BOUNDARY REASSESSMENT REPORT

Former Emerson Power Transmission Facility

Ithaca, New York

Site No. 755010

July 21, 2015

Project No. E0004255.9

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1 Introduction

On behalf of Emerson, WSP is submitting the Boundary Reassessment Report for the EMERSUB 15, LLC (formerly Emerson Power Transmission, or "EPT") facility property (the "Site") (Site #755010) in Ithaca, New York (Figure 1). The report presents the results of a scope of work implemented to support the removal of approximately 34 acres of undeveloped land on the south portion of the property from the site definition as: (1) provided in the Administrative Order on Consent (Index #A7-0125-87-09) entered into by the New York State Department of Environmental Conservation (NYSDEC) and EPT on July 13, 1987, and amended on January 14, 2015, to name Emerson Electric Co. ("Emerson") as the respondent ("Order on Consent"); (2) as applied under the Record of Decision (ROD) dated December 12, 1994, as Amended June 2009 ("Amended ROD"); and (3) as used for the Inactive Hazardous Waste Site Registry. The sampling activities were conducted in accordance with WSP's Revised Boundary Reassessment Work Plan (Work Plan; dated January 23, 2015), which was approved by the NYSDEC on January 29, 2015.

The sections below describe the background, operational history, and geology and hydrogeology of the Site. Section 2 details the sampling scope of work for the Site to be addressed by the boundary modification, and Section 3 describes the sampling results and conclusions.

1.1 Site Background Information

The Site is located at 620 South Aurora Street in Ithaca, New York (Figure 1). The Site currently occupies approximately 100-acres and contains a series of buildings extending along the northeast to southwest portion of the property (Figure 2). Undeveloped woodland borders the Site to the southwest along the steep embankment of a hill. West Spencer Street, which runs parallel to the Site, marks the western edge of the wooded area and the base of South Hill. Residential neighborhoods occupy the space beyond Spencer Street to the west and in areas along the steep northern approach to the Site. These neighborhoods are bordered by Six Mile Creek, which flows north along the base of South Hill and eventually empties into Cayuga Lake approximately 2 miles northwest of the Site.

An important part of the Site for purposes of this report is a sanitary sewer line that extends for approximately 2,700 feet from the southern boundary of the Site to the north-northeast, where it exits the Site at South Aurora Street. This sewer line is placed within two easements granted to the National Cash Register Company, for which reason the sewer line is referred to as the "NCR Sewer"). The easements are 10 feet wide on either side of the center line for a total 20 feet width. The easement extends a distance of approximately 2,700 feet from the southern property boundary to the north-northeast, where it exits the property at South Aurora Street. No surface structures may be placed within the easement area and underground installations may not interfere with the NCR Sewer. Copies of the NCR Sewer easements are attached as Appendix A.

The NCR property to the south has a history of environmental impairment and has been undergoing remediation through the NYSDEC Brownfield Cleanup Program (NYSDEC Site #C755012, Former Axiohm Facility). This property is south of and adjacent to the Site and is known as NCR and has known/documented releases of chlorinated volatile organic compounds (CVOCs). This property has initiated remedial efforts and there is quarterly post-remediation groundwater sampling that is currently underway. The NCR sanitary sewer runs from NCR through the Site and has been documented to have CVOCs in soil gas on the Site in close proximity to the sanitary sewer.

Historic soil vapor sampling was conducted in this area in 2005 and 2007; the results were presented by WSP in a letter dated January 27, 2006, and in the Soil Vapor Testing Report submitted on August 17, 2007. Three soil vapor samples (VP-21, SV-49, and SV-51) were collected directly above the sanitary sewer and submitted for the analysis of volatile organic compounds (VOCs) using U.S. Environmental Protection Agency Method TO-15. The samples contained site-related VOCs (1,1,1-trichloroethane [1,1,1-TCA], tetrachloroethene [PCE], trichloroethene [TCE], and cis-1,2-dichloroethene) at concentrations above method detection limits. The highest concentrations of 1,1,1-TCA (291 micrograms per cubic meter [$\mu g/m^3$]), PCE (66.9 $\mu g/m^3$), and TCE (2,010 $\mu g/m^3$) were detected in the soil gas sample collected at SV-51; this location was installed just north of the intersection of the sewer lateral

and the NCR sewer (Figure 3). Lower concentrations of VOCs were detected in the soil gas samples collected from borings installed to the south, at SV-49, and to the north, at VP-21.

1.2 Site Operational History

The original buildings at the Site were constructed in 1906 by Morse Industrial Corporation, which manufactured steel roller chain for the automobile industry. From approximately 1928 to 1983, Borg-Warner Corporation and its corporate predecessors owned the property and manufactured automotive components and power transmission equipment using similar processes, but not necessarily the same materials, as those conducted by EPT. In 1983, Emerson acquired the Site from Borg-Warner Corporation, and subsequently Emerson Power Transmission ("EPT"), a wholly owned subsidiary of Emerson, owned and operated the plant. EPT manufactured industrial roller chain, bearings, and clutching for the power transmission industry until ceasing operations in 2009. Investigations conducted by Emerson in 1987 identified onsite groundwater contamination, originating from a fire-water reservoir located on the western portion of the property. Emerson promptly reported these findings to the NYSDEC. The remediation of this contamination was the subject of the July 1987 Order on Consent referenced above.

Although the Site has been utilized for industrial purposes since the early 1900's, neither development nor industrial operations appear to have taken place on the 34-acre portion of the Site which is the subject of the Boundary Reassessment Study. Historical aerial photographs taken as early as 1938 are included as Appendix A. These photographs show no development, operations, filling, or disposal in this area of the Site. It should also be noted that this area is bounded on the north by a creek, which effectively isolates the 34-acre subject area from the northern portion of the Site in which industrial operations previously occurred. In addition, approximately 24.9-acres of this 34-acre portion of the Site have a slope equal or greater to 15%. These geographical features most likely inhibited access to and development in this area of the Site.

1.3 Site Geology and Hydrogeology

The Site is located on the northern edge of the Appalachian Plateau Physiographic Province, which is characterized in central New York by deeply dissected hilly uplands and glacially gouged stream valleys. The Site lies on the limits of one of the dissected hills and overlooks the Cayuga Lake basin, which is formed in a former stream valley eroded and enlarged by the advance of glaciers. Underlying the Site is a thin, discontinuous veneer of glacial till and man-made fill. The soil consists of silty or clayey gravel and ranges in depth from 2.5 to 33 feet thick, though most of the Site and the western slope of South Hill is covered by less than 15 feet of soil. Soil depths generally increase with decreasing elevation and eventually merge with glacio-lacustrine deposits of silt and clay that line the bottom of the valley floor below South Hill.

Beneath the overburden lies bedrock of the Ithaca Siltstone, a member of the Genesee Formation. The bedrock is typically well-cemented with generally non-fossiliferous beds ranging in thickness from 0.1 inch to 2.5 feet in thickness. Based on core logs recovered from boreholes drilling during investigation activities, the rock was differentiated into three zones based on the frequency of bedding plane fractures and joints: an upper "stress relief zone" (B-zone), a middle "transitional zone" (C-zone), and a lower "lithologically controlled zone" (D-zone).

The uppermost B-zone is characterized as very highly- to highly-fractured weathered bedrock. Onsite the B-zone extends to a maximum depth of approximately 22 feet below ground surface (feet below the ground surface, bgs) and has an average thickness of approximately 8 to 10 feet on the western portion of the Site where the current remediation system is located. The transitional zone (C-zone) extends from the base of the B-zone to a maximum depth of approximately 72 feet bgs on the west portion of the Site. The lower lithologically controlled zone (D-zone) extends from the bottom of the C-zone to a minimum depth of 145 feet bgs.

Groundwater flow direction within the overburden and underlying B-zone generally mimics surface topography, which slopes to the northwest. Groundwater flow direction within the siltstone bedrock (C- and D-zones) is significantly affected by vertical and horizontal distribution of vertical joint sets and horizontal bedding plane fractures within the upper sections of bedrock.

2 Boundary Reassessment Scope of Work

The boundary reassessment work was designed to support the removal of approximately 34 acres of undeveloped land on the south portion of the property from the Order on Consent, Amended Record of Decision, and Inactive Hazardous Waste Site Registry by collecting data across portions of the area to be excluded. The field activities were initiated during the week of March 30, 2015; the activities included soil vapor point installation and sampling, soil boring installation and sampling, and monitoring well installation and development. Groundwater samples were collected from the newly installed monitoring well MW-45B on April 23, 2015.

All sampling was conducted in accordance with WSP's Standard Operating Procedures (SOPs) and the NYSDEC's Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10; NYSDEC 2010). All field activities were conducted using cleaned equipment; decontamination of non-disposable equipment was conducted in accordance with WSP's SOPs and manufacturer's specifications.

Before any sampling was conducted, the sampling locations were identified in the field; minor adjustments to some of the locations were made based on underground utilities information and surface conditions (e.g., topography, trees, and heavy vegetation); limited clearing of vegetation was required at some locations. Each location was marked using a metal stake with fluorescent pink tape tied to the top or white marking paint (on asphalt or concrete) for surveying purposes. A unique sample identifier was written directly on the plastic flag or on the ground surface for use during sample collection.

Underground lines were located and marked by public and private utility locators prior to beginning the intrusive work. The state public utility locating service was contacted to identify utilities along the public rights-of-way adjacent to the Site. A private locator was contracted to identify all lines in the vicinity of the investigation areas.

Standard efforts were taken to prevent cross contamination and contamination of the environment when collecting samples. Equipment, sample containers and supplies were protected from accidental contamination. Non-dedicated equipment was adequately decontaminated between locations in accordance with the procedures in the Work Plan. Where possible, each individual piece was individually decontaminated in accordance with the manufacturer's specifications.

WSP followed the manufacturer's operation manuals for calibration, use, and decontamination procedures; the equipment was tested and calibrated daily before use and was recalibrated every twenty samples. All calibration procedures performed were documented in the field book.

Samples were collected in the appropriate laboratory provided containers, labeled, placed in an ice-filled cooler (where appropriate), and handled under strict chain-of-custody procedures. Quality assurance/quality control (QA/QC) samples were collected in accordance with the Work Plan.

Investigation derived waste (IDW), including drill cuttings, development water, purge water, decontamination water, and personal protective equipment (PPE), were contained in Department of Transportation-compliant 55-gallon steel drums. The drums were labeled and moved to a temporary storage area on the Site for subsequent management and disposal. The IDW were promptly characterized and disposed of in accordance with state and federal requirements. Purge water and drilling fluids were managed using the onsite groundwater treatment system.

2.1 Soil Vapor Sampling

A soil vapor survey was conducted to characterize soil vapor quality extending outwards from the "NCR sewer" which is located along the eastern side of the Site. During the week of March 30, 2015, soil vapor probes were installed at 30 locations (Figure 3). Due to the shallow nature of the bedrock encountered in these areas none of the borings could be extended to the target depth of 5.5 feet bgs (Table 1 and Appendix B). Therefore, only qualitative soil vapor samples could be collected from select locations, as discussed below in Section 3.1.

2.1.1 Soil Vapor Probe Installation

During the week of March 30, 2015, a direct-push drill rig (Geoprobe® equivalent), equipped with 1.25-inch inside diameter (ID) drilling rods was used to install the soil vapor probes. The soil vapor probe installation was completed in general accordance with the procedures provided in the Work Plan and the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006 (New York State Department of Health, NYSDOH 2006); however, refusal was encountered at less than 5.5 feet bgs at each location (Table 1). Lithological observations were recorded in a field book and boring logs are presented in Appendix B.

A stainless steel screen was attached to 0.25-inch ID Teflon®-lined tubing and lowered to the bottom of the open borehole. Approximately 1 foot of quartz sand was placed in the bottom of the borehole around the screen and tubing to create a 1-foot-thick sample interval. The remainder of the borehole was sealed with pre-hydrated bentonite chips that were compacted in the borehole to form a seal. Appropriate fittings (e.g., a 3-way valve) and additional tubing were placed, as appropriate. Following installation, the tubing was clamped off to avoid discharging vapor to the air.

Steps were taken to minimize infiltration of surface water and outdoor air and to prevent accidental damage. Sampling was not attempted until the subsurface equilibrium had been re-established, approximately 24-hours following sample probe installation.

As depicted on Figure 3, the soil vapor probes were installed in three general locations; 12 probes were installed near the southern-most property line in the vicinity of previous soil vapor point SV-49, 12 probes were installed approximately 103-feet north of the intersection of the NCR Sewer and the utility lines extending from South Aurora Street to Spencer Road in the vicinity of previous soil vapor point SV-51 and 6 probes were installed immediately south of the creek and southern-most on-site roadway in the vicinity of previous soil vapor point VP-21. The SV-51 and SV-49 probes each consisted of two groups of 6 points, located to the east and west of the NCR Sewer, respectively. The probes installed near VP-21 were intended to be set-up in a similar configuration to the SV-51 and SV-49 sets; however, the close proximity of the creek in this area prevented soil vapor probes from being installed to the west of the NCR Sewer. Figure 3 depicts the location and probe configuration of each set.

2.1.2 Leak Testing

As described in the Work Plan, the integrity of the seal between the ground surface and the sample probe assembly was verified during leak testing. The leak detection procedures were completed in substantial conformance with the NYSDEC-approved Work Plan and observations were recorded in the field book. If leaks were detected in the sample probes, the probes were adjusted until leaks were no longer detected. The integrity of all seals were confirmed prior to sampling.

2.1.3 Soil Vapor Sample Collection Procedures

Initially, the sample probe and sample train (tubing, connectors, valves, etc.) were purged to remove ambient air from each of the probes. During the week of March 30, 2015, WSP collected qualitative soil vapor samples from 6 of the 12 soil vapor probes near SV-51 (SV-51-02, SV-51-03, SV-51-04, SV-51-09, SV-51-11, and SV-51-12; Figure 3). Following collection, sample volume requirements were not met at one of the locations (SV-51-12), so this sample was not analyzed. Groundwater was encountered at depths less than 2 feet bgs in the remaining 6 soil vapor sampling probes in the SV-51 area at all of the sampling probes installed near SV-49 and VP-21 (Table 1 and Figure 3). In accordance with the Work Plan, soil vapor samples were not collected from these saturated locations and the sampling probes were removed and the borings were abandoned.

For the locations that were sampled, purging was accomplished by connecting a hand-powered air pump to the soil vapor discharge tubing. A “low-flow” purge rate (a maximum of 200 milliliters per minute, ml/min) was maintained to avoid potential short-circuiting or desorbing volatile compounds from soil particles. A minimum of 3 tubing/probe volumes was purged from the soil vapor sampling assembly prior to sample collection. Purged vapor from the soil vapor probe was contained in Tedlar® bags to prevent the release of soil vapor into the air. Soil vapor samples

were collected using laboratory supplied 1-liter Entech-style stainless steel canisters. The sampling equipment included a canister under vacuum, a flow regulator with an in-line vacuum gauge, and an in-line particulate filter. The flow regulators were pre-set by the laboratory to collect a sample over a 1-hour collection period.

After 1 hour, the canister valves were closed and the regulator was disconnected. The final conditions at the sample location were recorded, including the weather conditions (e.g., precipitation, barometric pressure, and air temperature), photoionization detector (PID) readings, and any observations (e.g., odor, staining, or spills). The canisters were couriered to Centek Laboratory in Syracuse, New York, under strict chain-of-custody procedures.

A total of 5 qualitative soil vapor samples, plus 2 duplicates, were submitted to an offsite laboratory and were analyzed for volatile organic compounds (VOCs) using the U.S. Environmental Protection Agency's (EPA) Method TO-15. Laboratory results are presented in Appendix C.

After completing the sampling activities, the sampling probe materials were removed and the boreholes were backfilled with hydrated bentonite chips. Soil cuttings which are not returned to the boreholes were managed as IDW.

2.2 Soil Sampling

The boundary reassessment soil borings were installed using hand-auger equipment (Figure 3). Soil cores were collected continuously from the ground surface to the borehole refusal depth (bedrock). Upon recovery, the soils were visually screened for evidence of contamination, logged using the unified soil classification system, and screened for organic vapors at approximately 1.5-foot intervals in the field with a PID equipped with a 10.6 electron-volt lamp. This information was recorded in a field book and boring logs are provided in Appendix B.

Surface soil samples (0 to 2 inches bgs) were collected at a total of 10 locations (BA-CS-01 to BA-CS-10) and subsurface soil samples (ranging from 0.25 foot to 3 feet bgs) were collected at a total of 7 boring locations (BA-SB-01 through BA-SB-07; Figure 3). Bedrock was encountered at depths shallower than expected (ranging from 0.75 foot bgs to 3 feet bgs); accordingly, three of the subsurface samples (BA-SB-05, BA-SB-06, and BA-SB-07) were collected at depths shallower than 2 feet bgs.

Historic fill materials or debris were not encountered during the installation of these borings. The soil samples were analyzed for:

- EPA target compound list (TCL) VOCs and NYSDEC Commissioner Policy 51 (CP-51) List VOCs using EPA Test Method 8260, and up to 10 tentatively identified compounds (TICs); the samples were collected in accordance with EPA Method 5035A
- EPA TCL and NYSDEC CP-51 List semi-volatile organic compounds (SVOCs) using EPA Test Method 8270, and up to 20 TICs
- Target analyte list (TAL) metals using EPA Test Methods 6010/7471
- Polychlorinated biphenyls (PCBs) using EPA Test Method 8082
- Pesticides using EPA Method 8081
- Cyanide using EPA Method 9012

After completing the sampling activities, the open boreholes were backfilled with the soil cuttings. The soil samples were couriered to TestAmerica in Buffalo, New York, under strict chain-of-custody procedures.

2.3 Monitoring Well Installation Procedures

One bedrock groundwater monitoring well (MW-45B) was installed to evaluate groundwater in the B-zone on the southwestern portion of the Site (Figure 3).

The monitoring well was installed using water-rotary drilling equipment. A 6-inch borehole was installed approximately 3 feet into the top of bedrock. A 4-inch steel casing was installed to 4.5 feet bgs in the borehole and sealed with granular bentonite to prevent collapse of the unconsolidated overburden. A minimum of 12 hours following hydration of the bentonite, the borehole was advanced through the outer casing into the B-zone (approximately 15.5 feet bgs). The open rock core hole was advanced to 15.5 feet bgs using HX rock coring methods. Each section of rock core recovered from the core hole was logged for lithology, structure, weathering, and fracture characterization and notations were recorded in a field notebook. The total recovery, modified recovery, and Rock Quality Designation were also calculated for each coring run. Soil and rock cuttings were managed as IDW.

Monitoring well MW-45B was constructed using 10 feet of 2-inch ID polyvinyl chloride (PVC) 0.01-inch slot well screen with the appropriate length of PVC riser pipe. A clean sand filter pack was placed from the bottom of the borehole to approximately 2 feet above the top of the screen. A 3-foot-thick bentonite seal (hydrated pellets) was placed on top of the sand filter pack. The remaining annular space was backfilled with a cement-bentonite grout mixture (tremie-piped from the bottom to the top). The monitoring well was completed with a steel stickup assembly and was equipped with a lockable watertight cap. The stick-up protective cover was set in a hole at least 4 to 8 inches larger than the assembly, and then secured in a 2-foot by 2-foot concrete pad. The boring log and construction information is provided in Appendix B.

The monitoring well was developed to remove sediments and ensure effective communication between the monitoring well screen and the surrounding saturated zone by first surging the screened interval to loosen any fine-grained sediment in the sand filter pack and adjacent aquifer material. Approximately 7 gallons of groundwater was removed by pumping; the well was purged dry four times and was allowed to recharge (approximately 10 minutes) before continuing development activities. During development, field measurements of temperature, pH, specific conductance, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity, were monitored using a multi-parameter water quality meter.

2.4 Groundwater Sampling Procedures

On April 23, 2015, groundwater samples were collected from bedrock well MW-45B; the sampling adhered to the Work Plan and the NYSDEC-approved low-flow sampling procedures.

The groundwater level in the well was measured to the nearest 0.01-foot using an electronic water level indicator, and was taken from a surveyed reference point or notch on the well casing. The well was purged and sampled at a rate of less than 500 ml/min using a submersible bladder pump equipped with a disposable polyethylene bladder. The pump intake depth (14.5 feet bgs) was selected to coincide with the identified primary flow pathway (Appendix B).

During purging, field measurements of temperature, pH, specific conductance, DO, ORP, and turbidity, were monitored using a multi-parameter water quality meter equipped with a flow through cell to minimize atmospheric interference. Depth-to-water measurements were recorded throughout sampling to track and minimize water column drawdown. In accordance with WSP's SOPs, groundwater samples were collected following the stabilization of the field parameters. Groundwater samples were collected and analyzed for:

- EPA TCL VOCs and NYSDEC CP-51 List VOCs using EPA Test Method 8260, and up to 10 TICs
- EPA TCL and NYSDEC CP-51 List SVOCs using EPA Test Method 8270, and up to 20 TICs
- TAL metals using EPA Test Methods 6010/7471
- PCBs using EPA Test Method 8082
- Pesticides using EPA Method 8081
- Cyanide using EPA Method 9012

3 Sampling Results

During the Boundary Reassessment activities, soil vapor, soil and groundwater samples were collected and submitted for laboratory analysis. The soil and groundwater sampling results are presented in Tables 2 through 5 and on Figures 4 through 5. Laboratory data, QA/QC data, and quality control comments, are provided in Appendix C.

3.1 Field Observations

No fill material or debris was encountered during drilling activities. The overburden soils in this area consist of silty or clayey gravel and are up to 3.5 feet thick. Beneath the overburden lies the Ithaca Siltstone bedrock. Based on the rock core recovered during the installation of MW-45B, the B-zone bedrock is highly- to very highly-fractured weathered bedrock. The thickness of the B-zone in this area of the property was not determined. Groundwater was encountered at approximately 8 feet bgs; groundwater flow within the bedrock is likely affected by vertical and horizontal distribution of vertical joint sets and horizontal bedding plane fractures.

3.2 Soil Vapor Sampling Results

Five soil vapor samples and 2 duplicate samples were analyzed for VOCs. As depicted on Figure 3, soil vapor samples SV-51-04 and SV-51-09 were installed approximately 40-feet and 47-feet to the northwest of SV-51, respectively, and soil vapor samples SV-51-02, SV-51-03, and SV-51-11 were installed approximately 30-feet, 36-feet and 40-feet to the southeast of SV-51, respectively. The boring logs are provided in Appendix B and the soil vapor laboratory data are provided in Appendix C.

As described above, these soil vapor points could not be installed to the target depth interval (5.0 to 5.5 feet bgs) due to the presence of shallow bedrock (2.0 to 3.5 feet bgs; Table 1 and Appendix B). The soil vapor quality data does not meet the NYSDEC's procedural requirements and is considered qualitative screening data; however, these would appear consistent with the previous soil vapor sampling work completed at SV-51, SV-49 and VP-21. It should also be noted that in accordance with the Work Plan, soil vapor probes installed in the vicinity of prior soil vapor points SV-49 and VP-21 could not be sampled due to the presence of groundwater in these probes.

As the NYSDOH has not developed comparative criteria for soil vapor (NYSDOH 2006), only Site-related VOC concentrations are discussed below.

The historical soil vapor sample SV-51 contained concentrations of 1,1,1-trichlorethane (1,1,1-TCA; 291 micrograms per cubic meter, µg/m^3), tetrachloroethene (PCE; 66.9 µg/m^3), and trichloroethene (TCE; 2,010 µg/m^3) above the method detection limit. The new soil vapor samples collected near SV-51 contained 1,1,1-TCA at concentrations ranging from 1.4 µg/m^3 to 200 µg/m^3, PCE at concentrations ranging from non-detect to 3.3 µg/m^3, and TCE at concentrations ranging from non-detect to 33 µg/m^3 (Table B1 in Appendix C). The highest VOC concentrations were detected in samples collected closest to the NCR Sewer (i.e, approximately 15-feet from the NCR Sewer easement area) with lower concentrations detected in samples collected further from the NCR Sewer (i.e, approximately 25-feet from the NCR Sewer easement area). These data indicate that the VOC concentrations decrease significantly with distance from the centerline of the sewer; VOC impacts to soil gas in this area of the Site appear to be limited to the direct proximity of the NCR Sewer.

3.3 Soil Sampling Results

Ten surficial soil samples and 1 duplicate sample (0 to 2 inches bgs), and 7 subsurface samples (ranging in depth from 0.25 foot to 3.0 feet bgs) were collected and analyzed for VOCs, SVOCs, pesticides, PCBs, metals and cyanide. Soil data were compared to the New York Codes, Rules and Regulations Subpart 375-6 Remedial

Program Soil Cleanup Objectives (SCOs) for unrestricted soil cleanup (NYSDEC 2006). The soil data are provided in Tables 2 and 3 and Figure 4; the boring logs are provided in Appendix B.

No VOCs, pesticides, or PCBs were detected in the surficial soil samples at concentrations above the SCOs. One SVOC, 4-methylphenol (or p-cresol), was detected in one of the surficial soil samples (BA-CS-09) at an estimated concentration (0.95 milligrams per kilogram, mg/kg) above the SCO (0.33 mg/kg; Table 2). Nickel (33 mg/kg in BA-CS-10) and zinc (110 mg/kg in BA-CS-01 and 113 mg/kg in BA-CS-10) were detected in the surface soil samples at concentrations slightly above their respective SCOs (30 mg/kg and 109 mg/kg; Table 2). However, zinc was also detected in the associated laboratory blank.

No VOCs, SVOCs, pesticides, or PCBs were detected in the subsurface soil samples at concentrations above the SCOs. One subsurface soil sample (BA-SB-04; collected from 2 to 3 feet bgs) contained concentrations of arsenic (64.8 mg/kg), lead (176 mg/kg), nickel (36 mg/kg) and zinc (150 mg/kg) above their respective SCOs (13 mg/kg, 63 mg/kg, 30 mg/kg, and 109 mg/kg; Table 3). Nickel was also detected in two other subsurface soil samples (BA-SB-03 and BA-SB-05) at 34 mg/kg each; slightly above the SCO (30 mg/kg; Table 3).

The presence of p-cresol, nickel, and zinc in surficial soil samples and arsenic, nickel, and zinc in subsurface soils appears random and anomalous and is not indicative of impacts associated with historical operations at the Site. No fill material or debris were found in the soil borings.

3.4 Groundwater Sampling Results

Groundwater data were compared to the New York State Ambient Water Quality Standards or Guidance Values for Class GA groundwater provided in the NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) (NYSDEC 2000). The groundwater data is provided in Table 4 and the groundwater sampling log is provided in Appendix D.

No VOCs, SVOCs, pesticides, or PCBs were detected in the groundwater samples at concentrations above the groundwater standards (Table 4). Sodium was detected at a concentration (31.9 milligrams per liter, mg/l, and 34 mg/l in the duplicate sample) slightly above the groundwater standard (20 mg/l). No other metals were detected at concentrations above their respective groundwater standards (Table 4).

The presence of sodium in the groundwater sample also appears anomalous and is not indicative of impacts associated with historical operations at the Site.

4 Summary

Investigations of the approximately 34 acres of undeveloped land on the south portion of the property subject to the Order on Consent and Amended Record of Decision, and listed on the Inactive Hazardous Waste Site Registry indicate that there are no impacts from the operations to the north. As previously noted, historical aerial photographs show no development, operations, filling, or disposal in this area of the Site (Section 1.2). It should also be noted that this area is bounded on the north by a creek, which effectively isolates the 34-acre subject area from the northern portion of the Site where industrial operations occurred. In addition, approximately 24.9-acres of this 34-acre portion of the Site have a slope equal or greater to 15%. These geographical features most likely inhibited access to and development in this area of the Site.

VOCs are present in the soil vapor within and in direct proximity to the NCR Sewer easement, which extends for a distance of approximately 2,700 feet from the southern boundary of the Site to the north-northeastern property boundary. However, the VOC concentrations appear to decrease significantly with distance from the centerline of the sewer. It should be noted that the terms of the NCR Sewer easement prohibit the placement of any surface structures within 10 feet of the easement center line (i.e., 20 feet width), as well as the construction of underground installations that would interfere with the NCR Sewer. This restricts development of the land within the easement.

The surficial and subsurface soil sampling results show that p-cresol, arsenic, lead, nickel, and zinc were detected at concentrations above the unrestricted SCOs. Three surficial and three subsurface soil samples contained concentrations of p-cresol or metals (Section 3.2) above the SCOs (Tables 2 and 3 and Figure 4). There are no spatial distribution trends and these compounds are not related to the historical operations at the Site. In addition, no fill material or debris were found in any soil borings.

The groundwater sample collected from monitoring well MW-45B installed at the downgradient edge of the area under investigation, and its duplicate, contained concentrations of sodium above the groundwater standards. The presence of sodium in the groundwater sample also appears isolated and is not indicative of impacts associated with historical operations at the Site.

Based on the investigation results described herein, WSP requests that the Site boundary be modified to remove the 34 acres of undeveloped land on the south portion of the property from the site definition, as provided in the Order on Consent, the Amended Record of Decision, and the Registry of Inactive Hazardous Waste Sites.

5 References

New York State Department of Environmental Conservation (NYSDEC). 2010. Technical Guidance for Site Investigation and Remediation. May 3.

NYSDEC. 2000. Division of Water Technical and Operational Guidance Series (1.1.1). Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. Dated June 1998, reissued in 2000.

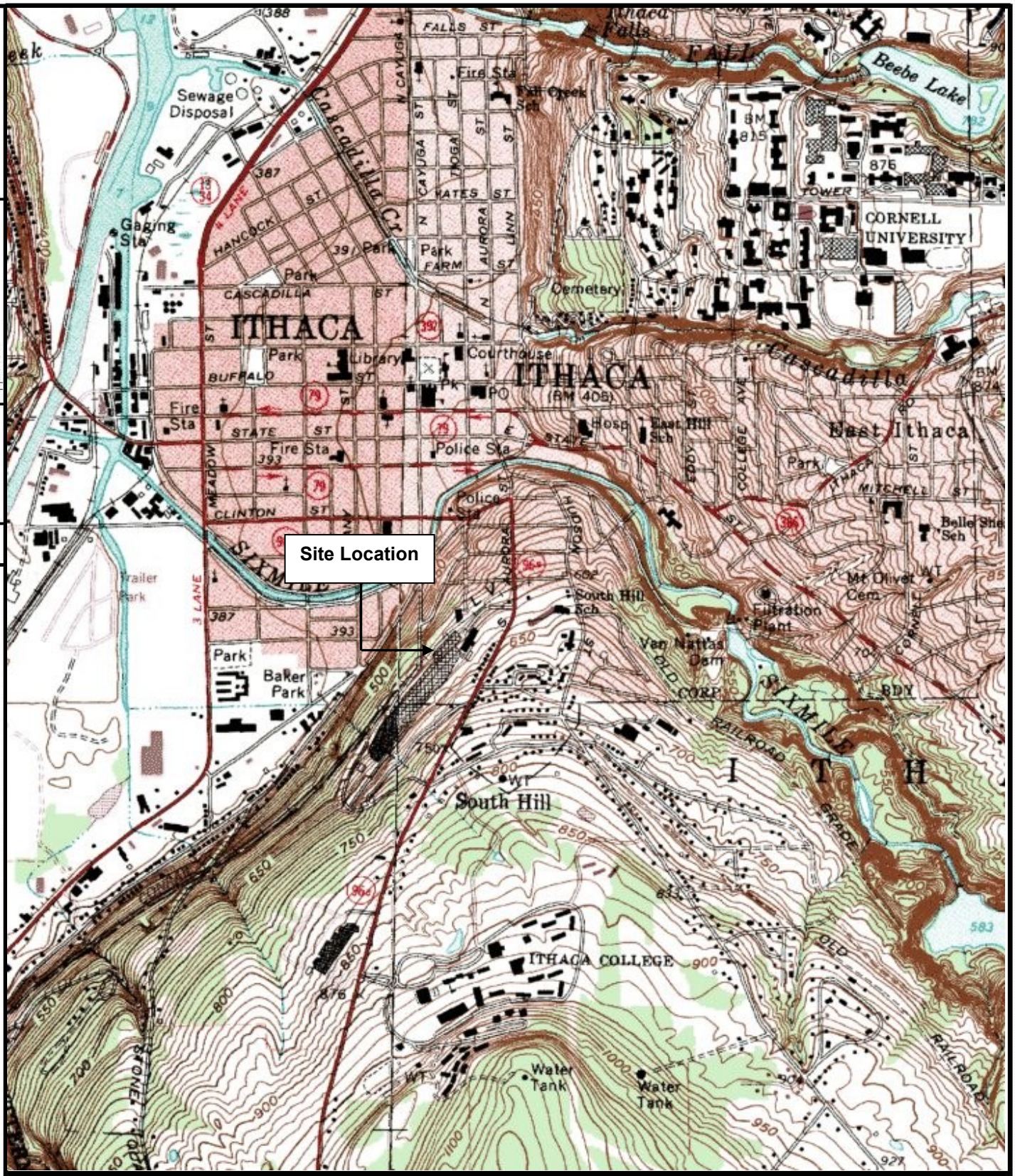
NYSDEC. 2006. New York State Register and Official Compilation of Codes, Rules and Regulations of the State of New York; Regulations. Subpart 375-6: Remedial Program Soil Cleanup Objectives. Section 375-6.3. Accessed on August 22, 2014 at http://www.dec.ny.gov/regs/15507.html.

New York State Department of Health. 2006. Guidance for Evaluating Soil Vapor Intrusion in the State of New York. October.

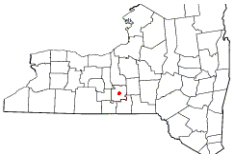
6 Acronyms

bgs	below the ground surface
CP-51	NYSDEC Commissioner Policy-51
DER-10	NYSDEC's Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation
DO	dissolved oxygen
EPA	U.S. Environmental Protection Agency
EPT	Emerson Power Transmission
ID	inside diameter
IDW	investigation derived waste
mg/kg	milligrams per kilogram
mg/l	milligrams per liter
ml/min	milliliters per minute
NYSDOH	New York State Department of Health
NYSDEC	New York State Department of Environmental Conservation
ORP	oxidation-reduction potential
PCBs	polychlorinated biphenyls
PID	photoionization detector
PPE	personal protective equipment
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
ROD	Record of Decision
SOPs	standard operating procedures
SVOCs	semi-volatile organic compounds
TAL	target analyte list
TCL	target compound list
TICs	tentatively identified compounds
$\mu g/m^3$	micrograms per cubic meter
VOCs	volatile organic compounds

Figures



REFERENCE:
7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLE
ITHACA EAST, NEW YORK
PHOTOREVISED 1978 SCALE 1:24,000



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WSP
11190 Sunrise Valley Drive Suite 300
Reston, Virginia 20191
((703) 709-6500

FIGURE 1

SITE LOCATION MAP

Emerson Power Transmission
Ithaca, New York

PREPARED FOR
Emerson
Saint Louis, Missouri

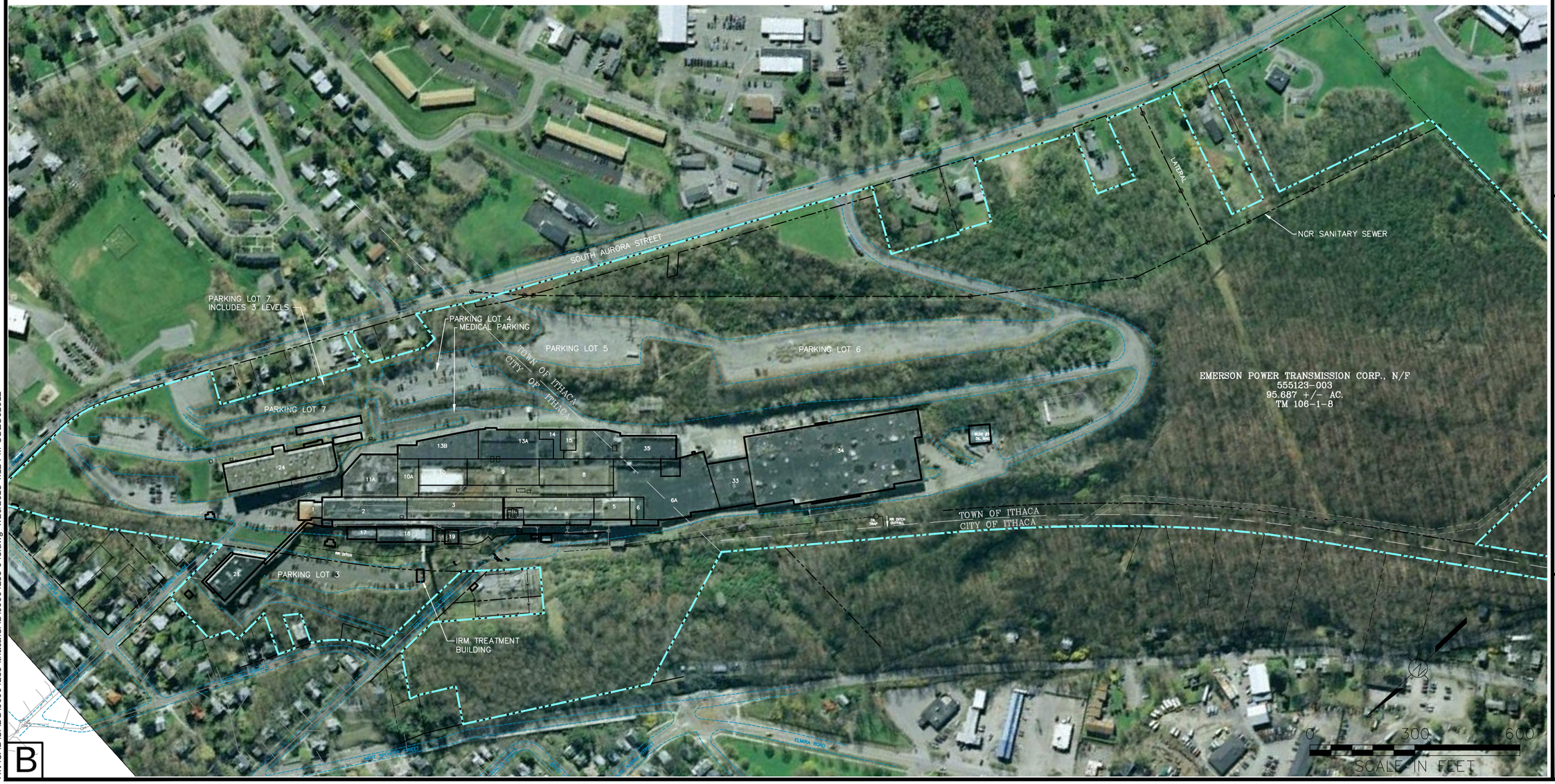
DWG Name: 4507/34
Checked:
Approved:
Drawn By: FMC 2/4/2014
A

LEGEND

SANITARY SEWER

34 BUILDING NUMBER

PROPERTY BOUNDARY



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Drawn By: EGC

Checked: CBM 11/11/2014

Approved: STA 7/20/2015

DWG Name: 00004255-045

EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON

Figure 2

SITE LAYOUT

WSP USA Corp.
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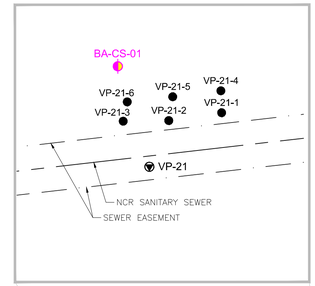
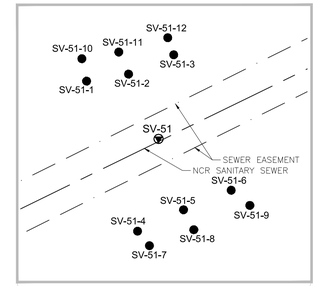
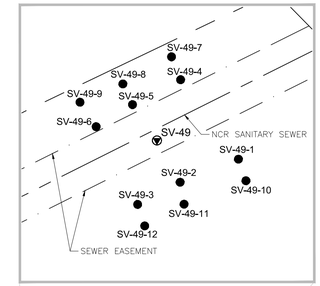
Reston, Virginia 20191
(703) 709-6500
www.wspgroup.com/usa

LEGEND

- SANITARY SEWER
- 34 — BUILDING NUMBER
- PROPOSED BOUNDARY FOR OU-1
- PROPOSED NEW BOUNDARY FOR SITE NO. 755010
- AREA PROPOSED FOR REMOVAL FROM SITE NO. 755010
- SLOPES GREATER THAN 15%
- EASEMENT FOR NCR SEWER
- PROPERTY BOUNDARY
- VP-19 — HISTORICAL SOIL GAS SAMPLE
- SOIL GAS POINT
- BA-SB-06 — SUBSURFACE SOIL BORING
- BA-CS-04 — SURFICIAL SOIL BORING
- BA-BW-01 — 2015 BEDROCK WELL







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2	Revised:	Chkd: Appr.:
3	Revised:	Chkd: Appr.:

REVISIONS

SEAL

DATE

DRAWN BY	EGC	6/10/2015
CHECKED	CBM	7/20/2015
APPROVED	SAW	7/20/2015

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BOUNDARY REASSESSMENT SAMPLE LOCATIONS

EMERSON POWER TRANSMISSION
ITHACA, NEW YORK
PREPARED FOR
EMERSON POWER TRANSMISSION

WSP USA Corp.
11190 Sunrise Valley Drive, Suite 300
Reston, Virginia 20191
(703) 709-6500
www.wspgroup.com/usa

FIGURE 3

Drawing Number
00004255–066

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NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
UNRESTRICTED USE SOIL CLEANUP OBJECTIVES (mg/kg)

p-Cresol	0.33
Arsenic	13
Lead	63
Nickel	30
Zinc	109

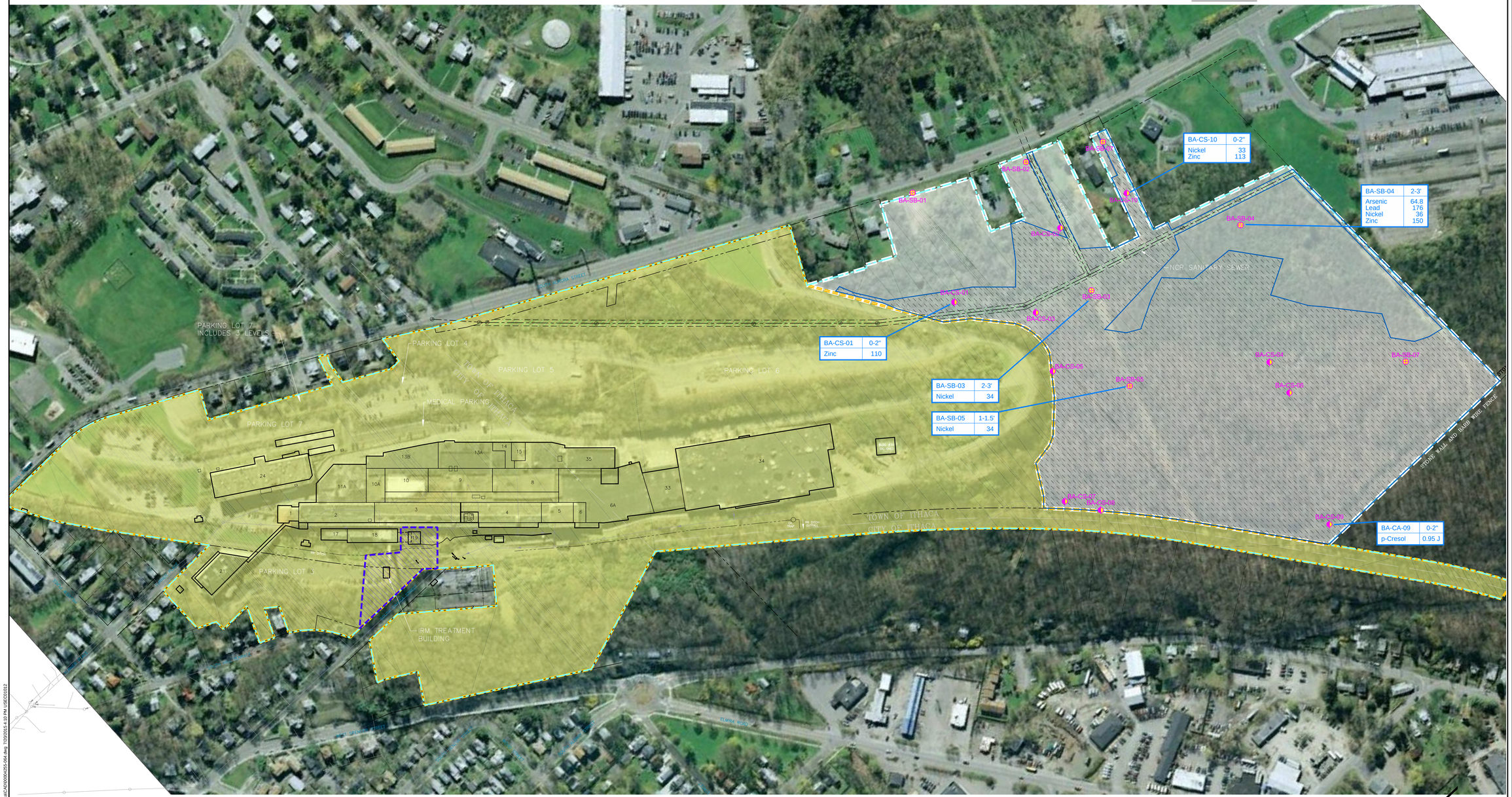
BA-CS-10	0-2"
Nickel	33
Zinc	113 B

SAMPLE ID
DEPTH (BELOW GRADE SURFACE)
CONCENTRATION (mg/kg)
CONSTITUENT

NOTES:
1. ALL CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (ug/kg).
2. ONLY CONCENTRATIONS ABOVE THE SCO ARE PRESENTED.

LEGEND

- SANITARY SEWER
- 34 BUILDING NUMBER
- PROPOSED BOUNDARY FOR OU-1
- PROPOSED NEW BOUNDARY FOR SITE NO. 755010
- AREA PROPOSED FOR REMOVAL FROM SITE NO. 755010
- SLOPES GREATER THAN 15%
- PROPOSED EASEMENT FOR NCR SEWER
- PROPERTY BOUNDARY
- BA-SB-06 SUBSURFACE SOIL BORING
- BA-CS-04 SURFICIAL SOIL BORING



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2	Revised:	Chkd:	Appr.:
3	Revised:	Chkd:	Appr.:

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DRAWN BY	ECC	6/10/2015
CHECKED	CBM	
APPROVED	SPN	7/20/2015

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BOUNDARY REASSESSMENT SOIL SAMPLE RESULTS

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EMERSON POWER TRANSMISSION

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Reston, Virginia 20191
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FIGURE 4

Drawing Number
00004255-064

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NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
GROUNDWATER STANDARDS FOR GA GROUNDWATER (mg/l)

Sodium	20

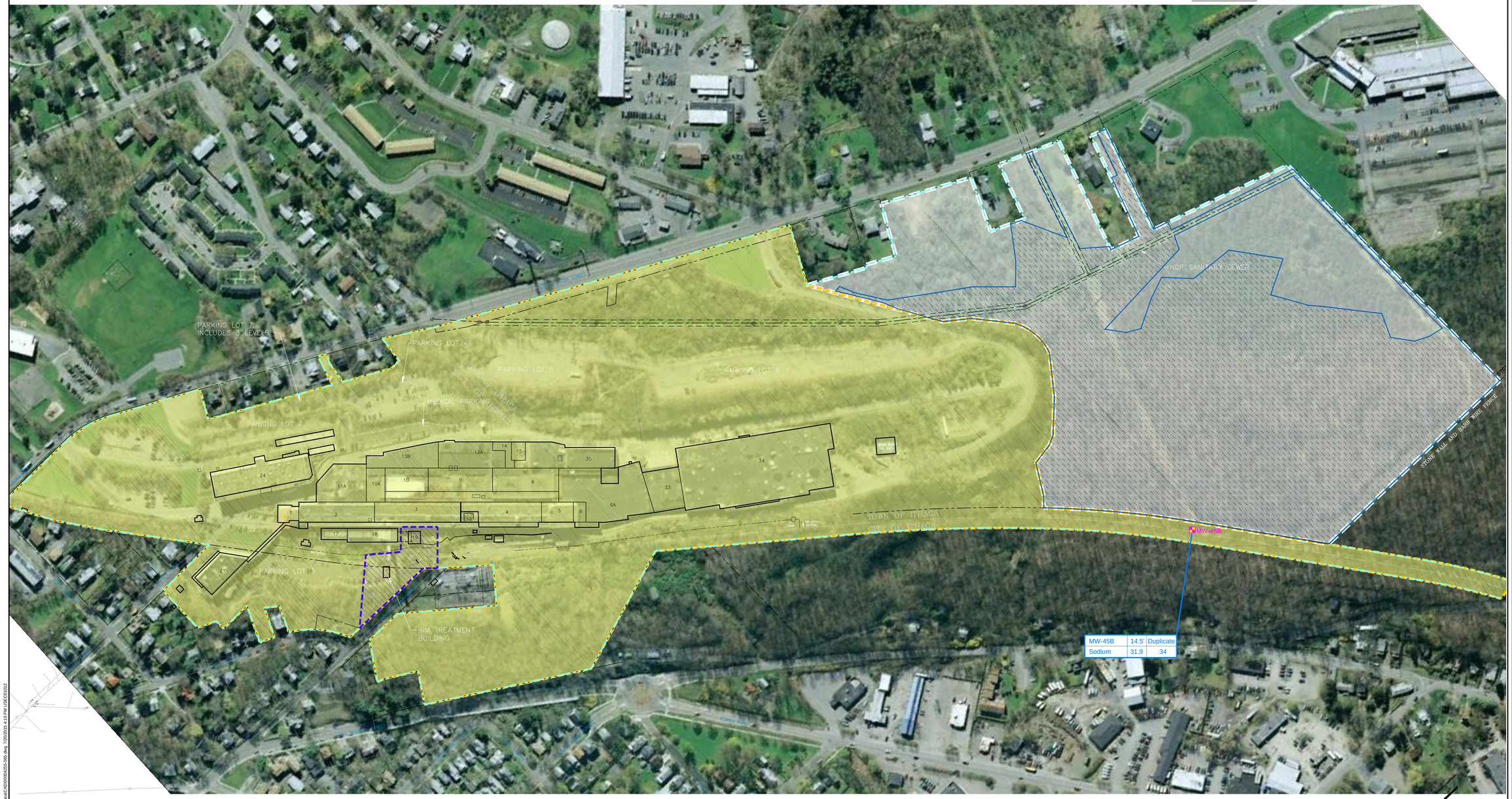
MW-45B	14.5'	Duplicate
Sodium	31.9	34

SAMPLE ID
DEPTH (BELOW GRADE SURFACE)
CONCENTRATION (mg/l)
CONSTITUENT

NOTES:
1. ALL CONCENTRATIONS IN MILLIGRAMS PER LITER (mg/l).
2. ONLY CONCENTRATIONS ABOVE THE GROUNDWATER STANDARDS ARE PRESENTED.

LEGEND

- SANITARY SEWER
- 34 BUILDING NUMBER
- PROPOSED BOUNDARY FOR OU-1
- PROPOSED NEW BOUNDARY FOR SITE NO. 755010
- AREA PROPOSED FOR REMOVAL FROM SITE NO. 755010
- SLOPES GREATER THAN 15%
- PROPOSED EASEMENT FOR NCR SEWER
- PROPERTY BOUNDARY
- BA-BW-01 2015 BEDROCK WELL



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DATE

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APPROVED	SPM	7/20/2015

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BOUNDARY REASSESSMENT GROUNDWATER SAMPLE RESULTS

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FIGURE 5

Drawing Number
00004255–065

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Tables

Table 1

Soil Vapor Probe Details
Former EPT Facility
Ithaca, New York (a)

Identification	Total Depth (feet bgs)	Screened Interval (feet bgs)	Sample Collected?	Field Observations
SV-51-01	2	1.5-2	No	Sample probe saturated
SV-51-02	2	1.5-2	Yes	Sample collected
SV-51-03	3	2.5-3	Yes	Sample collected
SV-51-04	2	1.5-2	Yes	Sample collected
SV-51-05	2	1.5-2	No	Sample probe saturated
SV-51-06	3	2.5-3	No	Sample probe saturated
SV-51-07	2	1.5-2	No	Water in sample container
SV-51-08	3	2.5-3	No	Sample probe saturated
SV-51-09	2	1.5-2	Yes	Sample collected
SV-51-10	2	1.5-2	No	Sample probe saturated
SV-51-11	2	1.5-2	Yes	Sample collected
SV-51-12	3.5	3-3.5	No	Insufficient sample volume collected
SV-49-01	3.5	3-3.5	No	Sample probe saturated
SV-49-02	3	2.5-3	No	Sample probe saturated
SV-49-03	3.5	3-3.5	No	Sample probe saturated
SV-49-04	2.5	2-2.5	No	Sample probe saturated
SV-49-05	2.5	2-2.5	No	Sample probe saturated
SV-49-06	2.5	2-2.5	No	Sample probe saturated
SV-49-07	2	1.5-2	No	Sample probe saturated
SV-49-08	2	1.5-2	No	Sample probe saturated
SV-49-09	2	1.5-2	No	Sample probe saturated
SV-49-10	3.5	3-3.5	No	Sample probe saturated
SV-49-11	3.5	3-3.5	No	Sample probe saturated
SV-49-12	3.5	3-3.5	No	Sample probe saturated
VP-21-01	3.5	3-3.5	No	Sample probe saturated
VP-21-02	3.5	3-3.5	No	Sample probe saturated
VP-21-03	3.5	3-3.5	No	Sample probe saturated
VP-21-10	3.5	3-3.5	No	Sample probe saturated
VP-21-11	2	1.5-2	No	Sample probe saturated
VP-21-12	2	1.5-2	No	Sample probe saturated

a/ feet bgs = feet below ground surface.

Table 2

Surficial Soil Sampling Results
Former EPT Facility
Ithaca, NY (a)

	NYSDEC SCOs (b)												
Sample Location:			**BA-CS-01**	**BA-CS-02** (d)	**BA-CS-50** (d)	**BA-CS-03**	**BA-CS-04**	**BA-CS-05**	**BA-CS-06**	**BA-CS-07**	**BA-CS-08**	**BA-CS-09**	**BA-CS-10**
Sampling Entity:			**WSP**	**WSP**	**WSP**	**WSP**	**WSP**	**WSP**	**WSP**	**WSP**	**WSP**	**WSP**	**WSP**
Sample Depth (feet bgs):			**0-2"**	**0-2"**	**0-2"**	**0-2"**	**0-2"**	**0-2"**	**0-2"**	**0-2"**	**0-2"**	**0-2"**	**0-2"**
Sample Date:			**04/01/15**	**04/01/15**	**04/01/15**	**04/01/15**	**04/01/15**	**04/01/15**	**04/02/15**	**04/01/15**	**04/01/15**	**04/02/15**	**04/02/15**
	Unrestricted	**Protection of Groundwater**											
VOCs (mg/kg)													
4-Isopropyltoluene	-	-	0.0110 U	0.0073 UJ	0.0061 UJ	0.0120 UJ	0.0095 UJ	0.0075 UJ	0.0098 UJ	0.0067 UJ	0.1100	0.0088 U	0.0140 UJ
Acetone	0.05	0.05	0.0540 U	0.0360 U	0.0069 UJ	0.0290 J	0.0470 UJ	0.0370 UJ	0.010 J	0.0340 UJ	0.0110 J	0.012 J	0.0700 UJ
Total TIC, Volatile (c)	-	-	-	-	-	0.027	-	-	-	-	0.066	0.0093	-
SVOCs (mg/kg)													
4-Methylphenol (p-Cresol)	0.33	0.33	6.3 U	4.7 U	4.3 U	6.7 U	5.7 U	4.8 U	6.0 U	4.7 U	5.0 U	**0.95 J**	6.7 U
Benz(a)anthracene	1.0	1.0	3.3 U	2.4 U	2.2 U	3.5 U	2.9 U	2.5 U	3.1 U	2.4 U	2.6 U	2.8 U	0.42 J
Fluoranthene	100	1,000	3.3 U	2.4 U	2.2 U	3.5 U	2.9 U	2.5 U	3.1 U	2.4 U	2.6 U	2.8 U	0.51 J
Pyrene	100	100	3.3 U	2.4 U	2.2 U	3.5 U	2.9 U	2.5 U	3.1 U	2.4 U	2.6 U	2.8 U	0.58 J
Total TIC, Semi-Volatile (c)	-	-	34	6.9	7.3	42.8	3.9	8.9	79.6	10.1	38.0	49.6	48.5
Pesticides (mg/kg)													
Pesticides			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Polychlorinated biphenyls (mg/kg)													
Total PCBs (c)	0.1	3.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals (mg/kg)													
Aluminum	-	-	13,600	12,800	11,100	11,600	12,900	11,700	16,800	12,700	12,500	13,000	16,600
Antimony	-	-	29.8 U	22.4 UJ	19.5 U	31.2 U	25.6 U	20.0 U	1.1 J	1.4 J	0.68 J	0.62 J	0.99 J
Arsenic	13	16	6.5	5.7 J	6.2	4.6	4.6	5.1	7.9	5.4	5.8	6.3	4.9
Barium	350	820	134	81 J	65	125	196	90	141	110 J	101	143	102
Beryllium	7.2	47	0.73	0.55 J	0.47	0.56	0.56	0.51	0.68	0.52	0.45	0.59	0.70
Cadmium	2.5	7.5	0.34 J	0.16 J	0.11 J	0.38 J	0.53	0.27	0.22 J	0.11	0.15 J	0.17 J	0.11 J
Calcium	-	-	9,720	4,060 J	2,420	9,840	9,090	6,880	5,640	3,800 J	3,230	4,920	5,440
Chromium	30	NS	19.6	17.6 J	17.1	15.6	14.1	15.2	21.7	15.6	14.4	17.0	22.3
Cobalt	-	-	9.8	11.2 J	11.0	7.1	7.0	7.3	9.8	8.7	5.9	9.7	13.2
Copper	50	1,720	24.7	32.7 J	14.0	19.8	13.3	16.5	15.0	12.6	10.5	14.0	19.2
Iron	-	-	20,200	25,300 J	22,900	15,000	16,800	16,400	25,300	18,300 J	16,900	20,000	31,500
Lead	63	450	39	19 J	11	36	60	36	37	20	22	24	40
Magnesium	-	-	4,340	4,450 J	4,340	3,340	3,110	3,310	4,490	3,140	2,660	3,510	5,770
Manganese	1,600	2,000	657	538	464	649	928	381	561	483	292	659	573
Mercury	0.18	0.73	0.063	0.044	0.037	0.090	0.075	0.070	0.076	0.053	0.059	0.058	0.087
Nickel	30	130	24	26 J	26	17	16	19	24	19	14	23	**33**
Potassium	-	-	1,910	1,810	1,420	2,340	1,350	1,490	2,130	1,430 J	1,550	1,740	2,260
Selenium	3.9	4	7.9 U	6.0 UJ	5.2 U	8.3 U	6.8 U	0.8 J	7.1 U	6.0 U	6.1 U	6.2 U	8.5 U
Sodium	-	-	384.0	48.2 J	28.5 J	108 J	41.4 J	65.7 J	82.0 J	64.1 J	48.9 J	61.8 J	68.4 J
Vanadium	-	-	23.5	18.4 J	15.3	19.1	19.0	19.2	23.7	20.7	20.7	19.0	22.5
Zinc	109	2,480	**110**	64.0 J	52.2	82.6	86.7	75.2	83.0	54.9	55.8	62.7	**113**

Blue and bold values indicate an exceedence of the Unrestricted Use SCOs

Blue, bolded and boxed values indicate an exceedence of the Protection of Groundwater SCOs

a\ NYSDEC = New York State Department of Environmental Conservation; SCO = Soil Cleanup Objective;
VOCs = volatile organic compounds; TIC = tentatively identified compound;
SVOCs = semi-volatile organic compounds; PCBs = polychlorinated biphenyls; bgs = below ground surface;
mg/kg = milligrams per kilogram; "-" indicates SCO not developed or sample not analyzed/result not reported.
Data Qualifiers:
U = not detected
J = estimated concentration below reporting limit but above method detection limit

http://www.dec.ny.gov/regs/15507.html#15518; accessed April 18, 2015. Criteria for trivalent chromium presented.

c\ Because the concentration reflects the sum reported, qualifiers that may apply to individual parameters are not presented.

d\ Sample and duplicate.

Table 3

Subsurface Soil Sampling Results
Former EPT Facility
Ithaca, NY (a)

	NYSDEC SCOs (b)								
		Sample Location:	**BA-SB-01**	**BA-SB-02**	**BA-SB-03**	**BA-SB-04**	**BA-SB-05**	**BA-SB-06**	**BA-SB-07**
		Sampling Entity:	**WSP**	**WSP**	**WSP**	**WSP**	**WSP**	**WSP**	**WSP**
		Sample Depth (feet bgs):	**2.5-3.5**	**2-3**	**2-3**	**2-3**	**1.0-1.5**	**0.5-1.5**	**0.25-0.75**
		Sample Date:	**04/02/15**	**04/02/15**	**04/02/15**	**04/02/15**	**04/02/15**	**04/02/15**	**04/02/15**
	Unrestricted	**Protection of Groundwater**							
VOCs (mg/kg)									
Acetone	0.05	0.05	0.0088 J	0.022 U	0.0200 U	0.007 J	0.0210 U	0.0310	0.0270 U
SVOCs (mg/kg)									
Fluoranthene	100	1,000	0.2 U	0.23 J	0.19 U	0.2 U	10 U	4.6 U	2.4 U
Naphthalene	12	12	0.2 U	2 U	0.19 U	0.11 J	10 U	4.6 U	2.4 U
Pyrene	100	100	0.2 U	0.23 J	0.19 U	0.2 U	10 U	4.6 U	2.4 U
Total TIC, Semi-Volatile (c)	-	-	3.12	25.5	2.38	3.93	-	-	-
Pesticides (mg/kg)									
delta-BHC	0.04	0.25	0.0019 U	0.039 UJ	0.00046 J	0.0019 U	0.00054 J	0.012 U	0.0046 U
Polychlorinated biphenyls (mg/kg)									
Total PCBs (c)	0.1	3.2	ND	ND	ND	ND	ND	ND	ND
Metals (mg/kg)									
Aluminum	-	-	17,400	13,200	15,500	13,900	18,600	14,700	18,500
Antimony	-	-	0.87 J	0.59 J	1.1 J	2.1 J	1.1 J	0.7 J	1.0 J
Arsenic	13	16	6.1	5.3	13.0	**64.8**	10.5	5.3	6.9
Barium	350	820	72	117	79	106	146	133	158
Beryllium	7.2	47	0.79	0.66	0.70	0.56	0.84	0.75	0.70
Cadmium	2.5	7.5	0.22 U	0.12 J	0.22 U	0.25 U	0.24 U	0.28 J	0.17 J
Calcium	-	-	1,580	3,940	1,360	1,770	2,020	5,960	4,490
Chromium	30	NS	22.8	16.7	21.5	20.5	24.6	20.3	22.4
Cobalt	-	-	10.8	10.2	17.0	33.4	15.8	8.5	11.7
Copper	50	1,720	21.9	18.8	12.8	33.6	11.7	23.6	15.1
Iron	-	-	26,900	19,400	29,000	38,900	29,700	21,000	28,200
Lead	63	450	14	46	42	**176**	21	50	28
Magnesium	-	-	4,510	3,100	4,850	4,070	5,110	3,690	4,960
Manganese	1,600	2,000	377	679	424	769	554 B	511	738
Mercury	0.18	0.73	0.029	0.056	0.042	0.094	0.035	0.067	0.029
Nickel	30	130	28	22	**34**	**36**	**34**	24	26
Potassium	-	-	2,150	1,710	1,270	1,770	1,650	2,680	1,570
Sodium	-	-	681	109 J	54.8 J	82.2 J	57.7 J	105.0 J	392.0
Vanadium	-	-	28.3	21.5	22.8	24.4	25.5	24.3	24.6
Zinc	109	2,480	52.2	57.8	88.0	**150**	79.7	84.7	72.9

Blue and bold values indicate an exceedence of the Unrestricted Use SCOs
Blue, bolded and boxed values indicate an exceedence of the Protection of Groundwater SCOs

a\ NYSDEC = New York State Department of Environmental Conservation; SCO = Soil Cleanup Objective;
VOCs = volatile organic compounds; TIC = tentatively identified compound;
SVOCs = semi-volatile organic compounds; PCBs = polychlorinated biphenyls; bgs = below ground surface;
mg/kg = milligrams per kilogram; "-" indicates SCO not developed or sample not analyzed/result not reported.
Data Qualifiers:
U = not detected
J = estimated concentration below reporting limit but above method detection limit
NYSDEC Part 375-6.8(b);
http://www.dec.ny.gov/regs/15507.html#15518; accessed April 18,
c\ Because the concentration reflects the sum reported, qualifiers that may apply to individual parameters are not presented.
d\ Sample and duplicate.

Table 4

Groundwater Sampling Results
Former EPT Facility
Ithaca, NY (a)

Sample Location:		**MW-45B**	(d)	**WSP-100**	(d)
Sampling Entity:		**WSP**		**WSP**	
Sample Depth (feet bgs):		**-**		**-**	
Sample Date:		**04/23/15**		**04/23/15**	
	NYSDEC Groundwater Standards (c)				
VOCs (ug/l)					
VOCs	-	ND		ND	
SVOCs (ug/l)					
Total TIC, Semi-Volatile (b)	-	-		233.5	
Pesticides (ug/l)					
Pesticides		ND		ND	
Polychlorinated biphenyls (ug/l)					
Total PCBs (b)	0.09	ND		ND	
Metals (mg/l)					
Aluminum	-	0.16	J	0.13	U
Barium	1	0.019		0.02	
Calcium	-	17.2		18.5	
Iron	0.3	0.15		0.12	
Magnesium	35	4.6		4.8	
Manganese	-	0.0032		0.0039	
Potassium	-	2		2.2	
Sodium	20	**31.9**		**34**	
Zinc	-	0.0025	J	0.0052	J

Blue and bold values indicate an exceedence of the Groundwater Criteria

a\ VOCs = volatile organic compounds; TIC = tentatively identified compound; ND = not detected;
SVOCs = semi-volatile organic compounds; PCBs = polychlorinated biphenyls;
ug/l = micrograms per liter; mg/l= milligrams per liter; "-" indicates criteria not developed.
Only detected compounds are shown.
Data Qualifiers:
U = not detected
J = estimated concentration below reporting limit but above method detection limit

b\ Because the concentration reflects the sum reported, qualifiers that may apply to individual parameters are not presented.

c\ Groundwater Standards for GA groundwater accessed at: http://www.dec.ny.gov/regs/4590.html#16130 on May 13, 2015.

d\ Sample and duplicate.

Table 5

QA/QC Analytical Results
Former EPT Facility
Ithaca, NY (a)

Sample Location:	EQB-040215A	EQB-040215B	TRIP BLANK	TB032615	TB032615B	TB-042315	EB-042315
Sampling Entity:	WSP	WSP	WSP	WSP	WSP	WSP	WSP
Sample Depth (feet bgs):	-	-	-	-	-	-	-
Sample Date:	04/02/15	04/02/15	04/01/15	04/01/15	04/02/15	04/23/15	04/23/15
VOCs (ug/l)							
Acetone	3.1 J	3.3 J	10 U	10 U	10 U	10 U	10 U
Chloroform	0.41 J	0.45 J	1 U	1 U	1 U	1 U	1 U
SVOCs (ug/l)							
Benzaldehyde	4.7 U	0.38 J	-	-	-	-	5 UJ
Di-n-butyl phthalate	0.33 J	0.33 J	-	-	-	-	5 U
Total TIC, Semi-Volatile (b)	700.8	411.7	-	-	-	-	232.1
Pesticides (ug/l)							
Pesticides	ND	ND	-	-	-	-	ND
Polychlorinated biphenyls (ug/l)							
Total PCBs (b)	ND	ND	-	-	-	-	ND
Metals (mg/l)							
Sodium	1 U	1 U	-	-	-	-	0.53 J

a\ VOCs = volatile organic compounds; TIC = tentatively identified compound; ND = not detected;
SVOCs = semi-volatile organic compounds; PCBs = polychlorinated biphenyls; ug/l = micrograms per liter;
mg/l= milligrams per liter; "-" indicates SCO not developed or sample not analyzed/result not reported.
Data Qualifiers:
U = not detected
J = estimated concentration below reporting limit but above method detection limit

b\ Because the concentration reflects the sum reported, qualifiers that may apply to individual parameters are not presented.

Appendix A – Historical Aerial Photographs

FORM 860 N. Y. DEED—QUIT CLAIM (FROM A CORPORATION)
(Laws of 1911, Chap. 882, Statutory Form DD)

TUTOLANX REGISTERED U.S. PAT. OFFICE
Tuttle Law Print, Publishers, Rutland, Vt.

This Indenture,

Made the 13th *day of* November *Nineteen Hundred and* Sixty-two

Between MORSE CHAIN COMPANY

a corporation organized under the laws of the State of New York, having its principal office at 702 South Aurora Street, Ithaca, Tompkins County, New York,

party of the first part, and

THE NATIONAL CASH REGISTER COMPANY, a corporation organized under the laws of the State of Maryland, having an office at Main and K Streets, Dayton 9, Ohio, and also having an office at 722 South Aurora Street, Ithaca, Tompkins County, New York,

party of the second part,

Witnesseth, *that the party of the first part, in consideration of* ONE - *Dollar* ($ 1.00) *lawful money of the United States,* and other good and valuable consideration *paid by the party of the second part, does hereby remise, release, and quitclaim unto the party of the second part,* its successors *and assigns forever,* an easement and right of way to construct, maintain, repair, replace and enlarge the sanitary sewer line across premises of party of the first part located on Military Lot 85 in the Town of Ithaca, Tompkins County, New York, the location of such sewer line to be substantially as follows: Beginning at an existing sewer manhole described "M.H. #10" as shown on a map entitled "Proposed Sanitary Sewer Connection from New Plant of National Cash Register Co. to City of Ithaca, N.Y. System" made by Carl Crandall, C.E., dated July 15, 1956 and filed in the Tompkins County Clerk's Office October 9, 1956, said manhole being at an existing sewer line on a right of way heretofore granted by party of the first part to party of the second part by deed dated March 8, 1957 and recorded March 31, 1957 in Liber 395 of Deeds at page 489; thence extending in a southeasterly direction 34.2 feet, more or less, to the westerly line of premises conveyed to party of the second part by party of the first part by deed dated August 28, 1961 and recorded September 11, 1961 in Liber 436 of Deeds at page 1143. This right of way is granted for the purpose of supplying sewer service to the sales building now being constructed by party of the second part on the premises described in the above mentioned deed from party of the first part.

The right of way hereby granted is for a width of 100 feet during the period of construction - 50 feet on each side of the center line - and shall have a width of 20 feet thereafter - 10 feet on each side of the center line of the sewer line when constructed. Unless actual construction work is started and said line substantially completed within one year from the date hereof, the rights herein granted shall cease and determine.

Upon completion of construction, the surface of the ground shall be

returned to its prior rough grade as nearly as may be practical. In the event of any future maintenance or replacement, the surface of the ground or of any street shall be damaged as little as may be possible and shall be returned to its original condition upon the completion thereof, as nearly as practical and within a reasonable time.

Nothing herein contained shall prevent the party of the first part from using and developing the area as it may see fit, either in accordance with its tentative subdivision plans, or otherwise, including the construction of streets, installation of utilities, etc., but no surface structure shall be placed within the permanent right of way line of said sewer, i.e., within 10 feet of the center line thereof, and underground installations shall not interfere with such sewer line.

Notwithstanding the fact that the party of the second part will discharge sewage from a structure used for commercial or industrial purposes into the sewer which is constructed in an easement granted by the party of the first part by deed dated March 8, 1957 and on March 21, 1957 recorded in Tompkins County in Liber 395 of Deeds at Page 489, and notwithstanding the fact that the structure has been or will be erected on property which at the time of the execution and delivery of said deed was subject to certain limitations set forth in the first unnumbered paragraph on the second page of said deed dated March 8, 1957, the party of the first part confirms that, except as to the property conveyed by it to the party of the second part by deed dated August 28, 1961, recorded September 11, 1961 in Tompkins County Liber 436 of Deeds at Page 1143, the limitations set forth in said first unnumbered paragraph of page 2 of said deed dated March 8, 1957, shall continue to apply with full force and effect to the property therein described and neither anything herein contained nor the actions of the party of the second part in the exercise and use of the easement herein granted or otherwise shall constitute any waiver or abandonment of the limitations to which reference is hereinbefore made as far as the same may apply or may be construed to apply to property owned by party of the first part at the time of the execution and delivery of the deed dated March 8, 1957.

Together *with the appurtenances and all the estate and rights of the party of the first part in and to said premises,*

To have and to hold *the premises herein granted unto the party of the second part,* its successors *and assigns forever.*

In Presence of

Arthur D. Leboffe
Secretary-Treasurer

In Witness Whereof. *The party of the first part has caused its corporate seal to be hereunto affixed, and these presents to be signed by its duly authorized officer the day and year first above written.*

MORSE CHAIN COMPANY

By Robert O. Bass *as President*

LIBER 443 PAGE 436

State of New York
County of TOMPKINS } ss.

of

On this 13th *day of* November, *Nineteen Hundred and* Sixty-two *before me personally came* ROBERT O. BASS *to me personally known, who, being by me duly sworn, did depose and say that he resides* at 224 Highgate Road, Ithaca, New York, *that he is the* President *of* MORSE CHAIN COMPANY *the corporation described in, and which executed, the within Instrument; that he knows the seal of said corporation; that the seal affixed to said Instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; and that he signed his name thereto by like order.*

Anne C. Tremaine
ANNE C. TREMAINE
NOTARY PUBLIC, STATE OF NEW YORK
No. 55-5017966
QUAL. IN TOMPKINS COUNTY
TERM EXPIRES MARCH 30, 1964

A true copy of the original recorded on the 14th day of Jan, 1963 at 11:00 o'clock M., and examined.

Sally Robinson
acting clerk

THIS INDENTURE

Made the 8th day of March, Nineteen Hundred and Fifty-seven BETWEEN MORSE CHAIN COMPANY, a New York corporation, having its principal office at 702 South Aurora Street, Ithaca, New York, party of the first part, and

THE NATIONAL CASH REGISTER COMPANY, a corporation organized under the laws of the State of Maryland, having an office at Main and K Streets, Dayton 9, Ohio, and also having an office at 722 South Aurora Street, Ithaca, New York, party of the second part;

WITNESSETH that the party of the first part, in consideration of One Dollar ($1.00) lawful money of the United States, and other good and sufficient consideration paid by the party of the second part, does hereby grant and release unto the party of the second part, its successors and assigns forever, an easement and right of way to construct, maintain, repair, replace or enlarge, a sanitary sewer line and manholes across and under its premises located on Military Lot 85 in the Town of Ithaca, County of Tompkins and State of New York, the location of such sewer line to be substantially as follows:

Beginning at an existing sewer manhole near the center of South Aurora Street substantially at the south corporation line of the City of Ithaca; running thence southwesterly 1622 feet, more or less, to the proposed location of manhole #6 located approximately 470 feet northwesterly from the center line of the Ithaca-Danby State Highway; running thence at a slight angle to the left 300 feet, more or less, to the proposed location of manhole #7 approximately 510 feet northwesterly from the center line of the Ithaca-Danby State Highway; thence southerly approximately 972 feet, more or less, to the south line of the premises described in a deed to the Morse Chain Company from Ebenezer T. Turner dated November 28, 1917, and recorded September 27, 1919 in the Tompkins County Clerk's Office in Liber 194 of Deeds at page 57, being also in the north line of the parcel conveyed by Ithaca College to The National Cash Register Company by deed dated July 7, 1953 and recorded July 23, 1953 in Liber 360 of Deeds at page 65, at a point about 490 feet westerly along said property line from the center line of said Ithaca-Danby State Highway, such point being approximately the proposed location of manhole #12. Together with the right to construct manholes along said line at such locations as may be advisable. It is further understood and agreed that the center of the line when constructed substantially along the above described course shall constitute a monument as to the exact location thereof.

It is mutually understood and agreed that connections may be made with said sewer line when constructed, for the benefit of residences on lands now owned by the grantor herein lying west of the Ithaca-Danby State Highway, south of the south corporation line of the City of Ithaca, east of (above) the sewer line and north of the above mentioned premises of The National Cash Register Company, the cost of maintenance of said line thereafter to be equitably adjusted between the parties using such line. It is specifically understood and agreed that any such connection shall be for residential use only and not for any industrial or commercial structure or use, shall be made in a good workmanlike manner so that it shall not interfere with the use of the line by the grantee herein, shall be in compliance with all proper requirements of the City of Ithaca and other governmental authority, and shall be at the expense of the party making the connection.

The location of said line shall be substantially as shown on map of the "Proposed Sanitary Sewer Connection From New Plant of National Cash Register Co. to City of Ithaca, N.Y. System" made by Carl Crandall, C.E., Licensed Engineer and Surveyor #2147, dated July 15, 1956, a copy of which is ~~xxxxx~~ filed in the Tompkins County Clerk's Office October 9, 1956. ~~xxxxxxxxxxxxxxxx xxxxxx~~. Street and lot lines thereon are tentative.

The right of way hereby granted is for a width of 100 feet during the period of construction - 50 feet on each side of the center line - and shall have a width of 20 feet thereafter - 10 feet on each side of the center line of the sewer line when constructed. Unless actual construction work is started and said line substantially completed within one year from the date hereof, the rights herein granted shall cease and determine.

Upon completion of construction, the surface of the ground shall be returned to its prior rough grade as nearly as may be practical. In the event of any future maintenance or replacement, the surface of the ground or of any street shall be damaged as little as may be possible and shall be returned to its original condition upon the completion thereof, as nearly as practical and within a reasonable time.

Nothing herein contained shall prevent the party of the first part from using and developing the area as it may see fit, either in accordance with its tentative subdivision plans, or otherwise, including the construction of streets, installation of utilities, etc., but no surface structure shall be placed within the permanent right of way line of said sewer, i.e., within 10 feet of the center line thereof, and underground installations shall not interfere with such sewer line.

There is also hereby conveyed a right of way for access for men, machinery, equipment and vehicles 20 feet wide from the Ithaca-Danby State Highway substantially along the location of the existing high tension power line as shown on said map (running from a point in the Ithaca-Danby State Highway about 350 feet northerly from the center of the intersection of the Ithaca-Danby State Highway and Coddington Road and about 740 feet southerly measured along the center line of said Ithaca-Danby State

Highway from its intersection with the south line of the City of Ithaca), and running thence westerly about 210 feet to the proposed location of manhole #3 at Station 7 + 86. Similar access shall exist to said line from the west line of the Ithaca-Danby State Highway at the northerly end of said right of way, and from the premises owned by The National Cash Register Company at the southerly end of said right of way. In the event of the construction of a street or streets giving reasonable access to said sewer line, such street or streets shall be used in lieu of the right of way for access described in this paragraph.

TOGETHER with the appurtenances and all the estate and rights of the party of the first part in and to said premises.

TO HAVE AND TO HOLD the premises herein granted unto the party of the second part, its successors and assigns forever.

AND the party of the first part covenants that it has not done or suffered anything whereby the said premises have been incumbered in any way whatever.

IN WITNESS WHEREOF, the party of the first part has caused its corporate seal to be hereunto affixed, and these presents to be signed by its duly authorized officer the day and year first above written.

MORSE CHAIN COMPANY

By

as Executive Vice-President

Attest:

Secretary-Treasurer

LIBER 395 PAGE 492

STATE OF NEW YORK }
COUNTY OF TOMPKINS } ss:
CITY OF ITHACA }

On this 8th day of March, Nineteen Hundred and Fifty-seven, before me personally came ROBERT O. BASS to me personally known, who, being by me duly sworn did depose and say that he resides in the Village of Cayuga Heights, Tompkins County, New York, that he is the Executive Vice-President of MORSE CHAIN COMPANY, the corporation described in and which executed the above Instrument, that he knows the seal of said corporation, that the seal affixed to said Instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by like order.

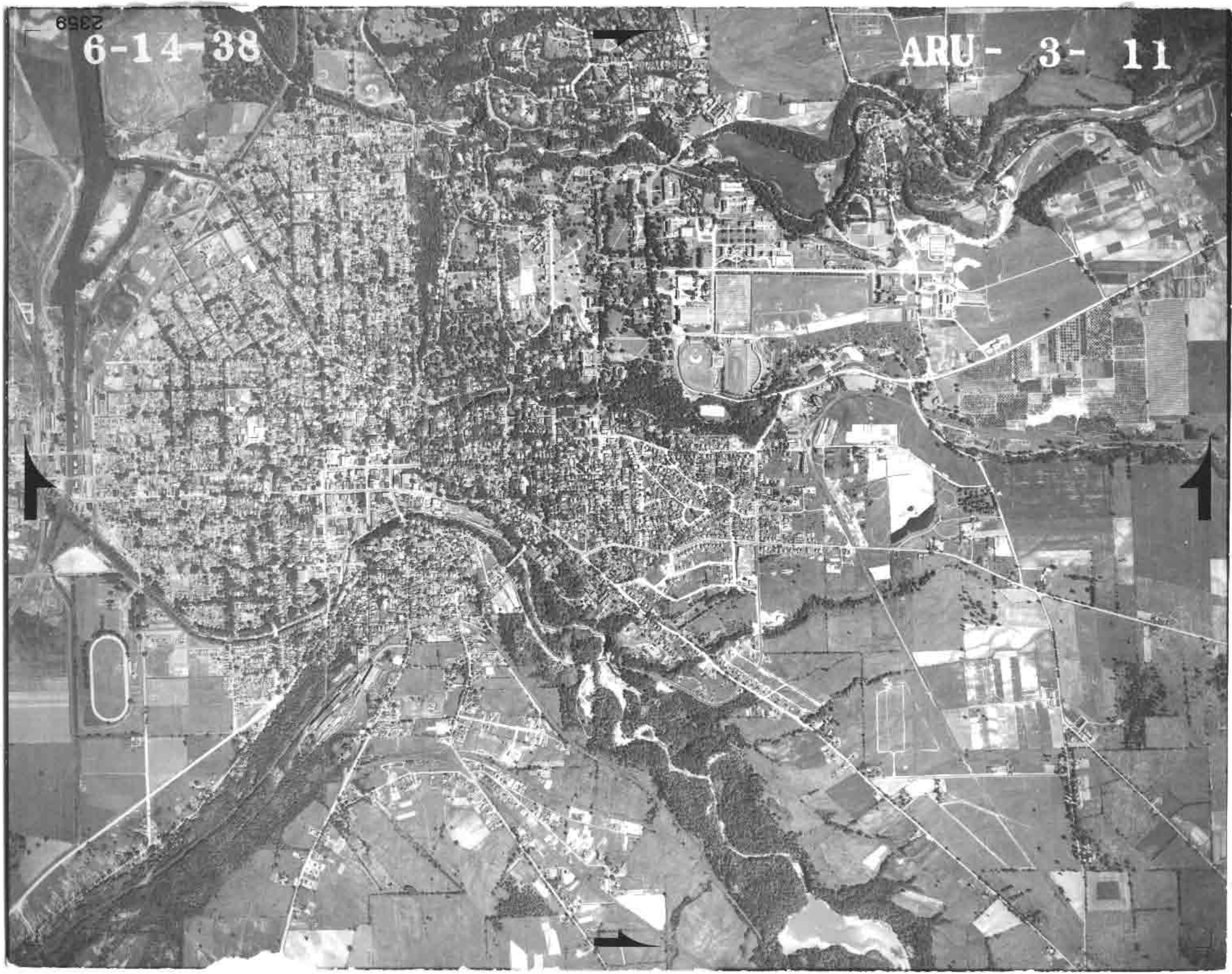
BRUMAN K. POWERS
Notary Public, State of New York
No. 55-3151380
Qualified in Tompkins County
Term Expires March 30, 1959

A true copy of the original recorded on the 21 day of March, 1957 at 4:45 o'clock P. M., and examined. H. G. Morris Clerk.

22-80

4-22-80
5-81

4 4 91 15309 TOMPKINS CO. 52781 5 90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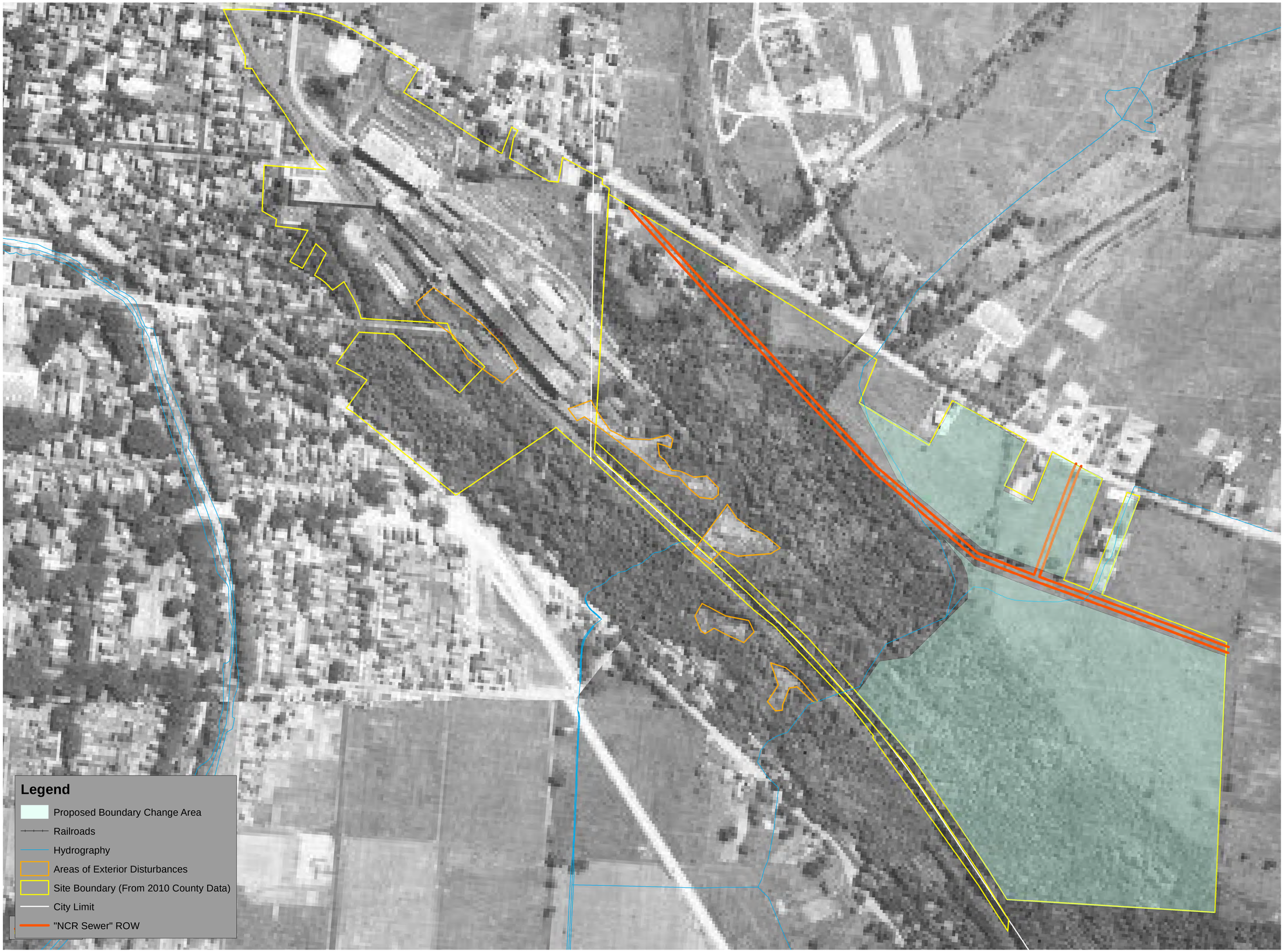

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F: (585) 454-3066

www.labellapc.com

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TRANSMISSION FACILITY

690 S. AURORA ST
ITHACA, NEW YORK

HISTORIC AERIAL PHOTOS
1938

N E S W

0 250
1 inch = 150 feet

210527

FIGURE 1938

Path: I:\L Enterprises, LLC\210527\Drawings\HistAerial 1938 - Disturbance Areas (2013-08-22 IP.J).mxd

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HISTORIC AERIAL PHOTOS
1954

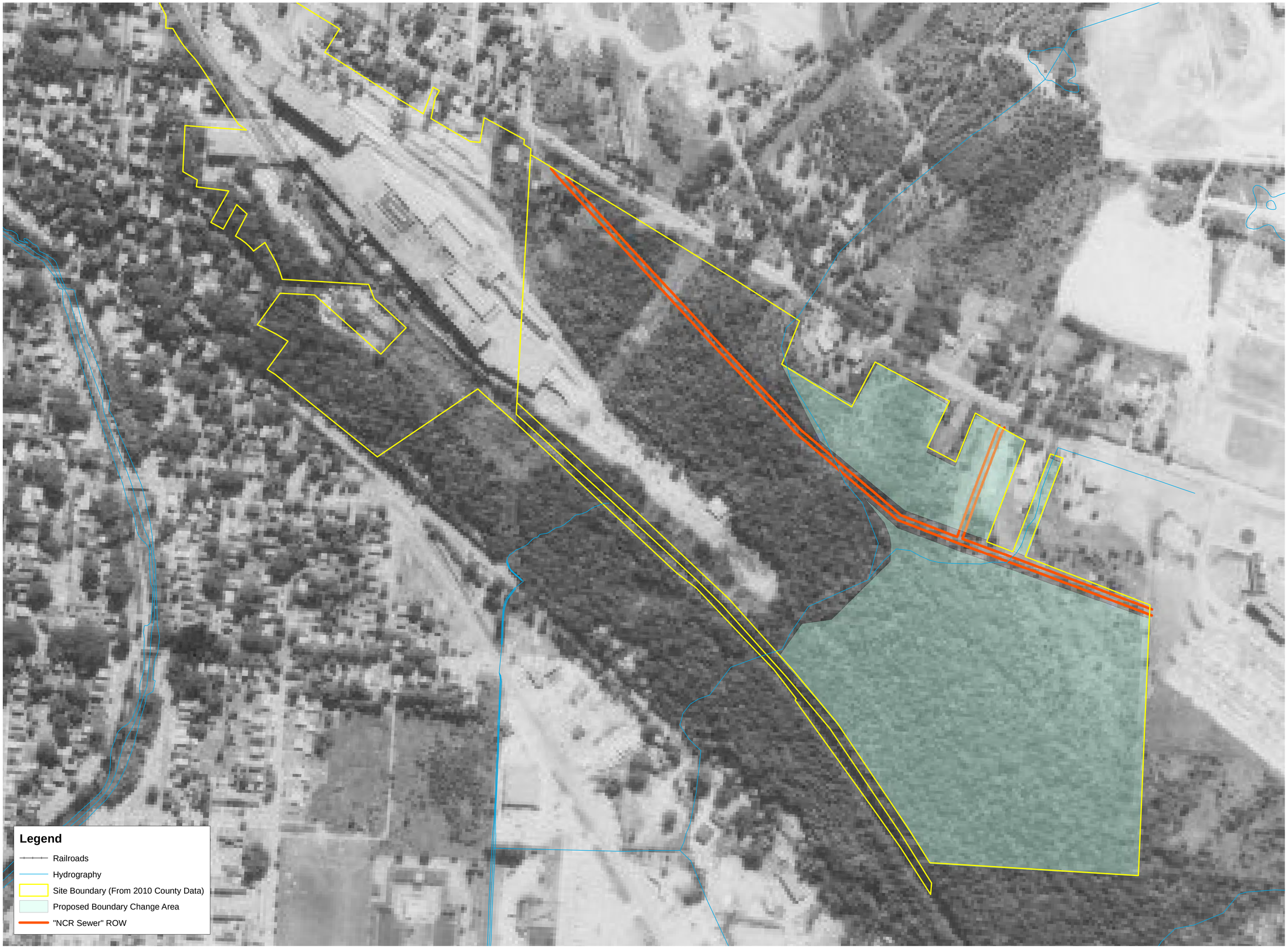
N E S W

0 250
1 inch = 150 feet

210527

FIGURE 1954

Path: I:\L Enterprises, LLC\210527\Drawings\HistAerial 1954 - Disturbance Areas (2013-08-22 IP.J).mxd



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HISTORIC AERIAL PHOTO
1964

N E S W

0 300
1 inch = 150 feet

210527

FIGURE 1964

Path: I:\L Enterprises, LLC\210527\Drawings\HistAerial 1964 - Disturbance Areas (2013-08-22 IPJ).mxd

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HISTORIC AERIAL PHOTOS
1991

N E S W

0 300
1 inch = 160 feet

210527

FIGURE 1991

Path: I:\L Enterprises, LLC\210527\Drawings\MAP\2011.11.03.HistAerials1991.mxd

Appendix B – Boring Logs and Well Construction Details

Boring Log: BA-SB-01

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3.6

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
	BA-SB-01	0.0		80		***Organic Soil (OL/OH)*** Dark brown (7.5 YR 3/2) organic silt with trace gravel, soft, moist, trace rootlets
1						***Silt (ML)*** Brown (7.5 YR 4/4) silt, dry, medium dense, some fine sand
2						
3						
						Lean Clay (CL) Gray (7.5 YR 4/1) clay, trace sand, medium plasticity, moist
4						Bottom of Boring at 3.6 feet Refusal at 3.6'
5						

Geologist(s): Nathaniel Winston

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Hand Auger

WSP

Boring Log: BA-SB-02

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
	BA-SB-02	0.0		80		***Organic Soil (OL/OH)*** Dark brown (7.5 YR 3/2) organic silt with trace clay, loose, soft, dry, trace rootlets
1						***Silt with Gravel (ML)*** Dark brown (10 YR 3/3) silt with some gravel (0.2"-0.5"), dense, dry
2						
3						
						Ithaca Shale Saprolite Very dark grayish brown (10 YR 3/2)highly weathered shale, dry, bedded, trace clay, very dense
4						Bottom of Boring at 3.5 feet Refusal at 3.5'
5						

Geologist(s): Nathaniel Winston

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Hand Auger

WSP

Boring Log: BA-SB-03

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
	BA-SB-03	0.0		80		***Well-Graded Gravel (GW)*** Dark gray (10 YR 4/1) weathered shale with organic soil and gravel (0.2" to 0.5"), loose, moist
1						***Lean Clay (CL)*** Yellowish brown (10 YR 5/4) clay, low plasticity, moist, dense
2						
3						
						Ithaca Shale Saprolite Very dark grayish brown (10 YR 3/2) to brownish yellow (10 YR 6/6) highly weathered shale, dry, slight bedding, some clay, very dense
4						Bottom of Boring at 3.5 feet Refusal at 3.5'
5						

Geologist(s): Nathaniel Winston

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Hand Auger

WSP

Boring Log: BA-SB-04

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
	BA-SB-04	0.0		80		***Organic Soil (OL/OH)*** Dark grayish brown (10 YR 4/2) organic soil with rootlets, some gravel (0.2" to 0.5"), moist
1						***Lean Clay (CL)*** Yellowish brown (10 YR 5/4) clay, low plasticity, moist, dense
2						
3						***Ithaca Shale Saprolite*** Very dark grayish brown (10 YR 3/2) to brownish yellow (10 YR 6/6) highly weathered shale, dry, slight bedding, some clay, dense
						Bottom of Boring at 3 feet Refusal at 3'
4						
5						

Geologist(s): Nathaniel Winston

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Hand Auger

WSP

Boring Log: BA-SB-06

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 1.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
1	BA-SB-06	0.0		100		***Silt (ML)*** Brown (7.5 YR 4/4) silt with organics, loose, soft, trace rootlets
2 3 4 5						Bottom of Boring at 1.5 feet Refusal at 1.5'

Geologist(s): Nathaniel Winston

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Hand Auger

WSP

Boring Log: BA-SB-07

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 0.75

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
	BA-SB-07	0.0		100		***Silt (ML)*** Brown (7.5 YR 4/4) silt with organics, loose, soft, trace rootlets
1						Bottom of Boring at 0.75 feet Refusal at 0.75'
2						
3						
4						
5						

Geologist(s): Nathaniel Winston

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Hand Auger

WSP

Boring Log: MW-45B

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 3, 2015

Surface Elevation (feet AMSL*): ND

TOC Elevation (feet AMSL*): ND

Total Depth (feet): 15.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile		
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description	Well Details
						Ground Surface	
1				100		***Organic Soil (OL/OH)*** Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining	
2						***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visble staining	
3				0		***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining	
4						***Ithaca Shale*** Dark gray (N4) fine-grained, aphanitic shale. Thinly bedded, moderately decomposed, intensely factured. Mechanical fractures throughout.	
5				88		6.1': Bedding plane fracture, 0°, extremely narrow, partly healed, surface oxidation, smooth	
6						8.2', 9.8', 11.6', 11.8', 21.4', 12.8', 13.9', 14.0': Bedding plane fracture, 0°, narrow, partly healed, surface oxidation, smooth	
7						14.4-14.7': Fracture zone, dip varies, moderatly narrow, not healed, very little surface oxidation, rough	
8				100		15.0': Bedding plane fracture, 0°, narrow, partly healed, surface oxidation, smooth	
9						15.3': Bedding plane fracture, 5°, narrow, partly healed, surface oxidation, smooth	
10							

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: MW-45B

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 3, 2015

Surface Elevation (feet AMSL*): ND

TOC Elevation (feet AMSL*): ND

Total Depth (feet): 15.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile		
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**	**Well Details**
11							
12							
13				100			
14							
15							
16						Bottom of Boring at 15.5 feet	
17							
18							
19							
20							

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-49-01

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1						***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
		0.0		100		***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						
3						
4						Bottom of Boring at 3.5 feet Refusal at 3.5'
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-49-02

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 1, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1						***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visble staining
		0.0		100		***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/3) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						
3						Bottom of Boring at 3 feet Refusal at 3'
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-49-03

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 1, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1						***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
2		0.0		100		***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
3						
4						Bottom of Boring at 3.5 feet Refusal at 3.5'
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-49-04

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
						Lean Clay with Gravel (CL) Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
1		0.0		100		***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						
						Bottom of Boring at 2.5 feet Refusal at 2.5'
3						
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-49-05

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
2						***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
3						Bottom of Boring at 2.5 feet Refusal at 2.5'
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-49-06

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
1		0.0		100		***Organic Soil (OL/OH)*** Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining ***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
2						***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
3						Bottom of Boring at 2.5 feet Refusal at 2.5'
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-49-07

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/5) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
						Ithaca Shale Saprolite Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						Bottom of Boring at 2 feet Refusal at 2'
3						
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-49-08

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
						Ithaca Shale Saprolite Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						Bottom of Boring at 2 feet Refusal at 2'
3						
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-49-09

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
						Ithaca Shale Saprolite Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						Bottom of Boring at 2 feet Refusal at 2'
3						
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-49-10

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 2, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1						***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
						Ithaca Shale Saprolite Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
		0.0		100		
2						
3						
						Bottom of Boring at 3.5 feet Refusal at 3.5'
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-49-11

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 1, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
						Lean Clay with Gravel (CL) Yellowish brown (10 YR 5/5) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
1						***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/3) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
		0.0		100		
2						
3						
						Bottom of Boring at 3.5 feet Refusal at 3.5'
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-49-12

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 1, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/4) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1						***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
2		0.0		100		***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/3) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
3						
4						Bottom of Boring at 3.5 feet Refusal at 3.5'
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-51-01

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: March 31, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
						Ithaca Shale Saprolite Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						Bottom of Boring at 2 feet Refusal at 2'
3						
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-51-02

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: March 31, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
						Ithaca Shale Saprolite Grayish brown (10 YR 5/3) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						Bottom of Boring at 2 feet Refusal at 2'
3						
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-51-03

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: March 31, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1						***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
		0.0		100		***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						
3						Bottom of Boring at 3 feet Refusal at 3'
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-51-04

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: March 31, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
						Ithaca Shale Saprolite Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						Bottom of Boring at 2 feet Refusal at 2'
3						
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-51-05

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: March 31, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
						Ithaca Shale Saprolite Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						Bottom of Boring at 2 feet Refusal at 2'
3						
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-51-06

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: March 31, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1						***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
		0.0		100		***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						
3						Bottom of Boring at 3 feet Refusal at 3'
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-51-07

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: March 31, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
						Ithaca Shale Saprolite Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						Bottom of Boring at 2 feet Refusal at 2'
3						
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-51-08

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: March 31, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
						Lean Clay with Gravel (CL) Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
1						
		0.0		100		***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						
3						Bottom of Boring at 3 feet Refusal at 3'
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-51-09

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: March 31, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/4) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
						Ithaca Shale Saprolite Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						Bottom of Boring at 2 feet Refusal at 2'
3						
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-51-10

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: March 31, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/5) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
2						***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
						Bottom of Boring at 2 feet Refusal at 2'
3						
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-51-11

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: March 31, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/5) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
						Ithaca Shale Saprolite Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						Bottom of Boring at 2 feet Refusal at 2'
3						
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: SV-51-12

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: March 31, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1						***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
2						***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
3						
4						Bottom of Boring at 3.5 feet Refusal at 3.5'
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: VP-21-01

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 1, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/4) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/5) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
2						
3						***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
4						Bottom of Boring at 3.5 feet Refusal at 3.5'
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: VP-21-02

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 1, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
2						
3						***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
4						Bottom of Boring at 3.5 feet Refusal at 3.5'
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: VP-21-03

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 1, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 4/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/5) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
2						
3						***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
4						Bottom of Boring at 3.5 feet Refusal at 3.5'
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: VP-21-10

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 1, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 3.5

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/6) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1						***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
		0.0		100		***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/3) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						
3						
4						Bottom of Boring at 3.5 feet Refusal at 3.5'
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: VP-21-11

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 1, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/6) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/6) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
2						***Ithaca Shale Saprolite*** Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
3						Bottom of Boring at 2 feet Refusal at 2'
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Boring Log: VP-21-12

Project: EPT

Project No.: 4255

Location: Ithaca, NY

Completion Date: April 1, 2015

Surface Elevation (feet AMSL*): ND

Total Depth (feet): 2

Borehole Diameter (inches): 2

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile	
Depth	**Sample/Interval**	**PID/OVM (ppm)**	**Blow Count**	**% Recovery**	**Lithology**	**Description**
						Ground Surface
						Organic Soil (OL/OH) Dark Brown (10 YR 3/3) organic soil with trace clay; moist, soft, not cemented, homogenous, low plasticity, spongy, faint organic odor, no visible staining
1		0.0		100		***Lean Clay with Gravel (CL)*** Yellowish brown (10 YR 5/5) clay with some fine to medium, angular, flat gravel; moist, soft, not cemented, homogenous, low plasticity, weak, no discernable odor, no visible staining
						Ithaca Shale Saprolite Grayish brown (10 YR 5/2) fine to medium, angular, flat gravel with trace lean clay; dry, hard, fissured, no discernable odor, no visible staining
2						Bottom of Boring at 2 feet Refusal at 2'
3						
4						
5						

Geologist(s): Robert Wallace

Subcontractor: Parratt Wolff, Inc.

Driller/Operator: Shawn Bodah

Method: Direct Push

WSP

Appendix C – Laboratory Reports

Appendix D – Groundwater Sampling Log

WSP USA Corp.
5 Sullivan Street
Cazenovia, NY 13035 (315) 655-3900 • Fax (315) 655-3907

Low-Flow Groundwater Sampling Monitoring Form

Well ID	MW-45B	Site ID:	Former EPT Ithaca	Sample Date:	4/23/2015
Well Diameter	2 in	Sampling Event:			
Depth to Water	12.59 ft				
Total Well Depth	15.5 ft	Samplers	Nate Winston		
Screen Length	10 ft	Weather Conditions and Notes:	35F, cloudy, some snow, 10-15 mph winds		
Pump Intake	14.5 ft	Flow Rate	100ml/min		

Stabilized: ±10-percent for temperature, turbidity, DO, and ORP; ±0.1 unit for pH; and ± 3-percent for specific conductance

Instrument Calibration Information

Horiba U52 with flow-through cell - Calibrated to manufacturer's specifications using auto-calibration standard solution

Well Purging Information

Air temp: 35 ºF | Start purge: 835 | End purge: 1000 | Pump Type: QED Sample Pro 1.75" Bladder Pump

Time	DTW	Purge Volume (L)	T (ºC)	pH	ORP (mV)	Conductivity (mS/cm)	Turbidity (NTU)	D.O. (mg/l)	Appearance of Purge Water	Flow Rate (mL/min)
0835	12.59	int	6.81	7.68	275.0	0.163	30.20	9.57	slightly cloudy	100
0838	12.60	0.3	6.47	6.70	318.0	0.161	19.20	10.81	slightly cloudy	100
0841	12.60	0.6	6.61	6.43	330.0	0.054	17.30	9.70	clear	100
0844	12.60	0.9	6.40	6.75	322.0	0.060	17.80	9.92	clear	100
0847	12.60	1.2	6.51	6.40	340.0	0.055	15.00	9.63	clear	100
0850	12.60	1.5	6.41	6.38	338.0	0.930	13.80	9.77	clear	100
0853	12.60	1.8	6.32	6.46	339.0	0.054	13.10	9.81	clear	100
0856	12.60	2.1	6.20	6.44	339.0	0.058	13.00	9.84	clear	100
0859	12.60	2.4	5.98	6.43	330.0	0.054	12.40	9.79	clear	100
0902	12.60	2.7	6.04	6.58	330	0.081	10.90	9.98	clear	100
0905	12.60	3.0	5.90	6.61	298.0	0.089	10.20	9.81	clear	100
0908	12.60	3.3	5.78	6.44	310.0	0.086	9.30	9.78	clear	100
0911	12.60	3.6	5.64	6.42	326.0	0.088	9.30	10.10	clear	100
0914	12.60	3.9	5.44	6.51	306.0	0.096	7.70	10.15	clear	100
0917	12.60	4.2	5.32	6.49	322.0	0.096	8.20	10.32	clear	100
0920	12.60	4.5	5.09	6.54	358.0	0.098	7.00	10.46	clear	100

Laboratory Analysis Information

# of Bottles	Sample ID	Analytes	Preservative	Bottle Type	Lab	Sample Time	Comments

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