, medium and coarse SAND, with light brown, fine sand lenses, moist.	■				■						
4-6	3,2 6,8	75	26	Brown WOOD CHIPS. Grey/black stained, wet, fine to medium SAND, with heavy tar odor.	■	■			■			■			5
6-8	12,28 50/2	25	53	Black, wet, fine, medium and coarse SAND and GRAVEL, trace silt, sheen, heavy odor. Visible tar.			■	■				■			
8-10	35,37 50/3,-	25	52												10
10-11	37,40 65/4,-	25	64												
				Auger refusal on boulder, till at 11.0 feet. END OF BORING AT 11.0 FEET.											15

ATLANTIC

BH 10/94 - 13

PROJECT: Plattsburgh MGP Site
ROJECT NO: 1284-18-02
OCATION: Saranac Street, Plattsburgh, New York
DATE STARTED: 10-27-94
ATE COMPLETED: 10-27-94
RILLING CONTRACTOR: Northstar Drilling, Inc.

DRILLER: Joe Ely, Richard Mitchell
DRILLING METHOD: Hollow-Stem Auger
SAMPLING METHOD: 2-Inch Split-Spoon
GROUND ELEVATION:
WEATHER: Partly cloudy, 60°
INSPECTOR: Martin Brogie

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, density, SOIL, admixture, moisture, other notes, ORIGIN
				Dark brown, fine sandy LOAM.
0-2	4,7 50,50	25	0	Orange brown and light brown, fine, medium and coarse SAND and GRAVEL, trace silt, with cobbles and boulders, wet fine sand lenses.
2-4	15,21 28,31	12	0	
4-6	31,50/4	25	3	Slight tar odor to 6.0 feet.
6-8	30,41 33,47	30	1.9	
8-10	21,30 39,40	35	1.7	
10-12	37,40 50/2,-	15	1.6	
12-14	17,12 14,56	50	115	Black stained, fine medium and coarse SAND and GRAVEL, trace silt and cobbles, heavy tar odor, sheen and visible tar, wet.
				Dense, dark grey, silty fine SAND and GRAVEL (till).
				END OF BORING AT 14.0 FEET.

VISUAL CONTAM.: NONE, STAIN, SHEEN, HEAVY
ODOR: NONE, SLIGHT, MODERATE, HEAVY
SAMPLE ANALYSIS
LITHOLOGY
DEPTH (FT.): 0, 5, 10, 15

ATLANTIC

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ENVIRONMENTAL SERVICES, INC. **COLCHESTER, CONNECTICUT**

TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 1284-18-02
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 1280947
TEST PIT NUMBER: TP-1
OBSERVER: Martin Brogie/Dennis Unites
GENERAL LOCATION AND/OR PURPOSE: Western Portion of Site
ASSISTANT:
OTHERS: P. Batrowny (NYSEG), E. Obrecht (NYSDEC)
DATE: 10/21/94
CONTRACTOR: Robert Prentiss (Atlantic)
TIME OPENED: 10:30 **TIME CLOSED:** 11:05
EQUIPMENT: Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES AND WASTE. NOTE ANY BURIED METAL OBJECTS.

Test pit measured approximately 14 feet by 3 feet and was oriented west to east.

Depth (ft)	Observations
0 - 4	Disturbed Soil - Organic "A" horizon intermixed with light brown medium sand, rubble, cables, and glass insulators.
4 - 8	Orange/brown medium to coarse sand, gravel and cobbles. Six-inch organic horizon at eight foot depth.
8 - 10	Brown medium to coarse sand, gravel, cobbles, and boulders.
10	Black-stained medium to coarse sand, gravel and boulders, heavy tar odor, visible tar, sheen on groundwater seeping in at 9.5 feet.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES X NO
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: 9.5 feet

NAPL SEEPAGE: YES X NO
BULK SAMPLES: YES NO X
QUANTITY:

ATLANTIC
ENVIRONMENTAL SERVICES, INC. **COLCHESTER, CONNECTICUT**

TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 1284-18-02
TEST PIT NUMBER: TP-2
GENERAL LOCATION AND/OR PURPOSE: Western Portion of Site
DATE: 10/21/94
TIME OPENED: 11:15 **TIME CLOSED:** 11:55
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 1280947
OBSERVER: Martin Brogie/Dennis Unites
ASSISTANT:
OTHERS: P. Batrowny (NYSEG), E. Obrecht (NYSDEC)
CONTRACTOR: Robert Prentiss (Atlantic)
EQUIPMENT: Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES AND WASTE. NOTE ANY BURIED METAL OBJECTS.

Test pit measured approximately 12 feet by 3 feet and was oriented west to east.

Depth (ft)	Observations
0 - 1	Organic "A" horizon
1 - 2	Loose, light brown fine to medium sand with gravel and cobbles.
2 - 9	Dense, dark gray, silty fine sand with dark gray gravel, cobbles and boulders (till). No odors or organic vapor readings, no visible evidence of contamination. Moist to wet at bottom. No seepage observed.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES X NO
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: approximately 8 feet

NAPL SEEPAGE: YES NO X
BULK SAMPLES: YES NO X
QUANTITY:

ATLANTIC

ENVIRONMENTAL SERVICES, INC. **COLCHESTER, CONNECTICUT**

TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 1284-18-02
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 1280947
TEST PIT NUMBER: TP-3
OBSERVER: Martin Brogie/Dennis Unites
GENERAL LOCATION AND/OR PURPOSE: Western Portion of Site
ASSISTANT:
OTHERS: P. Batrowny (NYSEG), E. Obrecht (NYSDEC)
DATE: 10/21/94
CONTRACTOR: Robert Prentiss (Atlantic)
TIME OPENED: 12:00 **TIME CLOSED:** 12:45
EQUIPMENT: Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES AND WASTE. NOTE ANY BURIED METAL OBJECTS.

Test pit measured approximately 16 feet by 3 feet and was oriented north and south.

Depth (ft)	Observations
0 - 3	Light brown fine sand and organic matter intermixed with rubble including bricks, concrete, metal, 55-gallon drum top and glass.
3 - 12	Orange-brown medium sand and gravel. Groundwater seepage at 11 feet.
12	Dense, dark gray silty fine sand, gravel, cobble and boulders (till). Moderate tar odor. Disturbance produces sheen on groundwater.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES X NO
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: 11 feet

NAPL SEEPAGE: YES NO X
BULK SAMPLES: YES NO X
QUANTITY:

ATLANTIC
ENVIRONMENTAL SERVICES, INC. **COLCHESTER, CONNECTICUT**

TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 1284-18-02
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 1280947
TEST PIT NUMBER: TP-4
OBSERVER: Martin Brogie/Dennis Unites
GENERAL LOCATION AND/OR PURPOSE: Western Portion of Site
ASSISTANT:
OTHERS: P. Batrowny (NYSEG), E. Obrecht (NYSDEC)
DATE: 10/21/94
CONTRACTOR: Robert Prentiss (Atlantic)
TIME OPENED: 13:00 **TIME CLOSED:** 13:55
EQUIPMENT: Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES AND WASTE. NOTE ANY BURIED METAL OBJECTS.

Test pit measured approximately 15 feet by 3 feet and was oriented north and south.

Depth (ft)	Observations
0 - 1.5	Organic "A" horizon.
1.5 - 4.5	Fill Material. Black medium to coarse dry sand intermixed with brick, wood, glass, concrete, coal ash and clinkers. The material exhibited a moderate tar odor. HNu readings varied from 45 to 60 parts per million.
4.5 - 6.5	Orange medium to coarse sand and gravel.
6.5 - 10	Dense, light brown, fine silty sand and gravel.
10 - 11	Dense, dark gray fine silty sand and gravel (till). No groundwater infiltration or evidence of coal tar.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES X NO
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER:
NAPL SEEPAGE: YES NO X
BULK SAMPLES: YES NO X
QUANTITY:

ATLANTIC

ENVIRONMENTAL SERVICES, INC. **COLCHESTER, CONNECTICUT**

TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 1284-18-02
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 1280947
TEST PIT NUMBER: TP-5
OBSERVER: Martin Brogie/Dennis Unites
GENERAL LOCATION AND/OR PURPOSE: Western Portion of Site
ASSISTANT:
OTHERS: P. Batrowny (NYSEG), E. Obrecht (NYSDEC)
DATE: 10/21/94
CONTRACTOR: Robert Prentiss (Atlantic)
TIME OPENED: 14:20 **TIME CLOSED:** 15:00
EQUIPMENT: Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES AND WASTE. NOTE ANY BURIED METAL OBJECTS.

Test pit measured approximately 10 feet by 3 feet and was oriented northwest to southeast.

Depth (ft)	Observations
0 - 3	Light brown fine to medium sand intermixed with organic "A" horizon. Black medium to coarse sand and gravel, and rubble including cables and bricks located in the northwest corner of the pit from 2 to 3 feet. Material exhibited heavy tar odor and sheen.
3 - 8	Orange brown medium to coarse sand and gravel.
8 - 9	Dense dark gray, fine silty sand and gravel (till). Moderate tar odor and sheen. Moist at bottom.

VIDEO DOCUMENTED: YES X NO
NAPL SEEPAGE: YES NO X
PHOTOGRAPHED: YES X NO
BULK SAMPLES: YES NO X
PIEZOMETER NO. USED IN BACKFILL:
QUANTITY:
DEPTH TO WATER: approximately 9 feet

ATLANTIC
ENVIRONMENTAL SERVICES, INC. **COLCHESTER, CONNECTICUT**

TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 1284-18-02
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 1280947
TEST PIT NUMBER: TP-6
OBSERVER: Martin Brogie/Dennis Unites
GENERAL LOCATION AND/OR PURPOSE: Northern Portion of Site
ASSISTANT:
OTHERS: P. Batrowny (NYSEG), E. Obrecht (NYSDEC)
DATE: 10/21/94
CONTRACTOR: Robert Prentiss (Atlantic)
TIME OPENED: 15:10 **TIME CLOSED:** 16:15
EQUIPMENT: Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES AND WASTE. NOTE ANY BURIED METAL OBJECTS.

Test pit measured approximately 12 feet by 3 feet and was oriented generally west to east.

Depth (ft)	Observations
0 - 0.5	Organic "A" horizon.
0.5 - 5	Medium to coarse orange sand and gravel with rounded cobbles, and trace boulders.
5 - 9	Dark grey fading to black (at 8 feet) medium to coarse sand and gravel. Heavy tar odor and groundwater seepage at 9 feet. Visible tar (approximately 5 to 10 percent in groundwater).

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES X NO
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: 9 feet
NAPL SEEPAGE: YES X NO
BULK SAMPLES: YES NO X
QUANTITY:

ATLANTIC
ENVIRONMENTAL SERVICES, INC. **COLCHESTER, CONNECTICUT**

TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 1284-18-02
TEST PIT NUMBER: TP-7
GENERAL LOCATION AND/OR PURPOSE: Northern Portion of Site
DATE: 10/21/94
TIME OPENED: 16:30 **TIME CLOSED:** 17:15
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 1280947
OBSERVER: Martin Brogie/Dennis Unites
ASSISTANT:
OTHERS: P. Batrowny (NYSEG), E. Obrecht (NYSDEC)
CONTRACTOR: Robert Prentiss (Atlantic)
EQUIPMENT: Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES AND WASTE. NOTE ANY BURIED METAL OBJECTS.

Test pit measured approximately 14 feet by 3 feet and was oriented west to east.

Depth (ft)	Observations
0 - 1	Organic "A" horizon.
1 - 5	Light brown fine to medium sand with many fine roots. Horizonation likely indicates flood deposition.
5 - 9	Black, medium to coarse sand with lumber. Heavy tar odor. Groundwater infiltration at 9 feet. Visible tar (10 to 15 percent) in water.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES X NO
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: 9 feet
NAPL SEEPAGE: YES X NO
BULK SAMPLES: YES NO X
QUANTITY:

ATLANTIC

ENVIRONMENTAL SERVICES, INC. **COLCHESTER, CONNECTICUT**

TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 1284-18-02
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 1280947
TEST PIT NUMBER: TP-8
OBSERVER: Martin Brogie
GENERAL LOCATION AND/OR PURPOSE: North-west Corner of Site
ASSISTANT:
OTHERS: Pete Batrowny (NYSEG)
DATE: 10/22/94
CONTRACTOR: Robert Prentiss (Atlantic)
TIME OPENED: 7:30 **TIME CLOSED:** 8:15
EQUIPMENT: Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES AND WASTE. NOTE ANY BURIED METAL OBJECTS.

Test pit measured approximately 12 feet by 3 feet and was oriented west to east.

Depth (ft)	Observations
0 - 1	Organic "A" horizon.
1 - 3	Light brown medium sand and many roots. Horizonation likely indicates flood deposition.
3 - 4	Dark brown fine to medium sand and gravel.
4 - 7	Orange brown medium to coarse sand and gravel, cobbles and boulders.
7 - 8	Black, medium to coarse sand and gravel, cobbles and boulders. Groundwater infiltration at 7 feet, visible tar (5 to 10 percent in water). Heavy odor.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES X NO
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: 7 feet
NAPL SEEPAGE: YES X NO
BULK SAMPLES: YES NO X
QUANTITY:

ATLANTIC
ENVIRONMENTAL SERVICES, INC.

COLCHESTER, CONNECTICUT

TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 1284-18-02
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 1280947
TEST PIT NUMBER: TP-9
OBSERVER: Martin Brogie
GENERAL LOCATION AND/OR PURPOSE: Northern Portion of Site
ASSISTANT:
OTHERS: Pete Batrowny (NYSEG)
DATE: 10/22/94
CONTRACTOR: Robert Prentiss (Atlantic)
TIME OPENED: 8:50 **TIME CLOSED:** 9:45
EQUIPMENT: Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES AND WASTE. NOTE ANY BURIED METAL OBJECTS.

Test pit measured 16 feet by 3 feet and was oriented east to west.

Depth (ft)	Observations
0 - 0.5	Organic "A" horizon.
0.5 - 3.5	Light brown medium to coarse sand and gravel with cobbles. Apparently disturbed.
3.5 - 8	Black medium to coarse sand and gravel with brick, coal, ash, and metal (fill). Moderate tar odor. No visible sheen or tar product.
8 - 10	Brown, medium to coarse sand and gravel. Groundwater seepage at 9.5 feet, with sheen.
10 - 11	Grey, fine silty sand and gravel (till). Moderate to heavy tar odor. 1 to 3 percent tar in water.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES X NO
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: 9.5 feet
NAPL SEEPAGE: YES X NO
BULK SAMPLES: YES NO X
QUANTITY:

ATLANTIC

ENVIRONMENTAL SERVICES, INC. **COLCHESTER, CONNECTICUT**

TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 1284-18-02
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 1280947
TEST PIT NUMBER: TP-10
OBSERVER: Martin Brogie
GENERAL LOCATION AND/OR PURPOSE: Northern Portion of Site
ASSISTANT:
OTHERS: Pete Batrowny (NYSEG)
DATE: 10/22/94
CONTRACTOR: Robert Prentiss (Atlantic)
TIME OPENED: 9:55 **TIME CLOSED:** 10:30
EQUIPMENT: Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES AND WASTE. NOTE ANY BURIED METAL OBJECTS.

Test pit was excavated in cobble/boulder bank of river approximately 25 feet upriver of the "gravel bar". The pit measured approximately six feet by three feet. Hay bales were staged along the river and the rock surface was moved aside prior to excavation.

The excavation was conducted approximately seven feet below the top of the bank and consisted of one backhoe bucket. Soil encountered consisted of wet black coarse sand and gravel and black fine sand horizons. No visible tar was observed although a heavy tar odor was noted. The excavation was stopped due to the presence of apparent contamination and its proximity to the river.

VIDEO DOCUMENTED: YES X NO
PHOTOGRAPHED: YES X NO
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER:
NAPL SEEPAGE: YES NO X
BULK SAMPLES: YES NO X
QUANTITY:

ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD1078-1-6-90

CLIENT NYSEG
Binghamton, NY

Location of Boring See Plan

PROJECT MW Installation - Saranac Street
Plattsburgh, NY

Date, start 5/15/90 Finish 5/15/90

Boring No. B-90-1 Sheet 1 of 1

Casing Hammer		Sampler Hammer	
Wt	lbs.	Wt 140	lbs.
Fall	in.	Fall 30	in.
Ground Elev.		Casing	
		H.S. Auger 4-1/4" I.D.	

Ground Water Observations

Date	Time	Depth	Casing at
5/15/90	AM	Dry	21.3'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and 35-50%, some 20-35%, little 10-20%, trace 0-10%)	STANDARD PENETRATION NUMBER
		1	0.0	5.0	Auger			Augered to 5.0' (no sample)	
		2	5.0	7.0	ss	3 6 13 11		Grey cmf SAND; and SILT: little mf GRAVEL (moist, non-plastic)	
	AUGER	3	10.0	12.0	ss	4 6 7 11		Grey mf SAND; and SILT; trace f GRAVEL; Glacial Till (moist, non-plastic)	
		4	15.0	17.0	ss	9 9 14 35		Similar Soils; some mf GRAVEL (moist, non-plastic)	
		5	20.0	21.3	ss	40 73 100/25		Grey SILT: some cmf+ SAND; trace mf GRAVEL; Glacial Till (moist, non-plastic)	
								Boring Terminated at 21.3'	
								Installed Monitor Well at 20.0', see attached Monitoring Well Detail.	

SS — SPLIT SPOON SAMPLE
U — UNDIS. SHELBY TUBE
P — PISTON TYPE SAMPLE

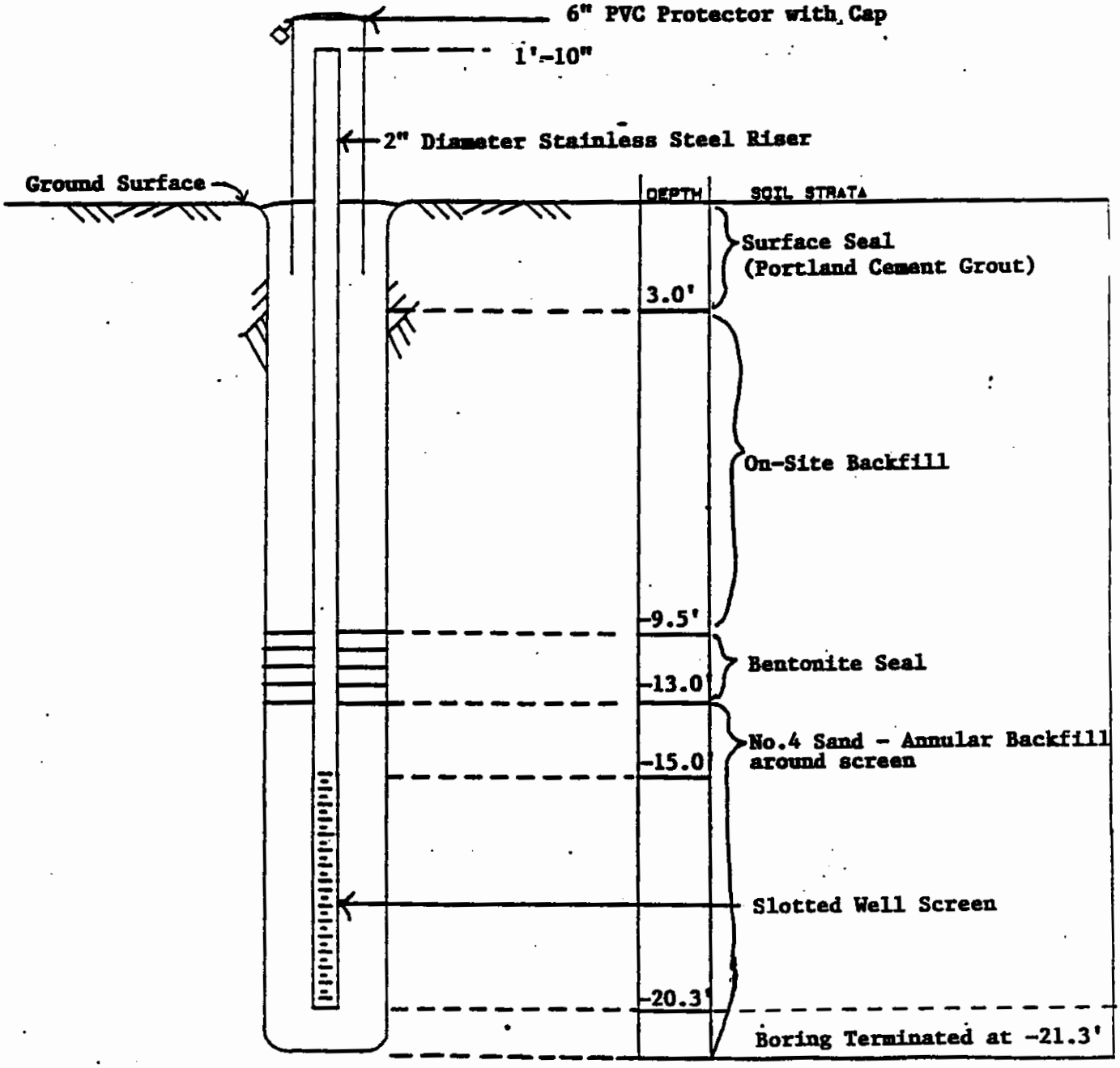
DRILLERS Mike Hawkins, Scott Fox

ATLANTIC TESTING LABORATORIES, LIMITED

MONITORING WELL INSTALLATION DETAIL

PROJECT: MW Installation - Saranac St. Plattsburgh, NY **PROJECT NO.** CD1078-1-6-90

CLIENT: NYSEG Binghamton, NY **WELL NO.** 90-1



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD1078-1-6-90

CLIENT NYSEG
Binghamton, NY

Location of Boring See Plan

PROJECT MW Installation - Saranac Street
Plattsburgh, NY

Date, start 5/15/90 Finish 5/15/90

Boring No. B-90-2 Sheet 1 of 1

Ground Water Observations

Date	Time	Depth	Casing at

Casing Hammer
Wt ____ lbs.
Fall ____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.

Casing ____

Ground Elev. ____

H.S. Auger 4-1/4" I.D.

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION NUMBER
		1	0.0	5.0	Auger			Augered to 5.0' (no sample)	
	AUGER	2	5.0	7.0	ss	4 3 3 6		Brown CLAY; little SILT; trace f SAND (saturated, plastic)	
		3	10.0	12.0	ss	3 3 3 3		Grey CLAY; little SILT; trace f SAND (saturated, plastic)	
		4	15.0	17.0	ss	2 2 20 24	16.0'	Grey SILT; some SAND; trace mf GRAVEL (saturated, non-plastic)	
								Boring Terminated at 17.0'	
								Installed Monitor Well in adjacent boring (designated B-90-2A) advanced to 10.0', see attached Monitoring Well Detail.	

f-fine
m-medium
c-coarse

and — 35 — 50 %
some — 20 — 35 %
little — 10 — 20 %
trace — 0 — 10 %

SS — SPLIT SPOON SAMPLE
U — UNDIS. SHELBY TUBE
P — PISTON TYPE SAMPLE

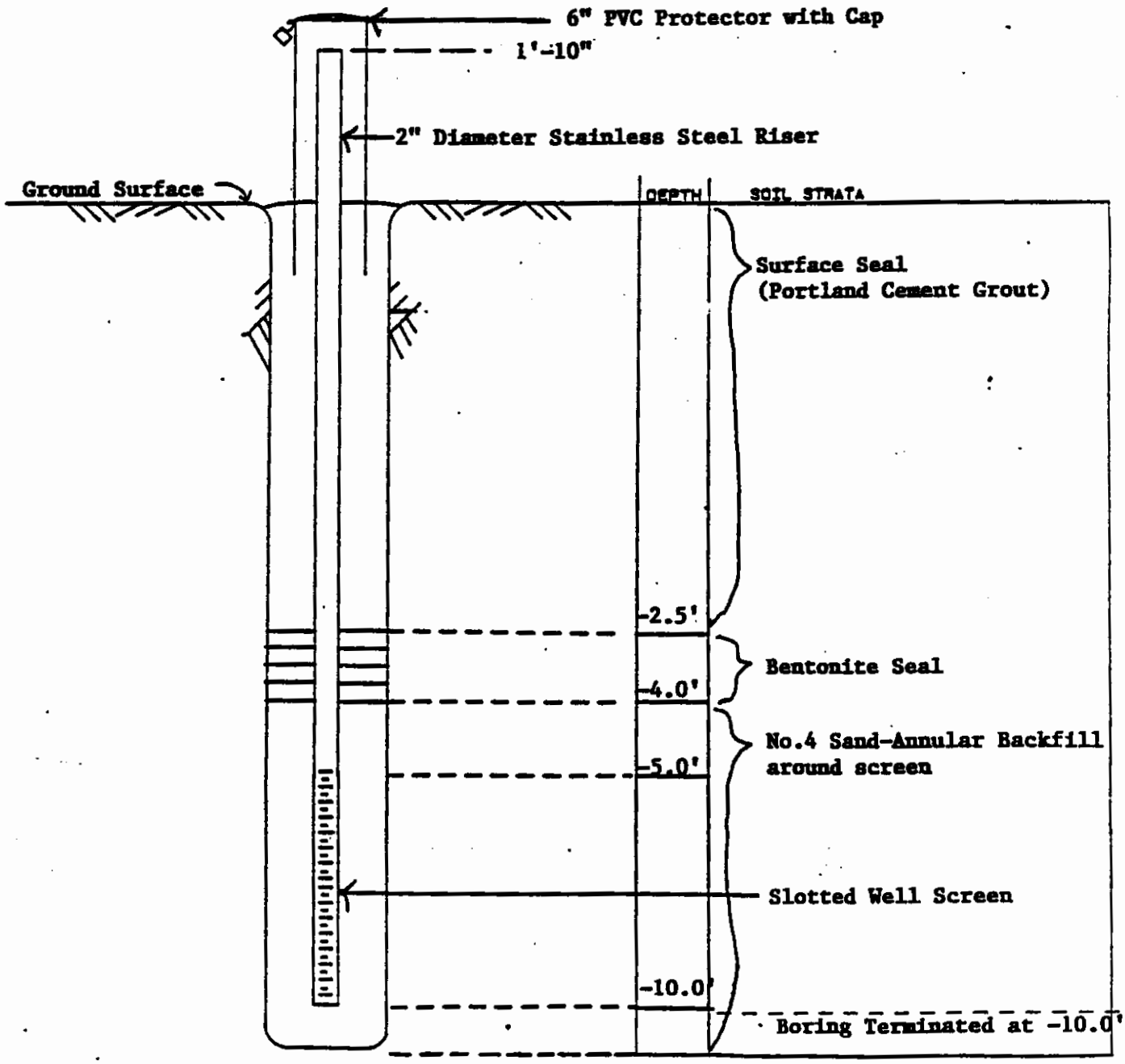
DRILLERS Mike Hawkins, Scott Fox

ATLANTIC TESTING LABORATORIES, LIMITED

MONITORING WELL INSTALLATION DETAIL

PROJECT: MW Installation -Saranac St. Plattsburgh, NY **PROJECT NO.** CD1078-1-6-90

CLIENT: NYSEG Binghamton, NY **WELL NO.** 90-2A



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD1078-1-6-90

CLIENT NYSEG
Binghamton, NY

Location of Boring See Plan

PROJECT MW Installation - Saranac Street
Plattsburgh, NY

Date, start 5/15/90 Finish 5/16/90

Boring No. B-90-3 Sheet 1 of 1

Casing Hammer
Wt _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing _____

Ground Elev. _____

H.S. Auger 4-1/4" I.D.

Ground Water Observations

Date	Time	Depth	Casing at
5/15/90	PM	Dry	17.0'
5/16/90	AM	6.7'	15.0'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION NUMBER
		1	0.0	5.0	Auger			Augered to 5.0' (no sample)	
	AUGER	2	5.0	7.0	ss	9 18 20 27		Brown cmf+ SAND: some SILT; trace mf GRAVEL (moist, non-plastic)	
	AUGER	3	10.0	12.0	ss	15 24 22 90	±13.0'	Similar Soils (moist, non-plastic)	
	AUGER	4	15.0	17.0	ss	4 6 10 11		Grey CLAY; some SILT; little f SAND; trace f GRAVEL; Glacial Till (moist, plastic)	
								Boring Terminated at 17.0'	

f-fine, m-medium, c-coarse
and — 35 — 50 %
some — 20 — 35 %
little — 10 — 20 %
trace — 0 — 10 %

Notes:
1. Strong petroleum odor on samples obtained at 5.0' and below 5.0'.
2. Free petroleum noted on spoon at 15.0'.
3. Installed Monitor Well at 15.0' see attached Monitoring Well Detail.

SS — SPLIT SPOON SAMPLE
U — UNDIS. SHELBY TUBE
P — PISTON TYPE SAMPLE

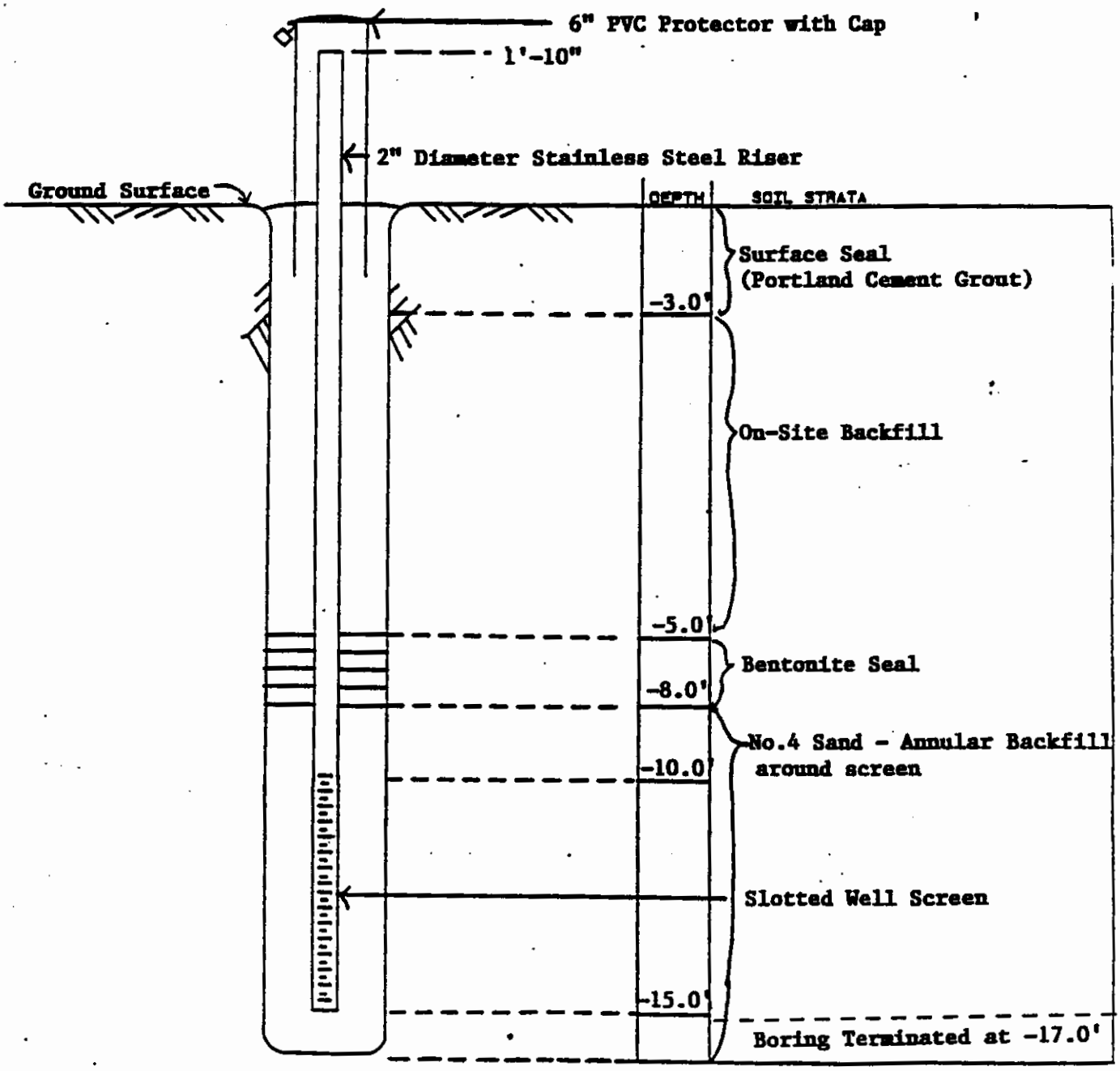
DRILLERS Mike Hawkins, Scott Fox

ATLANTIC TESTING LABORATORIES, LIMITED

MONITORING WELL INSTALLATION DETAIL

PROJECT: MW Installation- Saranac St. Plattsburgh, NY **PROJECT NO.** CD1078-1-6-90

CLIENT: NYSEG Binghamton, NY **WELL NO.** 90-3



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD1078-1-6-90

CLIENT NYSEG
Binghamton, NY

PROJECT MW Installation - Saranac Street
Plattsburgh, NY

Location of Boring See Plan

Date, start 5/16/90 Finish 5/16/90

Boring No. B-90-4 Sheet 1 of 1

Casing Hammer
Wt _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing _____

Ground Elev. _____

H.S. Auger 4-1/4" I.D.

Ground Water Observations

Date	Time	Depth	Casing at
5/16/90	PM	Dry	15.5'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION NUMBER
								f-fine; m-medium; c-coarse. and — 35–50%; some — 20–35%; little — 10–20%; trace — 0–10%	
	AUGER	1	0.0	5.0	Auger			Augered to 5.0' (no sample)	
		2	5.0	7.0	ss	4 5 7 11	±8.0'	Brown CLAY; and SILT; little f SAND (moist, plastic)	
		3	10.0	12.0	ss	4 8 11 18		Brown SILT: some CLAY; little f SAND; trace mf GRAVEL; Glacial Till (moist, non-plastic)	
		4	15.0	16.0	ss	9 100/4.5"		Grey SILT; and mf SAND; trace mf GRAVEL (moist, non-plastic) Boring Terminated at 16.0' Installed Monitor Well at 15.5', see attached Monitoring Well Detail.	

SS — SPLIT SPOON SAMPLE
U — UNDIS. SHELBY TUBE
P — PISTON TYPE SAMPLE

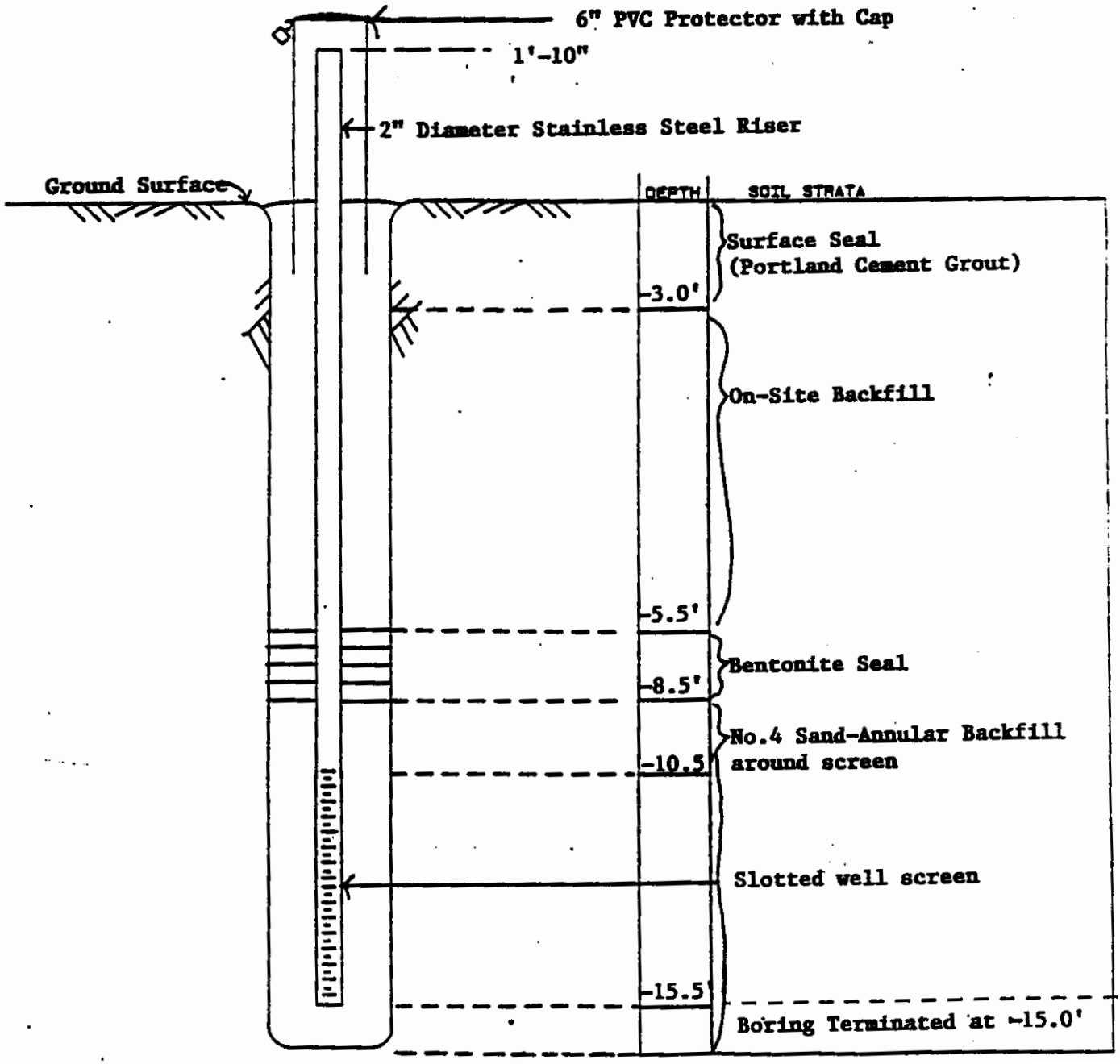
DRILLERS Mike Hawkins, Scott Fox

ATLANTIC TESTING LABORATORIES, LIMITED atl

MONITORING WELL INSTALLATION DETAIL

PROJECT: MW Installation - Saranac St. Plattsburgh, NY **PROJECT NO.** CD1078-1-6-90

CLIENT: NYSEG Binghamton, NY **WELL NO.** 90-4



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD1078-1-6-90

CLIENT NYSEG
Binghamton, NY

Location of Boring See Plan

PROJECT MW Installation - Saranac Street
Plattsburgh, NY

Date, start 5/16/90 Finish 5/16/90

Boring No. B-90-5 Sheet 1 of 1

Ground Elev. _____

Casing Hammer		Sampler Hammer		H.S. Auger 4-1/4" I.D.
Wt	lbs.	Wt 140	lbs.	
Fall	in.	Fall 30	in.	
		Casing		

Ground Water Observations

Date	Time	Depth	Casing at
5/16/90	PM	0.5'	14.0'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION NUMBER
		1	0.0	10.0	Auger			Augered to 10.0' (no sample)	
	AUGER	2	10.0	12.0	ss	32 9 7 10	12.0'	Grey cmf+ SAND; little SILT; trace f GRAVEL; Glacial Till; trace CLAY (saturated, very slightly plastic)	
		3	12.0	14.0	ss	15 12 13 18		Grey CLAY; little SILT: little cmf+ SAND; trace f GRAVEL; Glacial Till (wet, plastic)	
								Boring Terminated at 14.0'	
								Installed Monitor Well at 10.5', see attached Monitoring Well Detail.	

f-fine m-medium c-coarse

and — 35 — 50 %
some — 20 — 35 %
little — 10 — 20 %
trace — 0 — 10 %

SS — SPLIT SPOON SAMPLE
U — UNDIS. SHELBY TUBE

DRILLERS Mike Hawkins, Scott Fox

ATLANTIC TESTING LABORATORIES, LIMITED

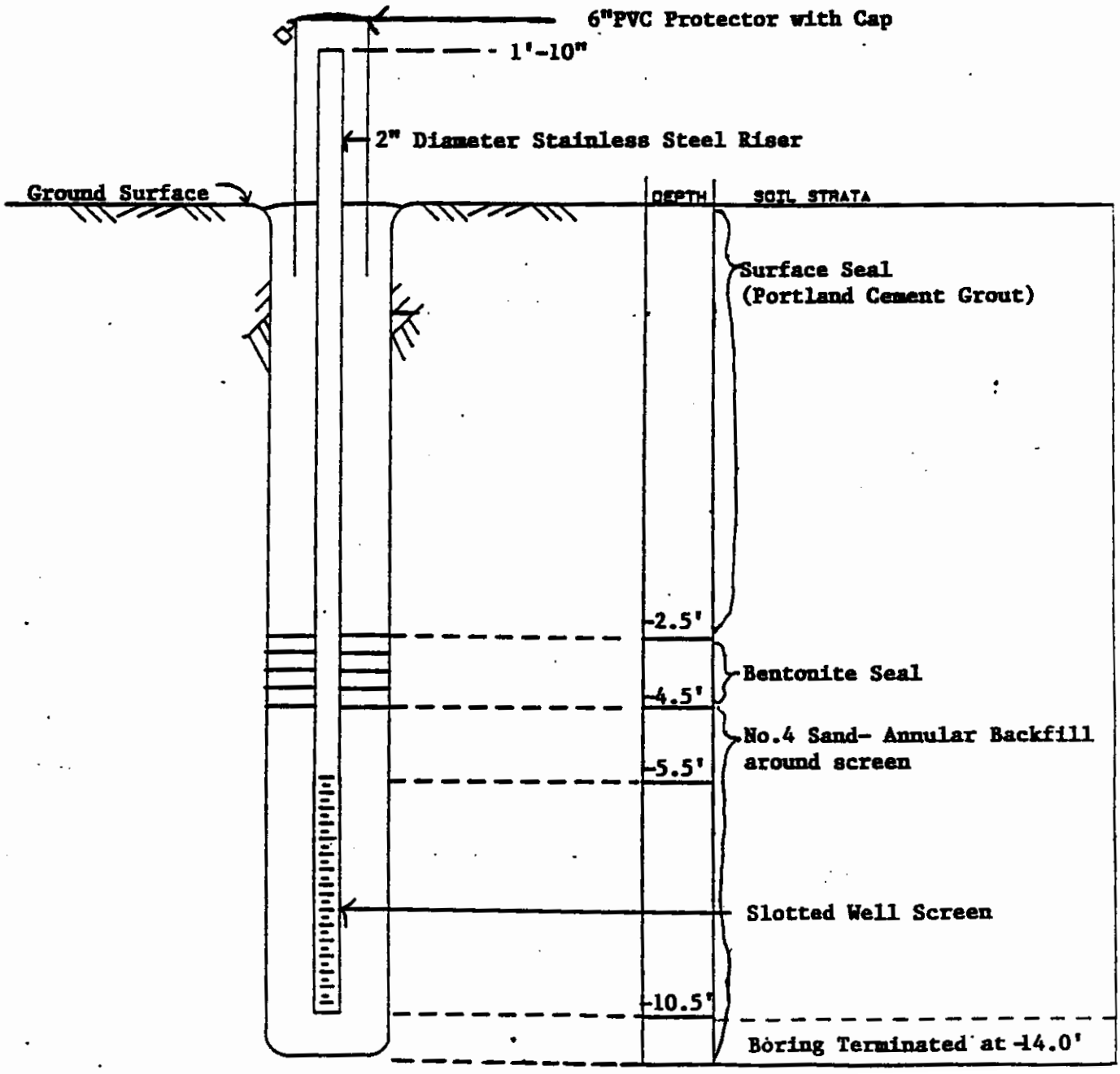
MONITORING WELL INSTALLATION DETAIL

PROJECT: MW Installation-Saranac St.
Plattsburgh, NY

PROJECT NO. CD1078-1-6-90

CLIENT: NYSEG
Binghamton, NY

WELL NO. 90-5



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD1078-1-6-90

CLIENT NYSEG
Binghamton, NY

Location of Boring See Plan

PROJECT MW Installation - Saranac Street
Plattsburgh, NY

Date, start 5/16/90 Finish 5/16/90

Boring No. B-90-6 Sheet 1 of 1

Casing Hammer		Sampler Hammer	
Wt	lbs.	Wt 140	lbs.
Fall	in.	Fall 30	in.
Ground Elev.		Casing	
		H.S. Auger 4-1/4" I.D.	

Ground Water Observations

Date	Time	Depth	Casing at
5/16/90	PM	Dry	12.0'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER on 6"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION NUMBER
	AUGER	1	0.0	10.0	Auger			Augered to 10.0' (no sample)	
		2	10.0	12.0	ss	8 11 10 17		Grey CLAY; little SILT: trace f SAND; Glacial Till; trace m GRAVEL (moist, plastic)	
								Boring Terminated at 12.0'	
								Installed Monitor Well at 11.0', see attached Monitoring Well Detail.	

f-fine, m-medium, c-coarse
and — 35 — 50 %
some — 20 — 35 %
little — 10 — 20 %
trace — 0 — 10 %

SS—SPLIT SPOON SAMPLE
U — UNDIS. SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Mike Hawkins, Scott Fox

ATLANTIC TESTING LABORATORIES, LIMITED

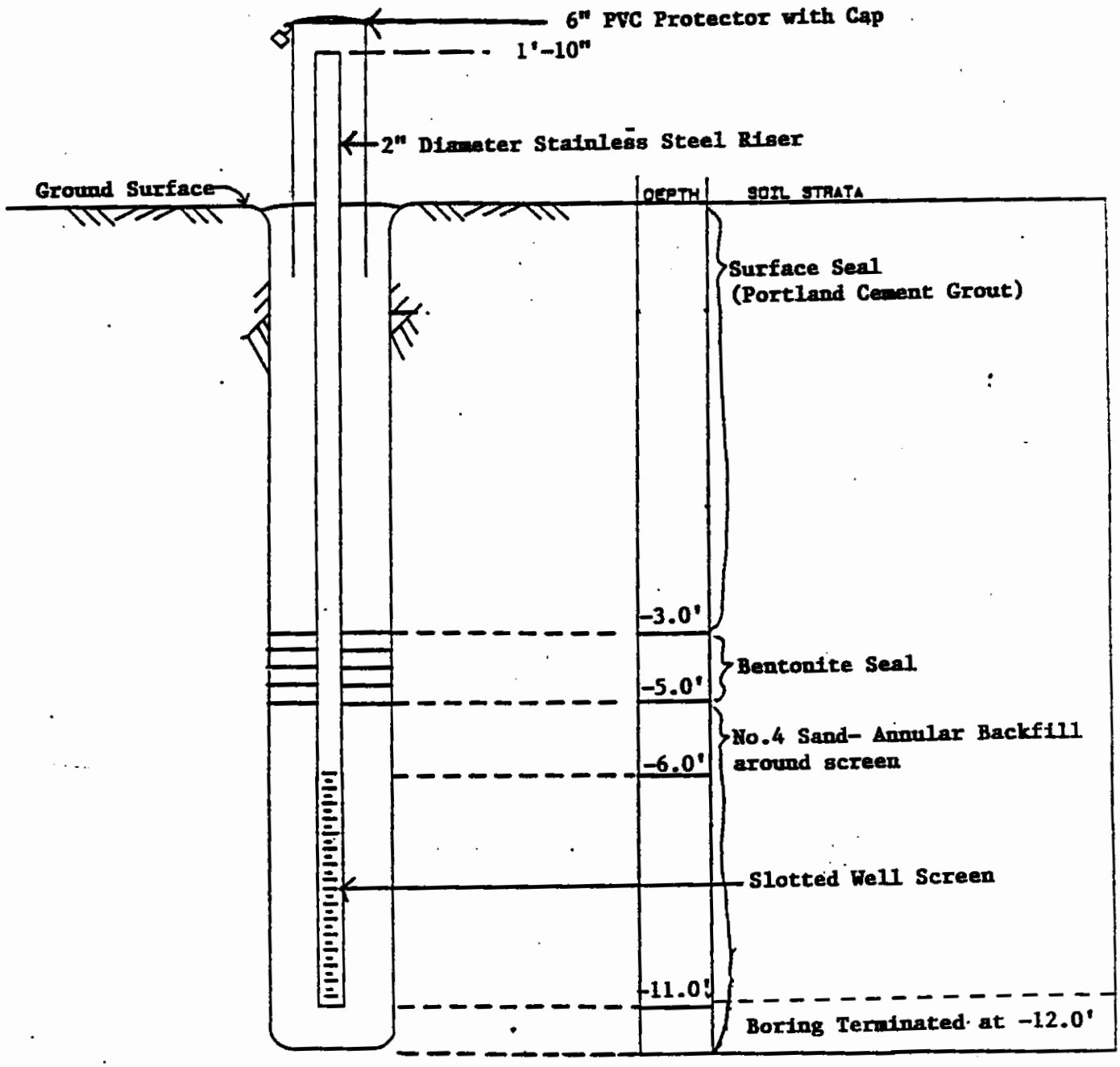
MONITORING WELL INSTALLATION DETAIL

PROJECT: MW Installation-Saranac St.
Plattsburgh, NY

PROJECT NO. CD1078-1-6-90

CLIENT: NYSEG
Binghamton, NY

WELL NO. 90-6



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD1078-1-6-90

CLIENT NYSEG
Binghamton, NY

Location of Boring See Plan

PROJECT MW Installation - Saranac Street
Plattsburgh, NY

Date, start 5/17/90 Finish 5/17/90

Boring No. B-90-7 Sheet 1 of 1

Casing Hammer
Wt _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing _____

Ground Elev. _____

H.S. Auger 4-1/4" I.D.

Ground Water Observations

Date	Time	Depth	Casing at
5/17/90	AM	6.8'	12.5'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	SLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35 — 50 %, some — 20 — 35 %, little — 10 — 20 %, trace — 0 — 10 %)	STANDARD PENETRATION NUMBER
	AUGER	1	0.0	12.5	Auger			Augered to 12.5' (no sample) SILTY CLAYEY SAND (Glacial Till) Boring Terminated at 12.5' Note: Collected four 5-gallon pails of cuttings for lab work. Installed Monitor Well at 12.0', see attached Monitoring Well Detail.	

SS — SPLIT SPOON SAMPLE
U — UNDIS. SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Scott Fox, Pat O'Brien

ATLANTIC TESTING LABORATORIES, LIMITED

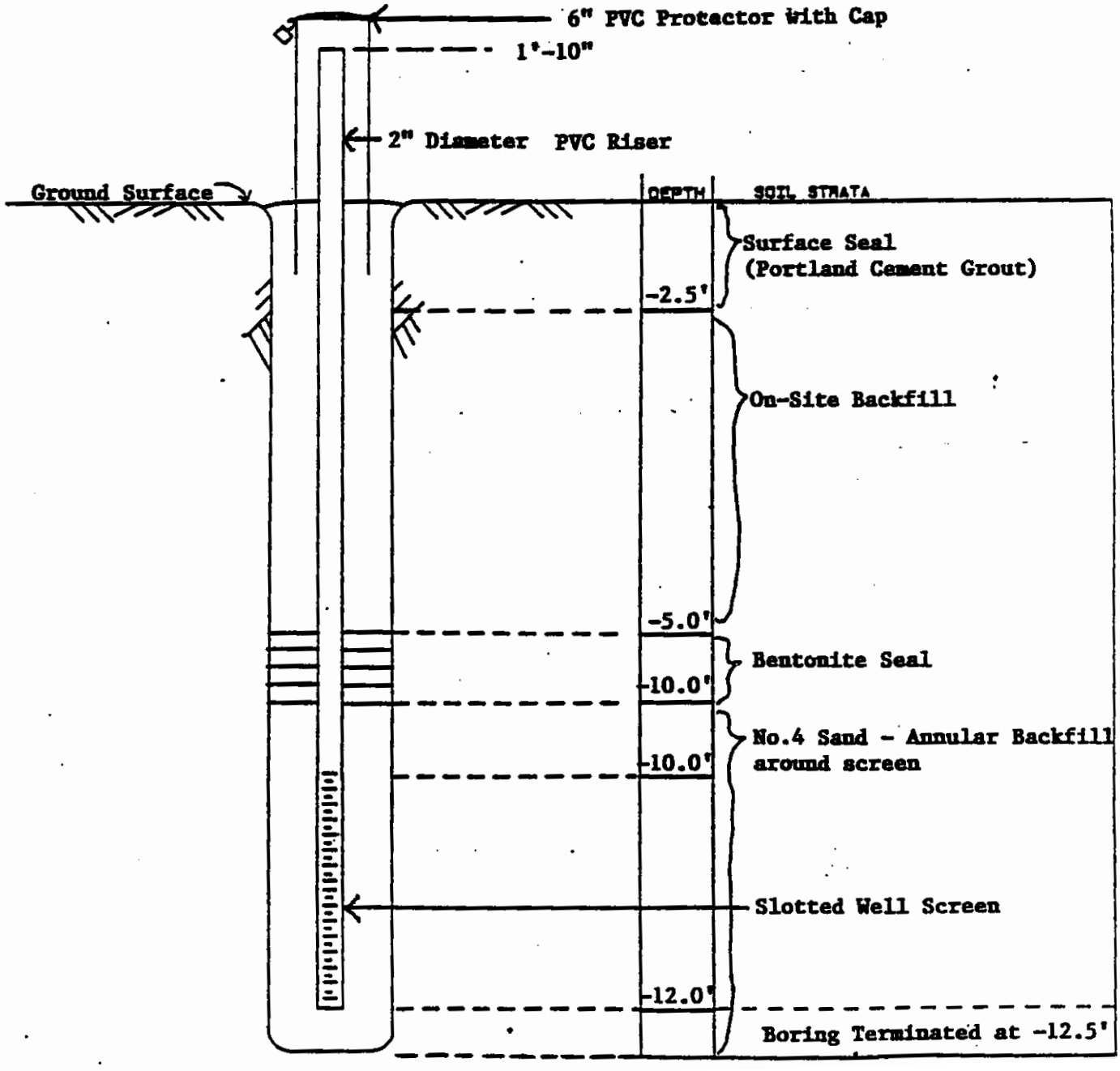
MONITORING WELL INSTALLATION DETAIL

PROJECT: MW Installation-Saranac St.
Plattsburgh, NY

PROJECT NO. CD1078-1-6-90

CLIENT: NYSEG
Binghamton, NY

WELL NO. 90-7



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD1078-1-6-90

CLIENT NYSEG
Binghamton, NY

Location of Boring See Plan

PROJECT MW Installation - Saranac Street
Plattsburgh, NY

Date, start 5/17/90 Finish 5/17/90

Boring No. B-90-8 Sheet 1 of 1

Ground Water Observations

Date	Time	Depth	Casing at
5/17/90	PM	10.5'	11.0'

Casing Hammer
Wt ____ lbs.
Fall ____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing ____

Ground Elev. ____

H.S. Auger 4-1/4" I.D.

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION NUMBER
	AUGER	1	0.0	10.0	Auger			Augered to 10.0' (no sample)	
		2	10.0	12.0	ss	7 9 16 19		Grey cmf+ SAND: some SILT; little CLAY; trace mf GRAVEL; Glacial Till (moist, slightly plastic)	
								Boring Terminated at 12.0'	
								Installed Monitor Well at 10.4', see attached Monitoring Well Detail.	

f-fine — and — 35-50%
m-medium — some — 20-35%
c-coarse — little — 10-20%
trace — 0-10%

SS — SPLIT SPOON SAMPLE
U — UNDIS. SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Scott Fox, Pat O'Brien

ATLANTIC TESTING LABORATORIES, LIMITED

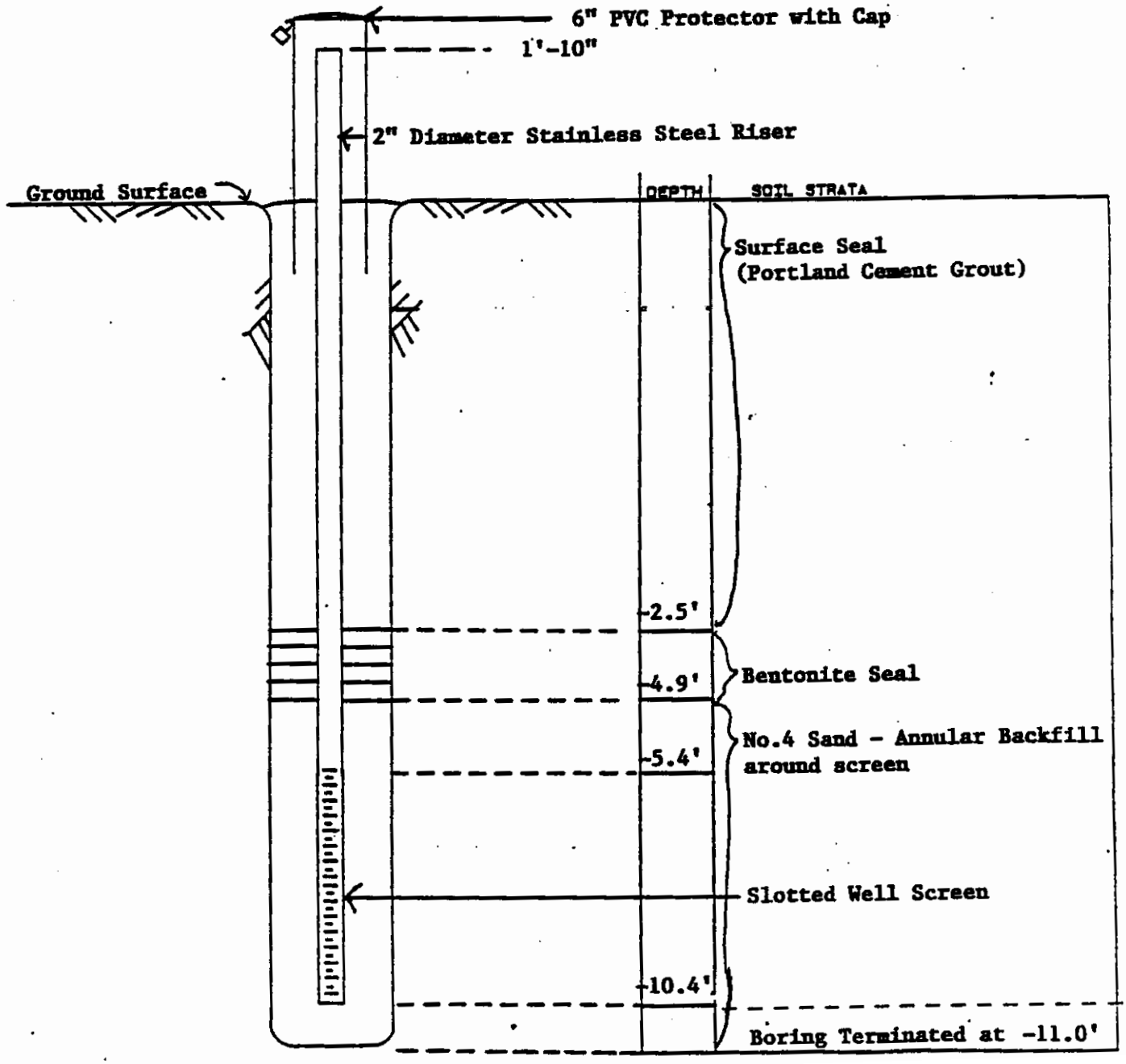
MONITORING WELL INSTALLATION DETAIL

PROJECT: MW Installation-Saranac St. Plattsburgh, NY

PROJECT NO. CD1078-1-6-90

CLIENT: NYSEG Binghamton, NY

WELL NO. 90-8



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD1078-1-6-90

CLIENT NYSEG
Binghamton, NY

Location of Boring See Plan

PROJECT MW Installation - Saranac Street
Plattsburgh, NY

Date, start 5/17/90 Finish 5/17/90

Boring No. B-90-9 Sheet 1 of 1

Casing Hammer		Sampler Hammer	
Wt	lbs.	Wt 140	lbs.
Fall	in.	Fall 30	in.
Ground Elev.		Casing	
		H.S. Auger 4-1/4" I.D.	

Ground Water Observations

Date	Time	Depth	Casing at
5/17/90	PM	--	10.5'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" ON 6"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION NUMBER
		1	0.0	10.0	Auger			Augered to 10.0' (no sample)	
	AUGER								
		2	10.0	12.0	ss	8 8 13 20		Grey cmf+ SAND: trace mf GRAVEL; trace SILT: trace CLAY; Glacial Till (moist, very slightly plastic)	
								Boring Terminated at 12.0'	
								Installed Monitor Well at 10.3', see attached Monitoring Well Detail	

f-fine
m-medium
c-coarse

and — 35 — 50 %
some — 20 — 35 %
little — 10 — 20 %
trace — 0 — 10 %

SS — SPLIT SPOON SAMPLE
U — UNDIS. SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Scott Fox, Pat O'Brien

ATLANTIC TESTING LABORATORIES, LIMITED

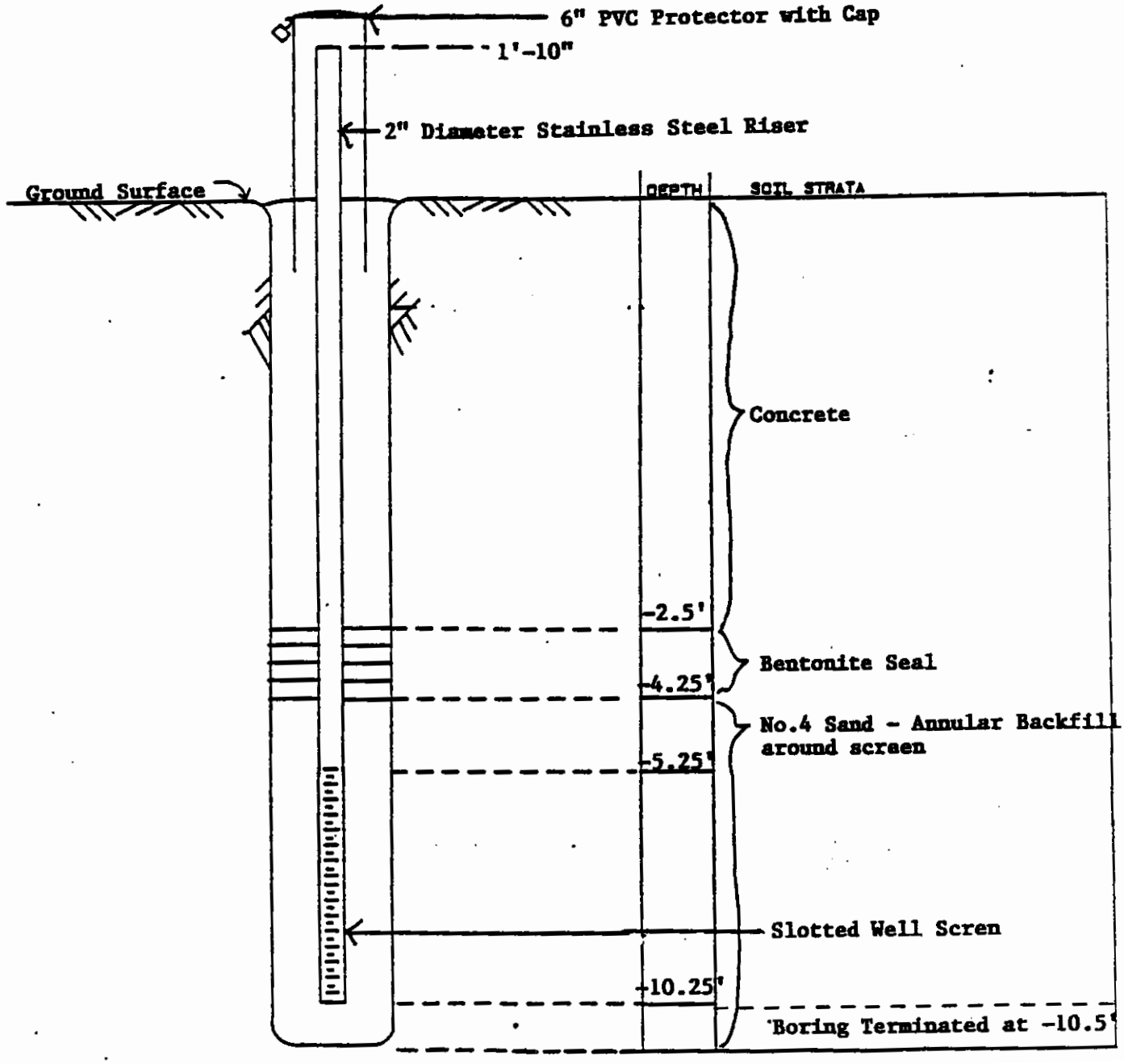
MONITORING WELL INSTALLATION DETAIL

PROJECT: MW Installation-Saranac St.
Plattsburgh, NY

PROJECT NO. CD1078-1-6-90

CLIENT: NYSEG
Binghamton, NY

WELL NO. 90-9



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD1078-1-6-90

CLIENT NYSEG
Binghamton, NY

Location of Boring See Plan

PROJECT MW Installation - Saranac Street
Plattsburgh, NY

Date, start 5/17/90 Finish 5/17/90

Boring No. B-90-11 Sheet 1 of 1

Ground Water Observations

Date	Time	Depth	Casing at

Casing Hammer
Wt _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.

Casing _____

Ground Elev. _____

H.S. Auger 4-1/4" I.D.

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35-50%, some — 20-35%, little — 10-20%, trace — 0-10%)	STANDARD PENETRATION NUMBER
		1	0.0	5.0	Auger			Augered to 5.0' (no sample)	
	AUGER	2	5.0	7.0	ss	16 17 23 30		Brown cmf SAND; some mf GRAVEL; little SILT; Glacial Till (saturated, non-plastic)	
		3	10.0	12.0	ss	25 100/5.5'		Grey SILT: some mf SAND; trace mf GRAVEL; Glacial Till (saturated, non-plastic)	
								Boring Terminated at 12.0'	
								Samples 2 and 3 had a strong petroleum odor.	
								Installed Monitor Well at 9.0', see attached Monitoring Well Detail.	

SS — SPLIT SPOON SAMPLE
U — UNDIS. SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Scott Fox, Pat O'Brien

ATLANTIC TESTING LABORATORIES, LIMITED

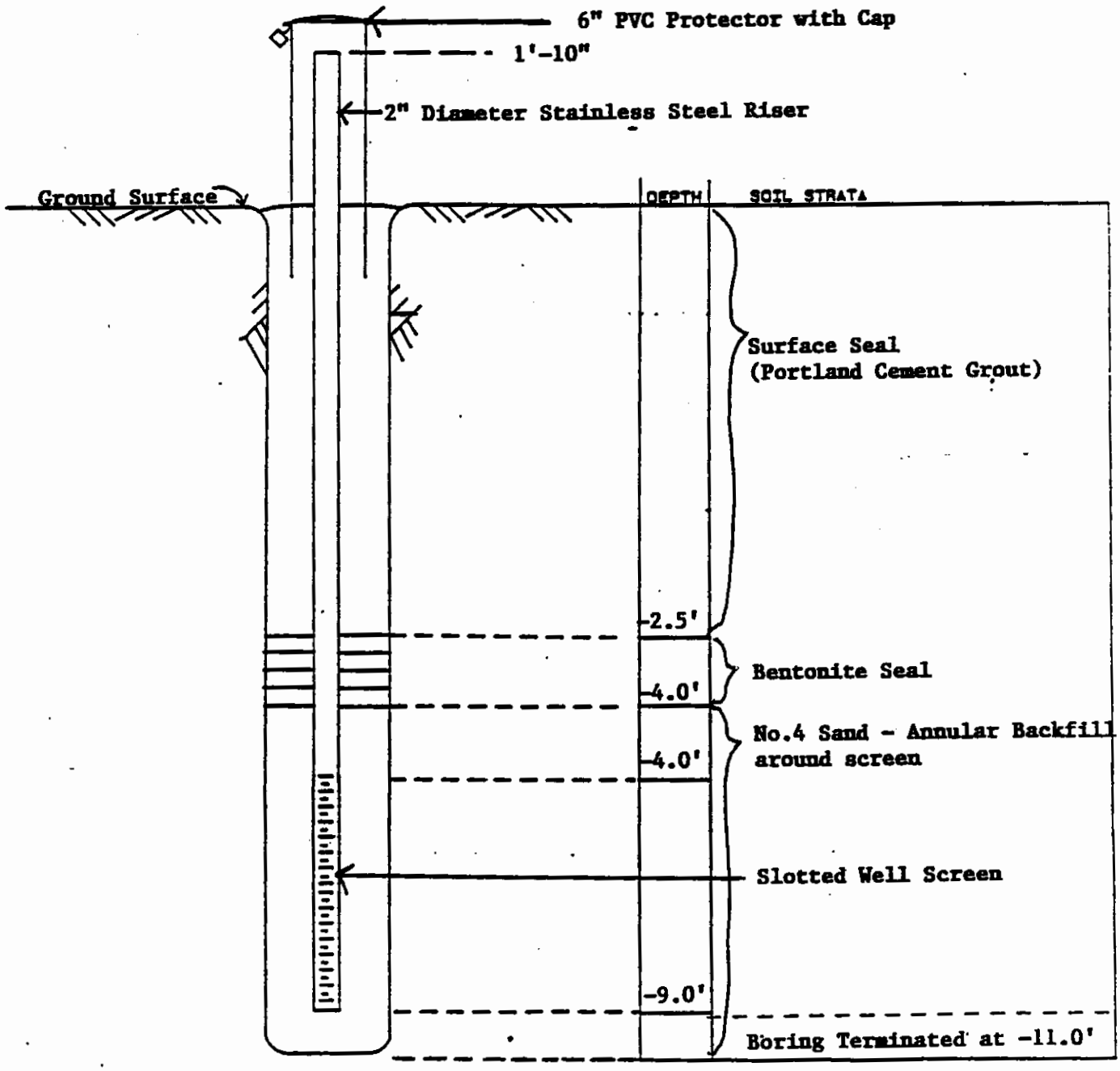
MONITORING WELL INSTALLATION DETAIL

PROJECT: MW Installation-Saranac St.
Plattsburgh, NY

PROJECT NO. CD1078-1-6-90

CLIENT: NYSEG
Binghamton, NY

WELL NO. 90-11



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD1078-1-6-90

CLIENT NYSEG
Binghamton, NY

Location of Boring See Plan

PROJECT MW Installation - Saranac Street
Plattsburgh, NY

Date, start 5/18/90 Finish 5/18/90

Boring No. B-90-10 Sheet 1 of 1

Casing Hammer		Sampler Hammer	
Wt	lbs.	Wt 140	lbs.
Fall	in.	Fall 30	in.
Ground Elev.		Casing	
		H.S. Auger 4-1/4" I.D.	

Ground Water Observations

Date	Time	Depth	Casing at

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION NUMBER
	AUGER	1	0.0	11.0	Auger			Augered to 11.0' (no sample)	
								Boring Terminated at 11.0'	
								Installed Monitor Well at 11.0', see attached Monitoring Well Detail	

f-fine
m-medium
c-coarse

and — 35 — 50 %
some — 20 — 35 %
little — 10 — 20 %
trace — 0 — 10 %

SS — SPLIT SPOON SAMPLE
U — UNDIS. SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Scott Fox, Pat O'Brien

ATLANTIC TESTING LABORATORIES, LIMITED

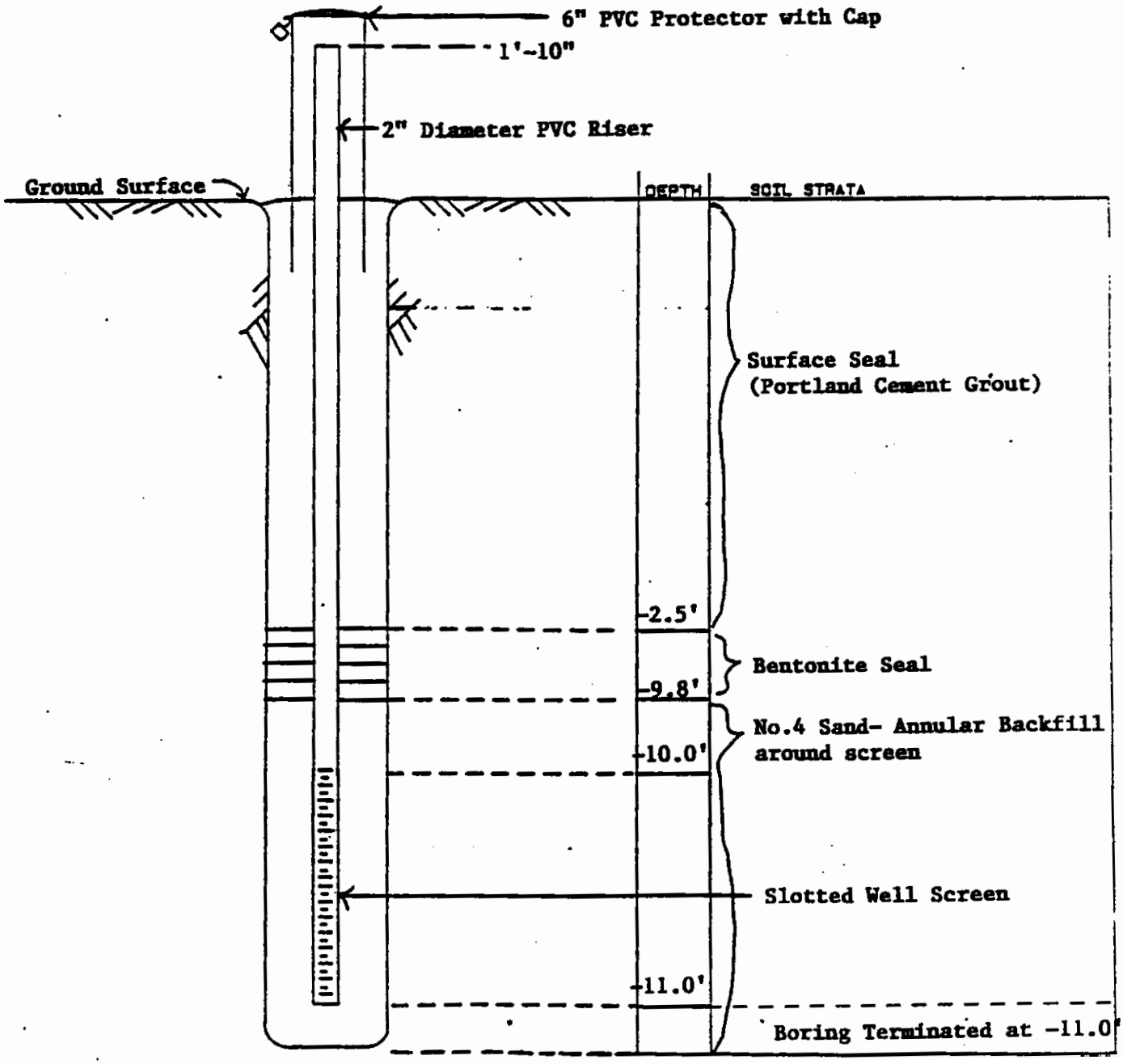
MONITORING WELL INSTALLATION DETAIL

PROJECT: MW Installation-Saranac St.
Plattsburgh, NY

PROJECT NO. CD1078-1-6-90

CLIENT: NYSEG
Binghamton, NY

WELL NO. 90-10



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD1078-1-6-90

CLIENT NYSEG
Binghamton, NY

Location of Boring See Plan

PROJECT MW Installation - Saranac Street
Plattsburgh, NY

Date, start 5/18/90 Finish 5/18/90

Boring No. B-90-12 Sheet 1 of 1

Ground Water Observations

Date	Time	Depth	Casing at

Casing Hammer
Wt ____ lbs.
Fall ____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing ____

Ground Elev. ____

H.S. Auger 4-1/4" I.D.

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION NUMBER
		1	0.0	5.0	Auger			Augered to 5.0' (no sample)	
	AUGER	2	5.0	7.0	ss	27 11 11 19	±9.0'	Brown cmf+ SAND; little SILT; little mf GRAVEL; trace Concrete Debris (saturated, non-plastic) FILL	
		3	10.0	12.0	ss	9 18 38 49		Brown cmf SAND; and cmf GRAVEL; little SILT (saturated, non-plastic)	
								Boring Terminated at 12.0'	
								Samples 2 and 3 had a strong petroleum odor.	
								Installed Monitor Well at 12.5', see attached Monitoring Well Detail.	

f-fine and — 35 — 50 %
m-medium some — 20 — 35 %
c-coarse little — 10 — 20 %
trace — 0 — 10 %

SS — SPLIT SPOON SAMPLE
U — UNDIS. SHELBY TUBE
P — PISTON TYPE SAMPLE

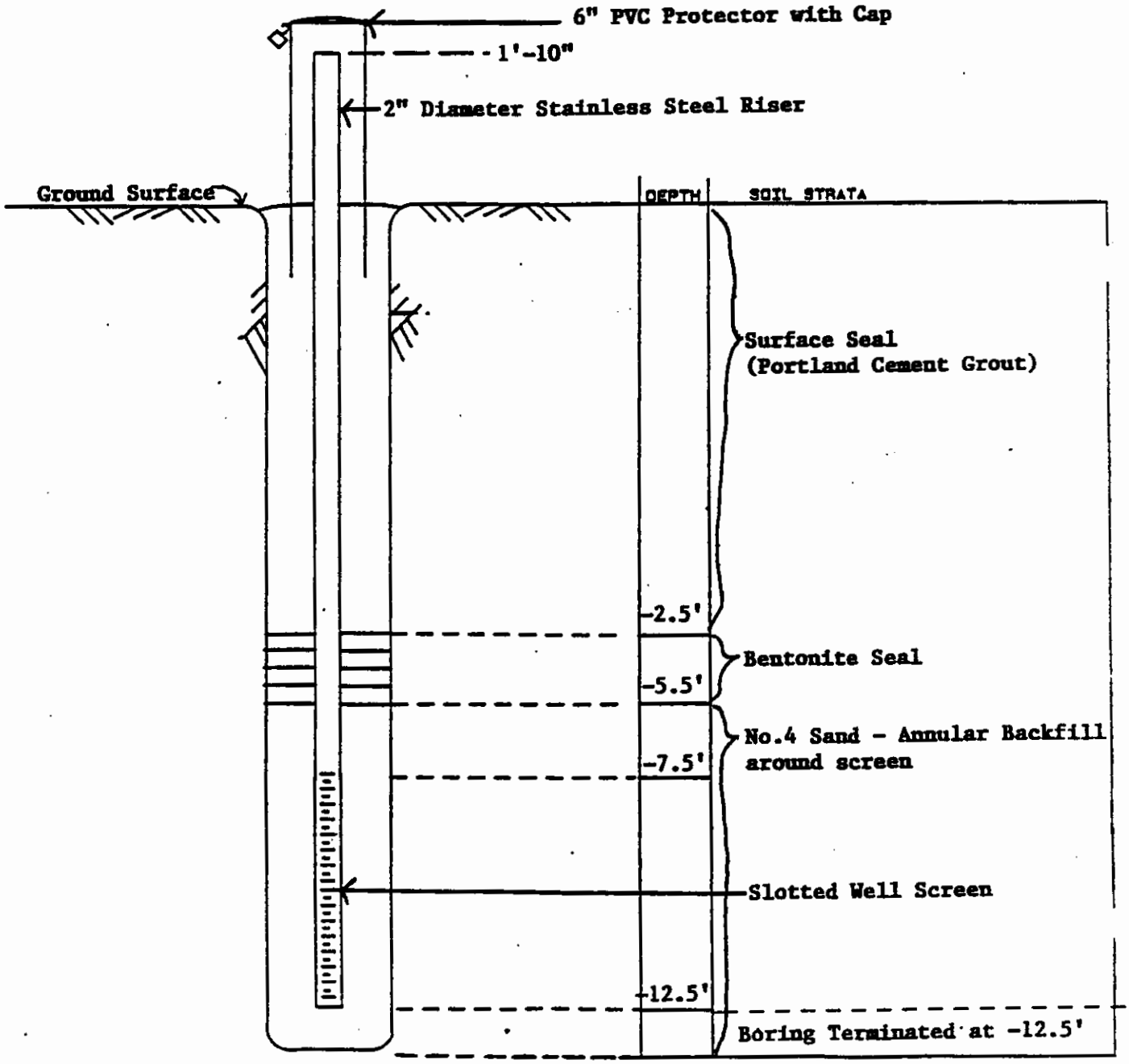
DRILLERS Scott Fox, Pat O'Brien

ATLANTIC TESTING LABORATORIES, LIMITED

MONITORING WELL INSTALLATION DETAIL

PROJECT: MW Installation - Saranac St. Plattsburgh, NY **PROJECT NO.** CD1078-1-6-90

CLIENT: NYSEG Binghamton, NY **WELL NO.** 90-12



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-1-7-84

CLIENT New York State Electric & Gas Corp.
Binghamton, New York

Location of Boring Located on plan provided by NYSE&G

PROJECT Saranac Street Property
Plattsburgh, New York

Date, start 7-17-84 Finish 7-17-84

Boring No. 1-D Sheet 1 of 1

Casing Hammer
Wt _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing _____
H.S. Auger 3-1/4" ID

Ground Elev. _____

Ground Water Observations

Date	Time	Depth	Casing at
7-19-84	6:35	11.6'	19.0'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER 0.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35-50%, some — 20-35%, little — 10-20%, trace — 0-10%)	STANDARD PENETRATION NUMBER
		1	0.0	2.0	ss	1-5-7-7		3" TOPSOIL followed by 2" SAND, underlain by Fill	
		2	2.0	3.5	ss	6-5-5		Fill Material	
		3	3.5	5.0	ss	11-25-44		Similar Material	
		4	5.0	7.0	ss	13-16-9-9		Similar Material	
		5	7.0	8.5	ss	6-4-2		Similar Material	
		6	8.5	10.0	ss	2-3-2	11.5'	Similar Material	
	AUGER	7	10.0	12.0	ss	4-4-5-4		mf SAND layers	
		8	12.0	13.5	ss	3-4-4		Fill	
		9	13.5	15.0	ss	4-5-4		Similar Material	
		10	15.0	17.0	ss	5-7-9-11		Similar Material	
		11	17.0	18.5	ss	6-6-6	18.5'	Similar Material with traces GRAVEL.	
		12	18.5	19.0	ss	38		Grey Glacial Till	
								Boring Terminated at 19.0'	
								NOTE: Observation well installed in existing boring; see attached well diagram.	

SS - SPLIT SPOON SAMPLE

ATLANTIC TESTING LABORATORIES, LIMITED

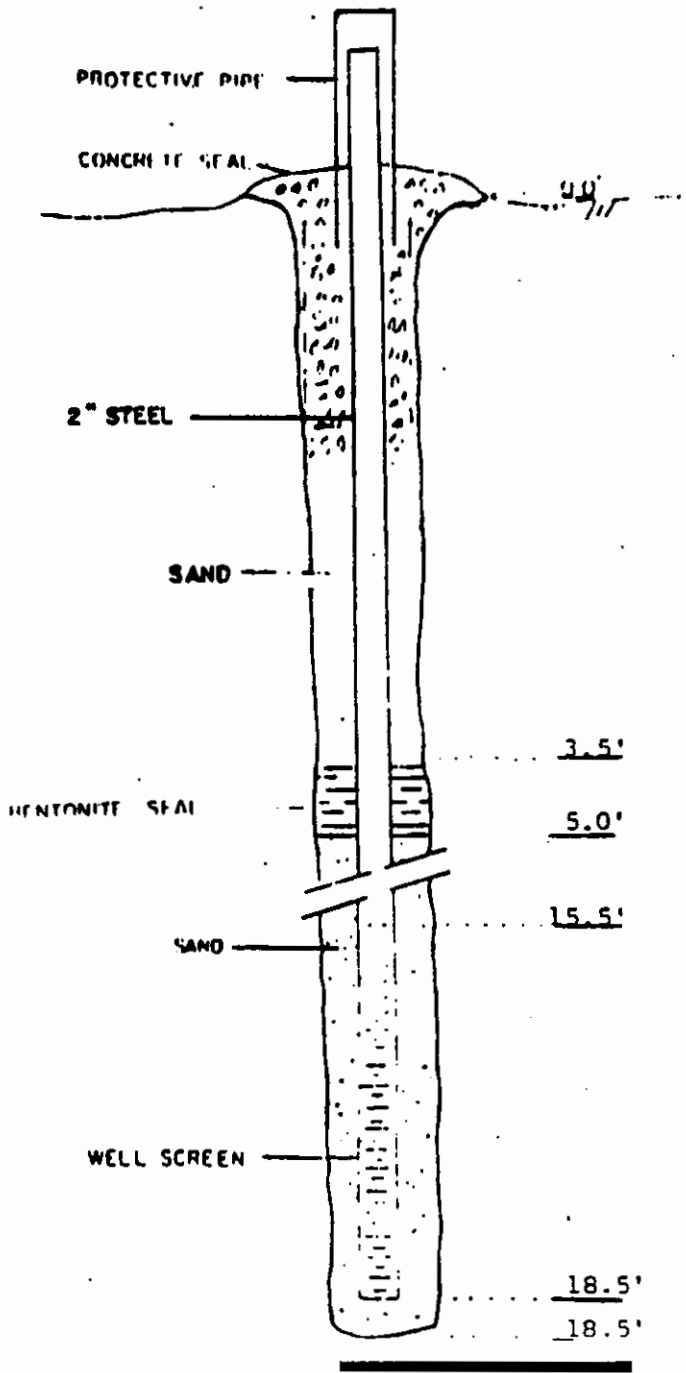
MONITOR WELL
INSTALLATION DETAIL

CLIENT New York State Electric & Gas Corp.
Binghamton, N.Y.

PROJECT Saranac Street Property
Plattsburgh, N.Y.

REPORT NO CD442-1-7-84

WELL NO 1D



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-1-7-84

CLIENT New York State Electric & Gas Corp. Location of Boring Located on plan provided
Binghamton, New York

PROJECT Saranac Street Property
Plattsburgh, New York Date, start 7-19-84 Finish 7-19-84

Boring No. 2-D Sheet 1 of 1

Casing Hammer
Wt _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing _____

Ground Elev. _____

H.S. Auger 3-1/4" ID

Ground Water Observations

Date	Time	Depth	Casing at
7-19-84	1:30	7.7'	14.0'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER 0.0 6"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35 — 50 %, some — 20 — 35 %, little — 10 — 20 %, trace — 0 — 10 %)	STANDARD PENETRATION NUMBER
		1	0.0	2.0	ss	6-12-8-9		3" TOPSOIL underlain by loose fill	
		2	2.0	3.5	ss	6-2-4	4.5'	Grey Sandy SILT	
		3	3.5	5.0	ss	4-5-5		mf SAND	
		4	5.0	7.0	ss	6-6-8-13		Similar Soils	
	AUGER	5	7.0	8.5	ss	27-12-11		Similar Soils with trace mf GRAVEL	
		6	8.5	10.0	ss	9-7-7	9.5'	No Recovery	
		7	10.0	12.0	ss	10-6-5-3		Coal and Tar	
		8	13.0	13.5	ss	17		Tar and Sand	
		9	13.5	14.0	ss	42/4"		Similar Material	
								Boring Terminated at 14.0'	
								NOTE: Observation well installed in existing boring; see attached well diagram.	

SS — SPLIT SPOON SAMPLE
U — UNDIS SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Ralph Matthews, Gary Cambridge

ATLANTIC TESTING LABORATORIES, LIMITED

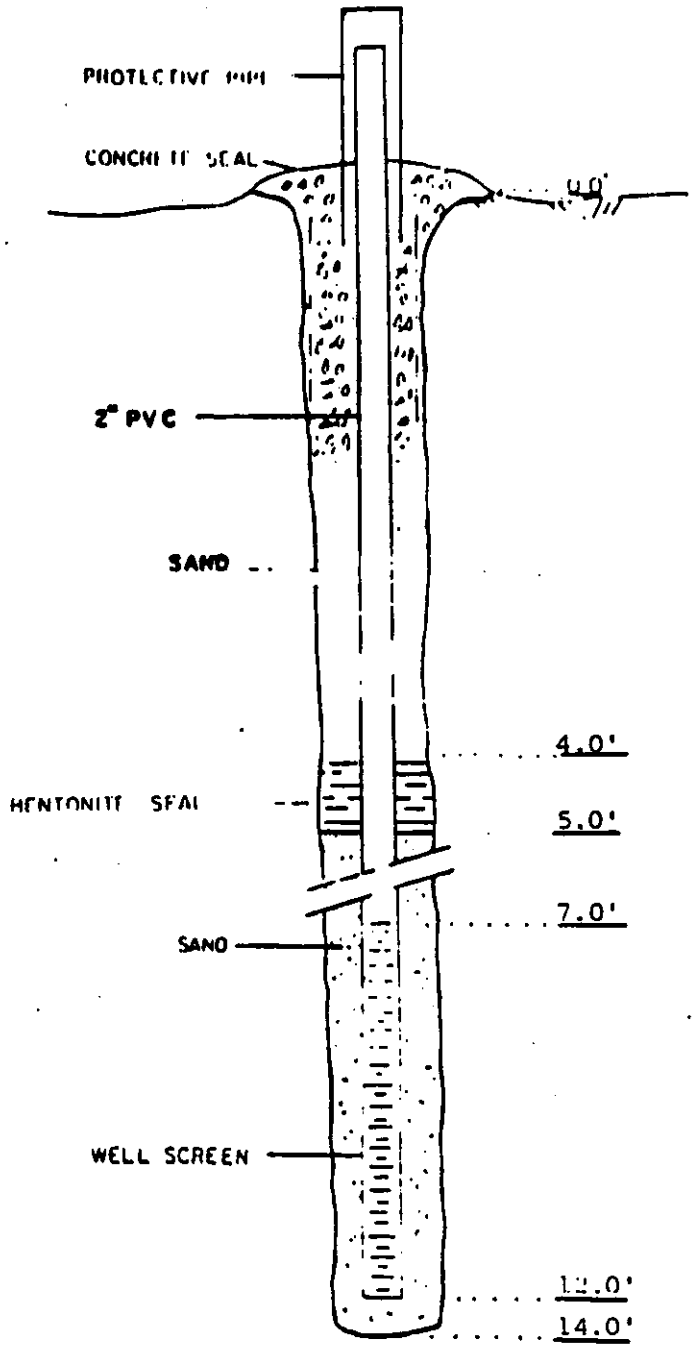
MONITOR WELL
INSTALLATION DETAIL

CLIENT New York State Electric & Gas Corp.
Binghamton, N.Y.

PROJECT Saranac Street Property
Plattsburgh, N.Y.

REPORT NO CD442-1-7-84

WELL NO. 2D



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-1-7-84

CLIENT New York State Electric & Gas Corp.
Binghamton, New York

Location of Boring Located on plan provided by NYSE&G

PROJECT Saranac Street Property
Plattsburgh, New York

Date, start 7-20-84 Finish 7-20-84

Boring No. 2-D-J Sheet 1 of 1

Casing Hammer		Sampler Hammer	
Wt	lbs.	Wt	lbs.
Fall	in.	Fall	in.
Ground Elev.		Casing	
		H.S. Auger	3-1/4" ID

Ground Water Observations

Date	Time	Depth	Casing at
None observed			

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION NUMBER
	AUGER		0.0	13.0	AUGER			Augered to Glacial Till at 13.0'	
								Boring Terminated at 13.0'	
								NOTE: Observation well installed in existing boring; see attached well diagram.	

f-fine — and — 35 – 50 %
m-medium — some — 20 – 35 %
c-coarse — little — 10 – 20 %
trace — 0 – 10 %

SS — SPLIT SPOON SAMPLE
U — UNDIS SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Ralph Matthews, Gary Cambridge

ATLANTIC TESTING LABORATORIES, LIMITED

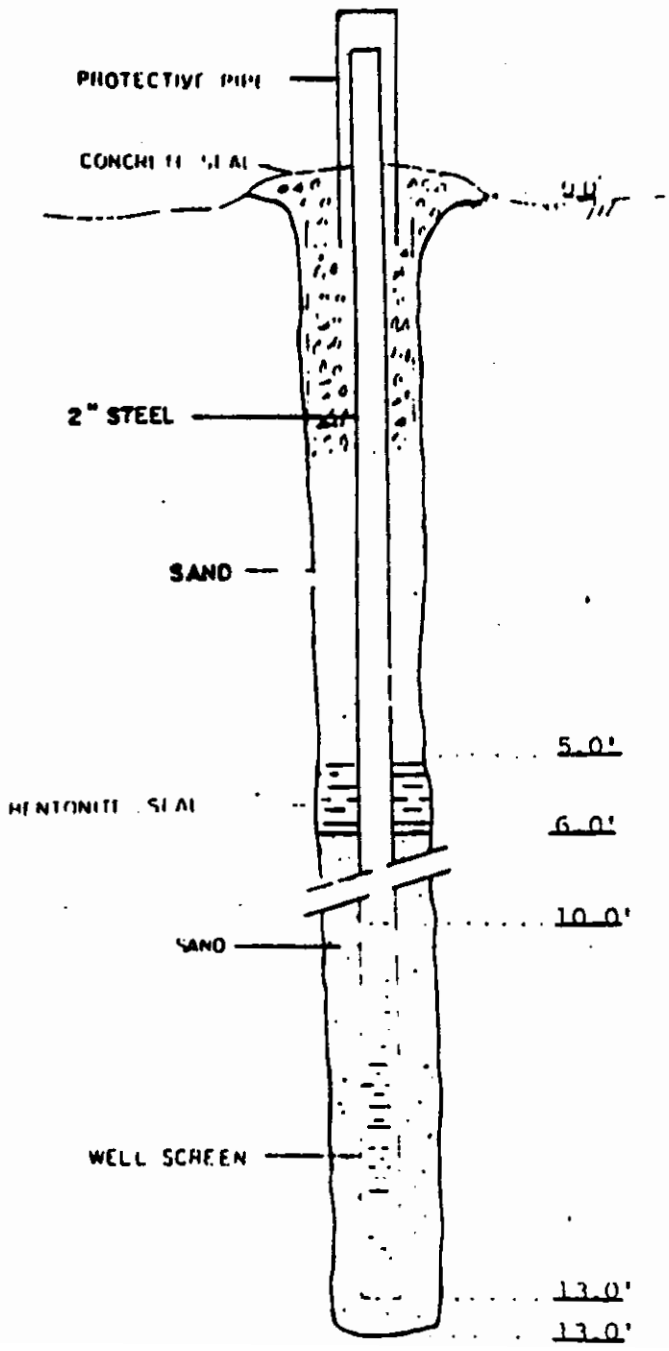
MONITOR WELL
INSTALLATION DETAIL

CLIENT New York State Electric & Gas Corp.
Binghamton, N.Y.

PROJECT Saranac Street Property
Plattsburgh, N.Y.

REPORT NO CD442-1-7-84

WELL NO 2D-I



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-1-7-84

CLIENT New York State Electric & Gas Corp.
Binghamton, New York

Location of Boring Located on plan provided by NYSE&G

PROJECT Saranac Street Property
Plattsburgh, New York

Date, start 7-18-84 Finish 7-18-84

Boring No. 3-D Sheet 1 of 1

Casing Hammer
Wt _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.

Casing _____

Ground Elev. _____

H.S. Auger 3-1/4" ID

Ground Water Observations

Date	Time	Depth	Casing at
7-18-84	2:00	4.5'	12.0'
7-19-84	6:30	4.5'	12.0'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER @ 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION NUMBER
		1	0.0	5.0	AUGER			2.5' Cobbles underlain by coarse GRAVEL	
	AUGER	2	5.0	7.0	ss	5-19-22-23	7.9'	Coarse GRAVEL	
		3	7.0	8.5	ss	13-15-23		mf SAND with mf GRAVEL	
		4	8.5	10.0	ss	33-17-22	11.5'	Similar Soils	
		5	10.0	12.0	ss	11-20-18-19		Grey Glacial Till	
								Boring Terminated at 12.0'	
								NOTE: Observation well installed in existing boring; see attached well diagram.	

f-fine
m-medium
c-coarse

and — 35 — 50 %
some — 20 — 35 %
little — 10 — 20 %
trace — 0 — 10 %

SS — SPLIT SPOON SAMPLE
U — UNDIS SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Ralph Matthews, Gary Cambridge

ATLANTIC TESTING LABORATORIES, LIMITED

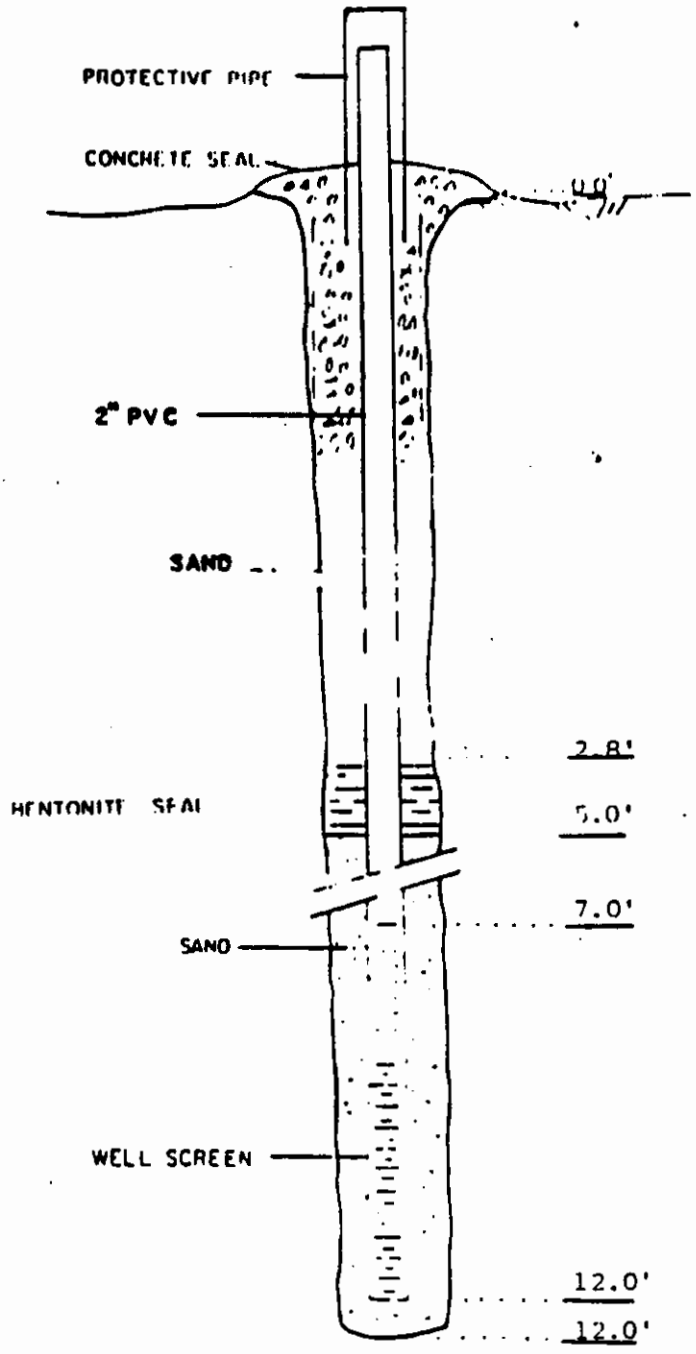
MONITOR WELL
INSTALLATION DETAIL

CLIENT New York State Electric & Gas Corp.
Binghamton, N.Y.

PROJECT Saranac Street Property
Plattsburgh, N.Y.

REPORT NO CD442-1-7-84

WELL NO. 3D



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-1-7-84

CLIENT New York State Electric & Gas Corp. Binghamton, New York

PROJECT Saranac Street Property Plattsburgh, New York

Location of Boring Located on plan provided by NYSE&G

Date, start 7-17-84 Finish 7-17-84

Boring No. 1-W Sheet 1 of 1

Casing Hammer: Wt _____ lbs. Fall _____ in.

Sampler Hammer: Wt 140 lbs. Fall 30 in.

Casing _____

Ground Elev. _____

H.S. Auger 3-1/4" ID

Ground Water Observations

Date	Time	Depth	Casing at
7-18-84	6:30	Dry	21.0'
7-19-84	6:35	15.0'	20.0'
7-20-84	12:00	11.4'	20.0'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER OD 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35–50%, some — 20–35%, little — 10–20%, trace — 0–10%)	STANDARD PENETRATION NUMBER
		1	0.0	2.0	ss	1-2-1-2	3.0'	3" TOPSOIL underlain by SAND	
		2	2.0	3.5	ss	3-2-3		Brown CLAY	
		3	3.5	5.0	ss	3-2-3		Brown Bentonite Slurry	
		4	6.0	8.0	ss	3-1-2-2		Similar Material	
		5	8.0	10.0	ss	1-1-1-1		Similar Material	
	AUGER	6	10.0	12.0	ss	1-1-1-1		Similar Material	
		7	12.0	14.0	ss	1-1-1-1		Similar Material	
		8	14.0	16.0	ss	4-2-1-2		Similar Material	
		9	16.0	18.0	ss	WOH		Similar Material	
		10	18.0	20.0	ss	WOH		Similar Material	
							20.0'		
		11	20.0	21.0	ss	12-36		Grey Glacial Till	
								Boring Terminated at 21.0'	
								NOTE: Observation well installed in existing boring; see attached well diagram.	

SS - SPLIT SPOON SAMPLE

ATLANTIC TESTING LABORATORIES, LIMITED

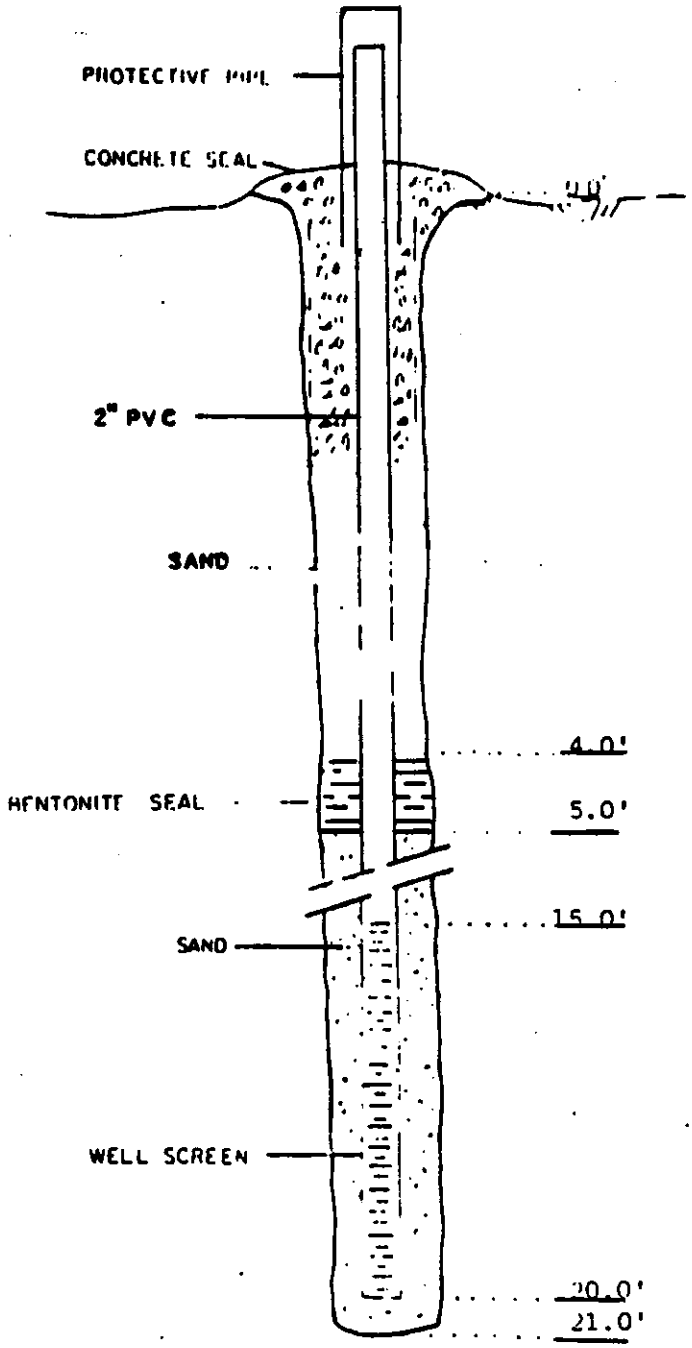
MONITOR WELL
INSTALLATION DETAIL

CLIENT New York State Electric & Gas Corp.
Binghamton, N.Y.

PROJECT Saranac Street Property
Plattsburgh, N.Y.

REPORT NO CD442-1-7-84

WELL NO. 1W



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-i-7-84

CLIENT New York State Electric & Gas Corporation
Binghamton, New York

Location of Boring Located on plan provided by NYSE&G

PROJECT Saranac Street Property
Plattsburgh, New York

Date, start 7-17-84 Finish 7-17-84

Boring No. 2-W-A Sheet 1 of 1

Casing Hammer
Wt _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing _____
H.S. Auger 3-1/4" ID

Ground Elev. _____

Ground Water Observations

Date	Time	Depth	Casing at
None observed			

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER @ 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35–50%, some — 20–35%, little — 10–20%, trace — 0–10%)	STANDARD PENETRATION NUMBER
			0.0	1.0				12" of TOPSOIL.	
		1	1.0	2.0	ss	5-47	1.5'	Medium fine SAND	
		2	2.5	4.5	ss	9-9-8-11		Grey Glacial Till (fill)	
	AUGER	3	4.5	6.5	ss	7-7-7-8		Coal Tar	
		4	6.5	8.0	ss	7-5-8		Similar Material	
								Boring Terminated at 8.0'	
								NOTE: Five continuously sampled holes were performed, spaced 50 inches apart, totaling 62.0' in depth. The sampling was performed to locate a bentonite slurry.	

SS - SPLIT SPOON SAMPLE

ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-1-7-84

CLIENT New York State Electric & Gas Corp.
Binghamton, New York

PROJECT Saranac Street Property
Plattsburgh, New York

Location of Boring Located on plan provided by NYSE&G

Date, start 7-18-84 Finish 7-[illegible]-84

Boring No. 2-W Sheet 1 of 1

Casing Hammer
Wt _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing _____

Ground Elev. _____

H.S. Auger 3-1/4" ID

Ground Water Observations

Date	Time	Depth	Casing at
7-19-84	6:30	7.6'	16.0'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine m-medium c-coarse; and — 35 – 50 %, some — 20 – 35 %, little — 10 – 20 %, trace — 0 – 10 %)	STANDARD PENETRATION NUMBER
			0.0	3.0	AUGER			No Recovery	
		1	3.0	5.0	ss	10-6-8-7		mf SAND	
		2	5.0	6.5	ss	6-4-7		Similar Soils	
	AUGER	3	6.5	8.0	ss	2-2-1		Similar Soils	
		4	8.0	10.0	ss	2-1-2-1		Similar Soils	
		5	10.0	11.5	ss	1-1-1		Similar Soil	
		6	11.5	13.0	ss	1-1-1		Similar Soil	
		7	13.0	15.0	ss	2-1-2-1		Similar Soil	
							15.5'		
		8	15.0	16.0	ss	6-26		Grey Glacial Till	
								Boring Terminated at 16.0'	
								NOTE: Observation well installed in existing boring; see attached well diagram.	

SS — SPLIT SPOON SAMPLE
U — UNDIST. SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Ralph Matthews, Gary Cambridge

ATLANTIC TESTING LABORATORIES, LIMITED

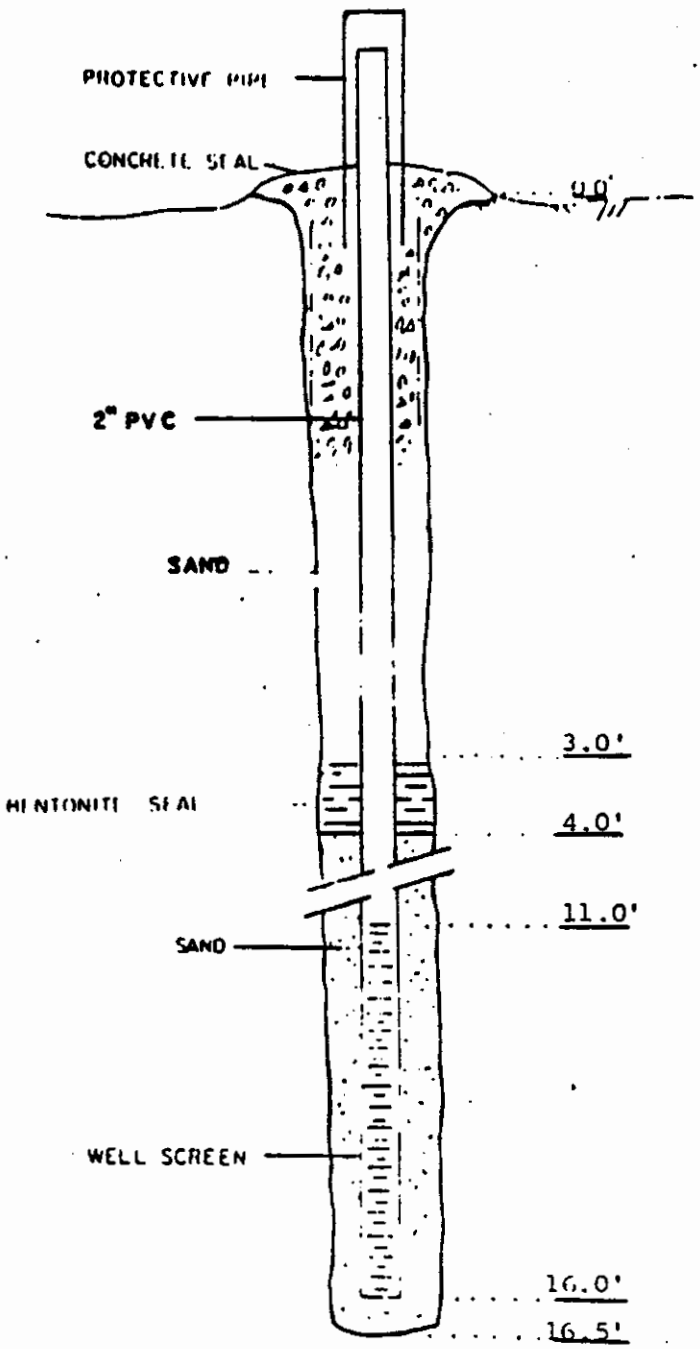
MONITOR WELL
INSTALLATION DETAIL

CLIENT New York State Electric & Gas Corp
Binghamton, N.Y.

PROJECT Saranac Street Property
Plattsburgh, N.Y.

REPORT NO CD442-1-7-84

WELL NO. 2W



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-1-7-84

CLIENT New York State Electric & Gas Corporation
Binghamton, New York

Location of Boring Located on plan provided by NYSE&G

PROJECT Saranac Street Property
Plattsburgh, New York

Date, start 7-17-84 Finish 7-17-84

Boring No. 3-W Sheet 1 of 1

Casing Hammer		Sampler Hammer	
Wt.	lbs.	Wt. 140	lbs.
Fall	in.	Fall 30	in.
Ground Elev.		Casing	
		H.S. Auger 3-1/4" ID	

Ground Water Observations

Date	Time	Depth	Casing at
7-17-84	-	6.0'	14.4'
7-17-84	2:00	3.8'	14.4'
7-17-84	6:30	4.8'	14.0'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35–50%, some — 20–35%, little — 10–20%, trace — 0–10%)	STANDARD PENETRATION NUMBER
		1	0.0	2.0	ss	2-2-1-1		3" of TOPSOIL underlain by Brown CLAY	
		2	2.0	3.5	ss	1-1-1	2.0'	Bentonite Slurry	
		3	3.5	5.0	ss	2/18"		Brown Bentonite Slurry	
		4	5.0	7.0	ss	1-WOH		Similar Material	
	AUGER	5	7.0	10.0	ss	1-WOH		Similar Material	
		6	10.0	11.5	ss	WOH		Similar Material	
		7	11.5	13.5	ss	1-1-1-1		Similar Material	
							14.0'		
		8	13.5	14.4	ss	1-42/4"		Grey Glacial Till	
								Boring Terminated at 14.4'	
								NOTE: Observation well installed in existing boring; see attached well diagram.	

SS — SPLIT SPOON SAMPLE
U — UNDISTURBED SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Ralph Matthews, Gary Cambridge

ATLANTIC TESTING LABORATORIES, LIMITED

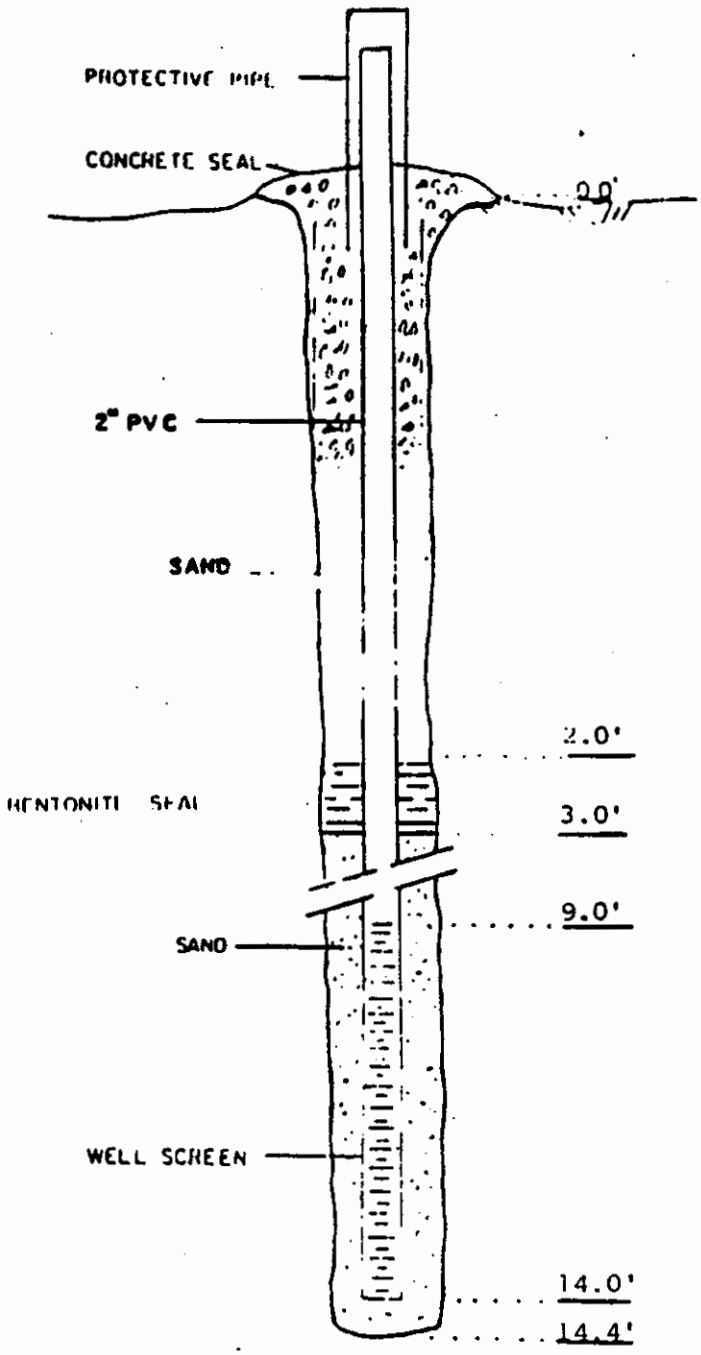
MONITOR WELL
INSTALLATION DETAIL

CLIENT New York State Electric & Gas Corp.
Binghamton, N.Y.

PROJECT Saranac Street Property
Plattsburgh, N.Y.

REPORT NO. CD442-1-7-84

WELL NO. 3W



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-1-7-84

CLIENT New York State Electric & Gas Corp.
Binghamton, New York

Location of Boring Located on plan provided by NYSE&G

PROJECT Saranac Street Property
Plattsburgh, New York

Date, start 7-19-84 Finish 7-19-84

Boring No. 1-P Sheet 1 of 1

Casing Hammer
Wt _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing HW

Ground Elev. _____

H.S. Auger 3-1/4" ID

Ground Water Observations

Date	Time	Depth	Casing at
7-20-84	6:00	5.9'	10.0'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER 00 6"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35 – 50 %, some — 20 – 35 %, little — 10 – 20 %, trace — 0 – 10 %)	STANDARD PENETRATION NUMBER
		1	0.0	2.0	ss	2-3-4-3	2.0'	6" TOPSOIL underlain by moist fine SAND	
		2	2.0	4.0	ss	4-3-4-4	5.0'	Silty CLAY	
		3	4.0	6.0	ss	4-3-2-2		Moist SAND with a little GRAVEL	
		4	6.0	8.0	3"	Shelby Tube		14-1/2" Recovery	
	AUGER	5	10.0	11.5	ss	WOH		Bentonite Slurry	
		6	15.0	16.5	2"	Shelby Tube		18" Recovery	
		7	16.5	18.5	ss	2-1-2-3	18.5'	Bentonite Slurry	
		8	18.5	19.0	ss	50		Grey Glacial Till	
								Boring Terminated at 19.0'	
								NOTE: Teeter probe performed at 10.0'-11.5'.	

SS — SPLIT SPOON SAMPLE
U — UNDIS SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Ralph Matthews, Gary Cambridge

ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-1-7-84

CLIENT New York State Electric & Gas Corp.
Binghamton, New York

Location of Boring Located on plan provided by NYSE&G

PROJECT Saranac Street Property
Plattsburgh, New York

Date, start 7-19-84 Finish 7-19-84

Boring No. 2-P Sheet 1 of 1

Casing Hammer
Wt _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing HW

Ground Elev. _____

H.S. Auger 3-1/4" ID

Ground Water Observations

Date	Time	Depth	Casing at
7-20-84	6:00	dry	13.5'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER on 6"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35–50%, some — 20–35%, little — 10–20%, trace — 0–10%)	STANDARD PENETRATION NUMBER
		1	0.0	2.0	ss	2-2-2-2	2.5'	2" TOPSOIL underlain by SILT and CLAY	
		2	2.0	4.0	ss	9-13-15-11		SAND, Cinders and Brick	
	AUGER	3	5.0	6.5	2"	Shelby Tube		No Recovery	
	AUGER	4	5.0	6.5	Push			Cinders	
		5	10.0	11.5	2"	Shelby Tube		No Recovery	
		6	10.0	11.5	ss	Push	13.0'	No Recovery	
		7	11.5	13.5	ss	3-5-6-47		Grey Glacial Till	
								Boring Terminated at 13.5'	
								NOTE: 5.0'-6.5' Teeter Probe 10.0'-11.5' Teeter Probe	

SS — SPLIT SPOON SAMPLE
U — UNDIS SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Ralph Matthews, Gary Cambridge

ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-1-7-84

CLIENT New York State Electric & Gas Corp.
Binghamton, New York

Location of Boring Located on plan provided by NYSE&G

PROJECT Saranac Street Property
Plattsburgh, New York

Date, start 7-18-84 Finish 7-18-84

Boring No. 3-P Sheet 1 of 1

Ground Water Observations

Date	Time	Depth	Casing at
None observed			

Casing Hammer
Wt. _____ lbs.
Fall _____ in.

Sampler Hammer
Wt. 140 lbs.
Fall 30 in.

Casing _____

Ground Elev. _____

H.S. Auger 3-1/4" ID

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER 0.0 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35 – 50 %, some — 20 – 35 %, little — 10 – 20 %, trace — 0 – 10 %)	STANDARD PENETRATION NUMBER
		1	0.0	2.0	ss	1-2-1-2		12" TOPSOIL underlain by Brown CLAY	
		2A	2.0		ss	2/24"		Bentonite Slurry	
		2B		4.0	ss			Brown Bentonite Slurry	
		3	4.0	6.0	3"	Shelby Tube		24" Recovery	
		4	6.0	8.0	2"	Shelby Tube		No Recovery	
	ALGER	5	6.0	8.0	ss	Push		Brown Bentonite Slurry	
		6	8.0	10.0	ss	2/18"		Similar Material	
		7	10.0	11.5	2"	Shelby Tube		No Recovery	
		8	10.0	11.5	ss	Push		No Recovery	
		9	11.5	13.0	ss	WOH	14.5'	Brown Bentonite Slurry	
		10	13.0	15.0	ss	1-1-1-49		Grey Glacial Till	
								Boring Terminated at 15.0'	
								NOTE: 7.0'-8.0' Teeter Probe 10.0'-11.5' Teeter Probe	

SS — SPLIT SPOON SAMPLE
U — UNDIS SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Ralph Matthews, Gary Cambridge

ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-1-7-84

CLIENT New York State Electric & Gas Corp.
Binghamton, New York

PROJECT Saranac Street Property
Plattsburgh, New York

Location of Boring Located on plan provided by NYSE&G

Date, start 7-21-84 Finish 7-21-84

Boring No. 1-U Sheet 1 of 1

Casing Hammer
Wt. _____ lbs.
Fall _____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing _____

Ground Elev. _____

H.S. Auger 3-1/4" ID

Ground Water Observations

Date	Time	Depth	Casing at
None observed			

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER 0.0 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35 – 50 %, some — 20 – 35 %, little — 10 – 20 %, trace — 0 – 10 %)	STANDARD PENETRATION NUMBER
		1	0.0	2.0	ss	3-4-6-3		3.5" TOPSOIL underlain by cm SAND	
		2	5.0	6.0	ss	36-48		Dark Brown mf SAND with occasional Cobbles Spoon bounced on Cobble at 6.0'.	
	AUGER	3	10.0	12.0	ss	11-7-8-5	11.7'	mf SAND	
								Fill material consisting of Coal and Brick.	
		4	15.0	16.0	ss	8-15		coarse SAND	
							19.0'		
		5	20.0	20.5	ss	25		Grey Glacial Till	
								Boring Terminated at 20.5' NOTE: Observation well installed in existing boring; see attached well diagram.	

SS — SPLIT SPOON SAMPLE
U — UNDISTURBED SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Gary Cambridge, Kevin Hawkins

ATLANTIC TESTING LABORATORIES, LIMITED

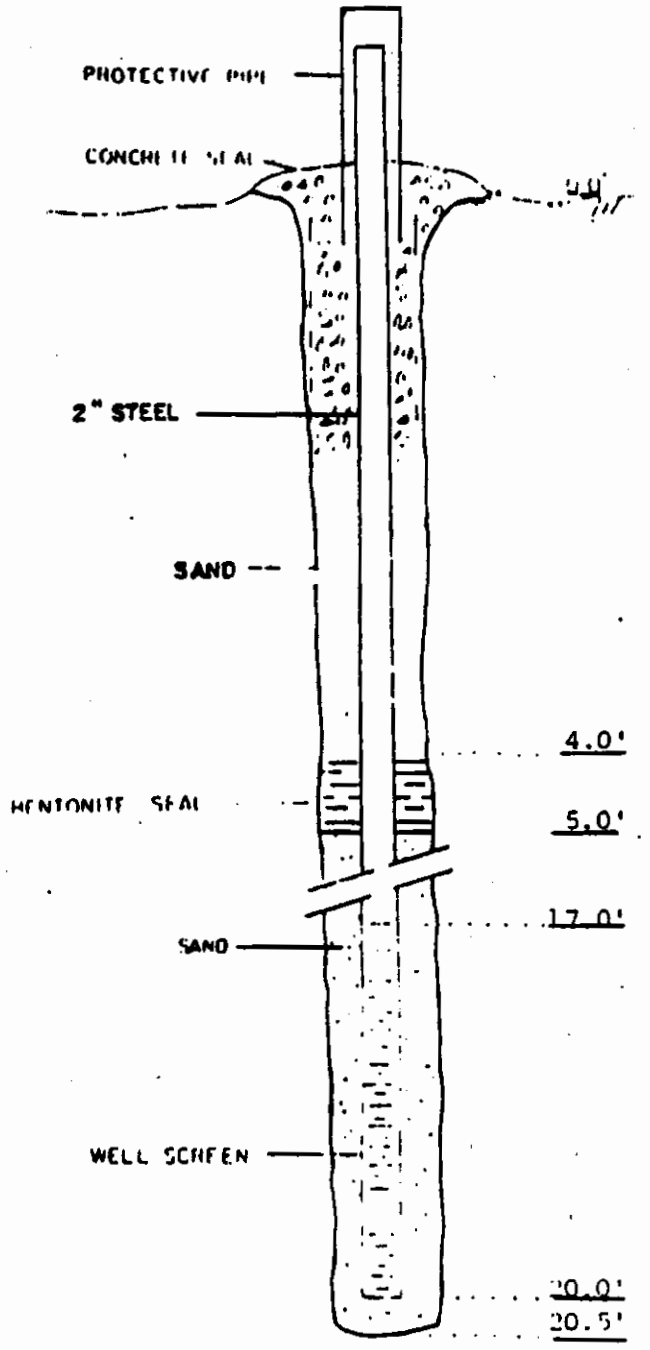
MONITOR WELL
INSTALLATION DETAIL

CLIENT New York State Electric & Gas Corp.
Binghamton, N.Y.

PROJECT Saranac Street Property
Plattsburgh, N.Y.

REPORT NO CD442-1-7-84

WELL NO 1U



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-1-7-84

CLIENT New York State Electric & Gas Corp.
Binghamton, New York

Location of Boring Located on plan provided by NYSE&G

PROJECT Saranac Street Property
Plattsburgh, New York

Date, start 7-21-84 Finish 7-21-84

Boring No. 2-U Sheet 1 of 1

Casing Hammer		Sampler Hammer	
Wt	lbs.	Wt 140	lbs.
Fall	in.	Fall 30	in.
Ground Elev.		Casing	
		H.S. Auger 3-1/4"	ID

Ground Water Observations

Date	Time	Depth	Casing at
None observed			

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35–50%, some — 20–35%, little — 10–20%, trace — 0–10%)	STANDARD PENETRATION NUMBER
		1	0.0	2.0	ss	3-6-10-30		3" TOPSOIL, 6" cm SAND underlain by fine SAND	
	AUGER	2	5.0	7.0	ss	6-18-28-20		Fill material containing Brick, Stone, Coal and some ORGANIC MATERIAL	
	AUGER	3	10.0	12.0	ss	5-6-4-6		Similar Material	
							15.0'		
		4	15.0	15.5	ss	25		Grey Glacial Till --- Boring Terminated at 15.5' NOTE: Observation well installed in existing boring; see attached well diagram.	

SS — SPLIT SPOON SAMPLE
U — UNDIS SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Gary Cambridge, Kevin Hawkins

ATLANTIC TESTING LABORATORIES, LIMITED

MONITOR WELL
INSTALLATION DETAIL

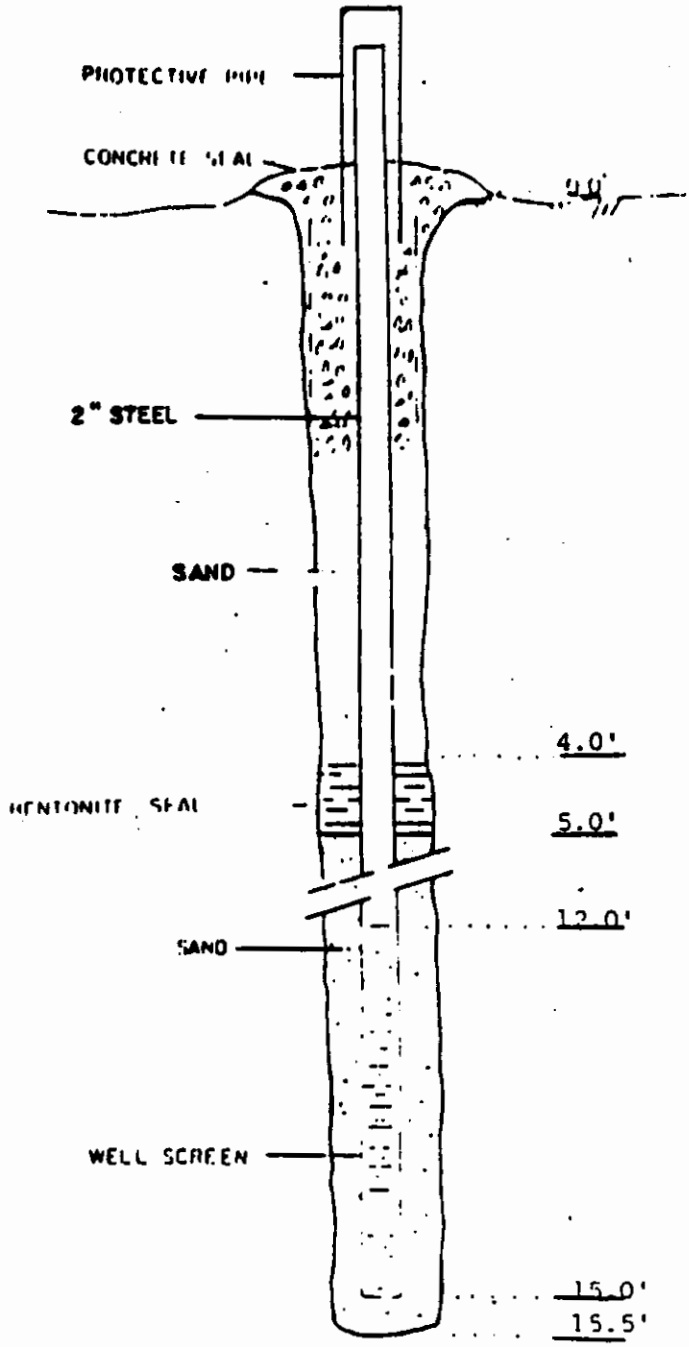
CLIENT New York State Electric & Gas Corp.
Binghamton, N.Y.

PROJECT Saranac Street Property
Plattsburgh, N.Y.

REPORT NO CD442-1-7-84

WELL NO 2U

DEPTH



ATLANTIC TESTING LABORATORIES, Limited

SUBSURFACE INVESTIGATION

Report No. CD442-1-7-84

CLIENT New York State Electric & Gas Corp.
Binghamton, New York

PROJECT Saranac Street Property
Plattsburgh, New York

Location of Boring Located on plan provided by NYSE&G

Date, start 7-19-84 Finish 7-19-84

Boring No. 3-U Sheet 1 of 1

Casing Hammer
Wt ____ lbs.
Fall ____ in.

Sampler Hammer
Wt 140 lbs.
Fall 30 in.
Casing ____

Ground Elev. ____

H.S. Auger 3-1/4" ID

Ground Water Observations

Date	Time	Depth	Casing at
7-20-84	6:00	8.0'	11.5'

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER OD 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f-fine, m-medium, c-coarse; and — 35–50 %, some — 20–35 %, little — 10–20 %, trace — 0–10 %)	STANDARD PENETRATION NUMBER
		1	0.0	1.5	ss	1-1-33-Bounce		3" TOPSOIL underlain with Sandy Soil and Cobbles; no samples taken until 5.0'.	
	AUGER	2	5.0	6.0	ss	24-65		Dense fine SAND	
	AUGER	3	6.0	7.5	ss	29-16-16	8.0'	mf SAND	
		4	7.5	9.0	ss	28-22-35	9.5'	Similar Soils with trace mf GRAVEL	
		5	9.0	10.0	ss	8-38	11.5'	Dense mf SAND	
		6	10.0	12.0	ss	22-32-33-33		Grey Glacial Till	
								Boring Terminated at 12.0'	
								NOTE: Observation well installed in existing boring; see attached well diagram.	

SS — SPLIT SPOON SAMPLE
U — UNDIS SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Ralph Matthews, Gary Cambridge

ATLANTIC TESTING LABORATORIES, LIMITED

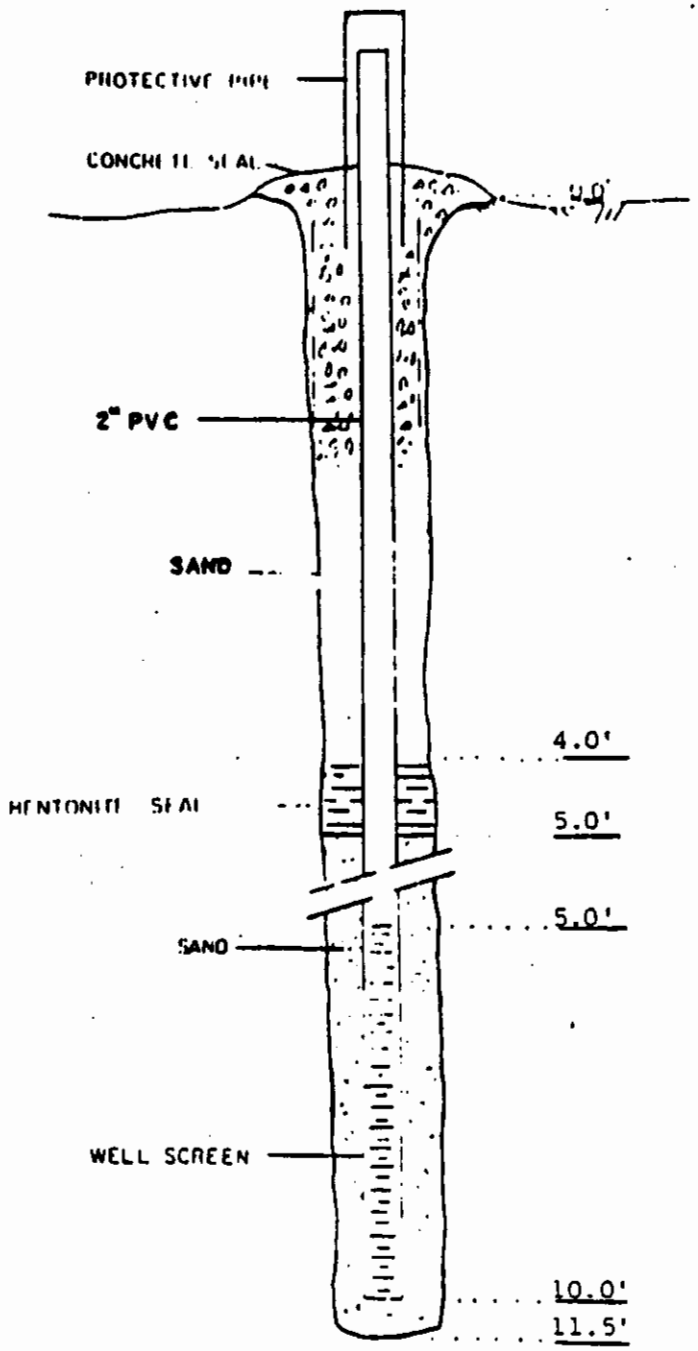
MONITOR WELL
INSTALLATION DETAIL

CLIENT New York State Electric & Gas Corp.
Binghamton, N.Y.

PROJECT Saranac Street Property
Plattsburgh, N.Y.

REPORT NO CD442-1-7-84

WELL NO. 3U



ATLANTIC TESTING LABORATORIES, Limited

FIELD LOG: SUBSURFACE INVESTIGATION

CLIENT: NYSE&G
PROJECT: Saranac St., Plattsburgh
BORING LOCATION (note if moved)

JOB NO. CD544-6-85
BORING NO. B-85-1
SHEET 1 OF 1
CORE BIT SERIAL NO.

SAMPLER HAMMER
Wt. 140
Fall 30"
H.S. Auger I.D. 3¼
CASING HAMMER
Wt.
Fall
Casing Size
☒ DRIVEN IN ☐ DRIVEN

GROUNDWATER

DATE	TIME	HOLE DEPTH	WATER DEPTH

DATE	DRILLED FROM	DRILLED TO	AUGER	CASING	AIR ROTARY	WET ROTARY	COR
5/24	0.0	18.0	✓				

SAMPLE NUMBER	DRILLED FROM	DRILLED TO	BLOWS ON SAMPLER HAMMER 0/6	6/12	12/18	18/24	RECOVERY (inches)	DEPTH OF CHANGE	SOIL TYPE	DRILLING NOTES (time, field tests performed, loss or gain of water, well installation, phone calls, difficulties, boulders, samples)	CASING BLOWS
1	0.0	2.0	5	7	3	3			CMF Brown sand	6" Topsoil	
									3" Clay		
2	2.0	4.0	3	3	3	4		3.5	CMF Brown Sand		
									Fill (Fly Ash)		
3	4.0	6.0	1	2	1	2			Grey moist CMF Sand		
									c/y little organics		
4	6.0	8.0	2	1	2	1			"DITTO"		
5	8.0	10.0	Weight of Hammer						Silty Grey M-F Sand	moist	
6	10.0	12.0	Weight of Rods						F silty Grey sand w/ Pieces of coal	moist	
7	13.0	14.0	Weight of Rods						"Ditto"		
8	14.0	16.0	Weight of Hammer						F. Grey silty Sand w/ small stone		
	16.5	18.0	Weight of Hammer						"Ditto"		
9	18.0	18.5	100/5"					18.5	Grey Till		

BORING TERMINATED AT 19.0 CAVED AT ____ WATER AT 16.0' FINISH DATE 5/24/85 TIME 5:__

DRILLER'S SIGNATURE Gary
HELPER'S SIGNATURE Kevin
INSPECTOR'S SIGNATURE ____

ATLANTIC TESTING LABORATORY, Limited

JOB NO. CD544
WELL NO. B85
DATE:
BEGAN 6/19/85
COMPLETED: 6/21/85

1. Extension of PIPE above the ground 3.0 feet

2. Was a SURFACE SEAL installed ?
☒ YES
☐ NO
IF YES, indicate materials USED: Portland
QUANITY: 1 bag

3. Backfill of RISER PIPE:
☒ ONSITE SOILS
☐ OTHER (list):
BAGS OF CEMENT: (NO.)

4. WAS A SUBSURFACE SEAL installed ?
☒ YES
☐ NO
IF SO, indicate materials USED: Portland
QUANITY: 1 bag

5. Backfill of WELL SCREEN:
☒ SAND
☐ PEA STONE
☐ OTHER
QUANITY: 1 Bag

6. DEPTH in Feet

7. WAS A STEEL PROTECTIVE PIPE OR OTHER DEVICE INSTALLED AT THE SURFACE ?
☐ NO
☒ YES, MATERIALS: 5'x3" with locking cap
WAS A SIGN INSTALLED ?
☒ NO
☐ YES

15.0	TOP OF SEAL
16.0	BOTTOM OF SEAL
17.0	TOP OF SCREEN
2" well	
19.0	BOTTOM OF SCREEN
19.0	BOTTOM OF BORING

MONITERING WELL DETAILS

FIELD USE ONLY

DRILLER/TECHNICIAN: Gary Cowley

INSPECTOR:

ATLANTIC TESTING LABORATORIES, Limited

FIELD LOG: SUBSURFACE INVESTIGATION

CLIENT: NYSE&G
PROJECT: Saranac St., Plattsburgh
BORING LOCATION (note if moved)

JOB NO. CD544-6-85
BORING NO. B-85-2
SHEET 1 OF 1
CORE BIT SERIAL NO.

SAMPLER HAMMER
Wt. 140 lb
Fall 30"
H.S. Auger I.D. 3¼

CASING HAMMER
Wt.
Fall
Casing Size
☐ SPUN IN ☐ DRIVEN

GROUNDWATER

DATE	TIME	HOLE DEPTH	WATER DEPTH
5/26	9:45	17.0	MOB

DATE	DRILLED FROM	DRILLED TO	AUGER	CASING	AIR ROTARY	WET ROTARY	CORE
5/26	0.0	18.6	✓				

SAMPLE NUMBER	DRILLED FROM	DRILLED TO	BLOWS ON SAMPLE HAMMER 0/6	6/12	12/18	18/24	RECOVERY (inches)	DEPTH OF CHANGE	SOIL TYPE	DRILLING NOTES (time, field tests performed, loss or gain of water, well installation, phone calls, difficulties, boulders, coppers)	CASING BLOWS
1	0.0	2.0	2	2	4	8		1.5	Fill - Fly ash		
2	2.0	4.0	12	12	13	10		2.0	Brown silty sand		
3	4.0	6.0	6	5	5	7			Ash + sand + coal		
4	6.0	8.0	5	3	3	3			Sand + W/coal chips		
5	8.0	10.0	W.O.R.			1			Wet Grey Sand	Water @ 8.5	
6	10.0	12.0	1	1	1	1			" DITTO "		
7	12.0	14.0	W	O	R →				Dark Grey wet Sand		
8	14.0	16.0	W	O	R →				" DITTO "		
9	16.0	17.5	W.R.	5	32			17.0	6" of Dark wet Grey Sand 12" of Till		

BORING TERMINATED AT 18.6 CAVED AT — WATER AT MOB FINISH DATE 5/26 TIME 2:15

DRILLER'S SIGNATURE Gain INSPECTOR'S SIGNATURE
HELPER'S SIGNATURE Kevin

ATLANTIC TESTING LABORATORY, Limited

JOB NO. CO 544
WELL NO. B 85
DATE:
BEGAN 6/26/85
COMPLETED: 6/26/85

1. Extension of PIPE above the ground 3½ feet

2. Was a SURFACE SEAL installed ?
☒ YES
☐ NO
IF YES, indicate materials USED: Bentonite
QUANITY: ¾ Bale

3. Backfill of RISER PIPE:
☒ ONSITE SOILS
☐ OTHER (list): _____
BAGS OF CEMENT: _____ (NO.)

4. WAS A SUBSURFACE SEAL installed ?
☒ YES
☐ NO
IF SO, indicate materials USED: ¾ Bale Bentonite
QUANITY: _____

5. Backfill of WELL SCREEN:
☒ SAND
☐ PEA STONE
☐ OTHER _____
QUANITY: ¾ Bag

6. DEPTH in Feet

130 TOP OF SEAL
140 BOTTOM OF SEAL
150 TOP OF SCREEN
160 BOTTOM OF SCREEN
180 BOTTOM OF BORING

7. WAS A STEEL PROTECTIVE PIPE OR OTHER DEVICE INSTALLED AT THE SURFACE ?
☐ NO
☒ YES, MATERIALS: _____

WAS A SIGN INSTALLED ?
☒ NO
☐ YES

MONITERING WELL DETAILS

FIELD USE ONLY

2" well
2½ Bags of Satrate For 2 wells

DRILLER/TECHNICIAN: _____ INSPECTOR: _____

CONSULTING GROUND WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Plattsburgh, NY
Client: NYSEG
Page: 1 Of 1
Logged By: S. Sucharski
Owner: NYSEG
Well No.: RA-1
Loc.:
M.P. Elevation: 113.80
Drilling Started: 11/10/86 Ended: 11/10/86
Driller: Parratt Wolff
Type Of Rig: Hollow Stem Auger

WELL DATA

Hole Diam. (in.): 6
Final Depth (ft.): 11.4
Casing Diam. (in.): 2
Casing Length (ft.): 6.2
Screen Setting (ft.): 4.5-9.5
Screen Slot & Type: .010 S.S.
Well Status: Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.
11/13/86	4.07	109.73
11/14/86	4.08	109.72
11/15/86	3.86	109.74

SAMPLER

Type: Split-spoon
Hammer: 140 lb.
Fall: 30 in.

DEVELOPMENT

0.5 hr. - surge and pump

Elev. (1)	SAMPLE No.	Rec.	Depth	Blows 6	Strata Change & Gen. Desc.	Depth (ft)	SAMPLE DESCRIPTION
	1	12"	0-2'	5,6,5,4			0-0.3' Top soil 0.3'-0.4', Lt brown fine sand, some silt, and occasional pebbles throughout. 0.4'-0.5', Dk brown silt - moist
	2	12"	2' - 4'	2,2,1,2	Fine sand and silt	2	0.5'-Gray fine sand, little silt - moist, wood at 1.0'. Underlain at 2.0' by gray and brown fine sand, some medium sand, with wood fragments throughout-moist. Trace of clay mixed in at 3.0'.
	3	10"	4' - 6'	2,2,5,1		4	Same as above with rock fragments mixed in at 4.0'. Coarse sand at approx. 5.0' - wet, oil odor.
	4	14"	6' - 8'	1,2,3,1	Coarse sand Peat	6	Brown fine sand and silt with wood mixed in, trace clay - wet, oil odor, spongy consistency (peat).
	5	24"	8' - 10'	8,8,14,18	medium sand Fine sand and silt	8	At approx. 7.5-Dk gray medium sand, some fine sand - wet, stronger odor. Brown fine sand and silt - wet, strong odor, coated with oil. 9.2'-Black medium - coarse sand - wet, strong odor, coated with oil.
	6	16"	10' - 11.4'	10,25,50/4	Coarse sand and gravel Till	10	Black coarse sand, granules, and pebbles - wet, oil coated, strong odor. At 11.0'-Gray dense, tight, clay, silt, fine sand and occasional pebbles - till, damp.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project Plattsburgh, NY
Client NYSEG
Page 1 of 1
Logged By S. Sucharski
Owner NYSEG
Well No. RA-2
Loc.
M.P. Elevation 114.37
Drilling Started 11/10/86 Ended 11/10/86
Driller Parratt Wolff
Type Of Rig Hollow Stem Auger

WELL DATA

Hole Diam. (in.) 6
Final Depth (ft.) 11.4
Casing Diam. (in.) 2
Casing Length (ft.) 5.2
Screen Setting (ft.) 3.5-8.5
Screen Slot & Type .010 S.S.
Well Status Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T
11/13/86	4.63	109.74
11/14/86	4.60	109.77
11/15/86	4.44	109.73

SAMPLER

Type Split Spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

0.5 hr - Surge, pump, and bail.

Elev. (1)	SAMPLE No.	Rec.	Depth	Blows 6	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1	10"	0-2'	2,3,3,2	Very fine to fine sand and silt		0-0.2', Topsoil. 0.2'-0.4', Lt. Brown very fine sand and silt. 0.4'-0.5', Black organic rich very fine sand and silt. 0.5' Dark brown-brown fine sand, trace medium sand, little silt and wood-moist.
	2	8"	2'-4'	2,2,2,1	Peat	2	Dark brown medium sand with very fine sand and silt lenses (soft)-moist, slight oil odor cohesive (Peat).
	3	10"	4'-6'	4,2,3,4	Fine to medium sand	4	Gray fine-medium sand-wet, strong oil odor.
	4	14"	6'-8'	2,2,4,9	Fine sand	6	6'-6.3', same as above. 6.3'-Gray, well-sorted fine sand, little medium sand-wet, strong oil odor, oil coated. Wood at 7.3'.
	5	14"	8'-10'	11,29,34,35	Fine to medium sand / Till	8	8'-8.5', Black fine-medium sand, some coarse sand, little granules and pebbles-wet, strong odor, oil coated. 8.5'-Gray, dense, tight, clay and silt with a trace of fine sand and pebbles-till, damp.
	6	15"	10'-11.4'	22,35,50/4		10	Same as above.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Plattsburgh, NY
Client: NYSEG
Page: 1 Of 1
Logged By: S. Sucharski
Owner: NYSEG
Well No.: RA-3
Loc.:
M.P. Elevation: 115.70
Drilling Started: 10/11/86 Ended: 10/11/86
Driller: Parratt Wolff
Type Of Rig: Hollow Stem Auger

WELL DATA

Hole Diam. (in.): 6
Final Depth (ft): 11
Casing Diam. (in.): 7
Casing Length (ft): 5.9
Screen Setting (ft): 4.0-9.0
Screen Slot & Type: .010 S.S.
Well Status: Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.
11/13/86	5.94	109.76
11/14/86	5.95	109.75
11/15/86	5.85	109.85

SAMPLER

Type: Split-spoon
Hammer: 140 lb.
Fall: 30 in.

DEVELOPMENT

0.5 hr - surge, pump, and bail

Elev. (1)	SAMPLE No.	Rec.	Depth	Blows 6	Strata Change & Gen. Desc.	Depth (ft)	SAMPLE DESCRIPTION
	1	5"	0' - 2'	2,2,4,3	Sand and gravel		0-0.3', Top soil 0.3'-2.0', Sand, silt, and gravel.
	2	7"	2' - 4'	3,3,4,2	Fine sand and silt	2	Brown fine sand and silt with wood mixed in moist. 2.4'-Black (stained) fine sand, some silt and wood - moist, strong oil odor.
	3	12"	4' - 6'	1,1,2,2	Very fine to fine sand and silt (PEAT)	4	Black (stained) very fine-fine sand and silt wet, oil sheen, strong oil odor.
	4	12"	6' - 8'	4,5,7,18	Sand and gravel	6	6'-7', same as above. 7'-Black oily gravel consisting of coarse sand, granules and fine pebbles - wet, strong odor.
	5	24"	8' - 10'	26,27,34,40		8	Same as above - except coarse gravel containing rock fragments. At 9.9'-Gray clay silt, fine sand, tight, dense - till, damp.
	6	12"	10' - 11'	70,50	Till	10	Same as above with pebbles, disseminated throughout - slight oil odor, trace oil sheen in seams.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project Plattsburgh, NY
Client NYSEG
Page 1 Of 1
Logged By S. Sucharski
Owner NYSEG
Well No. RA-4
Loc.
M.P. Elevation 115.35
Drilling Started 11/11/86 Ended 11/11/86
Driller Parratt Wolff
Type Of Rig Hollow Stem auger

WELL DATA

Hole Diam. (in.) 6
Final Depth (ft.) 8.75
Casing Diam. (in.) 2
Casing Length (ft.) 5.56
Screen Setting (ft.) 3.0-8.0
Screen Slot & Type .010 S.S.
Well Status Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T
11/13/86	5.86	109.49
11/14/86	5.91	109.44
11/15/86	5.83	109.52

SAMPLER

Type Split Spoon
Hammer 140 lb.
Fall 30 in.

DEVELOPMENT

0.5 hr-Surge, pump, and bail

Elev. (1)	SAMPLE No.	Rec.	Depth	Blows 6	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1	17"	0-2'	4,5,5,6	Fine to medium sand		0-0.4', Topsoil. 0.4'-0.9', Brown medium sand, some silt. 0.9'-Brown fine sand with thin (¼"-½") Silt layers throughout oriented parallel to bedding (wood mixed in with silt)
	2	15"	2'-4'	3,2,2,2		2	At 2.5'-Black and gray very fine sand and silt-moist, oil odor.
	3	12"	4'-6'	27,40,30,25	Very fine to fine sand and silt	4	Brown fine sand and silt-wet. At approx. 5.0'-Gray shale fragments Silt, and clay.
	4	4"	6'-6.5'	50/6	Sand, silt, and clay	6	Dark gray rock fragments, clay, silt and sand-wet, strong oil odor, oil sheen. Cobble at 8.0'.
	5	9"	8'-8.75'	43,50/.25	Till	8	Gray, dense, tight, stiff clay, silt, and occasional pebbles and and granules-till. Overlain by by black oily gravel-wet, loose, strong odor.

REMARKS: (1) In feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project: Plattsburgh, NY
Client: NYSEG
Page: 1 of 1
Logged By: S. Sucharski
Owner: NYSEG
Well No.: RA-5
Loc.:
M.P. Elevation: 117.70
Drilling Started: 11/11/86 Ended: 11/11/86
Driller: Parratt Wolff
Type Of Rig: Hollow Stem Auger

WELL DATA

Hole Diam. (in.): 6
Final Depth (ft.): 10.9
Casing Diam. (in.): 2
Casing Length (ft.): 7.7
Screen Setting (ft.): 5.0-10.0
Screen Slot & Type: .010 S.S.
Well Status: Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.
11/13/86	8.40	109.30
11/14/86	8.41	109.29
11/15/86	8.36	109.34

SAMPLER

Type: Split-spoon
Hammer: 140 lb.
Fall: 30 in.

DEVELOPMENT

0.5 hr. - Surge, pump, and bail

Elev. (1)	SAMPLE No.	Rec.	Depth	Blows 6	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1	8"	0 - 2'	3,3,5,6	Fine sand and silt		0-0.4', Top soil 0.4'-Lt brown fine sand and silt
	2	12"	2' - 4'	5,5,7,9	Very fine to fine sand and silt	2	Brown very fine sand and silt, changing to black (iron stained) in color with depth, with wood mixed in: Bottom of sample is brown and orange in color.
	3	18"	4 - 6'	4,5,15,10	Fine to medium sand	4	4.0'-4.5', brown fine-medium sand, little silt. 4.5'-5.0', brown fine sand, some silt-wet, cobble at 5.2'
					Coarse sand		5.0'-brown coarse sand and granules
					Very fine sand and silt		5.4'-gray very fine sand and silt.
	4	16"	6' - 7.4'	30,35,50/4		6	Brown and orange (iron stained) poorly sorted coarse sand, granules, and pebbles - loose, wet. At 7.0' - change in color to black, strong oil odor.
					Sand and gravel		
	5	NR	8' - 9'	50/0		8	Boulder
	6	23"	9' - 10.9'	13,17,17,50/4		9	Black, oily coarse sand, granules, pebbles, rock fragments - wet, strong oil odor, oil sheen. At 10.5' - gray clay, silt, sand and pebbles - till.
						10	
					Till		

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Plattsburgh, NY
Client: NYSEG
Page: 1 of 1
Logged By: S. Sucharski
Owner: NYSEG
Well No.: RA-6
Loc.:
M.P. Elevation: 119.85
Drilling Started: 11/11/86 Ended: 11/11/86
Driller: Parratt Wolff
Type Of Rig: Hollow Stem Auger

WELL DATA

Hole Diam. (in.): 6
Final Depth (ft.): 10.4
Casing Diam. (in.): 2
Casing Length (ft.): 7.30
Screen Setting (ft.): 5.0-10.0
Screen Slot & Type: 10 S.S.
Well Status: Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.
11/13/86	10.86	109.01
11/14/86	10.85	109.00
11/15/86	10.84	109.01

SAMPLER

Type: Split Spoon
Hammer: 140 lb.
Fall: 30 in.

DEVELOPMENT

0.5 hr. - Surge, pump and bail

Elev. (1)	SAMPLE No.	Rec.	Depth	Blows 6	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1	10"	0 - 2'	6,8,9,10	Sand and gravel in Silt Matrix		0-0.4', Topsoil 0.4' - Brown medium-coarse sand, and occasional pebbles in silt matrix.
	2	NR	2' - 4'	6,6,6,6		2	
	3	12"	4' - 6'	7,7,5,4	Very fine to Fine Sand and Silt	4	Gray and brown very fine sand, some silt - moist, strong oil odor, trace oil sheen
	4	16"	6' - 8'	6,8,8,10		6	Gray and brown very fine - fine sand and silt - wet, strong oil odor, coated with oil, Bottom of sample gray in color and not as oily - wet.
	5	10"	8' - 10'	6,8,11,50	Sand and Gravel	8	Black , oil coated rock fragments, coarse sand, an silt - wet, strong oil odor.
	6	4"	10' - 10.4'	50/4	Till	10	Gray, tight, dense clay, silt, sand, and rock fragments - till.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project: Plattsburgh, NY
Client: NYSEG
Page: 1 Of 1
Logged By: S. Sucharski
Owner: NYSEG
Well No.: RA-7
Loc.:
M.P. Elevation: 117.63
Drilling Started: 11/11/86 Ended: 11/11/86
Driller: Parratt Wolff
Type Of Rig: Hollow Stem Auger

WELL DATA

Hole Diam. (in.): 6
Final Depth (ft.): 11.4
Casing Diam. (in.): 2
Casing Length (ft.): 7.75
Screen Setting (ft.): 6.0-11.0
Screen Slot & Type: .010 S.S.
Well Status: Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.
11/13/86	8.58	109.05
11/14/86	8.56	109.07
11/15/86	8.55	109.08

SAMPLER

Type: Split Spoon
Hammer: 140 lb.
Fall: 30 in.

DEVELOPMENT

0.5 hr. - Surge, pump and bail

Elev. (1)	SAMPLE No.	Rec.	Depth	Blows 6	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1	13"	0 - 2'	2,2,2,2	Very fine sand and silt		0-0.4', Topsoil 0.4' - Brown and gray banded very fine sand and silt. Thin (1/8 inch) gray clay layer at 1.2', oriented parrallel to bedding, and occasional pebbles throughout - Brown-black, organic rich very fine sandy silt - banded. At approximately 2.5' - brown medium sand.
	2	10"	2' - 4'	2,4,4,4		2	
					Medium sand		
	3	14"	4' - 6'	2,3,3,5	Very fine sand and silt	4	At 4.2' - Brown, very fine sand, silt, and wood. 4.5'-4.7', brown medium sand. At 4.7' - black-brown silt, little very fine sand - oil odor, wet at 6.0'.
	4	10"	6' - 8'	12,30,26,30	Sand and gravel	6	Poorly sorted, gray-black gravel (angular) consisting of sand, cobbles, some silt, trace clay - wet, loose.
	5	3"	8'- 10'	70,20,22,38		8	Same as above except rounded, some sand-wet, oil coated, strong oil odor. Difficult drilling 8-10', boulders and cobbles.
	6	14"	10' - 11.4'	23,30,50/4		10	Same as above At 10.5', gray, weathered till and gravel, oil coated, wet. At 11.0'-gray, hard, dense tight clay, silt, little fine sand-moist, oil odor.
					Weathered Till		
					Till		

REMARKS: (1) In feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project: Plattsburgh, NY
Client: NYSEG
Page: 1 of 2
Logged By: S. Sucharski
Owner: NYSEG
Well No.: RA-8
Loc.:
M.P. Elevation: 121.97
Drilling Started: 11/12/86 Ended: 11/12/86
Driller: Parratt Wolff
Type Of Rig: Hollow Stem Auger

WELL DATA

Hole Diam. (in.): 6
Final Depth (ft.): 21.0
Casing Diam. (in.): 2
Casing Length (ft.): 14.15
Screen Setting (ft.): 12.0-17.0
Screen Slot & Type: .010 S.S.
Well Status: Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T
11/13/86	12.11	109.86
11/14/86	12.10	109.87
11/15/86	11.90	110.07

SAMPLER

Type: Split-spoon
Hammer: 140 lb.
Fall: 30 in.

DEVELOPMENT

0.75 hr. - Surge and pump

Elev. (1)	SAMPLE No.	Rec.	Depth	Blows 6	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1	18"	0 - 2'	2,6,15,20	Fine sand, silt and fill		0-0.4', Topsoil 0.4'-1.1', DK brown fine sand and silt with rock fragments disseminated throughout. At 0.5'-0.7', coal seam.
	2	18"	2' - 4'	8.16,20.16		2	1.1'-brown fine sand and silt, trace coal. Brown very fine - fine sand and silt. Thin (1/8 inch) clay layer at 3.0'. 3.0' - 4.0', boulder.
	3	10"	4' - 6'	3,1,2,2		4	Brown very fine - fine sand and silt with little slag and coal mixed in. Dark brown fine-medium sand with occasional pebbles at approximtely 5.0'.
	4	10"	6' - 8'	2,11,9,5	Medium to coarse sand, silt and fill	6	Brown - lt. brown medium-coarse sand, pebbles, coal, slag, bricks, ash, and cement in silt matrix - dry, no odor.
	5	15"	8' - 10'	2,2,3,3	Fine sand, silt and fill	8	Gray medium sand, some coarse sand in silt matrix. At approx. 9.0' - black silty fine sand, trace coarse sand and granules - wet at 9.0, slight odor.
	6	10"	10' - 12'	2,3,3,6		10	Black-gray fine sand, some medium-coarse sand and occasional pebbles in silt matrix. Some clay, metal and wood at 11.0' - wet, cohesive.
	7	18"	12' - 14'	4,4,4,5	Alternating layers of medium sand and silt	12	Alternating layers of brown medium sand with layers of gray silt, trace clay - varved. Sand layers are 1"-2" thick and silt layers are 1/16"-1/8" thick - wet no odor.
						14	

REMARKS: (1) In feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project: Plattsburgh, NY
Client: NYSEG
Page: 2 of 2
Logged By: S. Sucharski
Owner: NYSEG
Well No.: RA-8
Loc.: See Page One
M.P. Elevation:
Drilling Started: Ended:
Driller:
Type Of Rig:

WELL DATA

Hole Diam. (in.):
Final Depth (ft.):
Casing Diam. (in.):
Casing Length (ft.):
Screen Setting (ft.):
Screen Slot & Type:
Well Status:

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type:
Hammer: lb.
Fall: in.

DEVELOPMENT

Elev. (1)	SAMPLE No.	Rec.	Depth	Blows 6	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	8	18"	14' – 16'	1,1,1,1	Peat		Black-gray fine sand in silt matrix, some clay-greasy, soft, wet (Peat). Brown in color at 15.6', and wood mixed in.
	9	24"	16' – 18'	20,30,23,20	Fine to medium sand	16	Gray, soupy, fine-medium sand, some silt-wet At 17.7'-Black, oily, rock fragments, coarse sand, granules, pebbles-wet, loose, strong oil odor.
					Sand & gravel		
	10	18"	18' – 20'	14,38,46,28	Medium sand	18	Gray medium sand, some coarse sand, occasional pebbles and cobbles, little silt wet, oil sheen, strong oil odor. At 19.0'-black oily gravel-wet.
					Sand and gravel		
	11	12"	20' – 21'	23,80	Till	20	Gray, tight, dense silt, clay and trace sand with occasional rock fragments-till, damp.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project: Plattsburgh, NY
Client: NYSEG
Page: 1 Of 2
Logged By: S. Sucharski
Owner: NYSEG
Well No.: RA-9
Loc.:
M.P. Elevation: 122.38
Drilling Started: 11/12/86 Ended: 11/12/86
Driller: Parratt Wolff
Type Of Rig: Hollow Stem Auger

WELL DATA

Hole Diam. (in.): 6
Final Depth (ft.): 20
Casing Diam. (in.): 2
Casing Length (ft.): 12.55
Screen Setting (ft.): 11.0-16.0
Screen Slot & Type: .010 S.S.
Well Status: Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T
11/13/86	12.03	110.35
11/14/86	11.99	110.39
11/15/86	11.78	110.6

SAMPLER

Type: Split-spoon
Hammer: 140 lb.
Fall: 30 in.

DEVELOPMENT

0.75 hr. - Surge and pump

Elev. (1)	SAMPLE No.	Rec.	Depth	Blows 6	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1	10"	0 - 2'	2,3,8,15	Sand gravel and fill		0-0.1', Topsoil 0.1-0.8', Lt brown, poorly sorted medium -coarse sand, granuals and pebbles. 0.8'-Dk brown fine sand and silt.
	2	6"	2' - 4'	14,10,8,5	Fine sand, silt and fill	2	Brown silt and fine sand, coal, slag, ash, brick fragments and pebbles fill
	3	6"	4' - 6'	3,2,1,1	Fine to medium sand silt and fill	4	Brown fine-medium sand, silt, pebbles, and brick fragments - fill
	4	10"	6' - 8'	1,1,1,3	Fine sand silt and fill	6	Dk brown-black silt, fine sand, bricks, glass, ash, coal, and slag-fill, damp
	5	12"	8' - 10'	2,2,3,3		8	Same as above. At 9.0'-Alternating layers of gray fine sand and silt with gray silt layers - varied, wet.
	6	16"	10' - 12'	2,2,8,5	Alternating layers of fine sand & silt	10	Gray fine-medium sand and organics with silty layers disseminated throughout-varved wet.
	7	24"	12' - 14'	2,2,2,3		12	Same as above. At 13.0'-Dk gray very fine sandy silt, little clay-spongy, organic odor, peat.
	8	10"	14' - 16'	4,5,4,3	Peat	14	Gray, loose, fine-medium sand, some silt-wet, organic odor.
					Fine to medium sand	16	

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project Plattsburgh, NY
Client NYSEG
Page 2 Of 2
Logged By S. Sucharski
Owner NYSEG
Well No. RA-9
Loc. See Page One
M.P. Elevation
Drilling Started Ended
Driller
Type Of Rig

WELL DATA

Hole Diam. (in.)
Final Depth (ft.)
Casing Diam. (in.)
Casing Length (ft.)
Screen Setting (ft.)
Screen Slot & Type
Well Status

G W READINGS(1)

Date	DTW MP(2)	Elev. W.T.

SAMPLER

Type
Hammer lb.
Fall in.

DEVELOPMENT

Elev. (1)	SAMPLE No.	Rec.	Depth	Blows 6	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	9	16"	16' - 17.3'	4,10,50/3	Sand and gravel		Oily, wet, loose sand and gravel.
						18	At 18.5' - Till
	10	12"	19' - 20'	28,50	Till	19	Gray silt, clay, fine sand, and trace pebbles.

REMARKS: (1) in feet relative to a common datum
(2) from top of PVC casing

CONSULTING GROUND WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project: Plattsburgh, NY
Client: NYSEG
Page: 1 of 1
Logged By: S. Sucharski
Owner: NYSEG
Well No.: RA-10
Loc.:
M.P. Elevation: 115.95
Drilling Started: 11/12/86 Ended: 11/12/86
Driller: Parratt Wolff
Type Of Rig: Hollow Stem Auger

WELL DATA

Hole Diam. (in.): 6
Final Depth (ft.): 12.8
Casing Diam. (in.): 2
Casing Length (ft.): 7.45
Screen Setting (ft.): 5.0-10.0
Screen Slot & Type: .010 S.S.
Well Status: Monitoring

G W READINGS(1)

Date	DTW MP(2)	Elev.W.T.
11/13/86	6.02	109.93
11/14/86	6.04	109.91
11/15/86	5.86	110.09

SAMPLER

Type: Split-spoon
Hammer: 140 lb.
Fall: 30 in.

DEVELOPMENT

0.75 hr. - Surge and pump

Elev. (1)	SAMPLE No.	Rec.	Depth	Blows 6	Strata Change & Gen. Desc.	Depth (ft.)	SAMPLE DESCRIPTION
	1	6"	0 - 2'	3,6,10,20	Sand and Fill		0-0.2', Topsoil 0.2'-Sand, slag, cinder, and coal-fill.
	2	14"	2' - 4'	5,2,2,2		2	Black slag and coal 2.5'-Brown fine sand and silt with occasional medium-coarse sand seams
	3	8"	4' - 6'	2,2,1,1	Fine Sand and Silt	4	Gray-brown fine sand, some medium sand and silt - wet.
	4	6"	6' - 8'	6,3,4,6	Fine to Medium Sand	6	Brown fine medium sand, some coarse sand and pebbles - wet, loose.
	5	18"	8' - 10'	8,11,11,13		8	Brown fine-medium sand, some silt-wet At 9.0'-Brown fine sand and silt-wet. At approx. 9.5'-black, oily, gravel consisting of coarse sand, granules, and pebbles - wet
	6	12"	10' - 12'	13,15,18,35	Fine Sand and Silt	10	Brown, poorly sorted fine-coarse sand, granules, pebbles and cobbles-wet, oil Sheen at 11.0'-black and oily. At 11.5' Till.
	7	9"	12' - 12.8'	30,50/2	Sand and Gravel	12	Gray, tight, dense silty clay, trace fine sand and pebbles-Till, trace oil in seams, oil odor.
					Till		

REMARKS: (1) In feet relative to a common datum
(2) from top of PVC casing

DATE
STARTED 7-31-75
FINISHED 7-31-75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-1
SURF. ELEV.
G. W. DEPTH See Note #1

PROJECT Plattsburgh Gas Plant
Residue Study-NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	8	18				FILL: Creosoted WOOD, BRICK FRAG-	Note #1-Water Infor-
			17	13		35		MENTS, trace rock fragments	mation:
		2	15	11				- predominantly cinders in sample #2	Upon completion of
			5	3		16		(Moist)	boring a 1½" sealed &
		3	1	1				- Chemical Residue in sample #3	capped water observa-
5			WH	WH		1			tion well was installed
		4	1	2				- fine SAND, SILT, WOOD (Residue	@ 13.2'
			5	5		7		Soaked)	
		5	1	2				(Moist to Wet-Compact to Loose)	3-6-75
			4	4		6		Gray to Black fine SAND & SILT, trace	Water @ 12.1'
10		6	4	5				roots & decomposed wood (Residue	
			7	13		12		Soaked), trace fine gravel in sample	3-7-75
		7	8	26	100/2"			#6	Water @ 11.8'
								(Wet-Loose to Firm)	Note #2-W.H.= weight
15								Black fine to medium SAND, SILT	of hammer & drill rods
								& GRAVEL, trace fibrous material	
								(Residue Saturated)	
								(Wet-Very Compact)	
								Refusal & Bottom of Hole @ 13.2'	

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION: 2½" Hollow Stem Auger Casing

CLASSIFICATION Visual by Geologist / ETS

DATE
STARTED 8-6-75
FINISHED 8-6-75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-1A
SURF. ELEV.
G. W. DEPTH Not Recorded

PROJECT Plattsburgh Gas Plant
Residue Study-NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0								Advanced boring to 10.0' without sampling	Note #1-Boring was advanced adjacent to Boring B-1
10		1	35	52				Black GRAVEL, Some fine Sand & Silt, residue soaked	
			60	67		112			
		2	42	40				- grades SAND & GRAVEL, little silt	
			33	35		73		(Wet-Very Compact)	
15		3	19	22				Gray SILT, Some embedded Gravel, trace to little sand	
			32	73		54		(Moist-Very Compact)	
		4	80					Gray varved SILT, trace to little clay w/ trace fine sand	
		5	100/.3'					(Damp-Very Compact)	
20		6	100/.4'					Gray SILT, little to Some embedded Gravel & Shale Fragments, trace to little sand (Moist)	
		7	100/.5'					- wet in sample #8	
		8	100/.25'					- Moist in sample #9	
25		9	100/.1						
		10	100/.3'					(Moist-Very Compact)	
30		11	65	100/.3'				Gray alternating layers of fine SAND & SILT, trace fine gravel	
		12	100/.05'					(Moist-Very Compact)	
								Dark Gray to Black LIMESTONE, sound, medium hard, w/a few scattered 45 degree fractures, crystalline structure	Run #1 31.5'-35.6' 54% Recovery RQD-27%
35									

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION: 2½" Hollow Stem Auger Casing, B-Core

CLASSIFICATION Visual by Geologist / TG

DATE
STARTED 7-31-75
FINISHED 7-31-75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-2
SURF. ELEV.
G. W. DEPTH Not Recorded

PROJECT Plattsburgh Gas Plant Residue Study-NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	3	6				Dark Brown fine SAND, Some Silt, trace fine gravel, trace fibrous material, grades little to Some fibrous material	Slight residue odor
			7	5		13			
		2	4	4					
			4	5		8			
5		3	12	13	100/.3'			- grades SILT, Some Gravel, little sand, little fibrous material (Moist to Wet-Firm & Loose)	
								Refusal & Bottom of Hole @ 5.3'	
10									

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive "casing "with lb weight falling "per blow.
METHOD OF INVESTIGATION: 2½" Hollow Stem Auger Casing

CLASSIFICATION Visual by Geologist / CTG

DATE
STARTED 8-5-75
FINISHED 8-5-75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-2A
SURF. ELEV.
G. W. DEPTH Not Encountered

PROJECT Plattsburgh Gas Plant
Residue Study-NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	4	9				Dark Brown-Brown layered fine SAND, Some Silt, trace decomposed wood -Dark Brown, trace gravel in sample #2 (Slight Residue Odor) (Damp to Moist-Firm)	
			7	5		16			
		2	4	5					
			7	9		12			
		3	19	75/.0'	100			Brown fine to medium SAND & GRAVEL, trace to little silt (slight residue odor) (Moist-Very Compact)	
5								Refusal & Bottom of Hole @ 5.0'	
10									

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION: 2½" Hollow Stem Auger Casing

CLASSIFICATION Visual by Geologist ✓ SIG

DATE
STARTED 7-31-75
FINISHED 7-31 75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-3
SURF. ELEV.
G. W. DEPTH Not Recorded

PROJECT Plattsburgh Gas Plant
Residue Study-NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	20	25				FILL: ASH, WOOD, trace gravel	
			20	26		45			
		2	18	13				· gravel & silt in sample #2	
			8	6		21		(Dry-Compact to Firm)	
5		3	9	5				FILL: WOOD & SILT, trace gravel	
			3	3		8		(Residue saturated)	
		4	2	5					
			4	4		9		(Wet-Loose)	
		5	6	5				FILL: fine SAND & SILT, (Residue	
10			7	8		12		soaked)(Moist to Wet-Firm)	
		6	9	8				FILL: fine SAND, SILT, WOOD, trace	
			9	16		17		brick (Residue Soaked)	
		7	17	20				(Moist to Wet-Firm)	
			17	12		37		Gray fine to medium SAND, little silt,	
15		8	11	10				little gravel, grades SAND & GRAVEL	
			14	26		24		@ 14.0'(Residue saturated from 14.0'	
		9	32	46	100	146		to 15.0') (Moist to Wet-Compact)	
								Gray SILT, little fine to coarse em-	
20								bedded sand & gravel, wet from	
								15.5' to 16.0', Damp from 16.0' to	
								17.5', w/a varved seam	
								(Wet to Damp-Very Compact)	
								Bottom of Hole @ 17.5'	

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION: 2½" Hollow Stem Auger Casing

CLASSIFICATION Visual by Geologist / STG

DATE
STARTED 7-31-75
FINISHED 7-31-75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-4
SURF. ELEV.
G. W. DEPTH Not Recorded

PROJECT Plattsburgh Gas Plant
Residue Study-NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	3	3				Dark Brown fine SAND & SILT, little roots	
			4	3		7			
		2	2	4				- trace roots & fine gravel	
			5	7		9		(Dry-Loose)	
5		3	4	4				Brown & Dark Brown fine SAND, little to Some Silt, trace fibrous organic	slight residue odor from 4.0'-6.0'
			6	7		10			
		4	10	17				(Moist-Loose)	
			10	6		27		Brown fine to medium SAND, little fine gravel. trace silt (clean)	
		5	7	8					slight residue odor from 8.0'-10.0'
			7	8		15		(Moist-Firm)	
10		6	21	46	100/.4'			Dark Brown fine to medium SAND, little silt. trace fibrous organic	
								(Moist-Firm)	
								Gray SILT, little to Some embedded Sand & Gravel, trace silt partings (Damp-Very Compact)	Note #1-The recovered samples obtained from this boring should not be considered representative as the boring was advanced without employing casing.
15								Refusal & Bottom of Hole @ 11.4'	

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb weight falling ____ "per blow.

CLASSIFICATION Visual by Geologist / crs

METHOD OF INVESTIGATION:

DATE
STARTED 8-5-75
FINISHED 8-5-75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-4A
SURF. ELEV.
G. W. DEPTH Not Encountered

PROJECT Plattsburgh Gas Plant
Residue Study-NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER (0 / 6 / 12 / 18 / N)	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	2 / 3		Brown fine SAND, Some Silt, trace root fibers (Dry-Loose)	
			3 / 4 / 6			
		2	2 / 3			
			5 / 8 / 8		Brown & Dark Brown fine SAND, Some Silt (Moist-Loose)	
5		3	3 / 4			
			4 / 45 / 8		Brown fine SAND w/a seam of Dark Brown silty sand between 5.0' & 6.0', w/a 4" Brown fine to coarse SAND seam @ 7.0' (Moist-Loose to Firm)	
		4	9 / 6			
			6 / 9 / 12			
		5	14 / 13			
			18 / 32 / 31			
10		6	29 / 17		Dark Brown to Gray fine SAND & GRAVEL, (Residue Saturated) (Wet-Compact)	
			47 / 74 / 64			
		7	31 / 50 / 79 / 129		Gray SILT, little fine sand, little embedded gravel, occasionaly varved, grades Some embedded Gravel (Damp-Very Compact)	
15					Bottom of Hole @ 13.5'	

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION: 2½" Hollow Stem Auger Casing

CLASSIFICATION Visual by Geologist / [illegible]

DATE
STARTED 7-31-75
FINISHED 7-31-75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-5
SURF. ELEV.
G. W. DEPTH See Note #1

PROJECT Plattsburgh Gas Plant Residue Study-NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18-	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	11	20				FILL: Black CINDERS & ASH, w/ SILT SAND & GRAVEL	Note #1-Water Information
			29	32		49			
		2	19	20					
			25	24		45			
5		3	17	17					
			18	12		35			
		4	6	5					
			5	12		10			
		5	7	6					
			6	5		12			
10		6	8	10					
			14	11		24			
		17	20	18					
			19	23		37			
		8	100/.3'						
15									
20		9	45	56	100/.4'			Gray SILT, little to Some embedded fine Gravel, little fine to medium sand (Damp-Very Compact)	
								Refusal & Bottom of Hole @ 20.9'	
25									

- Brown SILT, SAND & GRAVEL, trace wood & cinders @ 2.0'
- becomes damp to moist @ 4.0' (Dry to Moist-Compact)

Brown SILT, little gravel, trace sand & clay trace roots (Moist to Wet-Loose)

Dark Brown SILT, Some very fine Sand, trace coarse sand & fine gravel, trace wood (Moist to Wet-Firm)

Brown fine SAND, little silt, with silt seams (Residue concentrated mainly in silt seams), trace gravel, grades little to Some Gravel @ 12.0', (Moist to Wet-Compact to Very Compact)

Recovered Boulders & Cobbles

8-6-75 Water @ 9.8'
8-7-75 Water @ 12.0'

Run #1
14.5' to 19.5'
28% Recovery
B-Core

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION 2½" Hollow Stem Auger Casing

CLASSIFICATION Visual by Geologist

DATE
STARTED 8-1-75
FINISHED 8 1-75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-6
SURF. ELEV.
G. W. DEPTH Not Recorded

PROJECT Plattsburgh Gas Plant
Residue Study NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	4	9				FILL· WOOD, ASH, CONCRETE	
			16	14		25			
		2	8	6				- predominantly COAL ASH & fine SAND in sample #2 (Residue Soaked)	
			4	4		10			
		3	2	3				- predominantly CINDERS in samples # 3 & 4	
5			2	3		5			
		4	2	3					
			4	5		7			
		5	4	4				- predominantly fine SAND, w/ trace cinders & wood below 8.0'	
			6	7		10			
10		6	3	4					
			7	9		11		(Moist-Firm & Loose)	
		7	5	9				Black fine to coarse SAND & GRAVEL, trace to little silt (Residue Saturated)	
			16	21		25			
		8	13	26					
15			26	40		62		(Wet-Firm to Very Compact)	
		9	49	95	100/.4'			Gray SILT, little to Some fine embedded Gravel, little sand (Residue Soaked) (Moist to Wet-Very Compact)	
								Refusal & Bottom of Hole @ 17.4'	
20									

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION: 2½" Hollow Stem Auger Casing

CLASSIFICATION Visual by Geologist JTG

DATE
STARTED 8-4-75
FINISHED 8 4-75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-7
SURF. ELEV.
G. W. DEPTH See Note #1

PROJECT Plattsburgh Gas Plant
Residue Study-NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	10	13				Dark Brown fine SAND & SILT, trace wood (Residue Odor)	
			11	8		23			
		2	8	13				- grades Some Silt, (layered or Stratified) (Damp to Moist-Firm to Compact)	
			19	21		32			
5		3	12	18				Brown fine SAND, trace to little silt	
			20	17		38			
		4	16	16				- w/ Some fine Gravel in sample #4 (Damp to Moist-Compact)	little or no residue odor from 4.0'-10.0'
			22	22		38			
		5	27	43				Brown fine to coarse SAND & GRAVEL (no silt) (Moist)	
10			37	32		80			
		6	24	23				- grades little silt (Residue Saturated) (Moist to Wet-Very Compact)	
			80	86	100/4"	103			
		7	52	78				Gray SILT, Some fine Sand, little to Some embedded fine Gravel (Slight odor) Damp-Very Compact)	
15								Refusal & Bottom of Hole @ 13.4'	

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb. weight falling ____ "per blow.

CLASSIFICATION Visual by Geologist / CTb

METHOD OF INVESTIGATION: 2½" Hollow Stem Auger Casing

DATE
STARTED 8-4-75
FINISHED 8-4-75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-8
SURF. ELEV.
G. W. DEPTH See Note #1

PROJECT Plattsburgh Gas Plant
Residue Study-NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0								The purpose of this boring was to install a water observation well for future ground water readings, therefore no samples were obtained, however driller noted residue soaked or saturated material from 4.0' to 10.5'	Note #1-Water Information. Upon completion of boring a 1½" sealed & capped water observation well was installed @ 11.5' 8-6-75 Water @ 10.0' 8-7-75 water @ 9.4'
5									
10									
15									

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION: 2½" Hollow Stem Auger Casing

CLASSIFICATION Visual by Geologist J C T

DATE
STARTED 8-4-75
FINISHED 8-4-75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-9
SURF. ELEV.
G. W. DEPTH See Note #1

PROJECT Plattsburgh Gas Plant
Residue Study-NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18-	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0								The purpose of this boring was to install a water observation well for future ground water readings, therfore no samples were obtained	Note #1 -Water Information· Upon completion of the boring a 1½" sealed & capped water observation well was installed @ 13.0' 8-6-75 Water @ 10.8' 8-7-75 Water @ 10.4'
5									
10									
15								Auger Refusal & Bottom of Hole @ 13.0'	

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION: 2½" Hollow Stem Auger Casing

CLASSIFICATION Visual by Geologist

DATE
STARTED 8-6-75
FINISHED 8-6-75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-10
SURF. ELEV.
G. W. DEPTH Not Recorded

PROJECT Plattsburgh Gas Plant
Residue Study-NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0		1	0.0-2.0'					Brown fine SAND & SILT, trace organic silt (Dry)	Note #1-All samples were taken of auger flights
		2	2.0'-4.0'						
5		3	4.0'-6.0'					- grades slightly more moist, slight residue odor starting @ 6.0'	
		4	6.0'-7.0'					- grades Some Silt, more moist, trace fibrous organic material, noted cobble or boulder @ 7.0'	
		5	7.0'-9.0'						
10		5A	9.0'-9.5'					- grades fine to medium SAND & SILT trace fibrous organic material, wet from 9.0' to 9.5'(Dry to Wet)	
		6	9.5'-11.0'					Dark Brown fine to medium SAND, trace to little fibrous material, trace fine gravel (Residue Soaked), scattered cobbles or boulders from 9.0'-11.0' (Wet)	Possibly encountered Gray Till @ 11.0'
15								Bottom of Hole @ 11.0'	

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb weight falling ____ "per blow.
METHOD OF INVESTIGATION: 2½" Hollow Stem Auger Casing

CLASSIFICATION Visual by Geologist / ETG

DATE
STARTED 8-6-75
FINISHED 8-6-75
SHEET 1 OF 1

EMPIRE SOILS INVESTIGATIONS, INC.

SUBSURFACE LOG

HOLE NO. B-11
SURF. ELEV.
G. W. DEPTH Not Encountered

PROJECT Plattsburgh Gas Plant
Residue Study-NYSE & G

LOCATION Plattsburgh, New York

DEPTH-FT.	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER 0/6	6/12	12/18	N	BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
0									Note #1-All samples were taken of auger flights
								No Samples were obtained from 0.0'-5.0'	
5		1	5.0'-6.0'					Brown fine SAND, little silt - grades trace silt @ 6.0' (Moist)	
		2	6.0'-7.0'						
		3	7.0'-8.0'					Brown & Dark Brown fine SAND & SILT (Moist to Wet)	
10		4	9.0'-9.5'					Dark Brown fine to medium SAND, little fine gravel, little silt, grades Some fine Gravel @ 9.5' (Wet)	
		5	9.5'-10.5'						
		5A	10.5'-11.0'					Gray SILT, Some embedded Gravel, little fine sand (Damp) (Possible Boulder @ 11.0')	
15								Bottom of Hole @ 11.0'	

N = No. blows to drive 2 "spoon 12 "with 140 lb. pin wt. falling 30 "per blow.
C = No. blows to drive ____ "casing ____ "with ____ lb. weight falling ____ "per blow.
METHOD OF INVESTIGATION: 2½" Hollow Stem Auger Casing

CLASSIFICATION Visual by Geologist ✓ CTC

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-1

SITE Plattsburgh, NY — SHEET No. 1 OF 4

CONTRACTOR: Empire Soils Investiagtions, Inc. — STARTED 7:45 A.M. June 19 19 79; FINISHED .M. July 17 19 79

METHOD OF DRILLING: SOIL Modified Wash Boring — CASING DIAM.

ROCK Diamond Drilling — CORE DIAM. NX 2.185"

LOCATION: LATITUDE; DEPARTURE; BEARING; INITIAL DIP 90°; OTHER DIPS

ELEVATIONS: DATUM USGS; DRILL PLATFORM 126.5; GROUND SURFACE; ROCK SURFACE 90.3; BOTTOM OF HOLE 86.3; WATER TABLE 119.4 (Sept. 28)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Silty Sand (SM-SW)	Medium gray, fine grained, silty sand with some gravel and trace of clay, dry to damp, medium dense to dense, slight plasticity.	1	AQ	2"	0.0 to 2.0	15"	3
			2	AQ	2"	2.0 to 3.5	12"	15 15 15
			3	AQ	2"	3.5 to 5.0	11"	8 10 12
			4	AQ	2"	5.0 to 6.5	11"	11 12 9
			5	AQ	2"	6.5 to 8.0	0	6 10 16
			6	AQ	2"	9.0 to 10.5	4"	6 7 31
			7	AQ	2"	10.5 to 12.0	8"	9 12 15

SAMPLING METHOD
*A – SPLIT TUBE
B – THIN WALL TUBE
C – PISTON SAMPLER
D – CORE BARREL
E – AUGER
F – WASH

SHIPPING CONTAINER
N – INSERT
O – TUBE
P – WATER CONTENT TIN
Q – GLASS JAR
R – CLOTH BAG
S – PLIOFILM BAG
Z – DISCARDED

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO. B1-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-1

SITE Plattsburgh, NY — SHEET No. 2 OF 4

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
			8	AQ	2"	12.0 to 13.5	10"	72 21 22
			9	AQ	2"	14.0 to 15.5	8"	18 16 21
			10	AQ	2"	15.5 to 17.0	5"	17 14 33
17.0	Till	Medium gray, fine grained silty sand with some gravel and trace of clay and boulders, damp to moist, extremely dense, slight plasticity.	11	AQ	2"	17.0 to 18.5	8"	35 73 38
			12	AQ	2"	18.5 to 20.0	4.5"	80 47 102
			13	AQ	2"	20.0 to 21.9	10"	76 86 67 55/5"
			14	AQ	3"	21.9 to 22.5	4"	R 133/6"
			15	AQ	2"	24.0 to 25.4	14"	38 51 R 100/5"
		26.0-26.7' Dark gray silty clay, damp to moist, very stiff to hard, high elasticity, contains thin partings of silt throughout.	16	AQ	2"	26.0 to 28.0	24"	36 R 132/6"
			17	AQ	2"	28.7 to 29.2	6"	R 100/6"
			18	AQ	2"	31.0 to 31.7	8"	100/6" 19/2"

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-1

SITE Plattsburgh, NY — SHEET No. 3 OF 4

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE					PENETRATION TEST
			NO.	TYPE	SIZE	DEPTH	RET'D	Blows/6"
			19	AQ	2"	34.9 to 35.4	6"	R 121/6'
36.2	Bedrock	For description see next page.						
40.2		End of borehole.						

FORM NO 91-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE&G..... JOB No. P5435.00

PROJECT Coal Tar Study HOLE No. 79-1

SITE Plattsburgh, NY SHEET No. 4 OF 4

DEPTH	ROCK TYPE	DESCRIPTION	LENGTH OF RUN	% CORE (RQD
0.0	Overburden	Description given on previous pages		
36.2	Limestone	Dark gray to black, very fine grained limestone, fresh, hard generally competent, massive.	Run 1 36.2 to 40.2	3.1 (2.5
		Several joints at 90° to core axis. Joint spacing close to moderately close. Range 0.6' to 1.2', average 0.8'. Contains a few very thin (<0.01') joints approximately parallel to core axis, healed with calcite.		
40.2		End of borehole.		

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-2

SITE Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigations, Inc. — STARTED 7:45 A.M. June 21 19 79; FINISHED 11:00 A.M. June 21 19 79

METHOD OF DRILLING: SOIL Hollow Stem Augers — CASING DIAM. 3¼" I.D. Auger; ROCK — CORE DIAM. NX 2.185"

LOCATION: LATITUDE; DEPARTURE; BEARING; INITIAL DIP 90°; OTHER DIPS

ELEVATIONS: DATUM USGS; DRILL PLATFORM; GROUND SURFACE 117.9; ROCK SURFACE; BOTTOM OF HOLE 102.9; WATER TABLE 107.3 (Sept. 28)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE *	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Sand and Gravel (SW-SP)	Light grayish brown sand and gravel, dry, loose to medium dense.	1	AQ	2"	0.0 to 2.0	8"	6 8 5 7
0.5	Fill	Dark brown to black fill consisting mainly of cinders and ash with some sand, gravel, brick and coal fragments. Dry to damp, medium dense.	2	AQ	2"	2.0 to 4.0	7"	6 11 7 5
			3	AQ	2"	4.0 to 6.0	11"	9 8 4 5
4.0	Silty Sand (SM)	Yellow brown, fine grained silty sand with trace of gravel and clay, damp to moist, medium dense.	4	AQ	2"	6.0 to 8.0	9"	3 4 8 9
		5.3-5.5' Saturated with 'light ends' from coal tar. Strong odor but no visible tar.	5	AQ	2"	8.0 to 10.0	2"	14 11 7 6

SAMPLING METHOD
* A – SPLIT TUBE; B – THIN WALL TUBE; C – PISTON SAMPLER; D – CORE BARREL; E – AUGER; F – WASH

SHIPPING CONTAINER
N – INSERT; O – TUBE; P – WATER CONTENT TIN; Q – GLASS JAR; R – CLOTH BAG; S – PLIOFILM BAG; Z – DISCARDED

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO. 21-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-2

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE					PENETRATION TEST
			NO.	TYPE	SIZE	DEPTH	REC'D	Blows/6"
11.3	Sand and Gravel (SW-SP)	Brown to black, fine to coarse grained sand and gravel. Gravel up to 1¼" diameter. Saturated, loose to dense. Becomes more gravelly with depth.	6	AQ	3"	10.0 to 11.7	14"	14 10 6 R 100/2"
		Dark brown to black droplets of coal tar on and between soil particles throughout. Oil sheen and strong odor.	7	AQ	2"	13.7 to 15.0	14"	41 54 R 100/4"
11.3	Till (SM-SW)	Medium gray Till- silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity, impermeable to coal tar.						
15.0		End of borehole.						

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK
DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-3

SITE Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigations, Inc. — STARTED 2:55 P.M. June 21 19 79; FINISHED 7:55 A.M. June 22 19 79

METHOD OF DRILLING: SOIL Hollow stem augers — ~~CASING~~ DIAM. 3¼" I.D. Auger; ROCK — CORE DIAM.

LOCATION: LATITUDE; DEPARTURE; BEARING; INITIAL DIP 90°; OTHER DIPS

ELEVATIONS: DATUM USGS; DRILL PLATFORM; GROUND SURFACE 114.4; ROCK SURFACE; BOTTOM OF HOLE 102.2; WATER TABLE 107.6 (Sept. 28)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE *	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Silty Sand (SM)	Yellow brown, fine grained silty sand with trace of clay, gravel and organics (plant roots). Dry to damp, loose to medium dense.	1	AQ	2"	0.0 to 2.0	8"	2 2 3 3
			2	AQ	2"	2.0 to 4.0	10"	3 7 10 6
			3	AQ	2"	4.0 to 6.0	14"	4 5 4 5
6.0	Sand and Gravel (SP)	Yellow brown to dark brown, fine to coarse grained sand with trace to some gravel. Gravel up to 1" diameter. Saturated, dense to very dense.	4	AQ	2"	6.0 to 8.0	14"	14 18 16 25
		8.5-10.2 - Dark brown to black droplets of coal tar on and between soil particles. Oil sheen and strong odor.	5	AQ	2"	8.0 to 10.0	8"	68 39 64 45

SAMPLING METHOD
* A – SPLIT TUBE; B – THIN WALL TUBE; C – PISTON SAMPLER; D – CORE BARREL; E – AUGER; F – WASH

SHIPPING CONTAINER
N – INSERT; O – TUBE; P – WATER CONTENT TIN; Q – GLASS JAR; R – CLOTH BAG; S – PLIOFILM BAG; Z – DISCARDED

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO. B1-4

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-3

SITE Plattsburgh, NY — SHEET No 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION; COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE					PENETRATION TEST
			NO.	TYPE	SIZE	DEPTH	RET'D	Blows/6"
10.2	Till (SM-SW)	Medium gray till-silt and fine sand with some medium to course sand and gravel and trace to some clay and cobbles. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.	6	AQ	2"	10.9 to 12.2	14"	21 32 R 94/4"
12.2		End of borehole.						

FORM NO 91-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-4

SITE Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigations, Inc. — STARTED 10:15 A.M. June 22 19 79; FINISHED 4:30 P.M. June 25 19 79

METHOD OF DRILLING: SOIL Hollow Stem Auger — CASING DIAM.; ROCK — CORE DIAM.

LOCATION: LATITUDE; DEPARTURE; BEARING; INITIAL DIP 90°; OTHER DIPS

ELEVATIONS: DATUM USGS; DRILL PLATFORM; GROUND SURFACE 120.8; ROCK SURFACE; BOTTOM OF HOLE 100.5; WATER TABLE 107.8 (Sept.28)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Fill	Black fill material consisting mainly of cinders and ash with some sand, gravel, brick and coal fragments. Dry to damp, loose.	1	AQ	2"	0.0 to 2.0	10"	3 4 4 11
			2	AQ	2"	2.0 to 4.0	6"	9 4 3 4
			3	AQ	2"	4.0 to 6.0	4"	1 1 2 2
7.5	Sand (SM-SP)	Yellow brown, fine grained sand with trace to some silt and gravel. Contains numerous thin (<0.1') layers of wood chips throughout. Saturated, loose.	4	AQ	2"	6.0 to 8.0	8"	2 4 5 6

SAMPLING METHOD
*A – SPLIT TUBE
B – THIN WALL TUBE
C – PISTON SAMPLER
D – CORE BARREL
E – AUGER
F – WASH

SHIPPING CONTAINER
N – INSERT
O – TUBE
P – WATER CONTENT TIN
Q – GLASS JAR
R – CLOTH BAG
S – PLIOFILM BAG
Z – DISCARDED

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO 81-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-4

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION; COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
		9.0-12.0 - Saturated with 'light ends' of coal tar. Dark color and strong odor. No visible droplets of tar.	5	AQ	2"	10.0 to 12.0	16"	1 2 3 3
12.0	Fill	Black cinders and ash (as above). Saturated with 'light ends' of coal tar.	6	AQ	2"	10.0 to 12.0	16"	1 2 3 3
13.5	Sand and gravel (SW-SP)	Brown to black, fine to course grained sand and gravel, with trace of silt. Gravel up to 1" diameter. Occasional boulders up to 12" diameter. Saturated, medium dense to extremely dense.	7	AQ	2"	12.0 to 14.0	5"	4 2 2 3
		Dark brown to black droplets of coal tar on and between soil particles throughout. Oil sheen and strong odor.	8	AQ	2"	16.0	0	R 100/0"
			9	AQ	2"	16.0	0	R 100/0"
19.0	Till	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Damp to moist, extremely dense.	10	AQ	2"	18.0 to 19.5	18"	43 49 66
			11	AQ	2"	19.5 to 20.3	6"	76 --
20.3		End of borehole.						

FORM NO 81-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-5

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
		8.5-15.3 - Saturated with 'light ends' of coal tar. Strong odor, no visible coal tar.	5A	AQ	2"	8.0 to 10.5	14"	HYD PUSH
			6	AQ	2"	10.5 to 12.0	9"	3 4 4
			7	AQ	2"	12.0 to 14.0	16"	4 4 10 9
15.3	Sand and Gravel	Brown to black, fine to coarse grained sand and gravel. Gravel up to 1" diameter. Saturated, dense to very dense.	8	AQ	2"	14.0 to 16.0	23"	12 11 17 46
		Dark brown to black droplets of coal tar on and between soil particles. Oil sheen and strong odor.	9	AQ	2"	17.3 to 18.8	11"	21 37 42
18.0	Till	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.						
18.8		End of borehole.						

FORM NO 91-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT: NYSE & G — JOB No.: P5435.00

PROJECT: Coal Tar Study — HOLE No.: 79-6

SITE: Plattsburgh, NY — SHEET No.: 1 OF 2

CONTRACTOR: Empire Soils Investigations Inc. — STARTED: 12:50 P.M. June 27, 1979 — FINISHED: 4:30 P.M. June 27, 1979

METHOD OF DRILLING: SOIL: Hollow Stem Augers — ~~CASING~~ Auger DIAM.: 3¼" I.D.

ROCK: — CORE DIAM.:

LOCATION: LATITUDE: — DEPARTURE: — BEARING: — INITIAL DIP: 90° — OTHER DIPS:

ELEVATIONS: DATUM: USGS — DRILL PLATFORM: — GROUND SURFACE: 120.9 — ROCK SURFACE: — BOTTOM OF HOLE: 100.9 — WATER TABLE: ∿110.5

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE *	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Fill	Dark brown to black fill material consisting mainly of cinders and ash with some sand, gravel, brick and coal fragments. Dry to damp, medium dense to dense.	1	AQ	2"	0.0 to 2.0	11"	13 16 14 11
			2	AQ	2"	2.0 to 4.0	8"	24 16 8 12
4.0	Wood Chips	Black wood chips with some cinders and ash and trace of sand and silt. Very spongy and absorbent, medium dense.	3 (3A)	AQ (AQ)	2" (3")	4.0 to 6.0	0" (9")	6(7) 6(6) 7(6) 8(7)
		Saturated with dark brown to black coal tar. Visible droplets on and between soil particles throughout. Strong odor.	4	AQ	2"	6.0 to 8.0	13"	6 6 3 4
			5	AQ	2"	8.0 to 10.0	17"	2 3 5 6

SAMPLING METHOD
* A – SPLIT TUBE
B – THIN WALL TUBE
C – PISTON SAMPLER
D – CORE BARREL
E – AUGER
F – WASH

SHIPPING CONTAINER
N – INSERT
O – TUBE
P – WATER CONTENT TIN
Q – GLASS JAR
R – CLOTH BAG
S – PLIOFILM BAG
Z – DISCARDED

INSPECTOR: R. Henschel

LOGGED BY: R. Henschel

APPROVED:

DATE:

FORM NO 91-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-6

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
10.5	Wood Chips	(Same as above).	6 (6A)	AQ (AQ)	2" (3")	10.0 to 12.0	0" (6")	6 4 7 4
10.7	Sand	Dark gray to black fine grained sand with trace to some gravel. Saturated, medium dense to dense. Partially liquified.	7 (7A)	AQ (AQ)	2" (3")	12.0 to 14.0	0" (14")	- - 23 13
		Dark brown to black droplets of coal tar on and between soil particles throughout.	8	AQ	2"	14.0 to 16.0	14"	17 26 26 67
14.7	Gravel and Soil	Dark brown gravel and fine to medium grained sand. Saturated, very dense. Partially liquified.	9	AQ	2"	16.0 to 18.0	16"	36 93 32 32
		Contains dark brown to black droplets of coal tar on and between soil particles. Strong odor.	10	AQ	2"	18.5 to 20.0	18"	20 31 45
17.0	Till	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.						
		18.5-19.0 Dark gray clay with trace to some silt, damp, very dense, greasy. Hightly plastic when wetted.						
20.0		End of borehole.						

FORM NO 91-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE&G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-7

SITE Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigation, Inc. — STARTED 7:45 A.M. June 28, 1979 — FINISHED 10:30 A.M. June 28, 1979

METHOD OF DRILLING: SOIL Hollow Stem Augers — ~~CASING~~ Auger DIAM. 3¼" I.D.

ROCK — CORE DIAM.

LOCATION: LATITUDE — DEPARTURE — BEARING — INITIAL DIP 90° — OTHER DIPS

ELEVATIONS: DATUM USGS — DRILL PLATFORM — GROUND SURFACE 118.1 — ROCK SURFACE — BOTTOM OF HOLE 101.1 — WATER TABLE ~107.7

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Fill	Dark brown to black fill material consisting mainly of cinders and ash with some sand, gravel, brick and coal fragments. Dry to damp, loose to medium dense.	1	AQ	2"	0.0 to 2.0	14"	3 6 6 5
			2	AQ	2"	2.0 to 4.0	6"	4 5 4 3
4.0	Sand (SP-SM)	Yellow to rusty brown; to black fine grained sand with trace to some silt and gravel. Occasional plant roots. Damp to moist, loose to medium dense.	3	AQ	2"	4.0 to 6.0	17"	5 3 4 5
			4	AQ	2"	6.0 to 8.0	14"	3 5 5 8
9.6	Gravel and Sand (GW-SW)	Medium brown to dark gray gravel and fine to coarse sand with trace silt and cobbles. Saturated, very dense.	5	AQ	2"	8.0 to 10.0	13"	5 4 6 20

SAMPLING METHOD
*A – SPLIT TUBE
B – THIN WALL TUBE
C – PISTON SAMPLER
D – CORE BARREL
E – AUGER
F – WASH

SHIPPING CONTAINER
N – INSERT
O – TUBE
P – WATER CONTENT TIN
Q – GLASS JAR
R – CLOTH BAG
S – PLIOFILM BAG
Z – DISCARDED

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO. B1-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-7

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION; COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
			6	AQ	2"	10.0 to 10.5	0"	R 100/6"
		12.8-14.6 Contains dark brown to black droplets of coal tar on and between soil particles. Strong odor.	7	AQ	2"	11.0 to 13.0	13"	21 28 41 21
14.6	Till	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.	8	AQ	2"	13.0 to 15.0	14"	32 60 52 58
			9	AQ	2"	15.5 to 17.0	10"	43 40 63
17.0		End of borehole.						

FORM NO 91-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-8

SITE Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigations, Inc. — STARTED 12:40 P.M. June 28, 1979 — FINISHED 4:30 P.M. June 28, 1979

METHOD OF DRILLING: SOIL Hollow Stem Augers — CASING ~~DIAM.~~ Auger DIAM. 3¼" I.D.

ROCK — CORE DIAM.

LOCATION: LATITUDE — DEPARTURE — BEARING — INITIAL DIP 90° — OTHER DIPS

ELEVATIONS: DATUM USGS — DRILL PLATFORM — GROUND SURFACE 117.3 — ROCK SURFACE — BOTTOM OF HOLE 104.3 — WATER TABLE 108.1 (Sept. 28)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Sand	Light brown fine grained sand with trace to some gravel and silt, dry, dense.	1	AQ	2"	0.0 to 2.0	10"	12 21 20 10
1.7	Silty Sand (SM)	Dark brown to grayish green fine grained silty sand with occasional plant roots, damp, loose.	2	AQ	2"	2.0 to 4.0	8"	8 5 3 3
		Partially saturated with 'light ends' of coal tar. Strong odor but no visible tar.	3	AQ	2"	4.0 to 6.0	9"	4 3 2 3
6.5	Sand and Gravel (SW-SP)	Medium to dark gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diam. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.	4	AQ	2"	6.0 to 8.0	10"	4 4 9 9
			5 (5A)	AQ	2" (3")	8.0 to 9.5	1" (1")	12 9 13

SAMPLING METHOD
*A – SPLIT TUBE
B – THIN WALL TUBE
C – PISTON SAMPLER
D – CORE BARREL
E – AUGER
F – WASH

SHIPPING CONTAINER
N – INSERT
O – TUBE
P – WATER CONTENT TIN
Q – GLASS JAR
R – CLOTH BAG
S – PLIOFILM BAG
Z – DISCARDED

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO. 21-1

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-8

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE					PENETRATION TEST
			NO.	TYPE	SIZE	DEPTH	RET'D	Blows/6"
		Partially liquified locally, slight coal tar odor and oil sheen. No visible tar.	6	AQ	3"	10.0 to 11.0	10"	25 R 125/6"
		9.8-10.8 Contains dark brown to black droplets of coal tar on and between soil particles. Strong odor.	7	AQ	2"	11.0 to 12.0	9"	45 R 100/6"
10.8	Till (SM-SW)	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.						
13.0		End of borehole.						

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-9

SITE Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigation, Inc. — STARTED 4:00 P.M. July 2 19 79; FINISHED 9:00 A.M. July 3 19 79

METHOD OF DRILLING: SOIL Hollow Stem Augers — CASING Auger DIAM. 3¼" I.D.; ROCK — CORE DIAM.

LOCATION: LATITUDE; DEPARTURE; BEARING; INITIAL DIP 90°; OTHER DIPS

ELEVATIONS: DATUM; DRILL PLATFORM; GROUND SURFACE 126.6; ROCK SURFACE; BOTTOM OF HOLE 102.6; WATER TABLE 115.5 (Sept. 28)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE *	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Silty Sand (SM)	Medium to dark brown, very fine to fine grained silty sand with trace to some gravel. Damp, medium dense. Occasional 1" thick layers of dark brown sandy silt with trace of clay.	1	AQ	2"	0.0 to 2.0	9"	4 8 7 9
			2	AQ	2"	2.0 to 4.0	19"	8 10 9
3.8	Sand (SP-SW)	Medium brown fine grained sand with trace to some coarse sand and gravel and silt (occasional pebbles up to 1" diameter). Damp, very dense.						15
			3	AQ	2"	4.0 to 6.0	18"	21 27 30 25
7.0	Sandy Silt (ML-SM)	Medium to dark brown, very fine grained sandy silt with trace to some clay and coarse sand. Damp, very stiff to hard, slight to medium plasticity, greasy, cohesive. Occasional pebbles up to ½" diameter.	4	AQ	2"	6.0 to 8.0	18"	20 21 36 20
			5	AQ	2"	8.5 to 10.0	10"	27 17 23

SAMPLING METHOD
* A – SPLIT TUBE; B – THIN WALL TUBE; C – PISTON SAMPLER; D – CORE BARREL; E – AUGER; F – WASH

SHIPPING CONTAINER
M – INSERT; O – TUBE; P – WATER CONTENT TIN; Q – GLASS JAR; R – CLOTH BAG; S – PLIOFILM BAG; Z – DISCARDED

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO 81-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-9

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
8.3	Clayey Silt (ML-CL)	Medium to dark brown clayey silt with trace to some fine sand and gravel, moist, very stiff to hard, medium plasticity, greasy, cohesive. Occasional pebbles up to 1" diameter.	6	AQ	2"	10.0 to 12.0	8"	39 17 38 32
			7	AQ	2"	12.0 to 13.5		31 42 R 100/6"
11.4	Sand (SP-SW)	Same as above.	8	AQ	2"	14.0 to 14.8	6"	129 R 100/3"
12.6	Till (SM-SW)	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and pebbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar. NOTE: 8/22/79-hole was triconed from 14.8' down to 24.0'. (No sampling) to allow installation of piezometer.						
24.0		End of borehole.						

FORM NO 81-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-11

SITE Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigation, Inc. — STARTED 10:10 A.M. July 18 19 79; FINISHED 4:00 A.M. July 18 19 79

METHOD OF DRILLING: SOIL Hollow Stem Augers — ~~CASING~~ DIAM. 3¼" I.D. Auger

ROCK — CORE DIAM.

LOCATION: LATITUDE; DEPARTURE; BEARING; INITIAL DIP 90°; OTHER DIPS

ELEVATIONS: DATUM USGS; DRILL PLATFORM; GROUND SURFACE 121.4; ROCK SURFACE; BOTTOM OF HOLE 101.4; WATER TABLE 107.6 (Sept. 28)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Fill	Medium to dark brown fill material consisting mainly of fine to medium grained sand with some cinders, ash, coal, and brick fragments. Dry, medium, dense.	1	AQ	2"	0.0 to 2.0	12"	7 7 6 9
			2	AQ	2"	2.0 to 4.0	9"	16 10 8 9
		Grades downward to medium brown fine grained sandy silt with trace of clay, medium dense, slight plasticity, cohesive. Occasional pebbles up to 3/4" diameter.	3	AQ	2"	4.0 to 6.0	16"	6 5 5 3
5.0	Sand	Yellow brown to medium gray fine grained sand with trace to some gravel. Several layers up to 4" thick of ash and coal fragments, silty clay and wood chips. Moist to wet, loose to medium dense. Occasional cobbles and boulders.	4	AQ	2"	6.0 to 8.0	11"	2 2 11 7
			5	AQ	2"	9.0 to 10.5	9"	3 3 5
9.0	Wood Chips and Sand	Medium brown wood chips and fine grained sand. Highly compressible, saturated, loose.	6 (6A)	AQ	2" (3")	10.5 to 12.0	0" (7")	4(3) 4(5) 4(6)

SAMPLING METHOD
- A – SPLIT TUBE
- B – THIN WALL TUBE
- C – PISTON SAMPLER
- D – CORE BARREL
- E – AUGER
- F – WASH

SHIPPING CONTAINER
- N – INSERT
- O – TUBE
- P – WATER CONTENT TIN
- Q – GLASS JAR
- R – CLOTH BAG
- S – PLIOFILM BAG
- Z – DISCARDED

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO 81-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-11

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
			7	AQ	2"	12.0 to 14.0	14"	2 2 3 4
12.2	Sand	Black to greenish gray very fine sand with trace to some silt. Some organics in upper few inches. Saturated, loose, very clean.	8	AQ	2"	14.5 to 16.5	11"	10 10 17 53
16.1	Sand and Gravel	Dark brown to black, fine to coarse grained sand and gravel. Gravel up to 1" diameter. Saturated, dense to very dense. Becomes more gravelly with depth. Contains dark brown to black droplets of coal tar on and between soil particles. Oil sheen and strong odor. Occasional cobbles and boulders.	9	AQ	2"	16.5 to 18.5	6"	64 35 28 65
			10	AQ	2"	19.5 to 20.0	0"	R 100/6"
19.2	Till	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.						
20.0		End of borehole.						

FORM NO 91-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-12

SITE Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigations, Inc. — STARTED 10:00 A.M. June 29, 1979 — FINISHED 2:20 P.M. July 2, 1979

METHOD OF DRILLING: SOIL Hollow Stem Augers — CASING DIAM.

ROCK — CORE DIAM.

LOCATION: LATITUDE; DEPARTURE; BEARING; INITIAL DIP 90°; OTHER DIPS

ELEVATIONS: DATUM U.S.G.S.; DRILL PLATFORM; GROUND SURFACE 117.1; ROCK SURFACE; BOTTOM OF HOLE 103.5; WATER TABLE 107.6 (Sept. 28)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Sand (SP)	Light brown to yellow brown, fine grained sand with some medium grained sand and silt. Damp to moist, loose very uniform, roof fragments throughout. 1.5 - 2.3 dark brown fine grained sand with organics.	1	AQ	2"	0.0 to 2.0	14"	4 9 6 5
			2	AQ	2"	2.0 to 4.0	11"	2 4 4 3
			3	AQ	2"	4.0 to 6.0	6"	3 3 4 7
7.4	Sand and Gravel (SW-SP)	Medium brown to yellow brown to black, fine to coarse grained sand and gravel. Gravel up to 1" diameter. Saturated, medium dense to dense. Becomes more gravelly with depth.	4	AQ	2"	6.0 to 8.0	11"	4 4 8 10
			5 (SA)	AQ	2 (3")	8.0 to 10.0	5" ( )	30 23 (4) 12 (23) 15 (29)

SAMPLING METHOD
*A - SPLIT TUBE; B - THIN WALL TUBE; C - PISTON SAMPLER; D - CORE BARREL; E - AUGER; F - WASH

SHIPPING CONTAINER
N - INSERT; O - TUBE; P - WATER CONTENT TIN; Q - GLASS JAR; R - CLOTH BAG; S - PLIOFILM BAG; Z - DISCARDED

INSPECTOR R. Henschel

LOGGED BY R. Henschel

APPROVED

DATE

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-12

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION; COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
		11.1 - 12.2 totally impregnated with coal tar. Contains very thick black tar/oil on and between soil particles	6	AQ	2"	10.0 to 12.0	14"	18 12 9 10
12.2	Till	Medium gray Till - silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.	7	AQ	2"	12.0 to 12.8	11"	95 R 100/3"
			8	AQ	2"	13.0 to 13.6	6"	70 R 100/1"
13.6		End of Borehole						

FORM NO 81-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-13

SITE Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigations, Inc. — STARTED 11:15 A.M. July 3, 1979 — FINISHED 3:30 P.M. July 3, 1979

METHOD OF DRILLING: SOIL Hollow Stem Augers — CASING DIAM.

ROCK — CORE DIAM.

LOCATION: LATITUDE; DEPARTURE; BEARING; INITIAL DIP 90°; OTHER DIPS

ELEVATIONS: DATUM U.S.G.S.; DRILL PLATFORM; GROUND SURFACE 113.4; ROCK SURFACE; BOTTOM OF HOLE 102.7; WATER TABLE 107.4 (Sept. 28)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Topsoil	Dark brown to black topsoil, dry to damp.	1	AQ	2"	0.0 to 2.0	6"	1 1 2 1
0.5	Sand (SP)	Medium to dark brown, fine grained sand with some silt and trace of medium grained sand and gravel. Damp to moist, loose to medium dense. Root fragments throughout.	2	AQ	2"	2.0 to 4.0	8"	2 3 2 2
			3	AQ	2"	4.0 to 6.0	14"	4 13 5 5
7.0	Sand and Gravel (SW-SP)	Light gray to black, fine to coarse grained sand and gravel. Gravel up to 1" diameter. Saturated, dense. Becomes more gravely with depth.	4	AQ	2"	6.0 to 7.5	6"	17 17 27
			5	AQ	2"	7.5 to 8.7	11"	30 59 R 100/2"
		8.0 - 8.2 contains dark brown to black droplets of coal tar on and between	6	AQ	2"	9.2 to 10.7	20"	73 51 62

SAMPLING METHOD
*A – SPLIT TUBE
B – THIN WALL TUBE
C – PISTON SAMPLER
D – CORE BARREL
E – AUGER
F – WASH

SHIPPING CONTAINER
N – INSERT
O – TUBE
P – WATER CONTENT TIN
Q – GLASS JAR
R – CLOTH BAG
S – PLIOFILM BAG
Z – DISCARDED

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO. 81-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-13

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
		soil particles. Oil sheen and strong odor.						
8.2	Till (SM-SW)	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.						
		9.5 - 10.1 - dark gray silt with trace of clay, damp, very stiff, slight plasticity.						
		10.1 - 10.7 - dark gray, fine grained sand with trace of gravel and silt. Damp, very dense.						
10.7		End of Borehole						

FORM NO 81-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-14

SITE Plattsburgh, NY. — SHEET No. 1 OF 3

CONTRACTOR: Empire Soils Investigations, Inc. — STARTED 8:05 A.M. July 4, 1979 — FINISHED 4:30 P.M. July 11, 1979

METHOD OF DRILLING: SOIL Modified Wash Boring — CASING DIAM. NX - 4-1/8" I.D. NX - 3-3/16" I.D.

ROCK Diamond Drilling — CORE DIAM. NX - 2.185"

LOCATION: LATITUDE; DEPARTURE; BEARING; INITIAL DIP 90°; OTHER DIPS

ELEVATIONS: DATUM U.S.G.S.; DRILL PLATFORM; GROUND SURFACE 112.7; ROCK SURFACE 89.1; BOTTOM OF HOLE 84.9; WATER TABLE 105.2 (Sept.28)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Topsoil	Dark brown to black topsoil, dry, loose mainly fine sand with some silt and organics.	1	AQ	2"	0.0 to 2.0	9"	3 3 2 2
2.0	Sand	Dark brown, fine grained sand with some silt and trace of medium grained sand and gravel. Wood chips and some plant roots throughout, damp to saturated, very loose. 5.5 - 7.5 partially liquified.	2	AQ	2"	2.0 to 4.0	6"	2 2 2 6
			3	AQ	2"	4.0 to 5.5	6"	3 2 3
		5.5 - 8.7 strong coal tar odor but no visible tar, 'light ends' of coal tar.	4 (4A)	AQ	2" (3")	5.5 to 7.5	0" (0")	4 3(2) 2(3) --(5)
8.7	Gravel and Sand (GW-GP)	Gray black to black gravel and fine to medium grained sand, saturated, very dense.	5	AQ	3"	7.5 to 9.0	23"	53 33 38
			6	AQ	2"	9.0 to 11.0	10"	22 30 39 47

SAMPLING METHOD
*A - SPLIT TUBE; B - THIN WALL TUBE; C - PISTON SAMPLER; D - CORE BARREL; E - AUGER; F - WASH

SHIPPING CONTAINER
N - INSERT; O - TUBE; P - WATER CONTENT TIN; Q - GLASS JAR; R - CLOTH BAG; S - PLIOFILM BAG; Z - DISCARDED

INSPECTOR R. Henschel

LOGGED BY R. Henschel

APPROVED

DATE

FORM NO. B1-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-14

SITE Plattsburgh, NY — SHEET No. 2 OF 3

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
		Contains dark brown to black droplets of coal tar on and between soil particles. Oil sheen and strong odor.	7 (7A)	AQ	2" (2")	11.2 to 12.7	0 (0)	36 70 74
12.8	Till (SM-SW)	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar. Not as dense as Till in other holes, easily cut with knife.	8	AQ	2"	12.6 to 14.6	21"	32 32 37 55
			9	AQ	2"	14.6 to 15.3	4"	88 R 100/3"
			10	AQ	2"	19.5 to 20.2	8"	50 R 100/3"
		19.5 - 20.3 - medium gray fine sand with some gravel partially liquified						
23.6	Bedrock	For description see following page						
27.8		End of Borehole						

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-14

SITE Plattsburgh, NY — SHEET No. 3 OF 3

DEPTH	ROCK TYPE	DESCRIPTION	LENGTH OF RUN	% CORE (RQD)
0.0	Overburden	For description see previous pages		
23.6	Limestone	Dark gray to black, very fine grained limestone, hard, generally competent, massive appearance Several joints (bedding) at 70-90° to core axis, joint spacing close, ranging from 0.5 - 0.7'. One joint at 45° to core axis with thin calcite coating.	Run 1 24.0 to 27.8	3.4 (2.8)
27.8		End of Borehole		

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT: NYSE & G — JOB No.: P5435.00

PROJECT: Coal Tar Study — HOLE No.: 79-15

SITE: Plattsburgh, NY — SHEET No.: 1 OF 2

CONTRACTOR: Empire Soils Investigations, Inc. — STARTED: 12:15 P.M. July 3, 1979 — FINISHED: 1:40 P.M. July 16, 1979

METHOD OF DRILLING: SOIL: Hollow Stem Augers — ~~CASING~~ Auger DIAM.: 3¼" I.D.

ROCK: — CORE DIAM.:

LOCATION: LATITUDE: — DEPARTURE: — BEARING: — INITIAL DIP: 90° — OTHER DIPS:

ELEVATIONS: DATUM: U.S.G.S. — DRILL PLATFORM: — GROUND SURFACE: 109.4 — ROCK SURFACE: — BOTTOM OF HOLE: 96.5 — WATER TABLE: 104.7 (Sept.28)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE *	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Sand (SP)	Light to dark brown fine grained sand with some medium grained sand and silt. Dry to saturated, loose to medium dense	1	AQ	2"	0.0 to 2.0	3"	1 2 1 2
			2	AQ	2"	2.0 to 4.0	4"	2 2 3 3
		5.3 - 7.2 black sand grains coated with coal tar, slight odor. Very little liquid coal tar between grains.	3 (3A) (3B)	AQ	3" (3") (3")	4.0 to 7.3	0" (4") (7")	6 8 4 7 (7) (16)
7.2	Gravel and Sand	Black gravel and fine to medium grained sand. Saturated, dense to very dense soil particles totally coated with black coal tar. Visible droplets of tar between grains. Oil sheen and strong odor.	4	AQ	2"	7.4 to 7.9	7"	R 100/6"
			5	AQ	2"	7.9 to 9.9	20"	30 25 24 54

SAMPLING METHOD
* A - SPLIT TUBE
B - THIN WALL TUBE
C - PISTON SAMPLER
D - CORE BARREL
E - AUGER
F - WASH

SHIPPING CONTAINER
N - INSERT
O - TUBE
P - WATER CONTENT TIN
Q - GLASS JAR
R - CLOTH BAG
S - PLIOFILM BAG
Z - DISCARDED

INSPECTOR: R. Henschel — APPROVED:

LOGGED BY: R. Henschel — DATE:

FORM NO. 91-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-15

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION; COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE					PENETRATION TEST
			NO.	TYPE	SIZE	DEPTH	RET'D	Blows/6"
			6	AQ	2"	9.9 to 10.5	2"	R 121/6"
10.8	Till	Medium gray Till - silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.	7	AQ	2"	11.0 to 11.5	0"	R 135/6"
			8	AQ	2"	12.5 to 12.9	4"	R 100/5"
12.9		End of Borehole						

FORM NO 91-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT: NYSE & G — JOB No.: P5435.00

PROJECT: Coal Tar Study — HOLE No.: 79-16

SITE: Plattsburgh, NY — SHEET No.: 1 OF 3

CONTRACTOR: Empire Soils Investigations, Inc. — STARTED: 8:45 A.M. August 15, 1979 — FINISHED: 4:15 P.M. August 15, 1979

METHOD OF DRILLING: SOIL: Modified Wash Boring — CASING DIAM.: NX 4-1/8" I.D.

ROCK: Diamond Drilling — CORE DIAM.: NX 2.185"

LOCATION: LATITUDE; DEPARTURE; BEARING; INITIAL DIP 90°; OTHER DIPS

ELEVATIONS: DATUM: U.S.G.S.; DRILL PLATFORM; GROUND SURFACE: 118.6; ROCK SURFACE: 99.7; BOTTOM OF HOLE: 97.3; WATER TABLE: 104.9 (Sept. 28)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Sand (SP)	Light brown to yellow brown fine grained sand with some silt and medium grained sand. Damp to moist, loose to medium dense.	1	AQ	2"	0.0 to 2.0	7"	2 6 6 6
			2	AQ	2"	2.0 to 4.0	7"	4 2 2 3
3.7	Fill	Dark brown, fine to coarse grained sand and gravel with some silt, clay and wood chips. Moist to wet, soft to firm, slight plasticity	3	AQ	2"	4.0 to 5.0	8"	6 80
			4	AQ	2"	5.2 to 7.2	4"	6 4 7 5
6.9	Organic Material	Dark brown leaves and plant fibers interwoven into homogeneous mass. Highly compressible, saturated, soft, low density.	5	AQ	2"	7.5 to 9.5	13"	6 4 4 5

SAMPLING METHOD
*A – SPLIT TUBE
B – THIN WALL TUBE
C – PISTON SAMPLER
D – CORE BARREL
E – AUGER
F – WASH

SHIPPING CONTAINER
N – INSERT
O – TUBE
P – WATER CONTENT TIN
Q – GLASS JAR
R – CLOTH BAG
S – PLIOFILM BAG
Z – DISCARDED

INSPECTOR: R. Henschel

LOGGED BY: R. Henschel

APPROVED

DATE

FORM NO. 91-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-16

SITE Plattsburgh, NY — SHEET No. 2 OF 3

DEPTH (ft)	SOIL TYPE	DESCRIPTION; COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
			6	AQ	2"	9.5 to 11.5	4"	5 4 5 7
		10.0 - 11.1 medium gray fine to medium grained sand with trace of silt. Saturated, loose to medium dense.	7	AQ	2"	11.5 to 13.5	11"	6 4 4 6
12.0	Sand (SP)	Light to dark brown fine grained sand with trace to some silt and trace of gravel.	8	AQ	2"	13.5 to 15.5	8"	2 12 21 24
15.3	Sand and Gravel	Light to medium brown fine grained sand with some gravel and silt, saturated, medium dense	9	AQ	2"	15.8 to 17.8	12"	9 15 11 18
18.1	Till (?)	Medium gray fine to medium grained sand and gravel with trace of some silt, occasional cobbles, moist, very dense.	10	AQ	2"	17.9 to 18.9	9"	28 R 118/6"
		18.5 - 18.6 black, medium grained sand, contains dark brown droplets of coal tar on and between soil particles, slight odor.						
18.9	Bedrock	For description see following page						
21.3		End of Borehole						

FORM NO 81-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS

BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G JOB No. P5435.00

PROJECT Coal Tar Study HOLE No. 79-16

SITE Plattsburgh, NY SHEET No. 3 OF 3

DEPTH (ft)	ROCK TYPE	DESCRIPTION	LENGTH OF RUN	% CORE (RQD)
0.0	Overburden	For description see previous pages		
18.9	Limestone	Dark gray to black, very fine grained limestone, fresh, hard, generally competent, massive appearance. Joints at 50-60° to core axis, closely spaced, average 0.4 - 0.5'. Joints coated with thin calcite layer. Also contains numerous very thin (<0.01') joints approximately parallel to core axis, healed with calcite.	Run 1 19.3 to 21.3	1.7 (1.3)
21.3		End of Borehole		

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT: NYSE & G — JOB No.: P5435.00

PROJECT: Coal Tar Study — HOLE No.: 79-17

SITE: Plattsburgh, NY — SHEET No.: 1 OF 2

CONTRACTOR: Empire Soils Investigations, Inc. — STARTED: 9:10 A.M. July 19, 1979 — FINISHED: 11:30 A.M. July 19, 1979

METHOD OF DRILLING: SOIL: Hollow Stem Auger — CASING DIAM. (Auger): 3¼" I.D.

ROCK: — CORE DIAM.:

LOCATION: LATITUDE: — DEPARTURE: — BEARING: — INITIAL DIP: 90° — OTHER DIPS:

ELEVATIONS: DATUM: USGS — DRILL PLATFORM: — GROUND SURFACE: 123.9 — ROCK SURFACE: — BOTTOM OF HOLE: 109.2 — WATER TABLE: 117.1 (Aug. 24)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Silty Sand (SM-SC)	Medium brown, fine grained silty sand with trace of clay. Occasionally thin silty clay layers, dry to damp, medium dense.	1	AQ	2"	0.0 to 2.0	13"	4 7 8 8
2.0	Sand and Gravel (SW-SP)	Medium brown, fine grained sand and gravel, damp, dense to very dense.	2	AQ	2"	2.0 to 4.0	16"	9 13 32 47
		4.3 - 4.7' - Light brown fine to coarse grained sand, damp, loose, very clean.	3	AQ	2"	4.0 to 6.0	16"	48 40 41 70
6.0	Gravel and Sand (GW-GP)	Light to dark brown gravel and fine to medium grained sand. Gravel up to 1½" diameter. Saturated, very dense.	4	AQ	2"	6.0 to 8.0	15"	44 45 46 47

SAMPLING METHOD
*A - SPLIT TUBE
B - THIN WALL TUBE
C - PISTON SAMPLER
D - CORE BARREL
E - AUGER
F - WASH

SHIPPING CONTAINER
N - INSERT
O - TUBE
P - WATER CONTENT TIN
Q - GLASS JAR
R - CLOTH BAG
S - PLIOFILM BAG
Z - DISCARDED

INSPECTOR: R. Henschel — APPROVED:

LOGGED BY: R. Henschel — DATE:

FORM NO 81-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-17

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
			5	AQ	2"	8.0 to 10.0	6"	27 102 51 41
10.0	Sand (SW-SP)	Medium gray, fine to coarse grained sand, saturated, dense, partially liquified.	6 (6A)	AQ	2" (3")	10.0 to 12.0	0"	35(46) 32(30) 15(24) 14(29)
12.7	Till (SM-SW)	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely danse, no to slight plasticity.	7	AQ	2"	12.0 to 13.2	10"	21 38 R 100/2"
			8	AQ	2"	13.8 to 14.7	0"	59 R 100/5"
14.7		End of borehole.						

FORM NO 91-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-18

SITE Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigation, Inc. — STARTED 3:10 P.M. July 19 19 79; FINISHED 4:30 P.M. July 19 19 79

METHOD OF DRILLING: SOIL Hollow Stem Augers — CASING DIAM.

ROCK — CORE DIAM.

LOCATION: LATITUDE; DEPARTURE; BEARING; INITIAL DIP 90°; OTHER DIPS

ELEVATIONS: DATUM U.S.G.S.; DRILL PLATFORM; GROUND SURFACE 118.3; ROCK SURFACE; BOTTOM OF HOLE 107.8; WATER TABLE 108.9 (Sept.28)

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Sand (SP)	Light brown, fine grained sand, clean, dry, loose to medium dense.						
1.8	Sand and Gravel (SW-SP)	Medium brown, fine grained sand and gravel, damp to moist, medium dense to very dense, uniform.	1	AQ	2"	0.0 to 2.0	6"	9 6 21 15
			2	AQ	2"	2.0 to 3.0	4"	23 95
		5.5-7.0 Medium gray fine grained sand and gravel with trace to some silt, damp, very dense.	3	AQ	2"	4.0 to 6.0	18"	14 16 24 R 100/6"
			4	AQ	2"	6.0 to 8.0	15"	142 42 72 R 100/6"

SAMPLING METHOD
*A – SPLIT TUBE
B – THIN WALL TUBE
C – PISTON SAMPLER
D – CORE BARREL
E – AUGER
F – WASH

SHIPPING CONTAINER
N – INSERT
O – TUBE
P – WATER CONTENT TIN
Q – GLASS JAR
R – CLOTH BAG
S – PLIOFILM BAG
Z – DISCARDED

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO. 91-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-18

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
9.5	Till (SM-SW)	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.						
10.5		End of borehole. NOTE: 7/20/79 borehole was advanced from 8.0' to 10.5' with a large diameter pole auger provided by NYSEG.						

FORM NO 81-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT: NYSE & G — JOB No.: P5435.00

PROJECT: Coal Tar Study — HOLE No.: 79-18A

SITE: Plattsburgh, NY — SHEET No.: 1 OF 2

CONTRACTOR: Empire Soils Investigations, Inc. — STARTED: 4:05 P.M. August 20, 1979 — FINISHED: 9:40 A.M. August 21, 1979

METHOD OF DRILLING: SOIL: Hollow Stem Augers — ~~CASING~~ Auger DIAM.: 3¼" I.D.

ROCK — CORE DIAM.:

LOCATION: LATITUDE — DEPARTURE — BEARING — INITIAL DIP: 90° — OTHER DIPS

ELEVATIONS: DATUM: USGS — DRILL PLATFORM — GROUND SURFACE: 118.3 — ROCK SURFACE — BOTTOM OF HOLE: 103.3 — WATER TABLE

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Overburden	0.0 - 6.0' No sampling - for description see log of borehole 79-18. 5.5-½" - Layer saturated with 'light ends' of coal tar. Oil sheen and strong odor.						
6.0	Sand and Gravel (SW-SP)	Medium brown-gray, fine grained sand and gravel, damp to moist, very dense.	1	AQ	2"	6.0 to 6.5	14"	R 115/6"
			2	AQ	2"	8.0 to 9.4	12"	25 98 R 100/5"
10.3	Till (SM-SW)	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely	3	AQ	2"	10.2 to 10.7	9"	R 100/6"
			4	AQ	2"	14.0 to 15.0	12"	51 R 100/6"

SAMPLING METHOD
*A - SPLIT TUBE
B - THIN WALL TUBE
C - PISTON SAMPLER
D - CORE BARREL
E - AUGER
F - WASH

SHIPPING CONTAINER
N - INSERT
O - TUBE
P - WATER CONTENT TIN
Q - GLASS JAR
R - CLOTH BAG
S - PLIOFILM BAG
Z - DISCARDED

INSPECTOR: R. Henschel — APPROVED

LOGGED BY: R. Henschel — DATE

FORM NO. 91-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-18A

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE					PENETRATION TEST
			NO.	TYPE	SIZE	DEPTH	REC'D	Blows/6"
		dense, no to slight plasticity. Impermeable to coal tar.						
15.0		End of borehole						

FORM NO B1-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-19

SITE Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigation, Inc. — STARTED 8:30 A.M. August 19 19 79; FINISHED 3:30 P.M. August 16 19 79

METHOD OF DRILLING: SOIL Modified Wash Boring — ~~CASING~~ Auger DIAM. 4 1/8" I.D.; ROCK — CORE DIAM.

LOCATION: LATITUDE; DEPARTURE; BEARING; INITIAL DIP 90°; OTHER DIPS

ELEVATIONS: DATUM U.S.G.S.; DRILL PLATFORM; GROUND SURFACE 121.0; ROCK SURFACE; BOTTOM OF HOLE 101.0; WATER TABLE ~106.6

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE #	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Topsoil	Light brown topsoil.	1	AQ	2"	0.0 to 2.0	8"	4 3 15 18
0.2	Fill	Dark brown to black fill material consisting mainly of cinders and ash with some sand, gravel, brick and coal fragments. Dry to damp, medium dense to dense.	2	AQ	2"	2.0 to 4.0	14"	17 14 10 5
4.0	Silty Clay W/Sand Lenses (CL)	Medium brown silty clay with lenses of fine grained silty sand throughout. Damp to moist, firm to stiff. Clay portion is greasy and shows medium plasticity.	3	AQ	2"	4.0 to 6.0	9"	4 2 4 4
		6.0-8.0 No recovery.	4 (4A)	AQ	2" (2")	6.0 to 8.0	0" (0")	3 6 4 3
8.5	Wood Chips	Light to medium brown wood chips. Saturated, loose to medium dense. Highly compressible. Strong chemical odor - not coal tar.	5	AQ	2"	8.0 to 10.0	18"	3 2 3 4

SAMPLING METHOD
- A - SPLIT TUBE
- B - THIN WALL TUBE
- C - PISTON SAMPLER
- D - CORE BARREL
- E - AUGER
- F - WASH

SHIPPING CONTAINER
- N - INSERT
- O - TUBE
- P - WATER CONTENT TIN
- Q - GLASS JAR
- R - CLOTH BAG
- S - PLIOFILM BAG
- Z - DISCARDED

INSPECTOR R. Henschel

LOGGED BY R. Henschel

APPROVED

DATE

FORM NO 81-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-19

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
11.8	Sand (SP)	Light brown to brownish gray fine grained sand with trace of coarse sand and gravel. Saturated, loose, partially liquified.	6	AQ	2"	10.0 to 12.0	14"	4 4 4 5
		11.8-13.5 Numerous thin layers of wood chips.	7	AQ	2"	12.0 to 14.0	8"	10 6 6 4
			8 (8A)	AQ	2" (3")	14.0 to 16.0	3"	2 2 2 4
17.6	Sand and Gravel (SW-SP)	Medium brown to black, fine to coarse grained sand and gravel. Gravel up to 1" diameter. Saturated, loose to medium dense. Becomes more gravelly with depth.	9	AQ	2"	16.0 to 17.8	16"	5 4 10 R 100/4"
			10	AQ	2"	19.3 to 19.7	5"	R 100/5"
		18.5-18.9 Contains dark brown to black droplets of coal tar in and between soil particles. Oil sheen and strong odor.	11	AQ	2"	19.7 to 20.0	4"	R 100/4"
18.9	Till (SM-SW)	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.						
20.0		End of borehole.						

FORM NO 81-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-20

SITE Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigation, Inc. — STARTED 8:00 A.M. August 17, 1979 — FINISHED 1:15 P.M. August 17, 1979

METHOD OF DRILLING: SOIL Hollow Stem Augers — ~~CASING~~ Auger DIAM. 3¼" I.D.

ROCK — CORE DIAM.

LOCATION: LATITUDE — DEPARTURE — BEARING — INITIAL DIP 90° — OTHER DIPS

ELEVATIONS: DATUM USGS — DRILL PLATFORM — GROUND SURFACE 113.3 — ROCK SURFACE — BOTTOM OF HOLE 99.3 — WATER TABLE ∿106.4

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE *	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Topsoil	Black topsoil, damp, loose.	1	AQ	2"	0.0	8"	1
0.3	Sand (SP-SW)	Light to medium brown fine grained sand with trace to some silt and trace of gravel. Plant roots throughout. Damp to moist, medium dense.	2	AQ	2"	2.0 to 4.0	9"	3 4 4 4
			3	AQ	2"	4.0 to 6.0	4"	5 5 13 11
			4	AQ	2"	6.0 to 8.0	9"	7 4 8 10
		9.8 - 11.7 - Contains dark brown to black droplets of coal tar in and between soil particles. Oil sheen and strong odor.	5	AQ	2"	8.0 to 10.0	5"	5 3 8 33
			6	AQ	3"	10.0 to 10.5	8"	92

SAMPLING METHOD
* A - SPLIT TUBE
B - THIN WALL TUBE
C - PISTON SAMPLER
D - CORE BARREL
E - AUGER
F - WASH

SHIPPING CONTAINER
N - INSERT
O - TUBE
P - WATER CONTENT TIN
Q - GLASS JAR
R - CLOTH BAG
S - POLYFILM BAG
Z - DISCARDED

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO. 91-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G

JOB No P5435.00

PROJECT Coal Tar Study

HOLE No. 79-20

SITE Plattsburgh, NY

SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION; COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE					PENETRATION TEST
			NO.	TYPE	SIZE	DEPTH	RET'D	Blows/6"
11.7	Till (SM-SW)	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.	7	AQ	2"	11.3 to 12.0	4"	135/6" 100/2"
			8	AQ	2"	12.0 to 13.8	16"	39 52 80 R 100/4"
13.8		End of borehole.						

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT: NYSE & G — JOB No. P5435.00

PROJECT: Coal Tar Study — HOLE No. 79-21

SITE: Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigation, Inc. — STARTED 9:30 A.M. August 18, 1979; FINISHED 11L45 A.M. August 20, 1979

METHOD OF DRILLING: SOIL Hollow Stem Augers — ~~CASING~~ Auger DIAM. 3¼" I.D.; ROCK — CORE DIAM.

LOCATION: LATITUDE; DEPARTURE; BEARING; INITIAL DIP 90°; OTHER DIPS

ELEVATIONS: DATUM USGS; DRILL PLATFORM; GROUND SURFACE 117.2; ROCK SURFACE; BOTTOM OF HOLE 102.5; WATER TABLE ∿107.6

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Fill	Dark brown to black fill material consisting mainly of cinders and ash with some sand, gravel, brick and coal fragments. Dry to damp, loose	1	AQ	2"	0.0 to 2.0	7"	3 3 2 2
			2	AQ	2"	2.0 to 4.0	12"	2 4 4 4
3.4	Sand (SP)	Medium brown fine grained sand with trace silt. Dry to damp, loose to medium dense.	3	AQ	2"	4.0 to 6.0	0"	9 6 7 11
			(3A)		(2")			
6.5	Sand W/ Some Gravel	Medium brown, fine to coarse grained sand with some gravel. Gravel up to 1" diameter. Damp to saturated, dense to very dense.	4	AQ	2"	8.0 to 10.0	10"	19 16 18 16
			5	AQ	2"	8.3 to 10.3	0" (5")	9(4) 7(14) 7(16) 7(15)
			(5A)		(3")			

SAMPLING METHOD
*A – SPLIT TUBE; B – THIN WALL TUBE; C – PISTON SAMPLER; D – CORE BARREL; E – AUGER; F – WASH

SHIPPING CONTAINER
N – INSERT; O – TUBE; P – WATER CONTENT TIN; Q – GLASS JAR; R – CLOTH BAG; S – PLIOFILM BAG; Z – DISCARDED

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO. [illegible]

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-21

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
			6	AQ	3"	10.3 to 11.7	9"	18 20 21
		12.3-13.3 Black, fine to coarse sand. Contains dark brown to black droplets of coal tar in and between soil particles. Oil sheen and strong odor.	7	AQ	2"	11.7 to 13.7	21"	10 21 24 40
			8	AQ	2"	13.7 to 14.7	6"	29 28
13.3	Till (SM-SW)	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ½" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.						-
14.7		End of borehole.						

FORM NO 91-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No. P5435.00

PROJECT Coal Tar Study — HOLE No. 79-22

SITE Plattsburgh, NY — SHEET No. 1 OF 2

CONTRACTOR: Empire Soils Investigation, Inc. — STARTED 1:50 P.M. August 20, 19 79 — FINISHED 3:15 P.M. August 20, 19 79

METHOD OF DRILLING: SOIL Hollow Stem Augers — CASING/Auger DIAM. 3¼" I.D

ROCK — CORE DIAM.

LOCATION: LATITUDE — DEPARTURE — BEARING — INITIAL DIP 90° — OTHER DIPS

ELEVATIONS: DATUM USGS — DRILL PLATFORM — GROUND SURFACE 117.4 — ROCK SURFACE — BOTTOM OF HOLE 103.4 — WATER TABLE ~107.5

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
0.0	Fill	Dark brown to black fill material consisting mainly of cinders and ash with some sand, gravel, brick and coal fragments. Dry to damp, medium dense to dense.	1	AQ	2"	0.0 to 2.0	10"	5 4 3 2
			2	AQ	2"	2.0 to 4.0	2"	2 2 2 2
2.7	Sand (SP)	Medium to dark brown, fine grained sand with trace of silt. Moist to wet, loose to medium dense.	3	AQ	2"	4.0 to 6.0	10"	2 2 2 2
		4.4 - 8.3 Saturated with "light ends" from coal tar. Strong odor but no visible tar.	4	AQ	2"	6.0 to 8.0	16"	4 4 4 4
			5	AQ	2"	8.0 to 10.0	14"	5 8 11 14

SAMPLING METHOD
*A – SPLIT TUBE
B – THIN WALL TUBE
C – PISTON SAMPLER
D – CORE BARREL
E – AUGER
F – WASH

SHIPPING CONTAINER
N – INSERT
O – TUBE
P – WATER CONTENT TIN
Q – GLASS JAR
R – CLOTH BAG
S – PLIOFILM BAG
Z – DISCARDED

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

DRILLING REPORT

CLIENT NYSE & G — JOB No P5435.00

PROJECT Coal Tar Study — HOLE No. 79-22

SITE Plattsburgh, NY — SHEET No. 2 OF 2

DEPTH (ft)	SOIL TYPE	DESCRIPTION; COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST Blows/6"
9.3	Sand and Gravel (SW-SP)	Light to medium brown, fine to coarse brained sand and gravel. Gravel up to 1" diameter. Saturated, dense to very dense. Becomes more gravelly with depth.	6	AQ	2"	10.0 to 12.0	8"	21 37 23 23
			7	AQ	2"	12.0 to 14.0	17"	26 37 82 86
		9.3-11.7 Saturated with 'light ends' from coal tar. Strong odor but no visible tar.						
		11.7-12.8 Contains dark brown to black droplets of coal tar in and between soil particles. Oil sheen and strong odor.						
12.8	Till (SM-SW)	Medium gray Till-silt and fine sand with some medium to coarse sand and gravel and trace to some clay and cobbles. Gravel and cobbles are sub-rounded to sub-angular, ranging in size from ¼" to >10" diameter. Damp to moist, extremely dense, no to slight plasticity. Impermeable to coal tar.						
14.0		End of borehole.						

FORM NO 81-B

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

TEST PIT
REPORT

CLIENT NYSE&G — JOB No. P5435.00

PROJECT Coal Tar Study — TEST PIT 79-T2

SITE Plattsburgh, NY — SHEET No. 1 OF 1

CONTRACTOR: NYSE&G — STARTED September 28, 19 79
FINISHED September 28, 19 79

METHOD OF EXCAVATION: Backhoe — Test Pit Width 5-7'
Length 10-15'

LOCATION: Approx. 5' NE of BH 79-6

ELEVATIONS: DATUM USGS
DRILL PLATFORM
GROUND SURFACE 121.0
ROCK SURFACE
BOTTOM OF PIT 110.0
WATER TABLE

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE*	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST
0.0	Fill							
4.0	Wood Chips	Black wood chips with some cinders, ash, fine sand and silt. Highly compressible and absorbent. Medium dense.	1	GT		4.0' to 6.0'	1gal.	
		Thoroughly saturated with coal tar. Visible tar on and between soil grains. Strong odor.	2 2A	GT GW		6.5' to 7.0'	1gal.	
10.5	Fine Sand	Brownish gray, fine grained sand with trace to some gravel and silt. Medium dense to dense, moist to saturated.	3	GW		10.5' to 11.0	1L	
		No visible coal tar, but strong ordor (light ends).						
11.0		Bottom of pit						

SAMPLING METHOD
*A – SPLIT TUBE
B – THIN WALL TUBE
C – PISTON SAMPLER
D – CORE BARREL
E – AUGER
F – WASH
G–SHOVEL

SHIPPING CONTAINER
N – INSERT
O – TUBE
P – WATER CONTENT TIN
Q – GLASS JAR
R – CLOTH BAG
S – PLIOFILM BAG
T – DISCARDED
T–METAL CAN
W–PLACTIC BOTTLE

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO. 81-A

ACRES AMERICAN INCORPORATED - CONSULTING ENGINEERS
BUFFALO, NEW YORK

TEST PIT
REPORT

CLIENT NYSE&G — JOB No. P5435.00

PROJECT Coal Tar Study — TEST PIT: 79-T3

SITE Plattsburgh, NY — SHEET No. 1 OF 1

CONTRACTOR: NYSE&G — STARTED September 28, 19 79
FINISHED September 28, 19 79

METHOD OF EXCAVATION Backhoe — Test Pit Width 5'
Length 10'

LOCATION: Approx 15' SE of BH 79-23

ELEVATIONS: DATUM USGS
DRILL PLATFORM
GROUND SURFACE 117.4
ROCK SURFACE
BOTTOM OF PIT 106.9
WATER TABLE ~107.4

DEPTH (ft)	SOIL TYPE	DESCRIPTION: COLOR, CONSISTENCY, STRUCTURE, WATER CONTENT, PLASTICITY, COMPACTNESS, WATER LOSS OR GAIN, ETC.	SAMPLE NO.	SAMPLE TYPE *	SAMPLE SIZE	SAMPLE DEPTH	SAMPLE RET'D	PENETRATION TEST
0.0	Sand	Light brown to yellow brown fine grained sand with trace to some gravel and boulders. Loose to medium dense, dry to moist.						
7.5	Sand and Gravel	Yellow brown medium to coarse grained sand gravel. Damp to moist, medium dense to dense. Clean.	1	GT		8.0'	1 gal	
			2	GT		8.5'	1 gal	
10.5		Bottom of pit						

SAMPLING METHOD
* A – SPLIT TUBE
B – THIN WALL TUBE
C – PISTON SAMPLER
D – CORE BARREL
E – AUGER
F – WASH
G–SHOVEL

SHIPPING CONTAINER
N – INSERT
O – TUBE
P – WATER CONTENT TIN
Q – GLASS JAR
R – CLOTH BAG
S – PLIOFILM BAG
T – DISCARDED
T–METAL CAN

INSPECTOR R. Henschel — APPROVED

LOGGED BY R. Henschel — DATE

FORM NO. 81-A

GEI Consultants, Inc.

ATLANTIC
ENVIRONMENTAL DIVISION

SEDIMENT SAMPLING LOG (RSX-97-01)

Boring/Well ID:	**RSX-97-01**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/21/97**	**Contractor:**	**-**
Total Depth:	**2.1 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**103.34 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**0.3 feet**		
Sediment Surface Elevation:	**103.04 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 2.1	NA	0.1	NA	0-0.1 Medium to coarse sand and gravel. Trace scattered tar. Top of till elevation estimated at 100.94' MSL. End of Boring.	

GEI Consultants, Inc.

ATLANTIC
ENVIRONMENTAL DIVISION

SEDIMENT SAMPLING LOG (RSX-97-02)

Boring/Well ID:	**RSX-97-02**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/21/97**	**Contractor:**	**-**
Total Depth:	**2.7 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**102.66 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**102.74 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 2.7	NA	1.7	NA	0 - 1.3 Medium to coarse sand and gravel. Tar at 1.2' - 1.3'. 1.3 - 1.7 Till. No tar in till. End of Boring.	

GEI Consultants, Inc.

ATLANTIC
ENVIRONMENTAL DIVISION

SEDIMENT SAMPLING LOG (RSX-97-03)

Boring/Well ID:	**RSX-97-03**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/21/97**	**Contractor:**	**-**
Total Depth:	**2 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**102.66 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**0.6 feet**		
Sediment Surface Elevation:	**102.06 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 2	NA	0	NA	0 - 2 No recovery. Slam bar refusal at 100.06'; believed to be the till surface. End of Boring.	

GEI Consultants, Inc.

ATLANTIC
ENVIRONMENTAL DIVISION

SEDIMENT SAMPLING LOG (RSX-97-04)

Boring/Well ID:	**RSX-97-04**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/21/97**	**Contractor:**	**-**
Total Depth:	**1.5 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**102.66 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**1.1 feet**		
Sediment Surface Elevation:	**101.56 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 1.5	NA	0.3	NA	0 - 0.3 Coarse sand and gravel. Moderate tar odor. Tar streaks on geoprobe liner. Top of till elevation estimated at 100.14' MSL. Slam Bar refusal at 100.04' MSL. End of Boring.	

GEI Consultants, Inc.

ATLANTIC
ENVIRONMENTAL DIVISION

SEDIMENT SAMPLING LOG (RSX-97-05)

Boring/Well ID:	**RSX-97-05**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/21/97**	**Contractor:**	**-**
Total Depth:	**approx. 1.5 feet**	**Driller:**	**M. Nejdl, M. Brogie**
Saranac River Elevation at Time of Sampling:	**102.66 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**approx. 100.8 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 1.5	NA	0.3	NA	0 - 0.3 Coarse sand and gravel. Strong tar odor and sheen. Till elevation estimated at 99.36' MSL. (Tar odor on tip). End of Boring.	

GEI Consultants, Inc.

ATLANTIC
ENVIRONMENTAL DIVISION

SEDIMENT SAMPLING LOG (RSX-97-06)

Boring/Well ID:	**RSX-97-06**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/21/97**	**Contractor:**	**-**
Total Depth:	**2 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**102.66 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**2.5 feet**		
Sediment Surface Elevation:	**100.16 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 2	NA	0.1	NA	0 - 0.1 Fine to coarse sand and gravel. Slight tar odor and sheen. Refusal at 98.16' MSL.	

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SEDIMENT SAMPLING LOG (RSX-97-07)

Boring/Well ID:	**RSX-97-07**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/21/97**	**Contractor:**	**-**
Total Depth:	**2 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**103.34 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 2	NA	NA	NA	Fine to coarse sand and gravel. Tar scattered throughout. Till surface estimated at 99.64' MSL with slam bar refusal.	

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SEDIMENT SAMPLING LOG (RSX-97-08)

Boring/Well ID:	**RSX-97-08**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/21/97**	**Contractor:**	**-**
Total Depth:	**approx. 2 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**103.34 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 2	NA	NA	NA	Fine to coarse sand and gravel. Tar blebs throughout. Till surface estimated at 99.64' MSL with slam bar refusal.	

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SEDIMENT SAMPLING LOG (RSX-97-09)

Boring/Well ID:	**RSX-97-09**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/21/97**	**Contractor:**	**-**
Total Depth:	**1.3 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**103.34 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**2.2 feet**		
Sediment Surface Elevation:	**101.14 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 1.3	NA	0.3	NA	0 - 0.25 Medium to coarse sand and gravel with tar blebs. Sheens. 0.25 - 0.3 Gray till. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-10)

Boring/Well ID:	**RSX-97-10**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/21/97**	**Contractor:**	**-**
Total Depth:	**2.0 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**102.65 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**1.05 feet**		
Sediment Surface Elevation:	**101.6 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 2	NA	0.5	NA	0-0.5 Fine to coarse sand and gravel. Tar odor. Refusal at 2' below top of sediments (99.6' MSL).	

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SEDIMENT SAMPLING LOG (RSX-97-11)

Boring/Well ID:	**RSX-97-11**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/21/97**	**Contractor:**	**-**
Total Depth:	**EOB at 98.45' MSL**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**102.65 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 2	NA	0.5	NA	0 - 0.5 Medium to coarse sand and gravel. Heavy sheen. Trace tar. Sheens rise to water surface from walking in sediments. Slam bar refusal at 98.45; MSL. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-12)

Boring/Well ID:	**RSX-97-12**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/21/97**	**Contractor:**	**-**
Total Depth:	**Refused at 99.55' MSL**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**102.65 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
				No recovery. Moderate tar odor. Refused at 99.55' MSL. 1/4" tar balls (and smaller) noted on river bottom between RSX-97-10 and RSX-97-11.	

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SEDIMENT SAMPLING LOG (RSX-97-13)

Boring/Well ID:	**RSX-97-13**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/22/97**	**Contractor:**	**-**
Total Depth:	**0.8 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**102.67 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**1.7 feet**		
Sediment Surface Elevation:	**100.97 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 0.8	NA	0.3	NA	0 - 0.15 Leaves and muck. 0.15 - 0.30 Fine to medium sand. Heavy sheen. Trace tar blebs. Broken bedrock. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-14)

Boring/Well ID:	RSX-97-14	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	M. Brogie	**Location:**	Saranac River
Date:	10/22/97	**Contractor:**	-
Total Depth:	feet	**Driller:**	M. Nejdl, M. Brogie

Saranac River Elevation at Time of Sampling:	102.67 feet (MSL)		Used manual slam bar with 2' large-bore geoprobe sampler.
Water Depth:	feet		
Sediment Surface Elevation:	feet (MSL)		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
	NA		NA	Bedrock surface at 2 feet below water surface. (100.67' MSL)	

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SEDIMENT SAMPLING LOG (RSX-97-15)

Boring/Well ID:	**RSX-97-15**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/22/97**	**Contractor:**	**-**
Total Depth:	**3 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**102.67 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**1.45 feet**		
Sediment Surface Elevation:	**101.22 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 3	NA	1.7	NA	0 - 0.4 Coarse sand and gravel. 0.4 - 1.7 Till. Refusal at 98.22' MSL. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-16)

Boring/Well ID:	**RSX-97-16**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/22/97**	**Contractor:**	**-**
Total Depth:	**feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**102.67 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
	NA	0.7	NA	0 - 0.7 Coarse sand and gravel. Moderate tar odor. Sheens. End of Boring. Refusal at 100.77' MSL.	

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SEDIMENT SAMPLING LOG (RSX-97-17)

Boring/Well ID:	**RSX-97-17**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/22/97**	**Contractor:**	**-**
Total Depth:	**3 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**102.67 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**2.5 feet**		
Sediment Surface Elevation:	**100.17 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 3	NA	0.3	NA	0 - 0.3 Fine to coarse sand and gravel. Sheen and tar odor. Till surface estimated at 97.00' MSL.	

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SEDIMENT SAMPLING LOG (RSX-97-18)

Boring/Well ID:	**RSX-97-18**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/22/97**	**Contractor:**	**-**
Total Depth:	**4.8 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**104.3 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**0.5 feet**		
Sediment Surface Elevation:	**103.8 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 4.8	NA	1.4	NA	0 - 0.95 Fine to medium brown sand and gravel. ½" seam with tar impacts at 0.5'. 0.95 - 1.4 Till. Sheen at interface with sand and gravel above. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-19)

Boring/Well ID:	**RSX-97-19**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/22/97**	**Contractor:**	**-**
Total Depth:	**5 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**104.56 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**0.24 feet**		
Sediment Surface Elevation:	**104.32 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 5	NA	2.0	NA	0 - 0.7 Coarse brown sand and gravel. 0.7 - 1.3 Gray fine brown sand with trace gravel. Very faint tar odor. 1.3 - 2.0 Till. Slight tar odor. End of Boring. Considerable amounts of sheen at water surface from walking in area.	

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SEDIMENT SAMPLING LOG (RSX-97-20)

Boring/Well ID:	**RSX-97-20**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/22/97**	**Contractor:**	**-**
Total Depth:	**1.5 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 1.5	NA	0.45	NA	0 - 0.45 Medium to coarse sand and gravel. Moderate tar odor. Sheen and trace tar blebs. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-21)

Boring/Well ID:	**RSX-97-21**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/23/97**	**Contractor:**	**-**
Total Depth:	**4.2 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**106.28 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**0.7 feet**		
Sediment Surface Elevation:	**105.58 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 4.2	NA	1.7	NA	0 - 0.7 Medium sand and grave. No tar, sheen or odor. 0.7 - 1.2 Fine sand and gravel. Scattered tar blebs. 1.2 - 1.4 As Above. Tar saturated. 1.4 - 1.7 Till. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-22)

Boring/Well ID:	**RSX-97-22**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/23/97**	**Contractor:**	**-**
Total Depth:	**3 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**107.65 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**0.85 feet**		
Sediment Surface Elevation:	**106.8feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 3	NA	1.6	NA	0 - 0.65 Medium to coarse sand and gravel. Sheens present. 0.65 - 0.95 Fine sand and gravel. Tar saturated. 0.95 - 1.6 Till. Till surface at approx. 104.4' MSL. Refused at 103.75' MSL. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-23)

Boring/Well ID:	RSX-97-23	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	M. Brogie	**Location:**	Saranac River
Date:	10/23/97	**Contractor:**	-
Total Depth:	3 feet	**Driller:**	M. Nejdl, M. Brogie

Saranac River Elevation at Time of Sampling:	**108.0 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**0.2 feet**		
Sediment Surface Elevation:	**107.8 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 3	NA	1.2	NA	0 - 0.4 Medium to coarse sand and gravel. 0.4 - 1.2 Till. Till surface at 105.6' MSL. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-24)

Boring/Well ID:	**RSX-97-24**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/23/97**	**Contractor:**	**-**
Total Depth:	**approx. 3 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**110.62 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**0.3 feet**		
Sediment Surface Elevation:	**110.3 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 3	NA	1.0	NA	0 - 0.15 Coarse sand and gravel. Moderate tar odor. 0.15 - 0.35 As above with sheens and trace tar blebs. 0.35 - 1.0 Till. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-25)

Boring/Well ID:	**RSX-97-25**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/23/97**	**Contractor:**	**-**
Total Depth:	**3.7 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**110.7 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**0 feet**		
Sediment Surface Elevation:	**110.7 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 3.7	NA	0.9	NA	0 - 0.4 Coarse sand and gravel. Trace sheens. 0.4 - 0.9 Till. Till surface at 107.5' MSL. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-26)

Boring/Well ID:	**RSX-97-26**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/23/97**	**Contractor:**	**-**
Total Depth:	**4 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**110.88 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 4	NA	2.0	NA	0 - 0.8 Fine sand and gravel. Trace tar blebs. 0.8 - 1.1 Medium to coarse sand and gravel. Tar saturated. 1.1 - 2.0 Till. Till surface at approx. 106' MSL. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-27)

Boring/Well ID:	**RSX-97-27**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/23/97**	**Contractor:**	**-**
Total Depth:	**approx. 3 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**110.94 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 3	NA	1.1	NA	0 - 0.2 Fine sand and muck. 0.2 - 0.4 Medium to coarse sand and gravel. Tarry. 0.4 - 1.1 Till. Till surface at approx. 109' MSL. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-28)

Boring/Well ID:	**RSX-97-28**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/24/97**	**Contractor:**	**-**
Total Depth:	**2 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**111.94 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**0.6 feet**		
Sediment Surface Elevation:	**111.34 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 2	NA	0.9	NA	0 - 0.6 Fine to medium sand and gravel. 0.6 - 0.9 Till. Till surface at 109.64' MSL. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-29)

Boring/Well ID:	**RSX-97-29**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/24/97**	**Contractor:**	**-**
Total Depth:	**2.2 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**110.4 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**0.2 feet**		
Sediment Surface Elevation:	**110.2 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 2.2	NA	0.9	NA	0 - 0.2 Medium to coarse sand and gravel with some muck. 0.2 - 0.4 Fine to medium sand with scattered tar impacts. 0.4 - 0.9 Till. Till surface at 108.5' MSL. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-30)

Boring/Well ID:	**RSX-97-30**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/24/97**	**Contractor:**	**-**
Total Depth:	**4.5 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**105.7 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**105.2 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 4.5	NA	1.8	NA	0 - 0.7 Medium to coarse sand and gravel. Trace sheens and odor. 0.7 - 1.2 As above. Tar saturated. 1.2 - 1.8 Till. Till surface at 101.42' MSL.	

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SEDIMENT SAMPLING LOG (RSX-97-31)

Boring/Well ID:	**RSX-97-31**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/24/97**	**Contractor:**	**-**
Total Depth:	**3 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**107.58 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 3	NA	0.7	NA	0 - 0.4 Fine to medium coarse sand and gravel. Sheen present. 0.4 - 0.7 Crushed limestone. Tarry. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-32)

Boring/Well ID:	**RSX-97-32**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/24/97**	**Contractor:**	**-**
Total Depth:	**1.5 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 1.5	NA	NA	NA	Hand dug to 1.5' below top of sediments. Coarse sand and gravel with tar blebs and sheen present within sediments.	

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SEDIMENT SAMPLING LOG (RSX-97-33)

Boring/Well ID:	RSX-97-33	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	M. Brogie	**Location:**	Saranac River
Date:	10/24/97	**Contractor:**	-
Total Depth:	0 feet	**Driller:**	M. Nejdl, M. Brogie

Saranac River Elevation at Time of Sampling:	102.42 feet (MSL)		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	feet		
Sediment Surface Elevation:	feet (MSL)		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0	NA	0	NA	Limestone Bedrock river bottom at 9.5' out in river. Bedrock surface elevation at 99.89' MSL.	

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SEDIMENT SAMPLING LOG (RSX-97-34)

Boring/Well ID:	**RSX-97-34**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/24/97**	**Contractor:**	**-**
Total Depth:	**approx. 3 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**102.48 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 3	NA	0.9	NA	0 - 0.4 Fine to coarse sand and gravel. Sheen present. 0.4 - 0.6 As Above. Trace tar blebs. 0.6 - 0.9 Till. Till surface at 98.63' MSL. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-35)

Boring/Well ID:	**RSX-97-35**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/24/97**	**Contractor:**	**-**
Total Depth:	**1.9 feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**102.65 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**0.95 feet**		
Sediment Surface Elevation:	**101.70 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 1.9	NA	1.1	NA	0 - 0.5 Medium to coarse sand and gravel. 0.5 - 1.1 Till. Till surface at 100.40' MSL. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-36)

Boring/Well ID:	**RSX-97-36**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/24/97**	**Contractor:**	**-**
Total Depth:	**feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**103.19 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
	NA	0.8	NA	0 - 0.2 Medium to coarse sand and gravel. Moderate tar odor. 0.2 - 0.4 As Above. Sheen and trace tar present. 0.4 - 0.8 Till. Till surface at 98.54' MSL. End of Boring.	

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SEDIMENT SAMPLING LOG (RSX-97-37)

Boring/Well ID:	**RSX-97-37**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**M. Brogie**	**Location:**	**Saranac River**
Date:	**10/24/97**	**Contractor:**	**-**
Total Depth:	**feet**	**Driller:**	**M. Nejdl, M. Brogie**

Saranac River Elevation at Time of Sampling:	**103.37 feet (MSL)**		**Used manual slam bar with 2' large-bore geoprobe sampler.**
Water Depth:	**feet**		
Sediment Surface Elevation:	**feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
	NA	0.8	NA	0 - 0.2 Medium to coarse sand and gravel. 0.2 - 0.3 Till. Till surface at 98.54' MSL. End of Boring.	

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SEDIMENT SAMPLING LOG (G-B)

Boring/Well ID:	**G-B**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Saranac River**
Date:	**7/22/99**	**Contractor:**	**-**
Total Depth:	**0.9 feet**	**Driller:**	**B. Prentiss, A. Brey**

Saranac River Elevation at Time of Sampling:	**104.0 feet (MSL)**		**Used manual slide hammer with 2' large-bore geoprobe sampler.**
Water Depth:	**0.8 feet**		
Sediment Surface Elevation:	**103.2 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0.9	NA	0.9	NA	0 - 0.9 Imbricated cobbles (dug by hand) at top; sampled Various colored sands and gravels. Poorly sorted. Wet with heavy sheen and moderate amount of free tar. Heavy sheens 'explode' on the water surface during sampling. No till encountered. End of Boring.	0 0.9

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SEDIMENT SAMPLING LOG (9-B)

Boring/Well ID:	**9-B**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Saranac River**
Date:	**7/20/99**	**Contractor:**	**-**
Total Depth:	**1.3 feet**	**Driller:**	**B. Prentiss, A. Brey**

Saranac River Elevation at Time of Sampling:	**101.6 feet (MSL)**		**Used manual slide hammer with 2' large-bore geoprobe sampler.**
Water Depth:	**0.0 feet**		**Located upstream from 9-A approx. 20 ft.**
Sediment Surface Elevation:	**101.6 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 1.3	NA	1.0	NA	0 - 0.6 Dark gray and brown silty sand with leafy organics. Slight swampy/mucky smell. No other odors or impacts apparent. 0.6 - 1.0 Brick fragments and angular gravels. Trace (½ dozen) mm-scale tar blebs on gravel faces. No odors apparent. Refused at 1.3'; End of Boring.	

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SEDIMENT SAMPLING LOG (9-C)

Boring/Well ID:	**9-C**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Saranac River**
Date:	**7/20/99**	**Contractor:**	**-**
Total Depth:	**0.5 feet**	**Driller:**	**B. Prentiss, A. Brey**

Saranac River Elevation at Time of Sampling:	**101.6 feet (MSL)**		**Used manual slide hammer with 2' large-bore geoprobe sampler.**
Water Depth:	**1.0 feet**		
Sediment Surface Elevation:	**100.6 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 0.5	NA	0.3	NA	0 - 0.3 Leafy organics and wood with trace sand. Heavy sheen. Tar stained material with tar blebs on acetate sleeve. Moderate naphthalene odor. Refused at 0.3'; End of Boring.	0 0.5 

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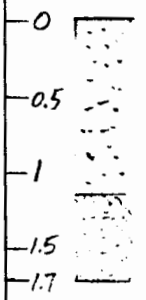
SEDIMENT SAMPLING LOG (N-A)

Boring/Well ID:	**N-A**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Saranac River**
Date:	**7/21/99**	**Contractor:**	**-**
Total Depth:	**1.7 feet**	**Driller:**	**B. Prentiss, A. Brey**

Saranac River Elevation at Time of Sampling:	**110.2 feet (MSL)**		**Used manual slide hammer with 2' large-bore geoprobe sampler.**
Water Depth:	**1.2 feet**		
Sediment Surface Elevation:	**109.0 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 1.7	NA	0.7	NA	0 - 0.4 Various colored sands and gravel. Poorly sorted. Loose. Wet. No odors or sheens. 0.4 - 0.7 Black silty clay with little amounts of organic detritus. Swampy odor. No MGP-type odors. Very slight sheen. End of Boring.	

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SEDIMENT SAMPLING LOG (J_1-B)

Boring/Well ID:	J_1-B	**Client:**	NYSEG
Project Number:	97334	**Project Name:**	Plattsburgh RI/FS
Logged By:	Andrew Brey	**Location:**	Saranac River
Date:	7/21/99	**Contractor:**	-
Total Depth:	1.0 feet	**Driller:**	B. Prentiss, A. Brey

Saranac River Elevation at Time of Sampling:	106.7 feet (MSL)		**Used manual slide hammer with 2' large-bore geoprobe sampler.**
Water Depth:	1.8 feet		
Sediment Surface Elevation:	104.9 feet (MSL)		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 1.0	NA	None	NA	Refused several times at various depths; best attempt went 1'. At least 1 foot of tightly imbricated boulders and cobbles with very little sands. Tar blebs and sheens are stirred up from sediments in vicinity of all J_1-B attempts.	0 – 1

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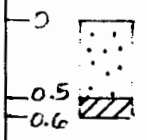
SEDIMENT SAMPLING LOG (J-B)

Boring/Well ID:	**J-B**	**Client:**	**NYSEG**
Project Number:	**97334**	**Project Name:**	**Plattsburgh RI/FS**
Logged By:	**Andrew Brey**	**Location:**	**Saranac River**
Date:	**7/21/99**	**Contractor:**	**-**
Total Depth:	**0.9 feet**	**Driller:**	**B. Prentiss, A. Brey**

Saranac River Elevation at Time of Sampling:	**106.0 feet (MSL)**		**Used manual slide hammer with 2' large-bore geoprobe sampler.**
Water Depth:	**0.9 feet**		
Sediment Surface Elevation:	**105.1 feet (MSL)**		

Depth (feet)	Blow Counts	Recovery (feet)	PID (ppm)	Sediment Description	Lithology (not to scale)
0 - 2	NA	0.6	NA	0 - 0.5 Black-stained medium-grained sand and gravel. Tar present coating most of sands and gravels. Heavy sheen. Moderate naphthalene odor. 0.5 - 0.6 Gray till. Dense. Tight. No MGP impacts apparent within the till. End of Boring.	

Appendix C

Comparison of On-site Treatment/Reuse vs. Off-site Treatment/Disposal

On-Site Treatment versus Off-Site Disposal

This document summarizes the main issues surrounding the option of utilizing On-Site Thermal Desorption as a possible treatment for source material at the Plattsburgh former MGP. GEI Consultants, Inc. (GEI) has discussed this issue with remedial contractors and has determined that On-site Thermal Desorption is not a feasible or reliable technology for use at this site.

Bids for on-site thermal desorption that GEI and contractors have seen in the past typically are based on a projected throughput rate of 600 tons per day. Actual experience has been that the average daily production rate is closer to 400 tons per day. However, both of these production rates are based on 24 hour a day operation of the facility.

The projected excavation rate of materials requiring thermal treatment for the preferred alternative is 700 CY or 1,050 tons per day. The difference in excavation rate (1,050 tons/day) vs. treatment rate (400 tons/day) would require substantial stockpiling of material and handling of the material two to three times (initial excavation to stockpile, stockpile to thermal facility, and thermal facility to backfill). Each additional handling of the material adds incremental costs for manpower and equipment. This is complicated by the relatively large stockpiling requirements associated with the existing shallow soils for reuse as backfill.

The low throughput of the treatment also extends the duration of the selected remedial option. Even running 7 days a week, the facility would require over 200 days to complete treatment of the impacted materials. This would be a significant increase of the less than 70 days required to transport and dispose all of the impacted soils from the site. In order to reuse the material as backfill, the contractor would be faced with delays while awaiting treated soil for backfill or forced to slow excavation rates.

In addition to the direct cost increases above, the project team has had poor experiences with on-site thermal in the past. These experiences center around two issues, permitting and cost overruns. The air permitting required for the facility can be difficult to acquire, especially in the vicinity of residential areas, as is the case in Plattsburgh. Cost overruns, primarily due to underbidding and facility down-time, have impacted the ability to complete the jobs to schedule. Past experience suggests that treatment subcontractors look for every opportunity once the job has started to request a change order. Most requests have been regarding what were deemed unforeseen chemical constituents of the soil that require pretreatment,

additional treatment times, or cannot be processed without secondary treatment such as additional bag houses.

Given these issues, a cost model for off site disposal and on-site thermal treatment is attached on Table C-1. The unit costs for off-site treatment range from $197.36 (Main Excavation Area) to $212.31 (Excavation North of Wood Deck Bridge). The variation in costs is primarily due to differences in excavation quantities/rates of various locations and associated labor costs. The unit cost for on-site thermal is $226.14. This cost assumes that the material will be reused on site and includes both a discount for the cost of clean backfill imported under other disposal options and a supplement 25% contingency for subcontractor underbid/change orders based on past experiences.

In summary, neither the past experiences of the project team in dealing with the logistical challenges of on-site thermal desorption, nor the direct cost comparisons make on-site treatment a suitable option for the remediation at the Plattsburgh site.

Table C1 - Comparison of On-site Treatment/Reuse vs. Off-site Treatment/Disposal
Focused Feasibility Study
New York State Electric & Gas Company
Plattsburgh, New York

Description	Units of Meas.	Quantity on Proposal	Labor	Material	Contractor Equipment	Rental Equipment	Subcontractor	Adjustments	Indirect Costs	Total Field Cost	Overhead & Profit	Bid Amount	Field Unit Price	Bid Unit Price
Main Excavation T&D	cy	45,222	$76,377.60	$32,400.00	$28,220.00	$0.00	$7,581,016.08	$0.00	$42,887	$7,760,900.88	$1,164,135	$8,925,036.01	$171.62	$197.36
Northeast bank of River T&D	cy	800	$4,492.80	$1,080.00	$1,660.00	$0.00	$134,112.00	$0.00	$2,523	$143,867.58	$21,580	$165,447.71	$179.83	$206.81
Riverbed T&D	cy	6,200	$31,449.60	$1,740.00	$11,620.00	$0.00	$1,039,368.00	$0.00	$17,659	$1,101,837.04	$165,276	$1,267,112.59	$177.72	$204.37
North of Wood Deck Bridge T&D	cy	550	$4,492.80	$660.00	$1,660.00	$0.00	$92,202.00	$0.00	$2,523	$101,537.58	$15,231	$116,768.21	$184.61	$212.31
South of Wood Deck Bridge T&D	cy	1,482	$6,739.20	$1,700.00	$2,490.00	$0.00	$248,442.48	$0.00	$3,784	$263,155.84	$39,473	$302,629.22	$177.57	$204.20
On-site Thermal Desorption and reuse	cy	54,254	$1,105,228.80	-$70,200.00	$408,360.00	$200,000.00	$6,022,194.00	$2,382,278.43	$620,603	$10,668,464.27	$1,600,270	$12,268,733.91	$196.64	$226.14

Estimated Off-Site T&D Total Costs **$10,776,993.75**

Estimated On-Site Thermal Desorption Total Costs **$12,268,733.91**

Note: Costs above are based on the FFS level cost analysis in Appendix D.

Appendix D

Table D1 - Detailed Cost Estimates - Remedial Alternatives 1, 2, 3A, 3B, and 4

Table D1 - Detailed Cost Estimates - Remedial Alternatives 1, 2, 3A, 3B, and 4
Focused Feasibility Study
New York State Electric & Gas Company
Plattsburgh, New York

Remedial Component	Unit	Unit Price	Remedial Alternative 1 No Action		Remedial Alternative 2 Excavate to TAGM levels		Remedial Alternative 3A Excavate Source Material		Remedial Alternative 3B Excavate Source Material and Stabilize Fringe		Remedial Alternative 4 Stabilize Source Material	
			Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
COMMON COST COMPONENTS												
Preconstruction												
1 Engineering Design, Plans, Specs, Bid, Regulatory Submittals	Lump Sum	$200,000	0	$ -	1	$ 200,000	1	$ 200,000	1	$ 200,000	1	$ 200,000
2 Permitting	Lump Sum	$40,000	0	$ -	1	$ 40,000	1	$ 40,000	1	$ 40,000	1	$ 40,000
3 Preconstruction Analytical Sampling	Lump Sum	$68,000	0	$ -	1	$ 68,000	1	$ 68,000	1	$ 68,000	1	$ 68,000
Construction Management												
4 Construction Oversight	Day	$1,920	0	$ -	390	$ 748,800	200	$ 384,000	200	$ 384,000	300	$ 576,000
5 Air Monitoring During Excavations	Day	$890	0	$ -	390	$ 347,100	200	$ 178,000	200	$ 178,000	300	$ 267,000
6 Air Monitoring System	Month	$25,000	0	$ -	16	$ 400,000	8	$ 200,000	8	$ 200,000	12.5	$ 312,500
7 Site Survey (Layout and post-remediation)	Acre	$2,500	0	$ -	10	$ 25,000	10	$ 25,000	10	$ 25,000	10	$ 25,000
General Conditions												
8 Mobilization/Demobilization	Lump Sum	$436,961	0	$ -	1	$ 436,961	1	$ 436,961	1	$ 436,961	1	$ 436,961
9 Site Preparation	Lump Sum	$352,244	0	$ -	1	$ 352,244	1	$ 352,244	1	$ 352,244	1	$ 352,244
10 Temporary Offices	Month	$5,836	0	$ -	16	$ 93,376	8	$ 46,688	8	$ 46,688	12.5	$ 72,950
11 Temporary Utilities	Month	$3,565	0	$ -	16	$ 57,040	8	$ 28,520	8	$ 28,520	12.5	$ 44,563
12 Final Landside Restoration	Lump Sum	$203,839	0	$ -	1	$ 203,839	1	$ 203,839	1	$ 203,839	1	$ 203,839
REMEDIAL COMPONENTS												
Main Landside Excavation, Including Containment Cell												
13 Sewer Line Support/Relocation	Lump Sum	$27,600	0	$ -	1	$ 27,600	1	$ 27,600	1	$ 27,600	1	$ 27,600
14 Soil Stabilization, Perimeter of Main Excavation	Cubic Yard	$112	0	$ -	0	$ -	0	$ -	4,350	$ 348,000	53,400	$ 3,204,000
15 Excavation of Soil from 0-5 feet, Stockpile for Reuse	Cubic Yard	$7	0	$ -	85,247	$ 638,502	33,367	$ 249,917	33,367	$ 249,917	2,393	$ 17,927
16 Excavation of Soil from 5-12 feet for Treatment/Disposal	Cubic Yard	$15	0	$ -	119,500	$ 1,796,079	46,713	$ 702,102	46,713	$ 702,102	3,351	$ 50,363
17 Dewatering and Treatment	Day	$5,947	0	$ -	190	$ 1,130,157	90	$ 535,199	90	$ 535,199	30	$ 178,400
18 Excavation, Separation, & Stockpiling of Bulk Debris from Cont. Cell	Cubic Yard	$15	0	$ -	20,000	$ 299,000	20,000	$ 299,000	20,000	$ 299,000	20,000	$ 299,000
19 Debris Crushing and Pressure Washing	Day	$10,327	0	$ -	80	$ 826,183	80	$ 826,183	80	$ 826,183		$ -
20 Management of Washwater (Treatment and Reuse for Washing)			0	$ -		$ -		$ -		$ -		$ -
21 Placement of Bulk Debris as Backfill within Former Containment Cell	Cubic Yard	$11	0	$ -	6,497	$ 72,117	6,497	$ 72,117	6,497	$ 72,117	6,497	$ 72,117
22 Backfill Compacted in One-foot Lifts	Cubic Yard	$9	0	$ -	209,000	$ 1,899,810	18,200	$ 165,438	18,200	$ 165,438	18,200	$ 165,438
23 Disposal Costs and Hauling of Bulky Hazardous Waste	Cubic Yard	$203	0	$ -	1,000	$ 202,940	1,000	$ 202,940	1,000	$ 202,940	1,000	$ 202,940
24 Transport and Dispose	Cubic Yard	$197	0	$ -	218,250	$ 43,073,784	45,222	$ 8,925,095	45,222	$ 8,925,095	15,500	$ 3,059,080
Excavation of Northern Bank of Saranac River												
26 Excavation Support	Square Feet	$40	0	$ -	4,000	$ 161,880	4,000	$ 161,880	4,000	$ 161,880	4,000	$ 161,880
27 Excavation of Soil from 0-12 feet	Cubic Yard	$19	0	$ -	800	$ 15,112	800	$ 15,112	800	$ 15,112	800	$ 15,112
28 Dewatering Saturated Zone from 5-12 feet	Day	$4,948	0	$ -	1	$ 4,948	1	$ 4,948	1	$ 4,948	1	$ 4,948
29 Transport and Dispose	Cubic Yard	$207	0	$ -	800	$ 165,448	800	$ 165,448	800	$ 165,448	800	$ 165,448
30 Backfill Compacted One-foot Lifts	Cubic Yard	$16	0	$ -	800	$ 13,128	800	$ 13,128	800	$ 13,128	800	$ 13,128
31 Surface Restoration	Lump Sum	$15,285	0	$ -	1	$ 15,285	1	$ 15,285	1	$ 15,285	1	$ 15,285

Table D1 - Detailed Cost Estimates - Remedial Alternatives 1, 2, 3A, 3B, and 4
Focused Feasibility Study
New York State Electric & Gas Company
Plattsburgh, New York

	Remedial Component	Unit	Unit Price	Remedial Alternative 1 No Action		Remedial Alternative 2 Excavate to TAGM levels		Remedial Alternative 3A Excavate Source Material		Remedial Alternative 3B Excavate Source Material and Stabilize Fringe		Remedial Alternative 4 Stabilize Source Material	
				Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
	Excavation of River Adjacent to Main Landside Excavation												
32	Install/Remove Cofferdam- Phase 1	Lump Sum	$161,029	0	$ -	1	$ 161,029	1	$ 161,029	1	$ 161,029	1	$ 161,029
33	Cofferdam Rental/Maintenance Costs-Phase 1	Month	$70,431	0	$ -	2	$ 140,863	2	$ 140,863	2	$ 140,863	2	$ 140,863
34	Dewatering-Phase 1	Day	$6,991	0	$ -	35	$ 244,688	35	$ 244,688	35	$ 244,688	35	$ 244,688
35	Excavation of Impacted Soils- Phase 1	Cubic yards	$10	0	$ -	6,250	$ 64,625	6,250	$ 64,625	6,250	$ 64,625	6,250	$ 64,625
36	Install/Remove Cofferdam- Phase 2	Lump Sum	$35,863	0	$ -	1	$ 35,863	1	$ 35,863	1	$ 35,863	1	$ 35,863
37	Cofferdam Rental/Maintenance Costs-Phase 2	Month	$45,382	0	$ -	0.5	$ 22,691	0.5	$ 22,691	0.5	$ 22,691	0.5	$ 22,691
38	Dewatering-Phase 2	Day	$8,881	0	$ -	12	$ 106,574	12	$ 106,574	12	$ 106,574	12	$ 106,574
39	Excavation of Impacted Soils- Phase 2	Cubic yards	$29	0	$ -	1,900	$ 55,100	1,900	$ 55,100	1,900	$ 55,100	1,900	$ 55,100
40	Soil Stabilization (Lime or Cement)	Cubic yards	$39	0	$ -	8,150	$ 315,324	8,150	$ 315,324	8,150	$ 315,324	8,150	$ 315,324
41	Transportation and Disposal	Cubic yards	$204	0	$ -	6,200	$ 1,267,094	6,200	$ 1,267,094	6,200	$ 1,267,094	6,200	$ 1,267,094
42	Restore River Bed	Cubic yards	$33	0	$ -	6,200	$ 205,220	6,200	$ 205,220	6,200	$ 205,220	6,200	$ 205,220
43	Quarterly Riverside Tar Monitoring and Reporting, Present value for 5 years at a discount rate of 6% (net of inflation)	Year	$10,000	0	$ -	5	$42,124	5	$42,124	5	$42,124	5	$42,124
	Excavation North of Wood-deck Bridge												
44	Install/Remove Cofferdam	Lump Sum	$35,863	0	$ -	1	$ 35,863	1	$ 35,863	1	$ 35,863	1	$ 35,863
45	Cofferdam Rental/Maintenance	Month	$43,320	0	$ -	1	$ 43,320	1	$ 43,320	1	$ 43,320	1	$ 43,320
46	Excavation Impacted Soils and Sediment	Cubic Yards	$36	0	$ -	1,020	$ 36,383	1,020	$ 36,383	1,020	$ 36,383	1,020	$ 36,383
47	Transportation and Disposal	Cubic yards	$212	0	$ -	550	$ 116,771	550	$ 116,771	550	$ 116,771	550	$ 116,771
48	Backfill Compacted One-foot Lifts	Cubic Yards	$29	0	$ -	550	$ 16,170	550	$ 16,170	550	$ 16,170	550	$ 16,170
	Excavation South of Wood-deck Bridge												
49	Install/Remove Cofferdam	Lump Sum	$35,863	0	$ -	1	$ 35,863	1	$ 35,863	1	$ 35,863	1	$ 35,863
50	Cofferdam Rental/Maintenance	Month	$42,400	0	$ -	1	$ 42,400	1	$ 42,400	1	$ 42,400	1	$ 42,400
51	Excavation Support Landside Slope	Square foot	$13	0	$ -	3,200	$ 41,216	3,200	$ 41,216	3,200	$ 41,216	3,200	$ 41,216
52	Excavate of Impacted Sediments	Cubic Yards	$33	0	$ -	450	$ 15,037	450	$ 15,037	450	$ 15,037	450	$ 15,037
53	Excavate of Impacted Soil	Cubic Yards	$30	0	$ -	2,580	$ 78,093	2,580	$ 78,093	2,580	$ 78,093	2,580	$ 78,093
54	Transportation and Disposal	Cubic yards	$204	0	$ -	1,482	$ 302,573	1,482	$ 302,573	1,482	$ 302,573	1,482	$ 302,573
55	Backfill Compacted One-foot Lifts	Cubic Yards	$23	0	$ -	1,482	$ 34,184	1,482	$ 34,184	1,482	$ 34,184	1,482	$ 34,184
	Bedrock Monitoring Program												
56	Installation of Two Additional 8-inch Bedrock Recovery Wells	Lump Sum	$12,000	1	$ 12,000	1	$ 12,000	1	$ 12,000	1	$ 12,000	1	$ 12,000
57	Annual O&M Costs of Tar Removal and Reporting, Present value for 10 years at a discount rate of 6% (net of inflation)	Year	$10,000	10	$73,601	10	$73,601	10	$73,601	10	$73,601	10	$73,601
	Relocation of Existing Substation and Utility Transmission Tower												
58	Underpin Transmission Tower	Lump Sum	$25,000	0	$ -	1	$ 25,000	1	$ 25,000	1	$ 25,000	1	$ 25,000
59	Substation Deactivation and Reroute to Temporary Substation	Lump Sum	$400,000	0	$ -	1	$ 400,000	1	$ 400,000	1	$ 400,000	1	$ 400,000
	Groundwater Compliance Monitoring Program												
60	Reinstallation of Twelve 2-inch Groundwater Monitoring Wells	Lump Sum	$18,000	0	$ -	0	$ -	1	$ 18,000	1	$ 18,000	1	$ 18,000
61	Annual O&M Costs of GW Sampling and Reporting, Present Value for 30 years at a discount rate of 6% (net of inflation)	Year	$11,000	0	$ -	0	$ -	30	$151,413	30	$151,413	30	$151,413
	REMEDIAL COST SUMMARY												
	Total Capital Costs Without Contingency				$ -		$ 57,156,275		$ 18,386,587		$ 18,734,587		$ 14,093,665
	Total O & M Costs				$ 85,601		$ 127,725		$ 297,138		$ 297,138		$ 297,138
	Total Capital Costs				$ 85,601		$ 57,284,000		$ 18,683,725		$ 19,031,725		$ 14,390,803
	Contingency (25%)				$ 21,400		$ 14,321,000		$ 4,670,931		$ 4,757,931		$ 3,597,701
	TOTAL COST				$ 108,000		$ 71,605,000		$ 23,355,000		$ 23,790,000		$ 17,989,000

Major Assumptions for FFS Level Cost Estimate

PRE-CONSTRUCTION COSTS

Engineering Design, Plans, Specs, Bid, Regulatory Submittals

- Preparation of Remedial Action Plan, Contract Documents with three revision cycles (NYSDEC, City, Community)
- Three Community Meetings
- NYSEG Project Management / Legal Review
- Post-Construction Documents (As-built, Etc.)

Permitting

- Assumes US Army Corp of Engineers dredging permit, Conservation Commission Wetlands Permit, Access Agreements

Construction Oversight

- Onsite Project Manager (NYSEG or NYSEG appointed)
- Site Engineer
- Ten-hour work days
- Includes Per Diem and Miscellaneous Field/Office Expenses
- Time varies depending on Alternatives

Site Survey

- Initial layout of construction limits and utilities and post remediation as-built drawings

Mobilization/Demobilization

- Heavy equipment mobilization/demobilization
- Water Treatment equipment mobilization/demobilization
- Operation of a Water Treatment and Decontamination Facilities
- Worker Housing and Travel Expenses
- Performance Bond
- Temporary fencing, roads, lights, etc.
- Utility Hookups

PRE-CONSTRUCTION COSTS (cont.)

Site Preparation

- Clearing, Grubbing, tree removal of 5 Acres
- Trees will be disposed of off site
- Stumps will be ground up and disposed of with impacted soil
- Installation of 80,000 square foot stockpile and debris segregation/handling pad using geotextile, liner, geotextile, 6" of stone, and 3" of asphalt binder

Temporary Facilities (offices and utilities)

- Five (5) construction trailers,
- One (1) Shared (Engineer, NYSEG, NYSDEC)
- Four (4) Contractor (2 Office, Crew, Decontamination)

Final Landside Restoration

- Place 6" of crusher run over an approximate 7 acre area = 9000 tons
- Assume restoration of the 5 acre cleared area along the river bank
- Assume placement of 10' wide strip of medium stone fill (rip rap) along excavated areas of the Saranac River (approx. 1,500')

Final Landside Restoration

- Approximately 400' will be affected by the remediation activities
- The 21" sewer line will be dug up during the excavation operations and disposed of with the excavated wastes
- The 21" sewer line will be reinstalled

MAIN LANDSIDE EXCAVATION, INCLUDING CONTAINMENT CELL

Soil Stabilization

- Small Mixing auger $80/CY Plus $75,000 Mobilization/Demobilization Costs, Stabilization Rate of 200 CY/day
- Large Mixing auger $60/CY Plus $200,000 Mobilization/Demobilization Costs, Stabilization Rate of 400 CY/day

All Excavation Work

- Material will be stockpiled for re-use at the south east corner of the site in an already remediated area
- Use of 2 backhoes and 5 trucks with 1 bulldozer to push up the stockpile
- Scheduled work to be completed within one construction season when possible
- Operations are scaled with sufficient equipment such that Alternatives 3 or 3A can be completed in one 8-month construction season; Alternatives 2 and 4 will have carry over to a second construction season.
- Hauling capacity for excavated material/backfill is not a limiting factor
- Maximum handling capacity of thermal treatment facilities is a limiting factor
- Critical path for timing of total project time is the excavation/stabilization of main excavation area

Excavation of Soil from 0-5 feet and Stockpile

- Material to be excavated will be above the water table
- No excavation support is required (sloped sidewalls and/or stabilization)
- Excavation Rate of 2,500 cubic yards/day

Excavation of Soil from 5-12 feet for Treatment/Disposal

- Dewatering required during excavation
- Excavated material will be stockpiled on the temporary pad adjacent to Saranac Street for off-site disposal
- Material will be loaded out from the stockpile directly into off-site transport vehicles
- No excavation support is required (sloped sidewalls and/or stabilization)
- Excavation Rate of 700 tons/day

MAIN LANDSIDE EXCAVATION, INCLUDING CONTAINMENT CELL (cont.)

Dewatering & Treatment

- Dewatering based on Rental of Dewatering Treatment System for 3 months of excavation
- Water Treatment Labor rates based on 24 hour/day, 7 day/week
- Treated groundwater will be discharged to the River under a SPDES Permit

Excavate, Separate, & Stockpile Bulk Debris
Placement of Bulk Debris as Backfill

- Dewatering required during excavation below water table
- Material in the former Southwestern portion of the former containment cell is bulk construction debris impacted by coal tar disposal in the cell during plant demolition
- Bulk debris will be pressure washed to remove gross contamination and disposed of as construction debris or crushed and reuse as backfill
- Debris used as backfill will be crushed down far enough to be placed as a crushed material in lifts with a bulldozer

Backfill Compacted in 1-Foot Lifts

- Excavated Materials not designated as source material per the NYSDEC/NYSEG agreed upon clean-up criteria will be reused as backfill
- 60% of excavated material may be reused as backfill
- Minimum of 18” of clean imported material is required for clean surface barrier
- 18” of clean imported material and 6” of crushed stone from final restoration will be combined for the 24” clean surface barrier
- Site may not be restored to original grade. Post excavation grade may increase or decrease 2 feet on average based on chosen remedial alternative.

Disposal Costs and Hauling of Bulk Hazardous Waste
Transport & Dispose

- Disposal estimates were obtained from 5 facilities in the Northeast Region.
- Lowest cost for disposal was approximately $73/ton to ESMI (Fort Edward, NY); however, ESMI cannot handle the volume of soil generate as a result of the Remedial Effort
- FS costs for disposal based on disposal cost of $112/ton to St. Ambroise, Quebec, who can handle the volume of soil generate as a result of the Remedial Effort

EXCAVATION OF NORTHERN BANK OF SARANAC RIVER

Excavation Support

- Sheet Pile Wall surrounding excavation
- 20' sheet piles, internally braced with one level of wales/struts

Excavation of Soil from 0-12 Feet
Dewatering Saturated Zone from 5-12 Feet

- Material is taken over to soil stockpile pad adjacent to Saranac Street
- Water is trucked over to WWT plant already constructed adjacent to Saranac Street
- Occurs on a parallel track with the main excavation.

Transport & Dispose
Backfill Compacted in 1-Foot Lifts

- Assumptions as described above under Main Excavation.

Surface Restoration

- Approximately 6" of topsoil over the entire area = 60 cy.

EXCAVATION OF RIVER ADJACENT TO MAIN LANDSIDE EXCAVATION

Install/Remove Cofferdam- Phase 1 & Phase 2
Cofferdam Rental/Maintenance Costs-Phase 1 & Phase 2

- Direct Quote from PortaDam based on approximately 1,000 foot dam (Phase 1) and 250 foot dam (Phase 2)

Dewatering-Phase 1 & Phase 2

- Dewatering based on Rental of Dewatering Treatment System for 35 days of riverside excavation for Phase 1 and 12 days for Phase 2
- Water Treatment Labor rates based on 24 hour/day, 7 day/week
- Treated groundwater will be discharged to the River under a SPDES Permit

Excavation of Impacted Soils- Phase 1 & Phase 2

- Installation of 1,500 linear foot access road along side the excavation to transport material to the stockpile pad (Phase I)
- Excavation Rate of 500 cubic yards/day
- Occurs on a parallel track with the main excavation.

Stabilization of Excavated Soils

- 15% Portland Cement to stabilize sediments with high water content prior to off-site transport and disposal.
- Stabilize on already constructed staging pad

Transport & Dispose

- Assumptions as described above under Main Excavation

Backfill Compacted in 1-Foot Lifts

- ¼ of excavated material can be reused in restoration of the riverbed
- Imported material will be medium sized rip rap

Quarterly Riverside Tar Monitoring and Reporting (Projected for 5 years)

- Conducted in conjunction with Bedrock Tar Monitoring Program
- Four monitoring visits per year summarized in one annual report

EXCAVATIONS NORTH & SOUTH OF WOOD-DECK BRIDGE

Install/Remove Cofferdam
Cofferdam Rental/Maintenance

- Direct Quote from PortaDam based on approximately 180 foot dam (North) and 200 foot dam (South)

Excavation Impacted Soils and Sediment

- Excavation rate of 250 cubic yards per day
- Occurs on a parallel track with the main excavation.

Transportation and Disposal
Backfill Compacted in 1-Foot Lifts

- Assumptions as described above under Main Excavation

Excavation Support Landside Slope

- Sheet Pile, 8 foot cantilever wall, 8 foot embedment