REMEDIAL INVESTIGATION ALTERNATIVES ANALYSIS REPORT

202 Franklin Street
City of Olean, Cattaraugus County, New York

BCP Site Number: C905043

Prepared for: Silence Dogood, LLC
211 Franklin Street
Olean, New York

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Project #: 4884S-13

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Table of Contents

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

This Remedial Investigation/Alternatives Analysis (RI/AA) report, prepared by Day Environmental, Inc. (DAY) on behalf of Silence Dogood, LLC (the Owner), describes studies conducted to date at the property addressed 202 Franklin Street, City of Olean, Cattaraugus County, New York, Tax Parcel 94.040-1-3 (hereinafter referred to as the “Site”) to assess environmental conditions. This report also describes an evaluation of remedial activities to be implemented to address remaining environmental impacts identified during the RI.

The work completed at the Site was done under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC) in accordance with Brownfield Cleanup Agreement (BCA) Index # C905043-05-14, which was executed on May 22, 2014. As outlined in the BCA, Silence Dogood, LLC is a Volunteer with respect to the requirements of the BCP. A Project Locus Map is included as Figure 1 and Property Survey Map is included as Figure 2.

1.1 Purpose of Report

The purpose of this report is to present the scope and findings of the RI completed as part of this BCP project to provide an understanding of the subsurface and environmental conditions at the Site pursuant to the development of a Conceptual Site Model. The information obtained during this study was used to: evaluate the nature and extent of contamination related to previous activities conducted at the Site; identify potential routes of exposure and potential receptors and to evaluate the fate and transport of contaminants. Finally, proposed remedial activities to address residual contamination present in the surface soil, subsurface soil/fill and groundwater at the Site are presented in this report.

1.2 Report Organization

This report is divided into eleven sections with Section 2.0 through Section 7.0 presenting the work completed and the findings of the RI. Section 8.0 presents an analysis of remedial alternatives, and conclusions of this RI/AA report are presented in Section 9.0. The contents of Section 2.0 through Section 11.0 are discussed further below.

Section 2.0 - Background: This section presents a description of the Site, an overview of the site history and historic operations at the Site. In addition, this section identifies previous environmental studies conducted at the Site.

Section 3.0 - Remedial Investigation Approach: The methods used to evaluate environmental conditions at the Site are presented in this section. Generally, the work conducted included: a geophysical survey over portions of the Site; review of documentation/maps to evaluate the location and type of buried utilities present within and in the vicinity of the Site; advancement of test borings and the installation of groundwater monitoring wells; excavation of test pits; testing of samples of surface soil, subsurface soil, and groundwater; determination of groundwater monitoring well elevations; and the development of site maps.

Section 4.0 - Physical Characteristics of the Site: This section of the report presents the physical characteristics of the Site such as geology, lithology, hydrogeology, demography and land use.

Section 5.0 – Remedial Investigation Findings: The contaminants of concern encountered and the distribution of these contaminants within the environmental media and features of the Site (i.e., surface soil, subsurface soil/fill and groundwater) are discussed in this section of the report. The results Data Use Summary Reports (DUSRs) completed to assess the suitability of the analytical laboratory data generated during this study are also discussed in this section.

Section 6.0 - Contaminant Fate and Transport: This section of the report presents information on the fate and transport of contaminants detected at the Site. This includes information on potential routes of migration, contaminant persistence, and contaminant migration patterns.

Section 7.0 - Exposure Assessment: This section of the report summarizes the results of a qualitative human health exposure assessment and a fish and wildlife resources impact analysis conducted as part of this project.

Section 8.0 – Remedial Alternatives Analysis: This analysis of potential remedial alternatives including the identification of remedial action objectives, applicable Standards, Criteria and Guidance (SCGs) and the presentation of the recommended remedial alternatives for the Site are presented in this section.

Section 9.0 – RI/AA Conclusions: A summary of the work completed, a conceptual site model based on the findings of the work completed and a discussion of the proposed remedial measures are identified in this section.

Section 10.0 – References: References used in the preparation of this RI/AA report are cited in this section.

Section 11.0 – Acronym List: Acronyms cited in the text of this RI/AA report are listed in this section.

2.0 BACKGROUND

This section presents a description of the current Site conditions, the history and operations conducted at the Site, and a summary of previous studies and remedial activities.

2.1 Property and Site Description

The 5.159-acre Site is located in an industrial-use urban area in the Northwest Quadrant district of the City of Olean, New York and is within the boundary of the New York State Department of State (NYSDOS) Brownfield Opportunity Area (BOA) identified as the City of Olean Northwest BOA. The Site is bound to the north by the Interstate I-86 right-of-way (ROW), to the east by an athletic field followed by a residential neighborhood, to the south by an industrial facility with a railroad ROW beyond, and to the west by a railroad ROW with industrial properties beyond. An approximate 1.83-acre portion of the Site is developed as a paved parking lot that services the Industrial Facility located adjacent to the south (i.e. 211 Franklin Street). The remainder of the Site is covered by landscaped or overgrown areas of field-type vegetation, brush, or areas covered by small to mature trees. In some locations, the remnants of former buildings (e.g., concrete pads, bricks, etc.) are exposed at the ground surface.

2.2 Previous Environmental Studies and Reports

To date, various studies have been conducted to evaluate the nature and extent of contamination at the Site. These studies are summarized in the following documents:

- Phase I Environmental Site Assessment, Henkel Corporation, 211 Franklin Street, Olean, New York dated May 2007 prepared by Environmental Resources Management (ERM).

- Phase I Environmental Site Assessment, 119, 202 & 211 Franklin Street and 120 West Connell Street, City of Olean New York dated November 1, 2013 prepared by DAY.

- Preliminary Phase II Environmental Site Assessment, 119 Franklin Street, 211 Franklin Street, 202 Franklin Street and 120 West Connell Street, Olean, New York dated October 17, 2013 prepared by DAY.

- Limited Supplemental Phase II Environmental Site Assessment, 202 Franklin Street, Olean, New York dated March 6, 2014 prepared by DAY.

2.3 Site History

Based on information obtained from Sanborn Fire Insurance (Sanborn) maps, historic records, and historic directories from the City of Olean, industrial activities were conducted on the Site between 1909 and the early 1960’s, including the following:

- The United Wood Alcohol Company was located on the eastern portion of the Site between at least 1909 until around 1915, and operations included the manufacturing and storage of wood alcohol (methanol). A 1909 Sanborn map depicts four buildings at this facility, and a railroad spur line that connects the western-most buildings of the United Wood Alcohol Company to railroad lines located to the south. A 1915 Sanborn map depicts the four buildings on the Site with a note “not in operation”.

- Seaman Container occupied portions of the buildings at the Site between at least 1925 until around 1932, and operations included the manufacturing of paper pails, containers, coolers, etc. The Olean Bag Company also occupied portions of the buildings at the Site between at least 1925 until around 1932, and it is assumed that sewing operations were performed at this facility. A 1925 Sanborn map depicts a north-south trending railroad spur with industrial buildings on either side of the spur. The buildings to the east of the railroad spur are labeled, “dipping room, gas drying ovens, storage, painting dept., finishing dept., press room, tank room, beating room, and storage”. The buildings to the west of the railroad spur are labeled, “stock room, sewing, cleaning and storage”. An area of the map, approximately 3,200 square feet in size located adjacent to the east of the railroad spur and between the eastern and western buildings, is outlined and labeled “pile of old paper”.

- The Arvey Ware Corporation occupied the buildings at the Site between at least 1932 until around 1941, and operations included manufacturing wastebaskets, vases, etc. from reprocessed waste paper pulp. On the 1932 Sanborn map, the buildings at the Site are labeled, “stock room, enameling and asphalt coating, dress room, trimming/drying, beater room, tank room, machine shop, boiler room and “ovens – not used”.

- The Fibre Forming Corporation occupied the buildings at the Site between around 1941 until around 1962, when they were demolished. Operations conducted by Fibre Forming Corporation included manufacturing wastebaskets, vases, etc. from reprocessed waste paper pulp. A 1956 Sanborn map depicts the buildings at the Site as being, “Vac.” (Vacant), and also depicts a storage building and two alcohol tanks located on the southwest corner of the Site. [Note: The two alcohol tanks identified on the 1956 Sanborn map appear to have been located north of the UST identified in test pit TP-08 (refer to Section 4.3). It is possible, although not identified on the Sanborn map that the two alcohol tanks on the 1956 Sanborn map were above ground tanks that were removed from the Site subsequent to 1956.]

- Hysol, a Division of the Dexter Corporation [i.e., the entity that occupied the adjacent property and manufacturing facility to the south (i.e., 211 Franklin Street)], purchased the Site sometime around 1979. A parking lot was subsequently constructed on the southern portion of the Site.

- Since 2010, SolEpoxy, Inc. has used the parking lot on the Site for employee vehicle parking.

- In addition to operations conducted on the Site, industrial activities including an oil refinery, oil production/storage operations and railroad lines are/were located in proximity of the Site.

Copies of select historic Sanborn maps overlain on the current aerial photograph of the Site, and a copy of and undated photograph form the Olean Times Herald or its predecessor showing the

Site and surrounding area are included in Appendix A to depict conditions at the Site since its development. These include:

- Building footprint and the former railroad spur line in 1915 (United Wood Alcohol Company);
- Building footprint, the old paper pile, and the former railroad spur line in 1925 (Seaman Container and Olean Bag Company);
- Building footprint and the former railroad spur line in 1932 (Arvey Ware Corporation);
- Building footprint and former railroad spur lines in 1949 (Fibre Forming Corporation);
- Building footprint, alcohol tanks, and storage building in 1956; and
- Aerial photograph from Olean Herald Times, or predecessor, circa 1940s.

3.0 REMEDIAL INVESTIGATION APPROACH

This section describes the investigative work conducted and the methods used as part of this project. The work was done in general accordance with the provisions outlined in a document titled *Remedial Investigation/Remedial Alternatives Analysis Work Plan; 202 Franklin Street, Olean, New York 14760, NYSDEC Site Number C905043-05-14* prepared by DAY dated May 2014 (the RIWP).

The studies performed included a review of available records pertaining to historic conditions at the Site, and the types/locations of buried utilities in proximity of the Site. The field work included: a geophysical survey over portions of the Site; the advancement of test pits to evaluate subsurface materials and to assess the source of magnetic anomalies identified by the geophysical survey; collection and testing of surface soil samples, advancement of test borings, installation of groundwater monitoring wells, evaluation of groundwater flow conditions and hydraulic conductivities, coupled with the collection and testing of soil and groundwater samples.

3.1 Geophysical Survey

Between June 7 and 14, 2014, AMEC Environment and Infrastructure, Inc. (AMEC) completed a geophysical survey over portions of the Site. The geophysical survey was conducted to evaluate the potential presence of USTs and/or other buried anomalies that may have been formerly utilized at the Site. The geophysical survey areas were selected based on a review of historical documents relating to the past uses of the Site. The approximate areas surveyed and the results of the surveys completed are depicted on Figure 3a through Figure 3c.

AMEC completed those portions of the geophysical survey depicted on Figure 3a using a Geonics EM-61 high sensitivity, high resolution time domain electromagnetic metal detector capable of detecting both ferrous and non-ferrous metallic objects to depths of approximately 10 feet (ft.) below ground surface (bgs). The EM-61 instrument collected continuous readings along transects spaced approximately three feet apart and extending across predefined reference grids established in each of the three discrete survey areas (refer to Figure 3a). Due to the necessity to establish the reference grids in a rectilinear pattern, portions of the area surveyed extend past the Site perimeter. The electromagnetic responses recorded by the EM-61instrument are expressed in units of milliSiemens per meter (mS/M), and are displayed on Figure 3a as a colorized contour map. Metallic surface features and anomalies that were interpreted by AMEC to be potentially significant from an environmental perspective are labeled as G and H on Figure 3a.

AMEC completed those portions of the geophysical survey depicted on Figure 3b and Figure 3c using a Geonics EM-31 Terrain Conductivity Meter capable of measuring ground conductivity and detecting metallic objects to depths of approximately 12 ft. to 15 ft. bgs. The EM-31 instrument collected continuous readings along transects spaced approximately 12.5 ft. apart and extending across predefined reference grids established in the survey area. The quadrature component (i.e., ground conductivity) recorded by the EM-61instrument are expressed in units of milliSiemens per meter (mS/M) is displayed on Figure 3b as a colorized contour map. The in phase component (i.e., metallic sensitivity) recorded by the EM-31instrument is expressed in units of parts per thousand (ppt), and displayed on Figure 3c as a colorized contour map. The quadrature and in phase components of the EM-31instrument data collected at the Site were compared by AMEC in order to increase the definition of the geophysical anomalies encountered during the survey. Metallic surface features and anomalies that were interpreted by AMEC to be potentially significant from an environmental perspective are labeled as I through P and presented on Figure 3b and Figure 3c. A copy of the report prepared by AMEC that describes the methodologies used for the geophysical surveys and the results of the geophysical survey is presented in Appendix B.

Various test pits and/or test borings were advanced in the geophysical anomaly areas identified by AMEC to evaluate the source of the anomalies. The table below summarizes the test pits and test borings completed within the anomalies identified by AMEC. Copies of the exploration logs for the test pits and test borings listed below are included in Appendix C.

<table>
<tr><th>Anomaly Identified by AMEC</th><th>Test location completed within Anomaly Area</th><th>Test type</th><th>Final Depth(s) (ft. bgs)</th></tr>
<tr><td>G</td><td colspan="3">Anomaly located off-site; not evaluated</td></tr>
<tr><td>H</td><td>TB-101</td><td>Test boring</td><td>12</td></tr>
<tr><td rowspan="2">I</td><td>TP-A through TP-G, TP-01, TP-03, TP-06, TP-07, TP-09, TP-13</td><td>Test pits</td><td>0.5-13.1</td></tr>
<tr><td>TB-105, TB-108, MW-B</td><td>Test borings</td><td>24-28</td></tr>
<tr><td>J</td><td>TP-05</td><td>Test pit</td><td>12</td></tr>
<tr><td rowspan="2">K</td><td>TB-106</td><td>Test boring</td><td>20</td></tr>
<tr><td>TP-04</td><td>Test pit</td><td>12</td></tr>
<tr><td>L</td><td colspan="3">Anomaly located off-site; not evaluated</td></tr>
<tr><td>M</td><td>TP-08</td><td>Test pit</td><td>12</td></tr>
<tr><td>N</td><td>TP-12</td><td>Test pit</td><td>8.5</td></tr>
<tr><td>O</td><td>MW-G</td><td>Test boring</td><td>28</td></tr>
<tr><td>P</td><td colspan="3">Anomaly is relatively small (e.g., not typical of a UST) and located within paved parking lot, and therefore not evaluated</td></tr>
</table>

3.2 Utilities Evaluation

DAY reviewed utility maps generated for the Site by SolEpoxy, Inc. and sanitary sewer utility maps and drawings at the City of Olean offices. The utilities shown on the Site Plan presented as Figure 4 were identified using the information obtained from SolEpoxy, Inc. and/or from the City of Olean.

3.3 Surface Soil Samples

On June 27, 2014, eleven surface soil samples (designated SS-01 through SS-11) were collected from the approximate locations depicted on Figure 4, in order to characterize the surface soil exposed at the Site. Each surface soil sample was collected from depths of 0 to 2 inches bgs using dedicated disposable hand sampling equipment. Prior to sample collection, the vegetation at/above the ground surface was removed (if present). A DAY representative screened portions of the samples recovered with a PID, and observed the samples in order to develop a description of the surface soil conditions encountered and to evaluate the recovered samples for evidence of suspect contamination. The soil types and PID screening results for the surface soil samples collected are summarized on the table included in Appendix C. The surface soil samples collected on June 27, 2014 were delivered under chain-of-custody control to Spectrum Analytical, Inc. in North Kingstown, RI (Spectrum) for testing (refer to Section 3.6).

3.4 Test Borings and Monitoring Wells

The advancement of test borings, installation of monitoring wells, soil and groundwater sampling and hydraulic conductivity testing are discussed in this section.

3.4.1. Test Boring Advancement and Monitoring Well Installation

Between June 11, 2014 and June 19, 2014, 15 test borings (designated as TB-101 through TB-106, TB-106a, TB-107, TB-108, and MW-B through MW-G) were advanced at the Site. [Note: Test boring/monitoring well MW-A was completed in September 2013 as part of a Preliminary Phase II ESA conducted at the Site.] A portion of the test borings were completed as overburden groundwater monitoring wells, with the remainder backfilled with grout upon completion. The locations of the test borings and monitoring wells completed during the Preliminary Phase II ESA and the RI are shown on Figure 4.

Thirteen test borings (designated as TB-103 through TB-106, TB-106a, TB-107, TB-108, and MW-B through MW-G) were advanced by Nothnagle Drilling, Inc. (Nothnagle) using a truck-mounted rotary-drilling rig. Soil samples collected using the rotary-drilling rig were generally collected in four-foot intervals using a macro core soil sampler with a new disposable acetate liner for each sample. However, during the advancement of TB-105 and MW-D, a split-spoon sampling device driven with a 140-pound hammer free falling 30-inches (in accordance with ASTM 1586) in two-foot intervals was used and blow counts/N-Values were recorded. Following sample collection at each location, a test boring was advanced to the next sample interval using hollow-stem augers. The test borings advanced using rotary drilling techniques were advanced to depths between approximately 20 ft. and 48 ft. bgs. Equipment refusal was not encountered in any of the test borings advanced using rotary drilling techniques.

Two direct-push test borings (designated as TB-101 and TB-102) were advanced by Nothnagle using vehicle-mounted Geoprobe Systems sampling equipment. Soil samples were collected in four-foot intervals using a macro core soil sampler with a disposable acetate liner for each sample. These test borings were advanced to depths of approximately 12 ft. bgs.

A DAY representative observed the soil samples recovered from the test borings in order to develop a stratigraphic description of the subsurface conditions encountered and to evaluate the recovered samples for evidence of suspect contamination (e.g. staining, unusual odors, etc.). In general, soil samples were collected continuously throughout the soil column. Portions of the recovered samples were also screened with a PID equipped with an 11.7 eV bulb. Additionally, headspace PID readings were also taken is select test borings. The DAY representative recorded pertinent information for each test boring and subsequently prepared test boring logs. Copies of the test boring logs are included in Appendix C.

Drilling equipment was cleaned prior to arriving on the Site. Re-usable drilling and sampling equipment that came into contact with overburden materials (e.g., split-spoon sampling devices, hollow-stem augers, etc.) were decontaminated on-site prior to each use at a temporary decontamination pad designed to capture decontamination fluids. The decontamination procedure included Alconox® (soap) and tap water wash and tap water rinse using a pressure washing system. Decontamination fluids and soil cuttings were transferred to NYSDOT-approved 55-gallon drums. These drums were labeled as study-derived waste and staged in the facility on the adjacent Site (i.e., 211 Franklin Street). The boreholes not completed as groundwater monitoring wells were backfilled with grout.

During the various studies completed at the Site, groundwater monitoring wells were installed, including 1-inch inside diameter (ID) wells and 2-inch ID wells. The locations of the monitoring wells installed at the Site are depicted on Figure 4.

1-inch Diameter Monitoring Well

Test boring MW-A was advanced by rotary drilling techniques on September 11, 2013, during the preliminary Phase II ESA, and subsequently completed as nominal 1-inch ID groundwater monitoring well. Monitoring well MW-A is located in the southwestern portion of the Site, at the edge of the existing parking lot, and this well was installed with a screened interval between 15.9 ft. and 27 ft. bgs. Monitoring well MW-A was constructed of a pre-cleaned flush-coupled nominal 1-inch ID No. 10 slot Schedule 40 polyvinyl chloride (PVC) well screen and attached riser casing of the same material. To the extent possible, the well installation included a washed and graded sand pack surrounding the screen, and extending approximately 1 foot above the well screen. A minimum one-foot bentonite seal was placed above the sand pack and the remaining annulus was filled with cement/bentonite seal. Subsequent to the completion of the preliminary Phase II ESA, the MW-A well casing was cut to an elevation slightly below the ground surface and a protective curb box was installed over the well casing at the ground surface. A monitoring well installation diagram for MW-A is included in Appendix C.

2-inch Diameter Monitoring Wells

Select test borings advanced by rotary drilling techniques during the RI were subsequently completed as 2-inch ID groundwater monitoring wells. These include:

- MW-B: installed on June 12, 2014 in the central portion of the Site; screened interval between 17.5 ft. and 27.5 ft. bgs.
- MW-C: installed between June 11 and 12, 2014 in the northwestern portion of the Site; screened interval between 12 ft. and 22 ft. bgs.
- MW-D: installed on June 11, 2014 in the northeastern portion of the Site; screened interval between 16 ft. and 26 ft. bgs.
- MW-E: installed on June 12, 2014 along the eastern edge of the Site; screened interval between 18 ft. and 28 ft. bgs.
- MW-F: installed on June 12, 2014 in the southeastern portion of the Site; screened interval between 17.5 ft. and 27.5 ft. bgs.
- MW-G: installed on June 13, 2014 along the southern edge of the Site; screened interval between 17.5 ft. and 27.5 ft. bgs.

The above monitoring wells were constructed of a pre-cleaned flush-coupled nominal 2-inch ID No. 10 slot Schedule 40 polyvinyl chloride (PVC) well screen and attached riser casing of the same material. The well installations included a washed and graded sand pack surrounding the screen, and extending approximately 1 foot above the well screen. A minimum one-foot bentonite seal was placed above the sand pack and the remaining annulus was filled with cement/bentonite seal. Monitoring wells MW-B through MW-D were competed with steel protective casings extending approximately two to three feet above the ground surface. Monitoring wells MW-E through MW-G were completed with protective curb boxes installed at the ground surface. Monitoring well installation diagram for MW-B through MW-G are included in Appendix C.

A summary of the test borings and monitoring wells completed to date at the Site is presented in Table 1.

3.4.2. Well Development

Well development was performed between June 18, 2014 and June 24, 2014 for monitoring wells MW-A through MW-G. Development was performed utilizing dedicated polyethylene bailers and dedicated cord or using a Pacific Hydrostar 1-inch gasoline-powered centrifugal water pump and dedicated 1-inch polyethylene 50 LPDE tubing in accordance with the procedures outlined in the RI Work Plan. No fluids were added to the wells during development and well development monitoring equipment was decontaminated prior to development of each well. In general, the well development continued until a minimum of three well volumes were removed, and stabilized in-situ readings of pH, specific conductivity, and turbidity were observed. Copies of monitoring well development logs are included in Appendix D.

During development, groundwater removed from the wells was visually checked for evidence of non-aqueous phase liquid (NAPL). [Note: NAPL was not observed to be present in development water collected however, oil sheen was observed during the development of monitoring well MW-B and MW-G.]

Development water collected was transferred to NYSDOT-approved 55-gallon drums. These drums were labeled as study-derived waste and staged in the facility on the adjacent Site (i.e., 211 Franklin Street).

3.4.3. Soil and Groundwater Sampling

Soil samples were collected during the advancement of the test borings for observation, field screening and subsequent analytical laboratory testing. Generally, the selection of samples submitted for analytical laboratory testing was based upon observation and field screening results to evaluate potentially impacted soil/fill. Soil samples submitted for VOC testing were collected using United States Environmental Protection Agency (USEPA) Method 5035. Soil samples submitted for testing of other parameters were placed into sample containers provided by the analytical laboratory. The soil samples submitted for analytical laboratory testing and the test parameters/methods utilized are described in Section 3.6.

Two groundwater sampling events were completed at the Site for monitoring wells MW-A through MW-G. The first sampling event was completed between June 25, 2014 and June 27, 2014 and the second sampling event was performed on November 5, 2014. Groundwater samples were collected utilizing low-flow purging and sampling methods, which generally consisted of procedures described in ASTM D6771-02, *Standard Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality and Investigations*. Copies of the sampling logs for each groundwater monitoring event are included in Appendix D.

Prior to use and between wells, the portable bladder pump and other reusable equipment (e.g. water quality meter) that came into contact with groundwater was decontaminated using a wash with Alconox soap and rinse with potable water. Following collection, groundwater samples were placed in an insulated cooler with ice or refrigerated, and subsequently transmitted to Spectrum for testing under chain-of-custody control (refer to Section 3.6).

3.4.4. Hydraulic Conductivity Testing

On February 10, 2015, the depth to water within monitoring wells MW-B and MW-C was measured. A Heron Instruments Inc., Model DipperLog, water level meter was then configured to collect continuous water level measurements at one-second intervals, and the water level meter was subsequently lowered to the bottom of each monitoring well to complete the hydraulic conductivity testing. Thereafter a solid slug of known volume (i.e., length of PVC pipe filled with concrete and capped at each end) was introduced into each well (“slug in”), the water level within the well was allowed to recover to within 90% of the pre-test water level, and the solid slug was subsequently extracted (“slug out”). Measurements with the water level meter continued until the water level within the well was allowed to recover to within 90% of the pre-test water level.

The data from each slug test was then input into Super Slug, an aquifer slug test analysis software program, and evaluated using the Bouwer and Rice evaluation method. The results of the hydraulic conductivity testing from the slug tests are provided in Appendix E.

3.5 Test Pit Excavation

The advancement of test pits and the collection of soil/fill samples are discussed in this section.

3.5.1. Test Pits Excavated for Supplemental Phase II ESA

On February 21, 2014, ten test pits, designated TP-A through TP-J, were advanced by Richard Peck Construction (RPC) using a track-mounted excavator with a 24-inch bucket and observed by DAY. The locations of test pits TP-A through TP-J are presented on the Site Plan included as Figure 4.

The test pits excavated on February 21, 2014 were positioned in proximity the following former Site features, as depicted on the Sanborn Fire Insurance Maps for the years 1909 through 1956 (refer to Appendix A):

- TP-A - was advanced to a depth of approximately 6.0 ft. bgs in the area of the former boiler room;

- TP-B - was advanced to a depth of approximately 6.0 ft. bgs in a portion of the former railroad spur line footprint;

- TP-C - was advanced to a depth of approximately 6.0 ft. bgs in the area of the former enameling and asphalt coating department;

- TP-D - was advanced to a depth of approximately 8.0 ft. bgs in the area of the former tank room;

- TP-E - was advanced to a depth of approximately 0.5 ft. bgs in the area of the former painting department;

- TP-F - was advanced to a depth of approximately 11.0 ft. bgs in a portion of the former railroad spur line footprint;

- TP-G - was advanced to a depth of approximately 3.0 ft. bgs in a portion of the former railroad spur line footprint;

- TP-H - was advanced to a depth of approximately 9.0 ft. bgs in the area of the former tank room;

- TP-I - was advanced to a depth of approximately 2.5 ft. bgs in the area of the former tank room; and

- TP-J - was advanced to a depth of approximately 6.0 ft. bgs in a portion of the former railroad spur line footprint and a former warehouse building.

Soil samples collected during the advancement of the test pits were observed to evaluate stratigraphic conditions, and for evidence of potential environmental impact (e.g., staining, unusual odors, etc.). In addition, a PID was used to scan the air space above the samples collected. A summary of the materials encountered in test pits TP-A through TP-J is presented in a table included in Appendix C. Select soil samples collected from Test Pits TP-A through TP-J were submitted under Chain-of-Custody Control to Paradigm Environmental Services, Inc. (Paradigm), located in Rochester New York, for testing (Refer to Section 3.6).

3.5.2. Test Pits Excavated During the RI

Between July 29, 2014 and July 31, 2014, thirteen test pits, designated TP-01 through TP-13, were advanced by RPC using a track-mounted excavator with a 40-inch bucket. The locations of test pits TP-01 through TP-13 are presented on the Site Plan included as Figure 4.

The test pits advanced for the RI were positioned in proximity to the areas of the following former Site features, as depicted on the Sanborn Fire Insurance Maps for the years 1909 through 1956 (refer to Appendix A), and/or to assess the geophysical anomalies identified during the geophysical survey (refer to Section3.1):

- TP-01 - was advanced to a depth of approximately 12.0 ft. bgs in a portion of the former railroad spur line footprint;
- TP-02 - was advanced to a depth of approximately 13.3 ft. bgs in a previously undeveloped portion of the Site;
- TP-03 - was advanced to a depth of approximately 13.1 ft. bgs in a portion of the former railroad spur line footprint;
- TP-04 - was advanced to a depth of approximately 12.0 ft. bgs near the Site boundary, at the edge of the adjacent railroad right-of-way (ROW) and to assess geophysical anomaly K;
- TP-05 - was advanced to a depth of approximately 12.0 ft. bgs in a in a previously undeveloped portion of the Site to assess geophysical anomaly J;
- TP-06 - was advanced to a depth of approximately 12.2 ft. bgs in a previously undeveloped portion of the Site;
- TP-07 - was advanced to a depth of approximately 10.4 ft. bgs in the area of the former manufacturing buildings, and to assess geophysical anomaly I;
- TP-08 - was advanced to a depth of approximately 12.0 ft. bgs in the area of two alcohol tanks depicted in the Sanborn map dated 1956, and to assess geophysical anomaly M;
- TP-09 - was advanced to a depth of approximately 12.3 ft. bgs in the area of the former manufacturing buildings, and to assess geophysical anomaly I;
- TP-10 - was advanced to a depth of approximately 12.0 ft. bgs in a previously undeveloped portion of the Site;
- TP-11 - was advanced to a depth of approximately 13.5 ft. bgs near the Site boundary, at the edge of the adjacent railroad ROW;
- TP-12 - was advanced to a depth of approximately 8.5 ft. bgs to assess geophysical anomaly N;
- TP-13 - was advanced to a depth of approximately 12.0 ft. bgs in the area of the tank room of the former manufacturing buildings, and to assess geophysical anomaly I.

A DAY representative observed the soil excavated from the test pits in order to develop a stratigraphic description of the subsurface conditions encountered and to evaluate the recovered samples for evidence of suspect contamination (e.g. staining, unusual odors, etc.). Portions of the recovered samples were also screened with a PID equipped with an 11.7 eV bulb. Additionally, headspace PID readings were also taken in select locations. The DAY representative recorded pertinent information for each test pit and subsequently prepared test pit logs. Copies of the test pit logs are included in Appendix C.

Select soil samples collected from Test Pits TP-01 through TP-13 were submitted under Chain-of-Custody Control to Spectrum for testing (Refer to Section 3.6).

3.6 Analytical Laboratory Testing

Select samples from the potentially impacted media collected during the RI (e.g., surface soil, subsurface soil/fill, groundwater, etc.) were submitted under chain-of-custody control to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory for testing (i.e., Paradigm or Spectrum). The analytical laboratory testing program for the samples submitted for analysis is included on Table 2. Copies of analytical laboratory reports and executed chain-of-custody documentation for the samples tested are included on a compact disc included in Appendix F. Summaries of the compounds/analytes detected by the analytical laboratory are presented in Table 3a through Table 3d (Surface Soil Samples), Table 4a through Table 4d (Soil/Fill Samples), and Table 5a through Table 5d (Groundwater Samples). These tables include the Standards, Criteria and Guidance (SCG) summarized below.

- The soil test results are compared to the Unrestricted Use, and Commercial Use (i.e., the most appropriate scenario for the Site) Soil Cleanup Objectives (SCO) presented in 6 NYCRR Part 375-6.8(a) and (b).

- The groundwater test results are compared to the groundwater standards and guidance values as referenced in the NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 document titled "*Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations*" (TOGS 1.1.1) dated June 1998 (as amended by an April 2000 addendum).

3.7 Quality Assurance/Quality Control and Reporting

Specific QA/QC measures implemented during this RI are outlined below:

- During sampling activities, personnel used disposable nitrile gloves. Between the collection of each sample, personnel performing the sampling discarded used nitrile gloves and put on new nitrile gloves.
- Soil and groundwater samples retained for testing were placed in new laboratory-grade sample containers provided by the analytical laboratory. The samples were collected using USEPA Method 5035 sampling techniques and placed into laboratory-preserved sample containers when VOC analysis was to be performed. Efforts were made to obtain a sufficient volume (i.e., as specified by the analytical laboratory) to ensure that the laboratory had adequate sample to perform the specified analyses.
- Samples that were collected as part of the project were handled using chain-of-custody control and this documentation accompanied samples from their inception to their analysis. Executed copies of the chain-of-custody documentation are included with the laboratory reports.

- The laboratory analyzed the samples using the lowest practical quantitation limits (PQL) possible. The laboratory that performed the analyses provided internal QA/QC data that are required by NYSDEC ASP protocol.

- Unless otherwise noted, sample holding times and preservation protocols were adhered to during this project. Soil samples were reported on a dry-weight basis.

In order to provide control over the collection, analysis, review, and interpretation of data generated by the analytical laboratories, QA/QC samples were collected/tested in conjunction with some of the soil and groundwater samples tested during this study. The laboratory reports that include these QA/QC samples are included in Appendix F. As outlined in the May 2014 Work Plan, the following types of QA/QC samples were collected and analyzed as part of this project:

- Trip blanks that accompanied shipments to and from the analytical laboratory were analyzed for VOCs using USEPA Method 8260.
- Matrix spike/matrix spike duplicate (MS/MSD) were generally analyzed for each 20 samples of each matrix (i.e., soil, groundwater, etc.). Specific parameters that MS/MSD samples were tested for depended upon the test parameters of the samples that were analyzed.
- Field blank samples were collected during groundwater sampling events and during soil sampling events. Specific parameters that field blank samples were tested for depended upon the test parameters of the samples that were analyzed, but were generally analyzed for full TCL/TAL parameters.

<u>Data Usability Summary Report</u>

To date, Data Usability Summary Reports (DUSRs) have been prepared by Data Validation Services (DVS) for the following data generated for this study:

- A DUSR, dated November 6, 2014 was prepared for the data packages N1080, N1128, N1150, N1151, N11385 and N1529 generated by Spectrum and for Paradigm data package No.14042. The samples reviewed in the November 6, 2014 DUSR include surface soil samples, subsurface soil samples collected during the advancement of test pits, test borings, and monitoring wells, and the first round of groundwater samples. Refer to Table 3 for a complete list of the samples collected from the Site which are included in these data packages. Full validation was not performed. Specifically, VOCs and SVOCs which were reported in the data packages listed above, but are not listed on the tables entitled, *Target Compound List (TCL) and Contract Required Quantitation Limits (CRQL) for Solid Samples* included in NYSDEC ASP Exhibit C, dated 1-2005, were not reviewed for this DUSR. The scope of the DUSR covered: data completeness, laboratory narrative discussion, custody documentation, holding times, surrogate and internal standard recoveries, matrix spike recoveries and duplicate correlations, equipment/trip/method blanks, laboratory control samples, instrument tunes, calibration standards, ICP serial dilution evaluations, ICP interference check samples, method compliance, and sample result verification.

- A DUSR, dated February 8, 2015 was prepared for the data package N2170 generated by Spectrum. The samples reviewed in the February 8, 2015 DUSR include the second round of groundwater samples. The scope of the DUSR covered: data completeness, laboratory narrative discussion, custody documentation, holding times, surrogate and internal standard recoveries, matrix spike recoveries and duplicate correlations, equipment/trip/method blanks, laboratory control samples, instrument tunes, calibration standards, ICP serial dilution evaluations, ICP interference check samples method compliance, and sample result verification.

Copies of the above DUSRs are included with the analytical laboratory reports presented in Appendix F.

3.8 Survey and Site Mapping

The test locations depicted on Figure 4 were determined in the field by tape measuring from fixed locations at the Site, and/or using a Trimble Model Geo XH Global Positioning System (GPS) receiver. In addition, the locations and elevations of the groundwater monitoring wells (i.e., MW-A through MW-G) were surveyed by D. Michael Canada, a licensed surveyor (New York State License No. 49215). The survey information measured at each location included the UTM NAD 83 coordinates of the well casing (in feet) and the ground surface and top of well casing elevations, referenced to the North American Vertical Datum (in feet).

3.9 Study-Derived Waste Disposal

The waste materials generated during the RI included: soil cuttings from the advancement of test borings and monitoring wells; groundwater and sediment from the development and sampling of groundwater monitoring wells; excess grout from backfill activities; disposable sampling materials; and materials (i.e., sediment, wash waters, poly-sheeting, etc.) generated during decontamination of re-usable equipment.

The study-derived waste generated at the Site was containerized in steel 55-gallon drums and stored in an unoccupied portion of facility (i.e., indoors) of the adjacent Site (i.e., 211 Franklin Street). On February 12, 2015, the drums containing soil cuttings and solid waste materials (i.e., excess grout, disposable sampling materials, etc.) were shipped to the Waste Management, Inc. (WM) Model City Facility in Model City, New York to be disposed of as non-hazardous waste under WM Waste Profile 113759NY. On January 29, 2015, the containerized groundwater and decontamination rinse waters were transported by New York Environmental Technologies, Inc. of Rochester, NY (Nyetech) to Industrial Oil Tank Services in Oriskany, NY and disposed of as non-RCRA petroleum impacted water under non-hazardous waste manifest number15-0016.

4.0 PHYSICAL CHARACTERISTICS OF THE SITE

This section presents a discussion of the physical setting of the Site and vicinity including a discussion of land and water usage, surface features/conditions, geologic setting and groundwater conditions.

4.1 Topography and Drainage

The Site is located at latitude (north) 42^{o} 5’ 42.67” and longitude (west) 78^{o} 26’ 23.58” and the ground surface elevation at the Site is between approximately 1,426 ft. and 1,430 ft. above sea level (North American Vertical Datum). The ground surface at the Site and the surrounding area is relatively level with a gentle slope generally to the north. The Site is located in a glacially filled valley, and the ground surface to the north and northwest (i.e., approximately 2,500^{+} ft. from the Site) raises to elevations ranging between about 1,800 ft. and 2,000 ft. above sea level.

Rainwater and snowmelt that collects on the pavement of the parking lot that covers the southern portion of the Site flows to the City of Olean storm sewer system catch basins located in the Franklin Street ROW, or migrates via surface flow to unpaved portions of the Site and/or adjacent properties. There are no stormwater catch basins located on the Site. As such, depending on location, surface water generated during precipitation and/or snowmelt events that does not infiltrate into the subsurface appears to flow off the Site either to the south, toward storm water catch basins located along Franklin Street that enter the City of Olean storm sewer system, to the north (i.e., generally east of monitoring well MW-G) or to the west (i.e., generally to the west of monitoring well MW-G) discharging onto the ground surface. The nearest surface water bodies to the Site include Olean Creek (listed as a Class C water body by the NYSDEC), which is located approximately 2,400 ft. east-southeast of the Site, and Two Mile Creek, which is intermittingly connected to an unnamed creek, (listed as a Class D water body by the NYSDEC) that is located approximately 750 ft. northwest of the Site.

4.2 Wetlands and Floodplains

There are no surface water bodies on or adjoining the Site. In addition**,** no NYSDEC or Federal wetlands are located within ½ mile of the Site. The 100-year floodplain for Olean Creek is located approximately 2,200 ft. southeast of the Site at its nearest point. The 100-year floodplain of the unnamed creek associated with Two Mile Creek is located approximately 400 ft. north of the Site at its nearest point.

4.3 Geologic Setting

The Site is located in the glaciated Allegheny Plateau, which is characterized by steep valley walls, wide ridge tops and flat-topped hills that are intersected with drainage ways that flow towards the valley floor.

During the Pleistocene ice age, the Site and surrounding area experienced several advances and retreats of glacial ice. The ice age began about 300,000 years ago and ended during the late Wisconsin glaciation about 12,000 to 17,000 years ago. The more recent advances of the glacier covered or destroyed the earlier glacial deposits leaving the current unconsolidated overburden deposits, which have also been altered by post-glacial meltwaters. The overburden thickness at the Site is estimated to exceed 200 ft., and based upon available information (Tesmer, 1975) the rock underlying the overburden is comprised of Upper Devonian period (i.e., approximately 355 million years ago) gray and black shale interbedded with gray siltstone and sandstone of the Conneaut Group, also referred to as the Chadakoin Formation. These sedimentary rocks are relatively flat lying and they dip gently to the south at an approximate rate of 40 ft. per mile. The overburden material at the Site generally consists of stratified drift deposits comprised of outwash and kame deposits consisting primarily of sand and gravel with lesser amounts of silt in some locations. With depth, lacustrine silts and clays (i.e., the remnants of glacial lakes and post-glacial lakes that formed as the glaciers retreated northward) are evident near the bottom of the outwash deposits in the valley floor and in proximity to the bedrock surface.

A summary of subsurface and geologic conditions identified at the Site based upon the explorations completed to date is presented below.

- The ground surface elevations at the Site vary due to previous filling associated with the demolition of the previous structures and railroad lines that were located in the eastern portion of the property, and the subsequent placement of fill material within and adjacent to these areas. However, the land surface is generally level with a gentle slope to the north with a westerly component in the southern portion of the Site (i.e., in the paved parking area west of monitoring well MW-G) and with a northeasterly component in the northwestern portion of the Site (i.e., in proximity to monitoring well MW-C). The ground surface elevations measured at the monitoring wells installed during this study ranged between 1429.66 ft. and 1428.92 ft. (monitoring wells MW-G and MW-F, respectively, which are located in the southern-most portion of the Site in proximity of Franklin Street); and 1426.69 ft. and 1426.12 ft. (monitoring wells MW-C and MW-D, respectively, which are located in the northern-most portion of the Site). Based on the elevations measured at the monitoring well locations, the ground surface slopes at an approximate rate of about 0.007 ft/ft in the southern portion of the Site and a rate of about 0.009 ft/ft in the northern portion of the Site.

- The southern-most portion of the Site is covered with an approximate 79,800 square feet (i.e., approximately 1.83 acres) asphalt-paved parking lot. The asphalt pavement varies in thickness from about 0.2 ft. up to approximately 0.5 ft. with sub-base material or reworked soil extending below the asphalt pavement to an approximate depth of 1 ft. bgs. The test borings and test pit advanced within the parking lot encountered heterogeneous fill material beneath the sub-base material generally consisting of re-worked soil (e.g., sand and gravel) intermixed with varying amounts of bricks, concrete, cinders and pieces of asphalt that extended to depths of about 1.1 ft. bgs (test boring TB-1) and potentially 4.5 ft. bgs (test boring TB-103). A buried concrete slab was encountered in test boring TB-102 (i.e., between about 0.2 ft. and 2.0 ft. bgs, and in test boring TB-103 (i.e., between about 2.0 and 3.0^{+} ft. bgs). [Note: Test borings TB-101 and TB-103 are located in the northeastern portion of the parking lot, and these borings may have penetrated the same slab. This concrete slab is likely a remnant of the former structures located in this portion of the Site.]

- The approximate 3.3-acre portion of the Site located generally north of asphalt-paved parking lot is predominately covered with vegetation although some exposed construction and demolition (C&D) type debris is evident in the eastern portion of the Site where buildings were previously located. The vegetation is comprised primarily of field grass and weeds;

however several areas of trees are located primarily in the northern and northwestern portion of the Site. The largest area of trees (i.e., comprised of various species including numerous white birch trees some of which are more than 6 inches in diameter) is located in the northwestern portion of the Site in proximity of the property boundary. This area of trees covers approximately 10,000 square feet (about 0.23 acres) of the Site.

- Heterogeneous fill was encountered in each of the test pits/test borings advanced during the study with the exception of test pit TP-10 where indigenous soil consisting of topsoil underlain by sand with little clay above typically sand and gravel deposits were encountered. The heterogeneous fill was encountered either beneath the asphalt-paved parking lot described above, an approximate 0.5 ft. thick layer of topsoil and roots (e.g., TP-02, TP-04, TP-11,TB-106, MW-C, etc.), or exposed at the ground surface (e.g., TP-A, TP-C, TP-05, TP-06, etc.). As shown on the fill thickness contour map presented as Figure 5a, the fill varied in thickness from about 1 foot (MW-A and TB-106) to 11^+ ft. (TP-F, TP-07 and TP-13). The thickest fill deposits were encountered in test pits/test borings advanced in the northeastern portion of the property. As depicted on Figure 5b, which includes an overlay of a 1949 Sanborn Map onto Figure 5a, this is the portion of the Site where structures were previously located. The fill in these areas is predominately C&D debris comprised of numerous bricks, concrete, pipe, scrap metal and wire intermixed within reworked soil (i.e., primarily sand and gravel).

- In some locations, apparent railroad ballast containing ash and coal fragments intermixed with re-worked soil was encountered. Specifically, apparent railroad ballast was encountered in the following locations to depths of approximately 1 to 2 ft. bgs:

    - Test Pits: TP-01, TP-03, TP-04, TP-05, TP-06, TP-09, TP-B, TP-G, TP-I, and TP-J

    - Test Borings: TB-101, TB-104, TB-106, MW-C, MW-F and MW-G

  As depicted on Figure 4, and shown on the Sanborn Map overlays included in Appendix A, with the exception of TB-106 and TP-04 these test pits and test borings are located in proximity to railroad spur lines that previously traversed the Site. The apparent ballast encountered in TB-106 and TP-04 could be attributable to the railroad lines west of the Site and/or fill material displaced during the demolition of the structures and rail lines on the property.

- While the majority of the fill material at the Site can generally be characterized as C&D debris or apparent railroad ballast, several localized areas that contained other types of fill material were identified. These include layers of fibrous (paper-like) material observed in test pit TP-11 at a depth of about 2.5 ft. bgs, and paper with a tar-like binder that was observed at a depth of about 2 ft. bgs in test pit TP-02. Test pits TP-11 and TP-02 were excavated in proximity of the western property line of the Site (i.e., near the mid-point of the western property line). Test pit TP-05, which was excavated in a location near the northern corner of the Site, contained fill material extending from the ground surface to an approximate depth of 1.5 ft. bgs. The fill in TP-05 included reworked soil containing large chunks of metal, rusted wire and bricks. A sample of this fill was submitted for analytical laboratory testing and elevated heavy metal concentrations (i.e., exceeding Commercial SCO) of arsenic (25 ppm), barium (436 ppm), cadmium (16.3 ppm), copper (357 ppm) and lead (1,150 ppm) were detected.

- An underground storage tank (UST) was encountered test pit TP-08 between depths of about 4 ft. bgs and 10.5 ft. bgs. This UST contained approximately 1 inch of clear liquid and residue that emitted an odor similar to rubbing alcohol. A sample of this material contained detectable concentrations of acetone and alcohol, and a maximum PID reading of 485.3 ppm was measured in the air space of a pipe exiting the tank. This UST is approximately 33 ft. long (indicating an approximate 8,000 gallon capacity tank), and it is oriented in a general northwest to southeast direction. A second apparent UST was encountered in test pit TP-13. This tank was found in the remnants of a demolished former building. The tank is oriented horizontally and the bottom of the tank is approximately 12 ft. bgs with the bottom 2.5 ft. of this tank extending below the apparent concrete floor of the building. The tank appears to have been cut in half such that only the bottom 3 ft. to 4 ft. of the tank remains. The tank was empty of product and it was filled with C&D debris (i.e., bricks, concrete, re-worked soil etc.). Unusual odors were not detected emanating from the contents of the tank and, a maximum PID reading of 1.2 ppm was measured above the tank following excavation of test pit TP-13. A sample of the material collected from within the tank was submitted for analytical laboratory testing and elevated concentrations (i.e., exceeding Commercial SCO) of the SVOC PAH benzo(a)pyrene (1.9 ppm), and the heavy metals arsenic (25.2 ppm), barium (606 ppm), and copper (271 ppm) were detected.

- The indigenous soil beneath the fill at the Site generally consists of deposits of fine to medium sand and fine to coarse gravel. However, a deposit of sandy clay to clayey sand was encountered beneath the fill in some locations. This approximate 1.5 ft. to 4 ft. thick deposit was not continuous across the Site and it may have been removed in areas during previous construction activities. Where present, the sandy clay to clayey sand deposit was encountered between elevations of about 1420 ft. and 1427 ft.

- In test boring TB-106a, an indigenous clayey sand deposit was encountered between approximately 31.5 ft. bgs (i.e., approximate elevation 1395 ft.) and the bottom of the test boring at approximately 48 ft. bgs (i.e., approximate elevation 1378.5 ft.). Test boring TB-106a was the only test boring that contained this deeper clayey sand; however this was the only test boring that was advanced to elevation 1395 ft. during the RI. As such, the extent of this deeper clayey sand deposit at the Site is unknown.

- Bedrock was not encountered in the test borings advanced during this study. The deepest test boring (i.e., test boring TB-106a) extended to a depth of 48.0 ft. bgs or an elevation of about 1378.5 ft.

- Although the majority of the fill material contained apparent C&D-type debris and/or remnants of previous railroad spur lines (e.g., ash, coal, etc.), limited field evidence of potential environmental impact (i.e., staining, unusual odors, elevated PID readings, etc.) was detected within the fill material encountered in the test pits and test borings advanced during this study. PID readings in excess of 10 ppm were only measured in fill samples collected from test pit TP-08 where a peak reading of 49.7 ppm was measured in the soil adjacent to the UST encountered in this test pit, and test pit TP-12 where a peak PID reading of 17.5 ppm was measured in apparent C&D debris. The only constituent measured at a concentration exceeding the Commercial SCO in the fill sample collected from test pit TP-12 was benzo(a) pyrene, which was measured at a concentration of 1.7 ppm.

- Field evidence of petroleum impact in the soil (i.e., petroleum odors, staining, elevated PID readings, etc.) was encountered in some of the test borings advanced to a depth of at least 20 ft. bgs. Specifically, test borings located in the approximate western third of the Site (i.e., including test borings TB-104, TB-106a, TB-107, MW-A, MW-B and MW-G) contained field evidence of petroleum impact that was initially detected beginning at depths of approximately 19 ft. bgs to 23 ft. bgs or elevations ranging between about 1409 ft. (test boring MW-B) to 1405 ft. (test borings MW-G and TB-107). The maximum PID readings in samples collected from these test borings ranged between 121 ppm (test boring MW-A at 26 ft. bgs or elevation 1402 ft.) and 1,325 ppm (test boring MW-G at 25 ft. bgs or elevation 1407.6 ft.). The first indication of petroleum-impacted soil is located in proximity to the observed groundwater table, but the petroleum impact (where present) extended down from near the groundwater surface to a least 28 ft. bgs in each of the test boring exhibiting petroleum impact. In test boring TB-106a (i.e., the only test boring advanced below a depth of 28 ft. bgs) petroleum odors were detected on samples collected to a depth of about 45.5 ft. bgs or elevation 1381 ft., although petroleum odors and PID readings generally decreased with depth). [Note: Apparent evidence of petroleum impact was also detected in test boring TB-108 beginning at a depth of about 23 ft. bgs or elevation 1405.5 ft. This test boring is located in the eastern portion of the Site and similar impact was not identified in other test borings advanced in this area of the Site.]

Geologic cross section A-A', running generally from west to east across the Site (i.e., oriented generally in the direction of groundwater flow), and geologic cross section B-B', running from generally from south to north (i.e., generally perpendicular to groundwater flow), depict subsurface conditions. Geologic cross sections A-A' and B-B' are presented as Figure 6 and Figure 7, respectively.

4.4 Hydrogeology

The Site is located within an area designated by the United States Department of the Interior Geological Survey (USGS) as a primary water supply aquifer (Olean). A primary water supply aquifer is defined as: "A highly productive aquifer that is being used as a source of water supply in major public-supply systems." According to USGS Water-Resources report 85-4157 *Hydrogeology of the Olean Area, Cattaraugus County, New York* dated 1987 prepared by Phillip J. Zarriello and Richard J. Reynolds, the total saturated thickness of the outwash aquifer in proximity of the Site ranges between approximately 20 ft. and 40 ft. and this aquifer is capable of producing water at rates in excess of 1,000 gallons per minute (GPM) depending on the size and construction of the supply well(s).

Regionally, groundwater flow is generally to the southwest eventually discharging into the Allegheny River; however in proximity of the Site groundwater appears to flow generally to the east-southeast with a southwesterly component in the southern portion of the Site that is more pronounced as the groundwater levels decrease seasonally. Groundwater flow at the Site is in the direction of Olean Creek, which is located about 2,400 ft. east of the Site. Olean Creek flows generally to the south and discharges into the Alleghany River approximately 8,600 ft. south-southwest of the Site.

As described in USGS Water-Resources report 85-4082 titled *Effect of Reduced Industrial Pumpage on the Migration of Dissolved Nitrogen in an Outwash Aquifer at Olean, New York* dated 1987 prepared by Marcel P. Bergeron, extensive pumping was undertaken in the 1970s and 1980s to contain a dissolved nitrogen spill and prevent contaminated groundwater from impacting the municipal water supply wells. Some of the wells that were pumped at rates as high as 10 million gallons per day included wells located adjacent to the southwest boundary of the Site. During this pumping, a 20 ft. to 30 ft. deep cone of depression was created. The continuous pumping has stopped and water levels have since returned to pre-pumping levels. It is suspected that the extensive pumping that occurred in proximity of the Site may have contributed to the vertical distribution of the petroleum-impact identified in test borings at the Site such as the more than 25 ft. of petroleum impact identified in test boring TB-106a.

The depth to groundwater at the Site varies seasonally. The groundwater elevations ranged from about 2.3 ft. (MW-G) to about 2.5 ft. (MW-A) lower during the November 5, 2014 sampling event than they were during the groundwater level measurements collected on July 10, 2014. The groundwater elevations ranged between about 1411.8 ft. (MW-F) and 1412.7 ft. (MW-C) on July 10, 2014 and between about 1409.3 ft. (MW-F) and 1410.3 ft. (MW-C) on November 5, 2014. These groundwater elevations represent depths to groundwater ranging between about 13.9 ft. bgs and 17.2 ft. bgs on July 10, 2014, and ranging between about 16.0 ft. bgs and 19.6 ft. bgs on November 5, 2014.

The average of the ”slug in” and “slug out” hydraulic conductivities measured in monitoring wells MW-B, MW-C and MW-K (i.e., located adjacent to the Site on property to the south) ranged between 1.63 ft/day or 5.75×10^{-4} cm/sec and 3.73 ft./day or 1.31×10^{-3} cm/sec. These values are consistent with the generalized soil permeability values ranging between 0.6 inches/hour and 6 inches/hour presented in Zarriello and Reynolds 1987.

Based upon measurements made at various times during this study, the average hydraulic gradient between the monitoring wells installed at the Site ranged between about 0.001 ft/ft and 0.002 ft/ft. Using the range of calculated hydraulic conductivities and average horizontal gradients and an estimated porosity of 0.3 (i.e., as referenced in <u>Groundwater</u>, by R. Allan Freeze & John A., Cherry, 1979), groundwater flow at the Site was calculated to range between about 0.0054 ft./day and 0.025 ft./day.

Groundwater contour maps developed for measurements taken on July 10, 2014 and November 5, 2014 are presented as Figure 8 and Figure 9, respectively.

4.5 Demography, Land Use and Water Use

The Site is located in the City of Olean, Cattaraugus County, New York. According to the 2010 census listed by the U.S. Census Bureau, the City of Olean had a population of 14,452 and the population of Cattaraugus County was reported as 80,317.

The Site (tax parcel 94.040-1-3) is zoned I (industrial). A portion of the Site is currently used as a parking lot for vehicles of employees of the manufacturing facility located on the adjacent property to the southeast (i.e., 211 Franklin Street). The adjacent properties to the east (i.e., currently utilized as a baseball field) and southeast (i.e., 211 Franklin Street) are also zoned I (industrial), with properties zoned R-3 (Residential) beyond to the east. The properties to the west, southwest, and north (i.e., beyond the railroad track ROW and interstate I-86 ROW abutting the Site) are also zoned I (industrial). The Site is not currently serviced by a public water system or public sanitary sewer systems.

The City of Olean obtains drinking water from groundwater supply wells located on Richmond Avenue (Well Site M18, which produced 278 million gallons of water in 2013), East River Road (Well Sites M37/M38, which produced 325 million gallons of water in 2013), and from Olean Creek (296 million gallons of water were obtained from this location in 2013). The water intake for Olean Creek is located at the River Street water treatment plant, approximately 2,500 ft. east of the Site, and hydraulically upgradient of the Site. Well Site M18 is located about 2.3 miles southeast of the Site (i.e., beyond Olean Creek), and Well Sites M37/M38 are located about 2.45 miles southeast of the Site (i.e., beyond the confluence of Olean Creek and the Allegheny River).

5.0 REMEDIAL INVESTIGATION FINDINGS

The section presents and discusses the findings of this study and the results of the testing completed. Based upon these findings, contaminants of concern (COC) are identified. Where applicable, test results are compared to SCG values.

5.1 Geophysical Survey Results

As shown on Figure 3a through Figure3c, geophysical anomalies designated G through P were identified during the geophysical survey. Geophysical anomalies G and L are located outside of the Site boundaries, and therefore were not further evaluated for this study. The following is a summary of the subsurface conditions encountered in the test pits/test borings completed in areas of geophysical anomalies:

- Test boring TB-101 was advanced to an approximate depth of 12 ft. bgs in the area of geophysical anomaly H. Fill materials consisting of a sandy matrix with lesser amounts brick, concrete, and coal fragments were encountered in this test boring starting below a covering of asphalt pavement, and extending to a depth of approximately 1.0 ft. bgs. Apparent native soils, consisting of a clayey sand matrix, above a layer of sand and gravel were encountered in test boring TB-101 between approximately 1.0 ft. bgs and the bottom of the test boring. Field evidence of apparent environmental impact was not detected in the samples collected from test boring TB-101, and a sample from this test boring was not submitted for analytical laboratory testing.

- In the area of geophysical anomaly I, a partial tank was encountered during the excavation of test pit TP-13, in an apparent basement of a former building. Portions of the tank sidewalls and bottom were intact, and the top of the tank was cut off and apparently removed prior to the demolition of the former building (i.e., the former building had been demolished into the basement and the tank remnants were filled with C&D type materials). The tank is approximately 10 feet in diameter, and of a silo-type construction (i.e., cylindrical sidewall with a flat-base). The tank was located adjacent to the former foundation wall, so the west sidewall of the tank could not be exposed during the excavation of the test pit TP-13. A concrete basement floor was encountered around the exposed perimeter of the tank, at a depth of approximately 9.5 feet below ground surface. C&D type materials were excavated from within the tank and a thin layer (i.e., less than 0.5 ft. thick) of black, fibrous material was observed coating the bottom of the tank. The base of the tank was approximately 12 feet below ground surface. Attempts to break through the bottom of the tank and the surrounding concrete floor with the excavator were unsuccessful. A sample of the material collected from within the tank was submitted for analytical laboratory testing and elevated concentrations (i.e., exceeding Commercial SCO) of the SVOC PAH benzo(a)pyrene (1.9 ppm), and the heavy metals arsenic (25.2 ppm), barium (606 ppm), and copper (271 ppm) were detected.

- Test pit TP-05 was advanced to an approximate depth of 12 ft. bgs in the area of geophysical anomaly J. Fill material consisting of ballast and cinders, metals pieces (i.e., triangular sheet metal scraps, approximately 0.2 feet in length, and pieces of medium gauge wire), charcoal and brick fragments, and paper, were encountered in this test pit extending to a depth of approximately 1.5 ft. bgs. Apparent native soils, consisting of a sand and gravel matrix, were encountered in test boring TB-105 between approximately 1.5 ft. bgs and the bottom of the test boring. A sample of the fill was submitted for analytical laboratory testing and elevated heavy metal concentrations (i.e., exceeding Commercial SCO) of arsenic (25 ppm), barium (436 ppm), cadmium (16.3 ppm), copper (357 ppm) and lead (1,150 ppm) were detected.

- Test pit TP-04 and test boring TB-106 were advanced to approximate depths of 12 ft. bgs and 20 ft. bgs (respectively) in the area of geophysical anomaly K. Fill material consisting of cinders, ballast and coal fragments, with lesser amounts of sand and/or gravel were encountered in these locations, starting below a covering of topsoil and organic material, and extending to a depth of approximately 1.0 ft. bgs in TB-106 and approximately 2.5 ft. bgs in TP-04. Apparent native soil, consisting of a clayey sand matrix, above a layer of sand and gravel were encountered in these locations below the fill materials and extending to bottom of each test location. Field evidence of apparent environmental impact was not detected in the samples collected from test pit TP-04 or test boring TB-106, and with the exception of arsenic that was detected at a concentration exceeding the Commercial SCO (i.e., 39.8 ppm compared to the Commercial SCO of 16 ppm) in a sample of the fill from test pit TP-04 the detected concentrations were below the Commercial SCO..

- Test pit TP-08 was advanced to an approximate depth of 12 ft. bgs in the area of geophysical anomaly M. A northwest-southeast trending UST was encountered approximately 4 ft. bgs adjacent to the west of a concrete foundation wall in this test pit. This approximate 33 ft. long by 6.5 ft. diameter UST is constructed of steel. An apparent fill port was exposed on the top of the UST and approximately one inch of clear liquid was observed in the base of the UST. This liquid had an apparent rubbing alcohol odor, and a sample of this liquid submitted for analytical laboratory testing contained detectable concentrations of alcohol and acetone. Steel piping in the vicinity of the apparent fill port was apparently disconnected by the excavation activities prior to observation, but the size and orientation of the piping indicate that the apparent fill port piping extended through the adjacent foundation wall.

- Test pit TP-12 was advanced to an approximate depth of 8.5 ft. bgs in the area of geophysical anomaly N. Fill materials consisting of a sandy matrix with lesser amounts brick, wood, gravel and cobbles were encountered in this test boring starting below a covering of asphalt pavement, and extending to a depth of approximately 4.0 ft. bgs. Apparent native soils, consisting of a clayey sand and gravel matrix were encountered in test pit TP-12 between approximately 4.0 ft. bgs and the bottom of the test pit. Field evidence of apparent environmental impact was not detected in the samples collected from test pit TP-12. Only the concentration of benzo(a) pyrene measured in a sample of the fill from this test pit that was submitted for analytical laboratory, was measured at a concentration exceeding the Commercial SCO (i.e., 1.7 ppm compared to a the Commercial SCO of 1 ppm).

5.2 PID Screening Results

The PID screening results measured above soil/fill samples collected during surface soil sampling, advancement of test borings and excavation of test pits are summarized on the logs included in Appendix C. The peak PID readings measured in each of these samples are summarized on the following table.

Sample Location	Peak PID Reading (ppm)	Remarks
Surface Soil SS-01 to SS-13	0.0	
TB-101	0.0	
TB-102	0.0	
TB-103	0.0	
TB-104	PID malfunction	Petroleum odor 24 ft.-28 ft. bgs
TB-105	0.0	
TB-106	0.0	
TB-106a	807 @ 24’-28’ bgs	Petroleum odor
TB-107	415 @ 26.5	Faint petroleum odor
TB-108	No PID measurements 16 ft.-28 ft. bgs	Petroleum odor 23 ft.-28 ft. bgs
MW-A	121 @ 26 ft. bgs	
MW-B	916 @ 23 ft. bgs	Petroleum odor
MW-C	0.0	
MW-D	0.0	
MW-E	0.0	
MW-F	0.0	
MW-G	1385 @ 25 ft. bgs	Petroleum odor
TP-A through TP-J	0.0	
TP-01	0.1 @ 8 ft. bgs	Possible PID drift due to moisture
TP-02	0.3 @ 2 ft. bgs	Possible PID drift due to moisture
TP-03	0.3 @ 0.5 ft. – 3.0 ft. bgs	Possible PID drift due to moisture
TP-04	0.3 @ 0.5 ft. – 3.0 ft. bgs	Possible PID drift due to moisture
TP-05	0.2 @ 11 ft. bgs	Possible PID drift due to moisture
TP-06	0.2 @ 1.5 ft., 8 ft., and 12 ft. bgs	Possible PID drift due to moisture
TP-07	12.1 @ 7.5 ft. bgs	
TP-08	49.7 @ 3 ft. bgs	
TP-09	0.2 @ 12 ft. bgs	Possible PID drift due to moisture
TP-10	0.2 @ 0.5 ft., 1.5 ft., and 4.5 ft. bgs	Possible PID drift due to moisture
TP-11	0.2 @ 12 ft. bgs	Possible PID drift due to moisture
TP-12	17.5 @ 1.5 ft. bgs	
TP-13	0.3 @ 0.5 ft., 3.5 ft., and 9 ft. bgs	Possible PID drift due to moisture

5.3 Surface Soil

As indicated on the sampling logs included in Appendix C, the surface soil observed at the Site generally consists of silty or clayey sand intermixed with gravel fill in some locations. However, coal fragments, brick fragments, cinders, and/or slag, was observed intermixed with reworked soil in several locations. Black discoloration of the surface soil was noted in samples SS-05, SS-08 and SS-11.

As shown on Table 3a, with the exception of an estimated concentration of acetone in surface soil sample SS-05 (i.e., 0.056 ppm) VOCs were not detected at concentrations exceeding Unrestricted Use SCO in the surface soil samples tested. Only surface soil sample SS-01 contained detectable concentrations of VOC tentatively identified compounds (TICs). The VOC TICs in SS-01 were 0.0199 ppm.

As shown on Table 3b, various SVOCs generally consisting of polyaromatic hydrocarbons (PAHs), were detected in each of the surface soil samples (i.e., SS-01 through SS-11). The concentrations of the following PAH SVOCs exceeded their respective Unrestricted Use SCO in one or more surface soil samples: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene. The concentrations of the following PAH SVOCs also exceeded their respective Commercial Use SCO in the samples listed:

- benzo(a)anthracene: SS-09;
- benzo(a)pyrene: SS-01, SS-02, SS-03, SS-04, SS-06, and SS-10;
- benzo(b)fluoranthene: SS-09, and SS-10;
- dibenzo(a,h)anthracene: SS-04, SS-09, and SS-10; and
- indeno(1,2,3-cd)pyrene: SS-09.

Note: SVOCs were not detected at concentrations exceeding the Unrestricted Use SCO or Commercial Use SCO in surface soil samples SS-05, SS-07, SS-08 and SS-11. TCL SVOCs were not detected at a cumulative concentration exceeding the Commercial Use SCO for total SVOCs of 500 ppm. SVOC TICs were measured in each of the surface soil samples tested at concentrations ranging between 9.5 ppm (SS-05) and 29.52 ppm (SS-06).

As shown in Table 3c, one or more pesticide/herbicide and/or PCB compounds were detected in each surface soil sample, except SS-09. The concentrations of the following pesticide/herbicide and/or PCB compounds exceed their respective Unrestricted Use SCO in one or more surface soil samples: 4,4´-DDE, 4,4´-DDT, aldrin, and PCBs in samples collected from locations SS-02, SS-03, SS-05, SS-06, and SS-08. However, the pesticide/herbicide and PCB compound concentrations reported in these surface soil samples do not exceed the Commercial Use SCO.

As shown in Table 3d, various metals were detected in each surface soil sample tested (i.e., SS-01 through SS-11). The concentrations of the following metals exceed their respective Unrestricted Use SCO in one or more surface soil samples: arsenic, copper, lead, mercury, nickel, selenium, and zinc. The concentrations of arsenic in surface soil samples SS-01, SS-03, SS-05 and SS-08, also exceed the Commercial Use SCO.

Note: Metals were not detected at concentrations exceeding the Unrestricted Use SCO or Commercial Use SCO in surface soil samples SS-04, SS-06, and SS-09.

Surface soil samples containing concentrations of constituents that exceed Commercial Use SCO are shown on Figure 10.

5.4 Soil/Fill

As shown on Table 4a, various VOCs were detected in the subsurface soil/fill samples tested. However, only the concentrations of acetone exceed their respective Unrestricted Use SCO in four of the 21 subsurface soil/fill samples tested [i.e., TP-02 (2.5’), TP-11 (2-3’), TP-12 (2.5’) and TP-13 (12’)]. The concentrations of VOCs reported in the subsurface soil/fill samples do not exceed the Commercial Use SCO. VOC TICs were measured in nine of the 21 subsurface/soil/fill tested, but only the samples from the following locations contained VOC TIC concentrations exceeding 1 ppm:

- MW-G (3’) 21.7 ppm;
- TB-104 (8-10’) 2.73 ppm;
- TB-106a 1.096 ppm; and
- TB-07 (24’) 66.7 ppm;

As shown on Table 4b, various SVOCs and/or SVOC TICs were detected in each of the 30 subsurface soil/fill samples tested for SVOCs. The concentrations of the following SVOCs exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples tested: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and phenol. The concentrations of the following PAH SVOCs also exceed their respective Commercial Use SCO in the samples listed:

- benzo(a)anthracene: TP-D (8'), TP-G (2') North, TP-G (2') South, and TP-I (5");
- benzo(a)pyrene: TP-A (3'), TP-D (8'), TP-G (2') North, TP-G (2') South, TP-I (5"), TP-J (2'), TP-01 (2'), TP-02 (2.5'), TP-11 (2-3'), TP-12 (2.5'), TP-13 (9'), and TP-13 (12');
- benzo(b)fluoranthene: TP-D (8'), TP-G (2') North, TP-G (2') South;
- chrysene: TP-I (5");
- dibenzo(a,h)anthracene: TP-G (2') North, TP-G (2') South, TP-J (2'), TP-01 (2'), TP-02 (2.5'), and TP-11 (2-3'); and
- indeno(1,2,3-cd)pyrene: TP-D (8'), TP-G (2') North, and TP-G (2') South.

TCL SVOCs were not detected at a cumulative concentration exceeding the Commercial Use SCO for total SVOCs of 500 ppm. SVOC TICs were measured in each of the subsurface soil/fill samples tested at concentrations ranging between 3.19 ppm [TB-106 (20’)] and 1,708 ppm [TP-I (5’)].

As shown on Table 4c, various pesticide/herbicide and/or PCB compounds were detected in the subsurface soil/fill samples tested. The concentrations of the following pesticide/herbicide compounds exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, and PCBs. The concentrations of pesticide/herbicide and PCBs reported in the subsurface soil/fill samples do not exceed the Commercial Use SCO.

As shown on Table 4d, various metals were detected in each of the 28 subsurface soil/fill samples tested. The concentrations of the following metals exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples: arsenic, barium, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, and zinc. The concentrations of the following metals also exceed their respective Commercial Use SCO in the samples listed:

- arsenic: MW-G(3'), TP-A (3'), TP-G (2') North, TP-G (2') South, TP-03 (6'), TP-04 (1'), TP-05 (1'), TP-07 (3'), TP-08 (3'), and TP-13 (12');
- barium: TP-05 (1'), TP-07 (3') and TP-13 (12');
- cadmium: TP-05 (1');
- copper: TP-05 (1') and TP-13 (12'); and
- lead: TP-05 (1'), and TP-07 (3').

Subsurface soil/fill samples containing concentrations of constituents that exceed Restricted Commercial Use SCO are shown on Figure 10.

5.5 Groundwater

As shown on Table 5a and Table 5b, VOCs and SVOCs were not detected in the groundwater samples tested at concentrations exceeding groundwater standards or guidance values during either of the sample rounds completed during this study. However, VOC TICs were identified in samples from each of the monitoring wells during at least one of the sample events completed during this study, ranging between 6.3 ug/l or ppb (MW-B) and 201.9 ug/l or ppb (MW-G). Total VOC TIC concentrations in excess of 100 ug/l or ppb were reported in both samples collected from MW-G. SVOC TICs ranging between 4.6 ug/l or ppb (MW-D) and 105 ug/l or ppb (MW-G) were identified in samples from each of the monitoring wells during both sample events completed during this study. Total SVOC TIC concentration is excess of 100 ug/l or ppb were reported in the sample collected on June 26, 2014 from MW-G. As shown on Table 5c, pesticide/herbicide and PCB compounds were not detected in the groundwater samples tested at concentrations greater than the quantitation limits reported by the analytical laboratory.

As shown on Table 5d, various metals were detected in groundwater samples MW-A through MW-G. The concentrations of the following metals measured during at least one of the sample events completed during this study exceed their respective groundwater standards or guidance values in the wells listed below:

- antimony: MW-C;
- arsenic: MW-D;
- barium: MW-D;
- iron: MW-A. MW-B, MW-C, MW-D, and MW-G;
- manganese: MW-A. MW-B, MW-C, MW-D, MW-E, MW-F, and MW-G;
- selenium: MW-A. MW-C, and MW-D; and
- sodium: MW-A. MW-B, MW-C, MW-D, MW-E, MW-F, and MW-G.

Although the concentrations of iron, manganese and sodium exceeded their respective groundwater standards or guidance values, the concentrations measured are typical of background conditions and, as such, apparently not attributable to contaminants at the Site. The concentrations of antimony and selenium that exceeded groundwater standards were only measured during one of the sample events completed during this study. However, the concentrations of arsenic and barium measured above groundwater standards were detected in the samples collected from monitoring well MW-D during each sample event completed during this study. The arsenic concentrations detected in samples from monitoring well MW-D (i.e., 31.5 ug/l and 63.4 ug/l) were approximately six and twelve times (respectively) higher than the average of arsenic concentrations detected in the other wells sampled, and about 50% and 150% (respectively) higher than the groundwater standard of 25 ug/l. The barium concentrations detected in samples from monitoring well MW-D (i.e., 1,530 ug/l and 2,490 ug/l) were approximately five and eight times (respectively) higher than the average of barium concentrations detected in the other wells sampled, and about 50% and 150% (respectively) higher than the groundwater standard of 1,000 ug/l.

5.6 Utilities

A 3-inch diameter high pressure natural gas line that formerly serviced the adjacent property to the southeast (i.e., 211 Franklin Street) is located on the southeast corner of the Site. This high pressure gas line was de-activated in 2014, and a small shed that was formerly located at the southeast corner of the site, and housed a gas meter/valve system, was demolished and the meter/valve system was re-configured and buried underground. This high pressure gas line, while currently inactive, is still in place, trending northeast-southwest and crossing under approximately 50 ft. of the southeast edge of the Site before turning to the southeast and crossing under the Franklin Street ROW.

A 110-volt electrical connection that originates in the 211 Franklin Street Facility and crosses under the Franklin Street ROW is located below the paved parking lot on the Site. This electrical connection is used for overhead lighting located in the southwest portion of the parking lot.

No other buried utilities were identified at the Site. Catch basins for the City of Olean storm sewer and sanitary sewers are located within the Franklin Street ROW, located adjacent to the southeast of the Site.

5.7 Data Usability Summary

The information presented in the DUSRs described in Section 3.8 and included in Appendix F was used to adjust the analytical laboratory data as appropriate. These adjustments are incorporated into the summary tables presented in this document.

5.8 Contaminants of Concern

Based upon the work completed to date, the contaminants of concern (COC) identified within the media in excess of Commercial Use SCO and/or other applicable SCGs applicable to the proposed future commercial use of the Site are presented below.

Surface Soil

- PAHs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene

- Metals: arsenic

Note: COC in the surface soil is based on the presence of constituents in one or more samples tested that had concentrations that exceeded the Commercial Use SCO.

Soil/Fill

- PAHs: benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene

- Metals: arsenic, barium, cadmium, copper and lead

Note: COC in the subsurface soil is based on the presence of constituents in one or more samples tested that had concentrations that exceeded the Commercial Use SCO.

Groundwater

- Metals: arsenic and barium and potentially antimony and selenium

Note: The groundwater in the western portion of the Site is impacted with petroleum that originated from an off-site location. This impact is generally characterized by elevated PID readings, petroleum odors, stained soil and elevated concentrations of VOC and SVOC TICs. The petroleum-impacted groundwater does not degrade further as it migrates across the Site, suggesting that the Site is not contributing to the further degradation of the groundwater with regard to petroleum-impact. As such, petroleum-impact and VOC/SVOC TICs are not identified as a COC for the Site.

6.0 CONTAMINANT FATE AND TRANSPORT

This section includes an evaluation of the fate and transport of the COC identified for the Site including identifying potential routes of migration, contaminant persistence and contaminant migration patterns.

6.1 Potential Routes of Migration

Potential routes of migration for the COC identified for this Site include:

- transport of impacted soil/fill via fugitive dust generation;
- transport of impacted soil/fill via surface water runoff;
- leaching from the soil into the groundwater through infiltration of stormwater and/or contact with groundwater; and
- migrating via groundwater flow.

Approximately 35% of the Site is covered with the asphalt parking lot. As such, unless the asphalt cover is penetrated during construction activity, the only soil/fill impacted with COC that is subject to migration via fugitive dust generation is located in the approximate 65% of the Site outside of the asphalt parking lot. In addition, the approximate 65% of the Site outside of the area covered by asphalt parking lot is potentially susceptible to transport of COC-impacted soil/fill via surface water runoff. The potential for such transport is considered low given the relatively flat topography of the Site, groundcover, permeability of the soils, and the relative distance to nearest 100-year floodplains for Olean Creek (i.e., approximately 2,200 ft. southeast of the Site) and the unnamed creek associated with Two Mile Creek (i.e., approximately 400 ft. north of the Site at its nearest point).

Surface soil and fill in localized areas of the Site extending to a depth of up to approximately 11 ft. bgs contains COC. Potential routes of migration for COC-impacted soil/fill present above the top of groundwater are primarily restricted to those areas currently outside of the footprint of the asphalt parking lot where precipitation infiltrating into the COC-impacted soils could potentially leach/transport these COC into the groundwater. With the possible exception of several heavy metals (e.g., arsenic and barium and potentially antimony and selenium), COC identified in the soil/fill was not detected in the groundwater at elevated concentrations and, as such, does not appear to represent a migration pathway attributable to conditions at the Site. [Note: The soil in proximity of the groundwater table (i.e., typically detected at depths between 18 ft. and 23 ft. bgs) in locations generally positioned in the approximate western one-third of the Site contains elevated PID readings and several petroleum-related VOCs and SVOCs apparently associated with petroleum contamination migrating onto the Site and not contamination attributable to the Site. As such, leaching of petroleum-related impacts in the soil into the groundwater is not considered a migration pathway attributable to the Site.]

Groundwater flows to the east-southeast across and off the Site, and COC dissolved within the groundwater may be transported across the Site via this pathway. The groundwater in the western portion of the Site is impacted with petroleum-related VOCs and SVOCs. In addition, elevated PID readings were obtained on the soil in proximity of the groundwater in this area of the Site. However, the source of this petroleum-impact is from locations hydraulically upgradient of the Site, and the petroleum-impact does not degrade further as it migrates through and off the Site. Thus in accordance with DER-10 Section 4.1(d)4.iii where an off-site source of groundwater contamination was identified with no on-site source or contribution the remedial party will "…have no remedial responsibilities with respect to such groundwater contamination migrating under the site" except for the following items listed in DER-10 Section 4.1(d)4.iii(2)B: "develop and evaluate remedial alternatives which eliminate or mitigate on-site environmental impacts or human exposures, to the extent feasible, resulting from the off-site contamination entering the site"

The only COCs detected in the dissolved groundwater that do not appear attributable to off-site sources and/or background/naturally occurring groundwater conditions are arsenic and barium; and potentially selenium and antimony. Arsenic and barium were detected during each sample round at concentrations exceeding SCGS in samples collected from monitoring well MW-D. Antimony in monitoring well MW-C and selenium in samples collected from monitoring wells MW-A, MW-C and MW-D were detected at concentrations exceeding SCGS during one of the sample events conducted at the Site. In each case, an apparently localized source area, as opposed to a Site-wide contaminant plume, is indicated. [Note: Antimony and selenium were detected at concentrations exceeding SCGS in samples collected during the first sample round conducted in June 2014, but not the second sample round conducted in November 2014. As such, it is unknown if these metals are present at concentrations in the groundwater that represent a concern.] Although transport of COC attributable to the Site is a relevant migration pathway, the Site and surrounding area are serviced by municipal water systems and potable supply wells were not identified in proximity of the Site. As such, it is not expected that groundwater impacted with COC would reach receptors.

6.2 Contaminant Persistence

The COC attributable to the Site includes organic constituents (e.g., SVOCs), and various metals. The persistence of these constituents is further discussed in this section.

<u>Organic Constituents</u>

The SVOCs detected in the soil/fill are likely attributable to cinders, ash, coal etc. associated with railroad ballast and combustion engine byproducts/exhaust. The majority of SVOCs detected in the soil/fill are considered PAHs. The SVOCs encountered at the Site biodegrade aerobically and anaerobically. These SVOCs in an aqueous setting will biodegrade faster under aerobic conditions when compared to biodegradation rates under anaerobic conditions.

In addition to biodegradation, SVOC concentrations in the soil/fill would presumably decrease as the distance from the source area is increased due to processes such as advection, dispersion, sorption, diffusion, etc. The analytical laboratory test results for samples collected in proximity of former railroad lines as part of this study appear to support this presumption. Specifically, higher concentrations of PAHs were typically detected in samples collected in areas of former railroad spur lines compared to locations away from the spur lines.

Inorganics

Various metals were detected in samples of surface soil, subsurface soil, subsurface fill, and groundwater. Some of the metals detected may be associated with contamination from past uses of the Site, and other metals may be associated with naturally occurring concentrations of metals in soil or groundwater for the area of the Site. Metals can change form (e.g., Fe^{+2}, Fe^{+3}), but are persistent in the environment and do not degrade. Some of the metals detected at the Site can bioaccumulate.

The metals arsenic, barium, cadmium, copper and lead, were detected in one or more soil/fill sample at concentrations that exceeded the Commercial Use SCO. The metals arsenic and barium and potentially antimony and selenium were detected in groundwater samples that exceed SCGs TOGS 1.1.1 groundwater standards or guidance values.

Processes such as advection, dispersion, sorption, diffusion, etc. can result in decreases in metals concentrations dissolved in groundwater as the distance away from their source is increased.

6.3 Exposure Pathways

The most-likely exposure pathways through which COC at the Site could potentially migrate to other areas/media include fugitive dust emissions from when impacted soil/fill is disturbed. To a lesser extent, transport of impacted soil/fill via surface water runoff, leaching of COC attributable to the Site and migration via groundwater transport (including potential soil vapor impacts related to discharges from groundwater impacted with petroleum-related VOCs migrating onto the Site) are also considered potential exposure pathways.

These exposure pathways will be addressed by the remedial activities identified in Section 9.0. Depending on the cleanup track implemented, an Environmental Easement that will restrict groundwater use as a potable source, and the development and implementation of a SMP that will outline procedures for handling material that is impacted with COC or unanticipated contaminants that may be encountered during future construction activities.

7.0 EXPOSURE ASSESSMENT

The results of the qualitative human health exposure assessment and the fish and wildlife impact assessment conducted for the Site are presented in this section.

7.1 Qualitative Human Health Exposure Assessment

This qualitative human health exposure assessment includes a characterization of the exposure setting (including the physical environment and potentially exposed human populations); identification of exposure pathways; and evaluation of fate and transport for the COC at the Site.

7.1.1. Potential Receptors

The identification of potential human receptors is based on the characteristics of the Site, surrounding land uses, and currently anticipated future land uses. Under current and future use conditions receptors at the Site would include adult site workers and construction workers that would be responsible for such activities as utility repairs or other construction activities that could encounter potentially impacted media. The Owner is considered a Volunteer under the BCP, and as such not responsible for the evaluation or remediation of offsite impacts. However, for purposes of this qualitative human health risk assessment impacts present at the Site that have the potential to migrate to off-site receptors were evaluated. These media include soil impacted with COC, groundwater that contains petroleum-impact associated with an upgradient source relative to the Site and select metals that may or may not have originated at the Site (e.g., arsenic, barium, etc.).

7.1.2. Exposure Pathways

According to NYSDEC DER-*10 Technical Guidance for Site Investigation and Remediation* (DER-10) dated May 3, 2010 (Appendix 3B NYS DEC of Health Qualitative Human Health Exposure Assessment); an exposure pathway is "the means by which an individual may be exposed to contaminants originating from a site." An exposure pathway is comprised of the following components:

1. a contaminant source;
2. contaminant release and transport mechanisms;
3. point of exposure;
4. route of exposure; and
5. receptor population.

Each element is described below as it pertains to the Site:

- <u>Contaminant Source</u>: The contaminant sources identified vary by media and location (i.e., including upgradient off-site source areas that impact the Site). The identified COC are described in Section 5.0, but generally the primary constituents include SVOCs and metals in surface soil, SVOCs plus TICs, metals and petroleum-related constituents in subsurface soil, VOC TICs, SVOC TICs and metals in groundwater.

- Contaminant release and transport mechanisms: Contaminant release and transport mechanisms are specific to the type of contaminant and the use of the Site. For the non-volatile constituents present in exposed soil/fill, release mechanisms generally include fugitive dust migration and direct contact. In locations where impacted soil/fill is covered (e.g., beneath the asphalt parking lot), direct contact during construction activities is the only viable release mechanism for non-volatile constituents in the soil/fill. The groundwater contains petroleum impact that has migrated onto the Site and that does not degrade further as it migrates across and off the Site. Several metals detected in the groundwater (e.g., arsenic and barium) appear attributable to past operations at the Site and in localized areas these constituents migrate through the groundwater

- Point of exposure: Potential human contact with a contaminated medium may occur through contact with soil impacted with COC during future excavation activities, and/or contact with groundwater containing COC at concentrations that exceed SCG. However due to the depth of groundwater (i.e., 13.6 ft. bgs to 19.6 ft. bgs depending on season and location) and the fact that drinking and process water in proximity of the Site is obtained from a municipal source, exposure to groundwater containing COC is considered to be unlikely.

- Routes of exposure: The route of exposure for residual soil containing concentrations of COC exceeding SCG would be dermal contact with these soils and inhalation of dust generated during potential future excavation activities. The asphalt and vegetative cover currently covering the majority of the ground surface at the Site precludes incidental human contact so this route of exposure is not anticipated unless COC impacted soil is encountered during future construction activities (e.g., redevelopment or utility repairs) or trespassers enter the Site and contact exposed fill material impacted with COC. In addition, COC exceeding SCG was identified in some locations within the surface soil. As such, dermal contact and inhalation would remain potential route of exposure if these areas are disturbed.

  A route of exposure for groundwater impacted with COC at the Site is not anticipated since groundwater beneath the Site is not used as a potable source or as part of an industrial process. Groundwater impact from petroleum-related constituents that have migrated through the Site and metals that may be related to both on-site and off-site impacts to off-site locations is possible if groundwater is used by downgradient receptors. However, since a municipal source of potable water is available off-site groundwater impact is not considered a likely route of exposure.

- Receptor population: The receptor population includes:

  - Construction workers that may enter buried utility confined spaces, or disturb soil/fill containing concentrations of COC that exceed SCG as part of their work.
  - Since access to the Site is not restricted, trespassers may enter the Site and contact material impacted with COC

7.1.3. Exposure Assessment Summary

This human health exposure assessment identified the following potential exposure scenarios attributable to conditions at the Site:

- Future workers could be exposed to COC present in soil/fill at concentrations exceeding SCGs via direct contact and inhalation. These exposures could occur during construction activities, while assessing buried utility confined spaces, etc.
- Until remediated, Site workers and trespassers could be exposed to surface soil and exposed fill material containing COC at concentrations exceeding SCGs via direct contact.
- The adjacent population could be exposed to fugitive dust containing COC at concentrations exceeding SCGs when surface soil in exterior portions of the Site is disturbed.
- Future potential use of groundwater could pose a potential exposure pathway to COC that are present in groundwater at concentrations exceeding SCGs.
- Future Site occupants could be exposed to COC present in the soil vapor at concentrations exceeding SCGs via inhalation. These exposures could occur after construction activities are complete and during building occupancy via soil vapor intrusion.

7.2 Fish and Wildlife Resources Impact Analysis

A copy of a completed Fish and Wildlife Resources Impact Analysis (FWRIA) Decision Key is included in Appendix G. The findings of the site investigation completed during this study were used to assist in completing the FWRIA Decision Key. The results of the FWRIA Decision Key suggest that a review of Section 3.10.1 of NYSDEC DER-10 is required. Based on this review , it was concluded that no FWRIA is needed since the data indicates that the COC identified for this Site are not migrating into, or otherwise impacting, on-site or off-site habitats of endangered, threatened or special concern species, or other fish and wildlife resources. As described previously in this report, the Site contains soil and groundwater impacted with concentrations of COC that exceed SCG, however, the data generated during this RI does not demonstrate that migration of COC is impacting surface water or sediments within the nearest surface waters, which are located approximately 2,400 ft. east-southeast (Olean Creek) and 750 ft. north (Two Mile Creek, which is intermittingly connected to an unnamed creek) of the Site. Also, the Site is not within or near an area with rare plants, rare animals and/or significant natural communities. While the site is currently overgrown with field type grasses, weeds, and small trees, it was previously developed for industrial use, and is surrounded by property developed and/or zoned for industrial use or by transportation (i.e, railroad and highway) corridors.

8.0 REMEDIAL ALTERNATIVES ANALYSIS

This section presents an analysis of remedial alternatives and describes the recommended remedial approach using the Remedy Selection Evaluation Criteria outlined in Section 4.2 DER-10. Per DER-10, the following alternatives, as defined in 6 New York Codes, Rules and Regulations (NYCRR) part 375, were evaluated to address COC impact based on cleanup tracks defined by the NYSDEC.

Track 1-Unrestricted Use: The Site can be used for any purpose without restrictions and land/groundwater use restrictions or institutional controls (IC/EC) cannot be employed to obtain remedial action objectives. [Note: A BCP Volunteer who has acted to reduce groundwater contamination to an asymptotic level, and otherwise conforms to Track 1 may employ groundwater use restrictions.] The soil cleanup must achieve the Unrestricted Use criteria at any depth above bedrock.

Track 2-Restricted Commercial Use: Under this scenario, land and groundwater use restrictions are allowed, but IC/ECs can not be relied upon to prevent exposures and obtain remedial action objectives.

Track 4-Restricted Commercial Use: Under this scenario, land use and groundwater restrictions are allowed and IC/ECs can be implemented to prevent exposures to soil contamination. Contaminated soil/fill containing concentrations that exceed applicable SCOs must be covered with the equivalent of one foot of "clean" soil/fill.

8.1 Remedial Action Objectives

The site-specific Remedial Action Objectives (RAOs) for the proposed remedial actions assume the Site will be used for commercial purposes as outlined in the BCP application, and that applicable SCGs will be achieved. These RAOs will include the following:

Groundwater

Public Health Protection

i. Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
ii. Prevent contact with, or inhalation of petroleum-related volatiles, emanating from contaminated groundwater that is migrating onto the western portion of the Site.

Environmental Protection

i. Restore the groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable for contaminants that may be attributable to the Site
ii. Prevent the discharge of contaminants to surface water.
iii. Remove the source of groundwater contamination that may be attributable to the Site.

Soil/Fill

Public Health Protection

i. Prevent ingestion/direct contact with contaminated soil.
ii. Prevent inhalation of and exposure to, contaminants volatilizing from soil.

Environmental Protection

i. Prevent migration of contamination that would result in impacts to surface water or groundwater.
ii. Prevent impacts to biota via ingestion or direct contact with contaminated soil that would result in toxic conditions or impacts from bioaccumulation through the terrestrial food chain.
iii.

Soil Vapor

Public Health Protection

i. Mitigate impacts to public health resulting from potential soil vapor intrusion into future buildings at the Site.

8.1.1. Contaminants of Concern

The COC vary by the media impacted and the soil cleanup track utilized. However, the COC for the Site generally include PAH SVOCs and the metal arsenic in the surface soil; PAH SVOCs and metals in soil/fill, and metals in the groundwater. The COC applicable to the cleanup tracks evaluated are presented in Section 8.4.1 Unrestricted Use Alternative, 8.4.2 Track 2-Restricted Commercial Use Alternative, and Section 8.4.3 Track 4-Restricted Commercial Use Alternative.

8.1.2. General Response Actions

The general response actions to address the identified contamination at the Site can include one or more of the following: treatment, containment, excavation, extraction, disposal, environmental engineering controls, and institutional controls. Potentially applicable remedial technologies to address the media impacted with COC at the Site are discussed below. [Note: During ground intrusive activities that have the potential to encounter COC, a community air monitoring program will be implemented in accordance with DER-10 requirements.]

- Bioremediation is moderately effective at treating soil/fill impacted with PAH SVOCs. This includes the introduction of nutrients to increase naturally occurring microbe populations that will biodegrade various organic constituents. Microbe populations can also be augmented by introducing additional microbes supplemented with nutrients. However, bioremediation is not an effective method for treating soil/fill impacted with metals.

- In-situ chemical oxidation is an advanced oxidation process used to reduce contaminant concentrations of organic contaminants (such as PAH SVOCs) by injecting strong chemical oxidants into the contaminated soil/fill. Chemical oxidation is a relatively rapid treatment process, but it requires careful planning and monitoring to control the injection process and maximize its effectiveness. Chemical oxidation is generally not an effective method to treat metals impacted soil/fill.

- Soil vapor extraction is an in-situ technology that only has some effect in the treatment of soil/fill impacted with PAH SVOCs, and is not an effective method of treating soil/fill impacted with metals.

- Solidification and stabilization is a widely used treatment technology to reduce/mitigate migration and exposure of contaminants in soil/fill and other media. Solidification refers to a process that binds a contaminated media with a reagent and stabilization refers to the process that involves a chemical reaction that reduces the leachability of the waste. The suitability and effectiveness of solidification and stabilization is dependent on the nature of the waste materials and subsurface conditions. Bench scale testing is generally required to determine specific admixtures required (e.g., proportion of lime, cement, etc.). Stabilization and solidification is an effective method for soil/fill impacted with PAH SVOCs and metals.

- Excavation and disposal is an effective method to address soil/fill at the Site that is impacted with PAH SVOCs and metals. This method requires the use of excavation equipment to physically remove impacted soil and transport the material to an off-site location for disposal. The extent of excavation required depends on field screening and confirmatory testing to assure soil/fill containing concentrations exceeding SCO is removed. Depending on the depth of excavation, precautions are required to stabilize the excavation (i.e., shoring and potentially dewatering of the exaction) to prevent cave-in and protect buried utilities if present in the area of the excavation.

- Environmental engineering controls and institutional controls are generally only applicable to the Track 4-Restricted Commercial Cleanup Use option, and these include physical barriers (e.g., the existing asphalt pavement, possible sections of existing floor slabs from demolished buildings, installation of asphalt pavement, placement of a "clean" soil layer, etc.) to restrict access to soil/fill containing concentrations that exceed the Commercial Use SCO. Institutional controls are non-physical means of enforcing a restriction on the use property impacted with COC. Such actions would include the development of an environmental easement to control the future use of the property, development of a Site Management Plan (SMP) that would outline procedures for the handling of impacted soil if encountered in the future, etc.

General response actions to address the identified contamination in groundwater can include one or more of the following: treatment, containment, extraction, disposal, environmental engineering controls, institutional controls, and monitored natural attenuation. The response actions are primarily evaluated for application in addressing groundwater contamination deemed attributable to the Site (i.e., metals particularly arsenic and barium, and potentially antimony and selenium) that exceeds NYSDEC TOGS 1.1.1 groundwater standards or guidance values.

Potentially applicable remedial technologies to address groundwater at the Site that is impacted with COC are discussed below. [Note: During ground intrusive activities that have the potential to encounter COC, a community air monitoring program will be implemented in accordance with DER-10 requirements.]

- Monitored natural attenuation (MNA) relies on natural biological and physiochemical processes that are controlled and monitored in conjunction with other cleanup actions (e.g., remediation of soil/fill impacted with COC) to achieve RAOs. Natural attenuation processes include a variety of physical, chemical and biological processes that can reduce mass, toxicity, mobility, volume and concentration of contaminants in the groundwater. Long-term monitoring is required to document the treatment process. MNA is generally considered effective for PAH SVOCs, but its effectiveness on addressing groundwater impacted with metals is largely dependent on the degree that the soil/fill remediation has reduced/eliminated contaminant loading.

- In-situ bioremediation of groundwater is similar to the bioremediation processes used to treat soil/fill, and its effectiveness can be increased by adding microbes if required. In-situ bioremediation is moderately effective in treating PAH SVOCs, but it is not an effective method in the treatment of groundwater impacted with metals.

- In-situ chemical oxidation involves the injection of chemical oxidants into the groundwater plume to oxidize/destroy COC. This method is effective in the treatment of PAH SVOCs, but it is not particularly effective in the treatment of metals.

- A permeable reactive barrier (PRB) is a continuous barrier constructed to intercept and treat a contaminant plume. The treatment zone can include the placement of zero valent iron (ZVI) to treat and physically limit migration and the PBB can be augmented with carbon releasing material and nutrients to enhance microbe growth. As such, a PRB can provide a combination of physical, chemical and biological treatment. This treatment option is considered effective for the treatment of the PAH SVOCs and metals present at the Site.

- Pump and treat systems physically extract groundwater for aboveground treatment. The treatment system required depends on the nature of the contamination, but it could include a combination of filters and granular activated carbon to treat groundwater impacted with PAH SVOCs and metals. The treated groundwater can be disposed off-site (e.g., into the municipal sewer system) or injected into the contaminated groundwater zone to assist in the flushing of the contaminants to expedite the treatment process.

- An air sparging system that includes the injection of air or oxygen enhanced air into the groundwater is an in-situ treatment process that serves to enhance microbe growth to biologically treat the groundwater and to physically strip contaminants to allow treatment. This method can be effective in the treatment of PAH SVOCs, but it is generally not effective in the treatment of metals.

General response actions to address the potential contamination in soil vapor can include one or more of the following: treatment, containment, extraction, environmental engineering controls, and monitored natural attenuation. The response actions are primarily evaluated for application in addressing soil vapor contamination that has the potential to exceed applicable NYSDOH guidance values.

Potentially applicable remedial technologies to address soil vapor at the Site that is impacted with COC are discussed below. [Note: During ground intrusive activities that have the potential to encounter COC, a community air monitoring program will be implemented in accordance with DER-10 requirements.]

- An air sparging system that includes the injection of air or oxygen enhanced air into the groundwater is an in-situ treatment process that serves to enhance microbe growth to biologically treat the groundwater and to physically strip contaminants to allow treatment. This method can be effective in the treatment of PAH SVOCs.

- Environmental engineering controls and institutional controls are generally only applicable to the Track 4-Restricted Commercial Cleanup Use option, and these include physical barriers (e.g., the existing asphalt pavement, possible sections of existing floor slabs from demolished buildings, installation of asphalt pavement, placement of a "clean" soil layer, etc.) to restrict access to soil/fill containing concentrations that exceed the Commercial Use SCO and the installation of a SSDS to mitigate potential soil vapor impacts. Institutional controls are non-physical means of enforcing a restriction on the use property impacted with COC. Such actions would include the development of an environmental easement to control the future use of the property, development of a SMP that would outline procedures for evaluation of the potential for vapor intrusion into any future buildings to be constructed on the Site, including requirements to mitigate such potential vapor intrusions through use of environmental engineering controls (e.g., SSDS, etc.), or through other means associated with construction of future buildings in a manner that precludes SVI exposure.

8.2 Standards, Criteria and Guidance

DER-10 describes SCG as; "standards and criteria that are generally applicable, consistently applied, and officially promulgated, that are either directly applicable or not directly applicable but are relevant and appropriate, unless good cause exists why conformity should be dispensed with, and with consideration being given to guidance determined, after the exercise of scientific and engineering judgment, to be applicable. This term incorporates both the CERCLA concept of 'applicable or relevant and appropriate requirements' (ARARs) and the USEPA's 'to be considered' (TBCs) category of non-enforceable criteria or guidance. The most common applicable SCGs are identified on the DEC website identified in the table of contents. For purposes of this Guidance, 'soil SCGs' means the soil cleanup objectives and supplemental soil cleanup objectives identified in 6 NYCRR 375-6.8 and the Commissioner Policy on *Soil Cleanup Guidance* (CP-Soil)".

The SCG values used for this project are discussed in Section 3.6 and presented below:

- Appropriate SCO and other guidance as set forth in 6 NYCRR Part 375-3 Brownfield Cleanup Program dated December 14, 2006.

- Appropriate Soil Cleanup Levels (SCL) and other guidance as set forth in NYSDEC Policy CP-51/Soil Cleanup Guidance dated October 21, 2010.

- Guidelines referenced in the NYSDEC document titled "DER-10 Technical Guidance for Site Investigation and Remediation", May 2010.

- Appropriate water quality standards and guidance values (WQS/GV) as set forth in NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) document titled "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations", June 1998 and amended by a January 1999 Errata Sheet, an April 2000 Addendum and a June 2004 Addendum.

- City of Olean Sewer Use Permit Effluent Standards.

8.3 Future Use Evaluation

The remedial alternatives discussed herein assume that the future use of the Site will be restricted commercial use, which is consistent with zoning of the Site. In addition to the evaluation of remedial alternatives based on the anticipated future use of the Site, the unrestricted use scenario, which is considered under 6NYCRR Part 375-2.8 to represent cleanup to pre-disposal conditions, is also presented herein.

8.4 Alternatives Evaluation

The remedial actions proposed to address residual COC impacts at the Site are outlined in this section. In accordance with the provisions set forth in the DER-10 document, the effectiveness and acceptability of these remedial actions were evaluated for the following criteria, which are consistent with 6NYCRR Part 375-1.8(f).

- <u>Protection of Human Health and the Environment.</u> The ability of the proposed remedial actions to protect public health and the environment, and assesses how risks posed through existing or potential pathways of exposure are eliminated, reduced or controlled.

- <u>Compliance with Standards, Criteria and Guidance (SCG).</u> Compliance with SCG addresses whether or not the proposed remedial actions will meet applicable environmental laws, regulations, standards and guidance.

- <u>Short-Term Impacts and Effectiveness.</u> The potential short-term adverse impacts and risks of the proposed remedial actions upon the community, site workers and the environment during its construction and/or implementation of remedial actions including identified adverse impacts and health risks to the community or workers at the Site, and how such issues will be controlled, and the effectiveness of said controls.

- <u>Long-Term Effectiveness and Permanence.</u> This criterion evaluates the long-term effectiveness of the proposed remedial actions after implementation. The residual COC impact at the Site was assessed for the following items:

- The magnitude of the remaining risks (i.e., Will there be significant threats, exposure pathways, or risks to the community and environment from the remaining wastes or treated residuals?);
- The adequacy of the engineering and institutional controls intended to limit the risk;
- The reliability of the these controls; and,
- The ability of the remedy to continue to meet remedial action objectives in the future.

- Reduction of Toxicity, Mobility and Volume. The ability of the proposed remedial actions to reduce the toxicity, mobility or volume of COC.
- Implementability. The technical and administrative feasibility of implementing the proposed remedial actions. Technical feasibility includes the differences associated with the construction and the ability to monitor the effectiveness of the remedy. Administrative feasibility includes the availability of the necessary personnel and material, as well as, potential differences in obtaining specific operating approvals access for construction, etc.
- Cost Effectiveness. The relative overall cost effectiveness of the proposed remedial actions.
- Planned Future Use of the Site. This criterion is intended to evaluate the proposed remedial alternatives in relation to the planned future use of the Site. Presently, it is anticipated that the future uses of the Site would be commercial and/or industrial.
- Community Acceptance. This criterion is intended to select remedial actions that are acceptable to the community.

8.4.1. Track 1 Unrestricted Use Alternative

Remediation of the Site to pre-existing (i.e., uncontaminated conditions) assumes that soil/fill in locations throughout the Site (i.e., including locations beneath the existing asphalt parking lot) would have to be remediated to achieve Unrestricted Use SCO.

8.4.1.1. Contaminant Analysis

As summarized below, one or more sample tested during this study contained concentrations of the following constituents that exceeded the Unrestricted Use SCO for surface soil and subsurface soil/fill, or TOGS 1.1.1 groundwater standard or guidance value.

Surface Soil

VOCs:	acetone
SVOCs:	benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene
Pesticides/PCBs:	4,4´-DDE, 4,4´-DDT, aldrin, total PCBs
Metals:	arsenic, copper, lead, mercury, nickel, selenium, zinc

Subsurface Soil/Fill

VOCs:	acetone
SVOCs:	benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, phenol, pyrene
Pesticides/PCBs:	4,4'-DDE, 4,4'-DDT, 4,4'-DDD, total PCBs
Metals:	arsenic, barium, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, zinc

Groundwater

VOCs:	none
SVOCs:	none
Pesticides/PCBs:	none
Metals:	antimony, arsenic, barium, iron, manganese, selenium, sodium

In addition, a petroleum-impacted groundwater plume is located beneath the western portion of the Site. This petroleum-impacted groundwater plume originated off-site and evidence was not detected during this study that conditions at the Site contributed to this plume. Groundwater samples from monitoring wells set within the footprint of the petroleum-impacted groundwater plume did not contain TCL VOCs or TCL SVOCs, but samples from these wells did contain concentrations of VOC and SVOC TICs in excess of 5 ppb to more than 100 ppb. In addition, petroleum odors and petroleum sheen were noted at monitoring wells MW-A, MW-B and MW-G during their development. This plume does not have to be remediated under the Unrestricted Use scenario, but monitoring is required to assure that conditions at the Site do not contribute to increasing impact as the plume migrates through the Site. The detected petroleum related contamination may also contribute to the potential for soil vapor intrusion for future on-site buildings that are located in proximity of the petroleum-impacted groundwater plume migrating onto the Site. As such, a soil vapor intrusion evaluation and/or installation of a vapor mitigation system should be conducted for all new buildings constructed on the Site.

8.4.1.2. Remedy Selection

Twelve metals are among the parameters that exceeded Unrestricted Use SCOs. Concentrations of metals in soils/fill can not be effectively reduced through in-situ treatment, and must be physically removed to meet the remedial objective. [Note: Although solidification and stabilization could potentially be an effective remedial option of the soil/fill impacted with metals, the metal concentrations are not sufficiently warranted to consider this option, which would be more than the excavation and removal option presented herein.] As such, source area excavation and removal was selected as part of the Unrestricted Use remedy.

Based on the contaminant analysis summarized in Section 8.4.1.1, it is estimated that source excavation and removal for this remedy would require removal of Site surface soil, and re-worked native soil intermixed with varying amounts of fill. Based on fill thickness observed during the RI and presented on Figure 5a and Figure 5b, an estimated 32,400 cubic yards, or 100%, of the impacted Site surface soil, re-worked native soil and/or fill are present at the Site requires removal and off-site disposal. Observed exceedances of the Unrestricted Use SCO were widespread across the Site.

During the soil and fill removal activity, the approximate 8,000-gallon capacity UST, and underlying contaminated soil (presumed to be 40 tons or less), would also be excavated and removed and confirmatory sampling and testing and submittal of appropriate documentation in accordance with DER-10 would be completed as part of the remedy.

Completion of the source excavation and removal remedy described above would meet Unrestricted Use SCO. During ground intrusive activities that have the potential to encounter COC, a community air monitoring program will be implemented in accordance with DER-10 requirements. The source excavation remedy would not address remediation of petroleum contaminated groundwater, which originates off-site and is not the responsibility of the Owner under the BCP. However, subsequent to the soil removal, groundwater monitoring would be conducted to document the effectiveness of MNA in reducing petroleum impact to the extent possible. In addition, it is anticipated that groundwater monitoring would assess the effectiveness of the removal action in reducing the concentrations of metals detected in the groundwater that may be attributable to the Site, and to confirm that mobility of these groundwater contaminants is not a concern.

8.4.1.3. Remedy Assessment

Protection of Human Health and the Environment. It is anticipated that the Unrestricted Use remedy would be fully protective of human health and the environment, as removing contaminated soil and fill, and also the UST, from the Site would eliminate potential exposure pathways to these materials. Groundwater concerns primarily relating to off-site contamination sources would remain; however, the remaining Site soils would have no known potential adverse impacts upon groundwater.

Compliance with Standards, Criteria and Guidance (SCG). It is anticipated that the Unrestricted Use remedy would be fully compliant with applicable SCGs for surface and subsurface soil/fill, including Unrestricted Use SCO; thus, resulting in a clean Site with no future use restrictions. Groundwater concerns primarily relating to off-site contamination sources would remain;

however, the remaining Site soils would have no known potential adverse impacts upon groundwater.

Short-Term Impacts and Effectiveness. Short-term adverse impacts include: (1) disturbance of contaminated soil and fill, creating risks of potential exposure to workers and area residents during completion of the source area removal and disposal activities; and (2) miscellaneous adverse impacts upon local residents resulting from noise, truck traffic, equipment exhaust, demolition dust, etc. Health risks to the community and workers at the Site can be effectively minimized through the development and implementation of a Site-specific work plan and health and safety plan, including a community air monitoring program component. Other adverse impacts are essentially unavoidable, but can be somewhat minimized through management and control of the remedial activities, including selective scheduling of activities, routing of traffic, etc.

Long-Term Effectiveness and Permanence. The Unrestricted Use remedy would result in contaminated soil and fill, and also the UST, being permanently removed from the Site, with no significant residuals remaining, and no IC/ECs required for Site management. Upon completion of the source removal and disposal activities, no known significant threats, exposure pathways, or risks to the community and environment would remain. Groundwater concerns relating to off-site contamination sources may persist; however, the remaining Site soils would have no potential adverse impacts upon groundwater.

Reduction of Toxicity, Mobility and Volume. Removing contaminated soil and fill from the Site to Unrestricted Use SCO levels, and removing the UST, would result in a complete and permanent reduction in the volume of contaminants in the Site soils. Metals in groundwater that resulted from leaching from the soil/fill at the Site would be reduced, but contaminants attributable to off-site contamination sources would not be reduced.

Implementability. The Unrestricted Use remedy is technically and administratively feasible, though it is anticipated that the size and scope of this activity may limit the amount of contractors that are capable of completing the job.

Planned Future Use of the Site. Presently, it is anticipated that the future use of the Site will be commercial use, which is consistent with zoning of the Site. Remediation to Unrestricted Use standards is fully compatible with the planned future use of the Site.

Community Acceptance. Response of the community to the short-term impacts identified above is unknown. It is assumed that the community would have no long-term issues with the remedy, as the future use of the Site would be similar to past uses of the Site.

Cost Effectiveness. Remedial costs are very high. As shown in Table 6, total remedial costs are about $5,600,000.00 for this alternative, and as such, remediation to the Unrestricted Use standards is not considered a cost effective remedial option for this Site.

8.4.2. Track 2-Restricted Commercial Use Alternative

Remediation under Track 2-Restricted Commercial Use assumes that IC/ECs cannot be relied upon to prevent exposures and obtain RAOs. As such, under this remediation scenario, soil/fill containing constituent concentrations exceeding their restricted commercial SCOs cannot be left in place without treatment or must be removed.

8.4.2.1. Contaminant Analysis

As summarized below, one or more surface soil and subsurface soil/fill samples tested during this study contained concentrations of the following constituents that exceeded the Restricted Commercial Use SCO.

Surface Soil

VOCs:	none
SVOCs:	benzo(a)pyrene, benz(a)anthracene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(b)fluoranthene
Pesticides/PCBs:	none
Metals:	arsenic

Subsurface Soil/Fill

VOCs:	none
SVOCs:	benzo(a)pyrene, benz(a)anthracene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(b)fluoranthene
Pesticides/ PCBs:	none
Metals:	arsenic, barium, cadmium, copper, lead

Groundwater

The impacts to the groundwater under the Track 2-Restricted Commercial Use alternative are the same as discussed in Section 8.4.1.1

8.4.2.2. Remedy Selection

Under this scenario, five metals and five SVOCs are among the parameters that exceeded Restricted Commercial SCO. Concentrations of metals in soil/fill can not be effectively reduced through in-situ treatment, and must be physically removed to meet the remedial objective. As such, source area excavation and removal was selected as part of the Track 2-Restricted Commercial Use remedy.

Based on the available data and the contaminant analysis summarized in Section 8.4.2.1, it is estimated that source excavation and removal for this remedy would require the removal of about 227,000 cubic yards, or approximately 70% of Site surface soil, re-worked native soil and fill, including areas below the existing asphalt parking lot. Observed exceedances of the Restricted Commercial SCO were widespread across the Site. It is assumed that a remedial design investigation (RDI) would be conducted prior to remedial alternative implementation and the results of this RDI would indicate that 30% of the Site soil and fill that exceeds Track 1 Unrestricted Use SCOs, would be determined to meet Track 2 Restricted Commercial Use SCOs; thus, allowing it to remain on-site.

During the soil and fill removal activity, the approximate 8,000-gallon capacity UST, and underlying contaminated soil (presumed to be 40 tons or less), would also be excavated and removed and confirmatory soil sampling and testing would be completed in accordance with DER-10 and appropriate documentation provided as part of the remedy.

Since the use of the property would be restricted (i.e., cleanup to allow Restricted Commercial Use), an Environmental Easement would be prepared and recorded, and a Site Management Plan (SMP) would be prepared and implemented as institutional controls (ICs). These ICs are intended primarily to prohibit less restricted use (e.g., restricted Residential Use) of the property, control off-site re-use of site soil/fill, etc. The petroleum related contamination identified in the groundwater migrating onto the Site may contribute to the potential for soil vapor intrusion for future on-site buildings. As such, a soil vapor intrusion evaluation should be conducted for all new buildings constructed on the Site and/or soil vapor mitigation implemented, if warranted.

Completion of the source excavation and removal remedy described above would meet Restricted Commercial Use SCOs. During ground intrusive activities that have the potential to encounter COC, a community air monitoring program should be implemented in accordance with DER-10 requirements. The source excavation remedy would not address the petroleum contaminated groundwater, which originates off-site and is not the responsibility of the Owner under the BCP. However, subsequent to the soil removal, groundwater monitoring would be conducted to document the effectiveness of MNA in reducing petroleum impact to the extent possible. In addition, it is anticipated that groundwater monitoring would assess the effectiveness of the removal action in reducing the concentrations of metals detected in the groundwater that may be attributable to the Site, and to confirm that mobility of these groundwater contaminants is not a concern. Although a cost for long-term groundwater monitoring has been estimated in Table 7 (i.e., quarterly sampling of 7 monitoring wells in the first year, annual sampling thereafter for five years, samples tested for full TCL/TAL list parameters), the sample collection methods, QA/QC requirements, monitoring wells to be tested and the parameters to be evaluated would be documented in the SMP.

8.4.2.3. Remedy Assessment

Protection of Human Health and the Environment It is anticipated that the Track 2- Restricted Commercial Use remedy would be protective of human health and the environment, as removing soil and fill from the Site that contains concentrations that exceed the Commercial Use SCOs would reduce exposure pathways to these materials. Groundwater concerns primarily relating to off-site contamination sources would remain; however, the remaining Site soils would have no known potential adverse impacts on groundwater.

Compliance with Standards, Criteria and Guidance (SCG) It is anticipated that the Track 2- Restricted Commercial Use remedy would be compliant with applicable SCGs for surface and subsurface soil/fill, including Commercial Use SCO, and ECs would not be required. ICs would in part prohibit less restrictive uses of the property (e.g., Restricted Residential Use) and re-use of site soil/fill. Groundwater concerns primarily relating to off-site contamination sources would remain; however, the remaining Site soils would have no known potential adverse impacts upon groundwater, and ICs would also prohibit groundwater use.

Short-Term Impacts and Effectiveness Short-term adverse impacts include: (1) disturbance of contaminated soil and fill, creating risks of potential exposure to workers and area residents during completion of the source area removal and disposal activities; and (2) miscellaneous adverse impacts upon local residents resulting from noise, truck traffic, equipment exhaust, demolition dust, etc. Health risks to the community and workers at the Site can be effectively minimized through the development and implementation of a Site-specific work plan and health and safety plan, including a community air monitoring program component. Other adverse impacts are essentially unavoidable, but can be minimized through management and control of the remedial activities, including selective scheduling of activities, routing of traffic, etc.

Long-Term Effectiveness and Permanence The Track 2- Restricted Commercial Use remedy would result in the UST and some contaminated soil and fill being permanently removed from the Site. While some constituents would potentially remain at concentrations that exceed the Unrestricted Use SCOs, no significant residuals would remain, and no ECs would be required for the intended future use of the Site. However, ICs would be required to prohibit less restrictive uses of the Site (e.g., Restricted residential Use), and control re-use of Site soil/fill. Upon completion of the source removal and disposal activities, significant threats, exposure pathways, or risks to the community and environment would be reduced. Groundwater concerns relating to off-site contamination sources may persist; however, the remaining Site soils would have no potential adverse impacts upon groundwater.

Reduction of Toxicity, Mobility and Volume Removing contaminated soil and fill from the Site to Track 2- Restricted Commercial Use SCO, and removing the UST, would result in a permanent reduction in the volume of contamination in the Site soils and fill. Metals in groundwater that resulted from leaching from the soil/fill at the Site would be reduced, but contaminants attributable to off-site contamination sources would not be reduced.

Implementability The Track 2-Restricted Commercial Use remedy is technically and administratively feasible, though it is anticipated that the size and scope of this activity may limit the amount of contractors that are capable of completing the job.

Planned Future Use of the Site Presently, it is anticipated that the future uses of the Site will be Restricted Commercial Use, which is consistent with the zoning of the Site. Remediation to Track 2-Restricted Commercial Use remedy is compatible with the planned future use of the Site.

Community Acceptance. Response of the community to the short-term impacts identified above is unknown. It is assumed that the community would have no long-term issues with the remedy, as the future use of the Site would be similar to past uses of the Site.

Cost Effectiveness. Remedial costs are very high. As shown on Table 7, total remedial costs exceed $4,000,000.00 for this alternative, and as such, remediation to Track 2-Restricted Commercial Use standards is not considered cost effective remedial option for this Site.

8.4.3. Track 4-Restricted Commercial Use Alternative

Remediation under Track 4-Restricted Commercial Use assumes that IC/ECs can be relied upon to prevent exposures to contaminants in soil/fill that exceed restricted Commercial Use SCO and obtain RAOs. As such, under this remediation scenario, soil/fill containing constituent concentrations exceeding their Restricted Commercial SCO can be left in place without treatment provided applicable IC/ECs are implemented and maintained.

8.4.3.1. Contaminant Analysis

As summarized below, one or more surface soil and subsurface soil/fill samples tested during this study contained concentrations of the following constituents that exceeded the Restricted Commercial Use SCO.

Surface Soil

VOCs:	none
SVOCs:	benzo(a)pyrene, benz(a)anthracene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(b)fluoranthene
Pesticides/PCBs:	none
Metals:	arsenic

Subsurface Soil/Fill

VOCs:	none
SVOCs:	benzo(a)pyrene, benz(a)anthracene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(b)fluoranthene
Pesticides/ PCBs:	none
Metals:	arsenic, barium, cadmium, copper, lead

Groundwater

The impacts to the groundwater under the Track 2-Restricted Commercial Use alternative are the same as discussed in Section 8.4.1.1

8.4.3.2 Remedy Selection

Under this scenario, five metals and five SVOCs are among the parameters that exceeded Restricted Commercial SCO. Observed exceedances of the Restricted Commercial SCO were widespread across the Site. Concentrations of metals in soil/fill can not be effectively reduced through in-situ treatment, and must be physically covered or removed to meet the remedial objective. As such, a targeted "hot-spot" soil/fill removal, supplemented by installation of a cover system was selected as the part of the Track 4-Restricted Commercial Use remedy.

Based on the contaminant analysis summarized in Section 8.4.3.1, it is estimated that a limited "hot spot" soil/fill removal (up to 365 cubic yards of soil/fill) would be excavated and disposed off-site from the general area of test pit TP-05 (i.e, the approximate extent of geophysical anomaly J as presented on Figure 3b and Figure 3c) and that the cover system component for this remedy would require the placement of a demarcation layer followed by 1 foot of NYSDEC-approved cover material over the portion of the Site not currently covered with asphalt pavement; and potentially areas of the Site where concrete pads associated with previous operations and areas of densely packed mature trees are present. [Note: Localized portions of the Site may not require a demarcation layer followed by 1 foot of cover material such as areas where concrete pads associated with the former development remain intact and in the area of test pit TP-10 where no fill materials were detected and in the area of densely packed mature trees. However, prior to determining cover requirements in these areas additional evaluation and testing is required. The remedy presented herein assumes that the entire unpaved portion of the Site will require a demarcation layer followed by 1 foot of cover material, however based on the results of subsequent evaluation portions of the Site may not require a demarcation layer followed by 1 foot of cover material.] During ground intrusive activities that have the potential to encounter COC, a community air monitoring program will be implemented in accordance with DER-10 requirements.

Prior to cover system installation activity, a fill characterization study will be completed to delineate localized areas of the Site to determine the specific areas of the Site where a demarcation layer followed by 1 foot of cover material will be required. Specifically, this evaluation will include studies in the locations where concrete pads associated with the former development remain intact, the area of test pit TP-10 where no fill materials were detected, and in the area of densely packed mature trees. This evaluation will consist of determining and documenting the size and integrity of the concrete pads left in-place, and collection/testing of surface soil samples in proximity of test pit TP-10 and within the mature treed area to evaluate existing COC concentrations. Based on the findings of the fill characterization study, a refined portion of the Site requiring a cover system to meet Track 4 -Restricted Commercial Use RAOs will be provided to the NYSDEC and NYSDOH for review/approval.

In addition to the fill characterization study, the approximate 8,000-gallon capacity UST, and any underlying contaminated soil (presumed to be 40 tons or less), would also be excavated and removed and confirmatory/documentation soil sampling and testing would be completed in accordance with DER-10 and appropriate documentation provided would be completed as part of the remedy prior to cover system installation activity.

Since the use of the property would be restricted (i.e., cleanup to allow Restricted Commercial Use) and Site soil/fill exceeding Restricted Commercial Use SCOs would remain on-site under a cover system, an Environmental Easement would be prepared and recorded, and a SMP would be prepared and implemented as ICs that in part prohibit less restricted use (e.g., restricted Residential Use) of the property, require maintenance of the cover system, control off-site re-use of site soil/fill, etc. The petroleum related contamination identified in the groundwater migrating onto the Site may contribute to the potential for soil vapor intrusion for future on-site buildings. As such, a soil vapor intrusion evaluation should be conducted for all new buildings constructed on the Site and/or soil vapor mitigation implemented, if warranted.

Completion of the limited soil/fill and UST removal, and installation of the cover system, described above would meet the Track 4-Restricted Commercial Use RAOs. The cover system would not address the petroleum contaminated groundwater, which originates off-site and is not the responsibility of the Owner under the BCP. However, subsequent to cover system installation, groundwater monitoring would be conducted to document the effectiveness of MNA in reducing petroleum impact to the extent possible. In addition, it is anticipated that groundwater monitoring would document the effectiveness of the limited soil/fill removal from the vicinity of test pit TP-05/geophysical anomaly J in reducing the concentrations of metals detected in the groundwater that may be attributable to the Site, and to confirm that mobility of these groundwater contaminants is not a concern. Although a cost for long-term groundwater monitoring has been estimated in Table 7 (i.e., quarterly sampling of 7 monitoring wells in the first year, annual sampling thereafter for five years, samples tested for full TCL/TAL list parameters), the sample collection methods, QA/QC requirements, monitoring wells to be tested and the parameters to be evaluated would be documented in the SMP.

8.4.3.2. Remedy Assessment

<u>Protection of Human Health and the Environment.</u> It is anticipated that the Track 4-Restricted Commercial Use remedy would effectively provide protection of human health and the environment. Removal of the UST and limited soil/fill from the test pit TP-05/geophysical anomaly J area from the Site would eliminate potential exposure pathways associated with these materials and potential impacts to the groundwater associated with these areas. Installation and maintenance of the Site cover system minimizes potential exposure pathways to the underlying soils; however, groundwater concerns primarily related to off-site contamination sources would remain. The cover system would not eliminate the potential for metals that may be attributable to the Site to leach into the groundwater; however, groundwater monitoring would document the groundwater conditions and confirm the mobility of these groundwater contaminants is not a concern.

<u>Compliance with Standards, Criteria and Guidance (SCG).</u> It is anticipated that the Track 4-Restricted Commercial Use remedy would be compliant with BCP Track 4 requirements applicable for Restricted Commercial Use, which allows for conditional exceedance of Restricted Commercial Use SCOs. ICs would in part prohibit less restrictive uses of the property (e.g., Restricted Residential Use) and re-use of site soil/fill. Groundwater concerns primarily related to off-site contamination sources (e.g., petroleum), but also related to on-site sources (e.g., metals) would remain; however, ICs would prohibit use of groundwater.

<u>Short-Term Impacts and Effectiveness.</u> Short-term adverse impacts are minimal, as the remedy involves limited disturbance and removal of contaminated soil and fill. A relatively small (approximately 3,850 square foot) area will be disturbed for excavation and removal of contaminated soil surround test pit TP-05, and a similarly small area of disturbance would occur in order to remove the 8,000-gallon UST. These minor disturbances will create low risks of potential exposure to workers and miscellaneous adverse impacts upon local residents resulting from noise, truck traffic, equipment exhaust, demolition dust, etc. Health risks to the community and workers at the Site can be effectively addressed through the development and implementation of a Site-specific work plan and health and safety plan, including a community air monitoring program component.

<u>Long-Term Effectiveness and Permanence.</u> The Restricted Commercial Use remedy would result in impacted soil and fill being left in place at the Site, some of which exceeds SCO for restricted commercial use, and would rely on IC/ECs for Site management. This remedy is a standard BMP Track 4 approach that has proven long-term effectiveness at many sites, and is dependent upon the effectiveness of the IC/ECs in eliminating the potential exposure pathways. Future monitoring at the Site will ensure that the remedy remains effective in providing continued protection of human health and the environment.

<u>Reduction of Toxicity, Mobility and Volume.</u> The proposed remedy will result in limited reduction of toxicity and volume through limited excavation and removal of material. Much of the impacted soil and fill will remain in place and the mobility of these materials will be unchanged from current conditions. Contaminants in groundwater would not be reduced, but these are isolated and localized, and would be monitored to confirm they remain relatively immobile.

Implementability. The Track 4-Restricted Commercial Use remedy is technically and administratively feasible. In addition, labor and material needs for this remedy are readily available.

Planned Future Use of the Site. Presently, it is anticipated that the future uses of the Site will be Restricted Commercial Use, which is consistent with the zoning of the Site. Remediation to Track 4-Restricted Commercial Use remedy is fully compatible with the planned future use of the Site.

Community Acceptance. It is anticipated that there would be no community objections to the short-term impacts identified above. It is similarly assumed that the community would have no long-term issues with the remedy, as the future use of the Site would be the same as it has been in the past.

Cost Effectiveness. As shown in Table 7, total remedial costs are estimated at about $450,000.00. As such, remediation to the Track-4 Restricted Commercial use standards is much more cost effective than the alternative remediation to Unrestricted Use standards evaluated in Section 8.4.1 or the Track 2-Restricted Commercial Use standards evaluated in Section 8.4.2.

8.5 Recommended Remedial Measure

The recommended remedial measure for this Site is the Track 4-Restricted Commercial Use Alternative described in Section 8.4.3. The recommended remedial measure is presented on Figure 11.

9.0 RI/AA CONCLUSIONS

The findings and conclusions of the RI and a conceptual model developed based on the work completed are summarized in this section. In addition, the recommended remedial measures to address contamination identified are also presented in this section.

9.1 RI Summary and Conclusions

Background and Site History

The 5.159-acre Site is located in an industrial-use urban area in the Northwest Quadrant district of the City of Olean, New York, and within the boundary of the New York State Department of State (NYSDOS) Brownfield Opportunity Area (BOA) identified as the City of Olean Northwest BOA. An approximate 1.83-acre portion of the Site is developed as a paved parking lot that services the industrial facility located adjacent to the south (i.e. 211 Franklin Street). The remainder of the Site is primarily covered by landscaped or overgrown areas of field-type vegetation, brush, and areas covered by small to mature trees, however areas of C&D debris are present at the ground surface in some locations (i.e., the remnants of former buildings)..
Industrial activities were conducted on the Site between 1909 and the early 1960's, and these include:

- The United Wood Alcohol Company was located on the eastern portion of the Site between at least 1909 until around 1915, and operations conducted at this facility included the manufacturing and storage of wood alcohol (methanol).

- Seaman Container occupied portions of the buildings at the Site between at least 1925 until around 1932, and operations included the manufacturing of paper pails, containers, coolers, etc. The Olean Bag Company also occupied portions of the buildings at the Site between at least 1925 until around 1932, and it is assumed that sewing operations were performed at this facility.

- The Arvey Ware Corporation occupied the buildings at the Site between at least 1932 until around 1941, and operations included manufacturing wastebaskets, vases, etc. from reprocessed waste paper pulp.

- The Fibre Forming Corporation occupied the buildings at the Site between around 1941 until around 1962, and operations included manufacturing wastebaskets, vases, etc. from reprocessed waste paper pulp.

- Hysol, a Division of the Dexter Corporation [i.e., the entity that occupied the adjacent property and manufacturing facility to the south (i.e., 211 Franklin Street)], purchased the Site sometime around 1979. The parking lot on the southern portion of the Site was subsequently constructed by Hysol.

- Since 2010 SolEpoxy, Inc. has used the parking lot on the Site for employee vehicle parking.

Utilities

A 3-inch diameter high pressure natural gas line that formerly serviced the adjacent property to the southeast (i.e., 211 Franklin Street) is located on the southeast corner of the Site. This high pressure gas line was de-activated sometime around 2014, and a small shed that was formerly located at the southeast corner of the Site, and housed a gas meter/valve system, was demolished and the meter/valve system was re-configured and buried underground. This high pressure gas line, while currently inactive, is still in place, trending northeast-southwest and crossing under approximately 50 ft. of the southeast edge of the Site before turning to the southeast and crossing under the Franklin Street ROW.

A 110-volt electrical connection that originates in the 211 Franklin Street Facility and crosses under the Franklin Street ROW is located below the paved parking lot on the Site. This electrical connection is used for overhead lighting located in the southwest portion of the parking lot.

No other buried utilities were identified at the Site. Catch basins for the City of Olean storm sewer and sanitary sewers are located within the Franklin Street ROW, located adjacent to the southeast of the Site.

Site Features and Subsurface Conditions

The Site is located at latitude (north) 42^{o} 5’ 42.67” and longitude (west) 78^{o} 26’ 23.58” and the ground surface elevation at the Site is between approximately 1,426 ft. and 1,430 ft. above sea level (North American Vertical Datum). The nearest surface water bodies to the Site include Olean Creek (listed as a Class C water body by the NYSDEC), which is located approximately 2,400 ft. east-southeast of the Site, and Two Mile Creek, which is intermittingly connected to an unnamed creek, (listed as a Class D water body by the NYSDEC) that is located approximately 750 ft. northwest of the Site.

The Site is located within an area designated by the USGS as a primary water supply aquifer (Olean). A primary water supply aquifer is defined as: “A highly productive aquifer that is being used as a source of water supply in major public-supply systems.” The City of Olean obtains drinking water from groundwater supply wells located on Richmond Avenue (located about 2.3 miles southeast of the Site), East River Road (located about 2.45 miles southeast of the Site), and from Olean Creek. The water intake for Olean Creek is located at the River Street water treatment plant, approximately 2,500 ft. east of the Site, and hydraulically upgradient of the Site. The Site is located in the glaciated Allegheny Plateau, which is characterized by steep valley walls, wide ridge tops and flat-topped hills that are intersected with drainage ways that flow towards the valley floor.

The overburden material at the Site generally consists of stratified drift deposits comprised of outwash and kame deposits consisting primarily of sand and gravel with lesser amounts of clayey silt in some locations. With depth, lacustrine silts and clays (i.e., the remnants of glacial lakes and post-glacial lakes that formed as the glaciers retreated northward) are evident near the bottom of the outwash deposits. The overburden thickness at the Site is estimated to exceed 200 ft., and the rock underlying the overburden is comprised of gray and black shale interbedded with gray siltstone and sandstone of the Conneaut Group, also referred to as the Chadakoin Formation.

The asphalt pavement of the approximate 1.83-acre parking lot on the Site varies in thickness from about 0.2 ft. up to approximately 0.5 ft. with sub-base material or reworked soil extending below the asphalt pavement to an approximate depth of 1 ft. bgs. Heterogeneous fill material beneath the sub-base material generally consisting of re-worked soil (e.g., sand and gravel) intermixed with varying amounts of bricks, concrete, cinders and pieces of asphalt that extended to depths of about 1.1 ft. bgs and potentially 4.5 ft. bgs. [Note: Test borings advanced in the northeastern portion of the parking lot encountered a buried concrete slab between about 0.2 ft. and 3.0 ft. bgs. This concrete slab is likely a remnant of the former structures located in this portion of the Site.]

Heterogeneous fill was encountered in each of the test pits/test borings advanced during the study the approximate 3.3-acre portion of the Site with the exception of test pit TP-10 (i.e., located in the west-central portion of the Site). This fill was encountered either beneath an approximate 0.5 ft. thick layer of topsoil and roots, or exposed at the ground surface. The thickest fill deposits (i.e., extending to depths of about 11 ft. bgs) were encountered in the northeastern portion of the property and was predominately comprised of C&D debris, including numerous bricks, concrete, pipe, scrap metal and wire intermixed within reworked soil (i.e., primarily sand and gravel).

In some locations, in proximity to the railroad lines west of the Site and in proximity to railroad spur lines that previously traversed the Site, apparent railroad ballast containing ash and coal fragments intermixed with re-worked soil was encountered. The apparent ballast encountered could be attributable to the railroad lines west of the Site and/or fill material displaced during the demolition of the former structures and rail lines on the property.

While the majority of the fill material at the Site can generally be characterized as C&D debris or apparent railroad ballast, several localized areas that contained other types of fill material were identified. These include layers of fibrous (paper-like) material and paper with a tar-like binder that was observed at a depth of about 2 ft. bgs in the central portion of the Site and reworked soil containing large chunks of metal, rusted wire and bricks, extending from the ground surface to an approximate depth of 1.5 ft. bgs near the northern corner of the Site.

An underground storage tank (UST) was encountered near the southwest corner of the Site between depths of about 4 ft. bgs and 10.5 ft. bgs. This UST was generally empty of fluids but residue in the tank contained detectable concentrations of acetone and alcohol, and a maximum PID reading of 485.3 ppm was measured in the air space of a pipe exiting the tank. This UST is approximately 33 ft. long (indicating an approximate 8,000 gallon capacity tank), and it is oriented in a general northwest to southeast direction. A second apparent UST was encountered in within footprint of the former buildings in the northeastern portion of the Site. This tank was found in the remnants of a demolished former building. The tank is oriented horizontally and the bottom of the tank is approximately 12 ft. bgs with the bottom 2.5 ft. of this tank extending below the apparent concrete floor of the building. The tank appears to have been cut in half such that only the bottom 3 ft. to 4 ft. of the tank remains. The tank was empty of product and it was filled with C&D debris (i.e., bricks, concrete, re-worked soil etc.). Unusual odors were not detected emanating from the contents of the tank and, a maximum PID reading of 1.2 ppm was measured above the tank.

The indigenous soil beneath the fill at the Site generally consists of deposits of fine to medium sand and fine to coarse gravel. However, a deposit of sandy clay to clayey sand was encountered beneath the fill in some locations. This approximate 1.5 ft. to 4 ft. thick deposit was not continuous across the Site and it may have been removed in areas during previous construction activities. Where present, the sandy clay to clayey sand deposit was encountered between elevations of about 1420 ft. and 1427 ft. A deeper indigenous clayey sand deposit was encountered in the deepest test boring advanced for this study, located between approximately 31.5 ft. bgs (i.e., approximate elevation 1395 ft.) and the bottom of the test location, approximately 48 ft. bgs (i.e., approximate elevation 1378.5 ft.).

Groundwater Conditions

Regionally groundwater flow is generally to the southwest eventually discharging into the Allegheny River; however in proximity of the Site groundwater appears to flow generally to the east-southeast.

The depth to groundwater at the Site varies seasonally. The groundwater elevations ranged from about 2.3 ft. (MW-G) to about 2.5 ft. (MW-A) lower during the November 5, 2014 sampling event than they were during the groundwater level measurements collected on July 10, 2014. The groundwater elevations ranged between about 1411.8 ft. (MW-F) and 1412.7 ft. (MW-C) on July 10, 2014 and between about 1409.3 ft. (MW-F) and 1410.3 ft. (MW-C) on November 5, 2014. These groundwater elevations represent depths to groundwater ranging between about 13.9 ft. bgs and 17.2 ft. bgs on July 10, 2014, and ranging between about 16.0 ft. bgs and 19.6 ft. bgs on November 5, 2014.

Using the range of calculated hydraulic conductivities (1.63 ft/day to 3.73 ft/day) and average horizontal gradients (0.001 ft/ft to 0.002 ft/ft), and an estimated porosity of 0.3; groundwater flow at the Site was calculated to range between about 0.0054 ft./day and 0.025 ft./day.
Extensive pumping was undertaken in the 1970s and 1980s to contain a dissolved nitrogen spill and prevent contaminated groundwater from impacting the municipal water supply wells. Some of the wells that were pumped at rates as high as 10 million gallons per day included wells located adjacent to the southwest boundary of the Site. During this pumping, a 20 ft. to 30 ft. deep cone of depression was created.

Field Evidence of Environmental Impact

Although the majority of the fill material contained apparent C&D-type debris and/or remnants of previous railroad spur lines (e.g., ash, coal, etc.), limited field evidence of potential environmental impact (i.e., staining, unusual odors, elevated PID readings, etc.) was detected within the fill material encountered in the test pits and test borings advanced during this study. PID readings in excess of 10 ppm were only measured in fill samples collected from test pit TP-08 where a peak reading of 49.7 ppm was measured in the soil adjacent to the UST encountered in this test pit, and test pit TP-12 where a peak PID reading of 17.5 ppm was measured in apparent C&D debris. The only constituent measured at a concentration exceeding the Commercial SCO in the fill sample collected from test pit TP-12 was benzo(a) pyrene, which was measured at a concentration of 1.7 ppm.

Field evidence of petroleum impact in the soil (i.e., petroleum odors, staining, elevated PID readings, etc.) was encountered in some of the test borings advanced to a depth of at least 20 ft. bgs. Specifically, test borings located in the approximate western third of the Site contained field evidence of petroleum impact that was initially detected beginning at depths of approximately 19 ft. bgs to 23 ft. bgs or elevations ranging between about 1409 ft. to 1405 ft. The maximum PID readings in samples collected from these test borings ranged between 121 ppm and 1,325 ppm. The first indication of petroleum-impacted soil is located in proximity to the observed groundwater table, but the petroleum impact (where present) extended down from near the groundwater surface to a least 28 ft. bgs in each of the test boring exhibiting petroleum impact. In test boring TB-106a (i.e., the only test boring advanced below a depth of 28 ft. bgs), petroleum odors were detected on samples collected to a depth of about 45.5 ft. bgs or elevation 1381 ft., although petroleum odors and PID readings generally decreased with depth. [Note: Apparent evidence of petroleum impact was also detected in test boring TB-108 beginning at a depth of about 23 ft. bgs or elevation 1405.5 ft. This test boring is located in the eastern portion of the Site and similar impact was not identified in other test borings advanced in this area of the Site.]

Surface Soil

VOCs were not detected at concentrations exceeding Unrestricted Use SCO in the surface soil samples tested, except for an estimated concentration of acetone in surface soil sample SS-05. This concentration of acetone does not exceed the Commercial Use SCO.

The concentrations of the following PAH SVOCs exceed their respective Unrestricted Use SCO in one or more surface soil samples: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene. The concentrations of the following PAH SVOCs also exceed their respective Commercial Use SCO in one or more surface samples: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

The concentrations of the following pesticide/herbicide and/or PCB compounds exceed their respective Unrestricted Use SCO in one or more surface soil samples: 4,4´-DDE, 4,4´-DDT, aldrin, and PCBs . However, these pesticide/herbicide and PCB compound concentrations do not exceed the Commercial Use SCO.

The concentrations of the following metals exceed their respective Unrestricted Use SCO in one or more surface soil samples: arsenic, copper, lead, mercury, nickel, selenium, and zinc. The concentrations of arsenic in surface soil samples SS-01, SS-03, SS-05 and SS-08, also exceed the Commercial Use SCO.

Soil/Fill

The concentrations of the VOC acetone exceeded the respective Unrestricted Use SCO in one or more subsurface soil/fill samples. The concentrations of VOCs reported in the subsurface soil/fill samples do not exceed the Commercial Use SCO.

The concentrations of the following SVOCs exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples tested: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and phenol. The concentrations of the following PAH SVOCs also exceed their respective Commercial Use SCO in one or more surface samples: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene

The concentrations of the following pesticide/herbicide compounds exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, and PCBs. The concentrations of pesticide/herbicide and PCBs reported in the subsurface soil/fill samples do not exceed the Commercial Use SCO.

The concentrations of the following metals exceed their respective Unrestricted Use SCO in one or more subsurface soil/fill samples: arsenic, barium, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, and zinc. The concentrations of the following metals also exceed their respective Commercial Use SCO in one or more subsurface soil/fill samples: arsenic, barium, cadmium, copper, and lead.

Groundwater Samples

VOCs and SVOCs were not detected in the groundwater samples tested at concentrations exceeding groundwater standards or guidance values during either of the sample rounds completed during this study. However, VOC TICs were identified in samples from each of the monitoring wells during at least one of the sample events completed during this study, ranging between 6.3 ug/l (or ppb) and 201.9 ppb. Total VOC TIC concentrations in excess of 100 ppb were reported in both samples collected from MW-G. SVOC TICs ranging between 4.6 ppb and 105 ppb were identified in samples from each of the monitoring wells during both sample events completed during this study. Total SVOC TIC concentration is excess of 100 ppb were reported in the sample collected on June 26, 2014 from MW-G.

Pesticide/herbicide and PCB compounds were not detected in the groundwater samples tested during this study.

The concentrations of the following metals measured during at least one of the sample events completed during this study exceed their respective groundwater standards or guidance values antimony, arsenic, barium, iron, manganese, selenium, and sodium. Although the concentrations of iron, manganese and sodium exceeded their respective groundwater standards or guidance values, the concentrations measured are typical of background conditions and, as such, apparently not attributable to contaminants at the Site. The arsenic concentrations detected in samples from monitoring well MW-D (i.e., 31.5 ug/l and 63.4 ug/l) were approximately six and twelve times (respectively) higher than the average of arsenic concentrations detected in the other wells sampled, and about 50% and 150% (respectively) higher than the groundwater standard of 25 ug/l. The barium concentrations detected in samples from monitoring well MW-D (i.e., 1,530 ug/l and 2,490 ug/l) were approximately five and eight times (respectively) higher than the average of barium concentrations detected in the other wells sampled, and about 50% and 150% (respectively) higher than the groundwater standard of 1000 ug/l.

Contaminants of Concern

The contaminants of concern identified at the Site include:

Surface Soil

- PAHs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene

- Metals: arsenic

Soil/Fill

- PAHs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene

- Metals: arsenic, barium, cadmium, copper, and lead

Groundwater

- Metals: arsenic, barium and potentially antimony and selenium

Note: The groundwater in the western portion of the Site is impacted with petroleum that originated from an off-site location. This impact is characterized by elevated PID readings, petroleum odors, stained soil and elevated concentrations of VOC and SVOC TICs. The petroleum-impacted groundwater does not degrade further as it migrates across the Site, suggesting that contaminants at the site are not contributing to the further degradation of the groundwater. As such, petroleum-impact and VOC/SVOC TICs are not identified as a COC for the Site. However, the petroleum related contamination identified in the groundwater migrating onto the Site may contribute to the potential for soil vapor intrusion for future on-site buildings.

9.2 Conceptual Site Model

The conceptual site model presented in this section identifies and describes: (1) the known or potential sources of contamination; (2) the types of contaminants and affected media; 3) release mechanisms and potential migration pathways; and 4) actual/potential human health and environmental receptors.

An approximate 1.83-acre portion of the 5.159-acre Site is developed as a paved parking lot that services the industrial facility located adjacent to the south (i.e. 211 Franklin Street). The remainder of the Site is covered by landscaped or overgrown areas of field-type vegetation, brush, or areas covered by small to mature trees, however fill material (e.g., C&D debris) remaining following the demolition of buildings previously located in the eastern portion of the Site is present at the ground surface in some localized areas.

Industrial activities were conducted on the Site between 1909 and the early 1960's. However, the industrial buildings/structures formerly located on the Site were demolished, and remnants of the building materials were used to fill portions of the Site. C&D type materials are currently located at and below the ground surface, particularly over the eastern portions of the Site.

Some of the chemicals, hazardous substances and waste products used/generated during the historic use of the Site include: materials and waste products associated with United Wood Alcohol Company (e.g., production and storage of methanol); dipping and painting waste associated with operations conducted during the manufacturing of paper containers by Seaman Container, Arvey Ware Corporation, and Fibre Forming Corporation; and solvent waste associated with an underground storage tank encountered near the southwest corner of the Site, ownership and duration of use of which are not known.

Railroad spur lines that serviced the manufacturing facilities were formerly located on the Site, and a railroad ROW is located adjacent to the southeast of the Site. Apparent railroad ballast, including cinders and ash, remain in portions of the Site where these rail lines were previously located and adjacent to the current railroad ROW.

Based upon the studies conducted to date, the contaminants of concern vary by the media impacted and they include:

Surface Soil

- PAHs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- Metals: arsenic

Soil/Fill

- PAHs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- Metals: arsenic, barium, cadmium, copper, and lead

Groundwater

- Metals: arsenic, barium and potentially antimony and selenium

Note: The groundwater in the western portion of the Site is impacted with petroleum that originated from an off-site location. This impact is characterized by elevated PID readings, petroleum odors, stained soil and elevated concentrations of VOC and SVOC TICs. The petroleum-impacted groundwater does not degrade further as it migrates across the Site, suggesting that contaminants at the Site are not contributing to the further degradation of the groundwater. As such, petroleum-impact and VOC/SVOC TICs are not identified as a COC for the Site. However, the petroleum related contamination identified in the groundwater migrating onto the Site may contribute to the potential for soil vapor intrusion for future on-site buildings.

The COC in the soil/fill at the Site is associated with either waste materials (e.g., metal waste encountered near the northeast corner of the Site) or heterogeneous fill materials placed during the historic use of the Site (e.g., railroad ballast). The primary route of exposure of soil/fill containing COC is via direct contact or inhalation. Direct contact with COC in the soil/fill could occur if trespassers come into contact with exposed soil/fill in unpaved portions of the Site. COC within soil/fill could migrate via fugitive dust to site workers and off-site receptors when impacted soil is disturbed unless proper precautions are implemented.

Contaminants within the groundwater will migrate via groundwater flow (i.e., generally to the east-southeast). The only contaminants in the groundwater that are potentially attributable to the Site are the metals arsenic and barium, and possibly antimony and selenium. Since groundwater obtained from the Site is not used, on-site receptors are not anticipated. Although off-site groundwater supply wells were not identified in locations hydraulically downgradient of the Site, groundwater that is impacted with COC attributable to the Site could impact off-site receptors if groundwater is used in the future and/or result in environmental impact.

9.3 Proposed Remedial Measures

Implementation of a Track 4-Restricted Commercial Use remedy is the proposed remedial measure for the Site, and this remedy includes the following activities:

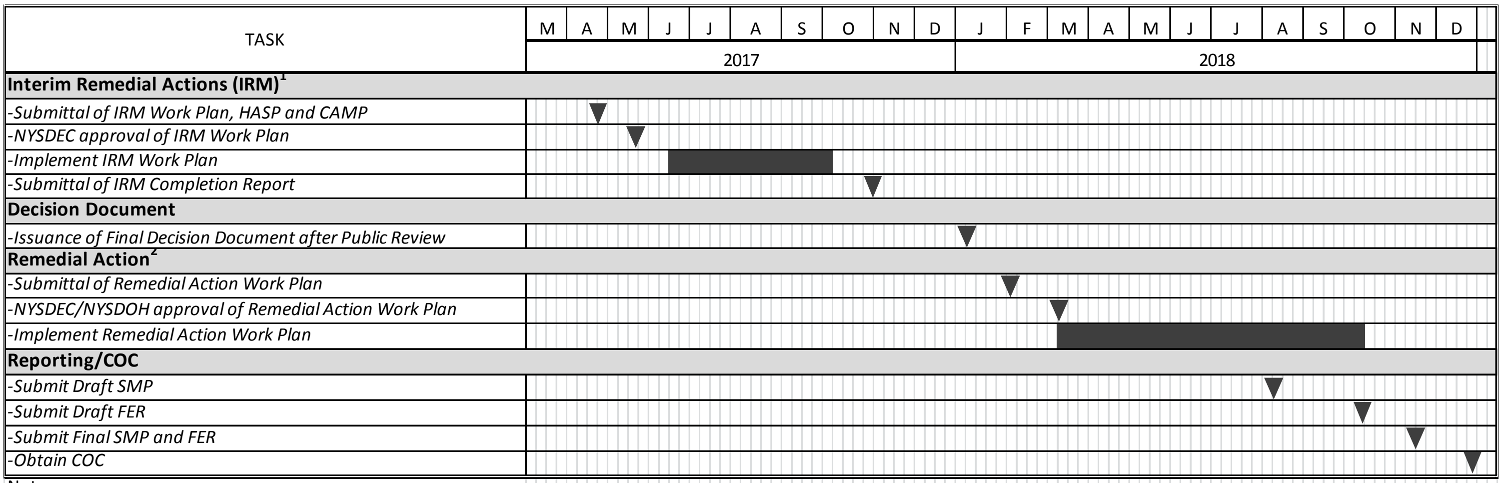
- Excavation, removal and off-site disposal of an estimated 365 cubic yards of soil/fill in proximity to Test Pit TP-05 containing elevated concentrations of heavy metals.
- Decommissioning by removal of the approximate 8,000-gallon UST, limited impacted soil (presumed to be approximately 40 cubic yards, if present) removal and confirmatory sampling/testing presentation of applicable documentation in accordance with DER-10.
- Implementation of a CAMP during ground intrusive remedial activities at the Site that have the potential to encounter COCs.
- Installation of a NYSDEC-approved demarcation layer and 1-foot thick soil cover system (approximately 145,000 square feet) over the unpaved portions of the Site that are not currently covered with asphalt paving, which results in a cover system over the entire Site as an engineering control. [Note: Localized portions of the Site may not require a demarcation layer followed by 1 foot of cover material, however, additional evaluation and testing is required to define the lateral areal extent of these areas.]
- Preparation and recording an Environmental Easement (EE), and development/ implementation of a Site Management Plan (SMP) for the Site as institutional controls. The SMP will outline the necessary tasks to complete a soil vapor intrusion evaluation of future on-site buildings.
- Monitoring the condition of the cover system, and groundwater quality, to confirm that IC/ECs are effective.

The proposed remedial measures to be implemented at the Site are shown on Figure 11.

Note: As an alternative to the placement of a cover system, if the Site, or portions of the Site, are developed with buildings, roadways/parking areas and landscape areas that provide comparable cover the installation of a NYSDEC approved demarcation layer and 1-foot thick soil cover system will not be required.

9.4 Project Schedule

The project schedule for the proposed remedial scope of work including specific tasks, task duration, and completion dates described in this RI/AAR are summarized below.



Notes:

(1) IRMs to include UST removal, limited scrap metal fill removal, and site preparation activities to be determined (e.g., removal of trees and other detritus from surface such as uncontaminated scrap metal, bricks,

(2) Remedial Action Work Plan - Phase II to include site preparation for re-development/or placement of a cover system.

10.0 REFERENCES

Previous Reports and Documents

Phase I Environmental Site Assessment, Henkel Corporation, 211 Franklin Street, Olean, New York dated May 2007 prepared by Environmental Resources Management (ERM).

Phase I Environmental Site Assessment, 119, 202 & 211 Franklin Street and 120 West Connell Street, City of Olean New York dated November 1, 2013 prepared by DAY.

Preliminary Phase II Environmental Site Assessment, 119 Franklin Street, 211 Franklin Street, 202 Franklin Street and 120 West Connell Street, Olean, New York dated October 17, 2013 prepared by DAY.

Limited Supplemental Phase II Environmental Site Assessment, 202 Franklin Street, Olean, New York dated March 6, 2014 prepared by DAY.

Regulatory Documents

ASTM D 1586. "Standard Test Method for Penetration Test and Split-barrel Sampling of Soils" (D 1586-99), American Society for Testing and Materials, 2003.

ASTM D6771-02, "Standard Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality and Investigations", American Society for Testing and Materials.

Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006 prepared by the New York State Department of Health

NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 document titled "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (TOGS 1.1.1) dated June 1998, including April 2000 Addendum Table 1.

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

NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York; October 2006

Reference Materials

Bulletin of the Buffalo Society of Natural Sciences, Volume 27, 1975 *Geology of Cattaraugus County* by Irving Tesmer, Plate 14. Geologic Map

Groundwater, R Allan Freeze & John A. Cherry, 1979.

United States Department of the Interior Geological Survey, Water-Resources Investigations Report 85-4082, *Effect of Reduced Industrial Pumpage on the Migration of Dissolved Nitrogen in an Outwash Aquifer at Olean, Cattaraugus County, New York*, Marcel P. Bergeron, 1987.

United States Department of the Interior Geological Survey, Water-Resources Investigations Report 85-4157, *Hydrology of the Olean Area, Cattaraugus County, New York*, Phillip J. Zarriello and Richard J. Reynolds, 1987.
United States Environmental Protection Agency, *Solidification/Stabilization Use at Superfund Sites*.

Starpoint Software Inc., Super Slug 3.1 User's Guide, 1998.

Handbook of Environmental Degradation Rates, P.H. Howard, et. al., 1991.

Internet References

Agency for Toxic Substances and Disease Registry Internet site

(www.atsdr.cdc.gov/ToxProfiles/phs8920.html).

Federal Remediation Technologies Roundtable (www.frtr.gov)

US Census Bureau information (http://factfinder.census.gov).

11.0 ACRONYM LIST

AMEC	AMEC Environment and Infrastructure, Inc.
ASP	Analytical Services Protocol
ASTM	American Society for Testing and Materials
ATSDR	Agency for Toxic Substance of Disease Registry
BOA	Brownfield Opportunity Area
bgs	below ground surface
BCP	Brownfield Cleanup Program
COC	Contaminants of Concern
DAY	Day Environmental, Inc.
DO	Dissolved Oxygen
DUSR	Data Usability Summary Report
EC	Engineering Controls
EDV	Environmental Data Validation, Inc.
ELAP	Environmental Laboratory Approval Program
FEMA	Federal Emergency Management Agency
ft.	feet
GIS	Geographic Information System
GPS	Global Positioning System
HASP	Health and Safety Plan
IC	Institutional Controls
ID	Inside Diameter
IRM	Interim Remedial Measure
kg	Kilogram
l	Liter
mg	Milligram
ml	Milliliter
MNA	Monitored Natural Attenuation
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MW	Monitoring Well
NAPL	Non-Aqueous Phase Liquid
Nothnagle	Nothnagle Drilling, Inc.
NYS	New York State

NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOS	New York State Department of State
NYSDOT	New York State Department of Transportation
OD	Outside Diameter
ORP	Oxygen Reduction Potential
Owner	Silence Dogood LLC
Phase I ESA	Phase I Environmental Site Assessment
Phase II ESA	Phase II Environmental Site Assessment
PID	Photoionization Detector
ppb	Parts Per Billion or ug/kg or ug/l
ppm	Parts Per Million or mg/kg or mg/l
psi	pounds per square inch
PQL	Practical Quantification Limit
PVC	Polyvinyl Chloride
RA	Remedial Alternatives
RAO	Remedial Action Objective
REC	Recognized Environmental Condition
RI	Remedial Investigation
RIWP	Remedial Investigation Work Plan
ROW	Right-of-Way
RPC	Richard Peck Construction
SCG	Standards, Criteria and Guidance
SCO	Soil Cleanup Objectives
Site	202 Franklin Street, Olean, New York, BCP Site C905043
SMP	Site Management Plan
Spectrum	Spectrum Analytical, Inc.
SVOC	Semi-Volatile Organic Compound
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target Analyte List
TB	Test Boring
TCL	Target Compound List
TIC	Tentatively Identified Compound
TOGS	Technical and Operational Guidance Series
TP	Test Pit

USEPA	United States Environmental Protection Agency
ug	micrograms
ug/kg	micrograms per kilogram or ppb
ug/l	micrograms per liter or ppb
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
QA/QC	Quality Assurance/Quality Control

TABLES

TABLE 1
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043

SUMMARY OF TEST BORINGS, TEST PITS, AND MONITORING WELLS

Designation	Completion Date	Final Depth (ft bgs)
TB-101	6/12/2014	12.0
TB-102	6/12/2014	12.0
TB-103	6/12/2014	28.0
TB-104	6/12/2014	28.0
TB-105	6/12/2014	24.0
TB-106	6/12/2014	20.0
TB-106a	6/19/2014	48.0
TB-107	6/13/2014	28.0
TB-108	6/12/2014	28.0
TP-A	2/21/2014	6.0
TP-B	2/21/2014	6.0
TP-C	2/21/2014	6.0
TP-D	2/21/2014	8.0
TP-E	2/21/2014	0.5
TP-F	2/21/2014	11.0
TP-G	2/21/2014	3.0
TP-H	2/21/2014	9.0
TP-I	2/21/2014	2.5
TP-J	2/21/2014	6.0
TP-01	7/30/2014	12.0
TP-02	7/30/2014	13.3
TP-03	7/29/2014	13.1
TP-04	7/30/2014	12.0
TP-05	7/29/2014	12.0
TP-06	7/29/2014	12.2
TP-07	7/29/2014	10.4
TP-08	7/31/2014	12.0
TP-09	7/30/2014	12.3
TP-10	7/30/2014	12.0
TP-11	7/30/2014	13.5
TP-12	7/30/2014	8.5
TP-13	7/29/2014	12.0
MW-A	9/10/2013	27.0
MW-B	6/12/2014	24.0
MW-C	6/12/2014	24.0
MW-D	6/11/2014	26.0
MW-E	6/12/2014	28.0
MW-F	6/12/2014	27.5
MW-G	6/13/2014	28.0

TABLE 2
202 FRANKLIN STREET
OLEAN, NEW YORK
NYSDEC BCP SITE NO. C905043

ANALYTICAL LABORATORY TESTING PROGRAM

Sample Designation	Sample Type	Sample Date	Depth Interval (ft bgs)	Test Parameters	UTM NAD 83 Coordinates (ft)		Laboratory Report ID
					Northing (Y)	Easting (X)	
SS-01	Soil/Fill	6/27/2014	0 to 0.2	Full TCL/TAL	763581.3	1186814.5	N1151
SS-02	Soil/Fill	6/27/2014	0 to 0.2	Full TCL/TAL	763884.5	1186866.4	N1151
SS-03	Soil/Fill	6/27/2014	0 to 0.2	Full TCL/TAL	764062.0	1186973.0	N1151
SS-04	Soil/Fill	6/27/2014	0 to 0.2	Full TCL/TAL	763551.3	1187168.0	N1151
SS-05	Soil/Fill	6/27/2014	0 to 0.2	Full TCL/TAL	763708.7	1186894.0	N1151
SS-06	Soil/Fill	6/27/2014	0 to 0.2	Full TCL/TAL	763700.9	1187042.3	N1151
SS-07	Soil/Fill	6/27/2014	0 to 0.2	Full TCL/TAL	763701.4	1186982.5	N1151
SS-08	Soil/Fill	6/27/2014	0 to 0.2	Full TCL/TAL	763892.0	1187155.4	N1151
SS-09	Soil/Fill	6/27/2014	0 to 0.2	Full TCL/TAL	763709.6	1187282.1	N1151
SS-10	Soil/Fill	6/27/2014	0 to 0.2	Full TCL/TAL	763384.3	1186848.5	N1151
SS-11	Soil/Fill	6/27/2014	0 to 0.2	Full TCL/TAL	763953.6	1187029.0	N1151
MW-G (3')	Soil/Fill	6/13/2014	3	VOC +TICs, SVOCs+TICs, Metals	763493.8	1187059.7	N1080
TB-102 (2')	Soil/Fill	6/11/2014	2	VOC +TICs, SVOCs+TICs, Metals	763618.2	1187105.5	N1080
TB-103 (24')	Soil/Fill	6/12/2014	24	VOC +TICs, SVOCs+TICs, Metals	763702.3	1187227.9	N1080
TB-104 (24')	Soil/Fill	6/12/2014	24	Full TCL/TAL	763588.1	1186964.5	N1080
TB-105 (8-10')	Soil/Fill	6/11/2014	8 to 10	Full TCL/TAL	763855.1	1187069.0	N1080
TB-106 (20')	Soil/Fill	6/11/2014	20	VOC +TICs, SVOCs+TICs, Metals	763747.9	1186817.6	N1080
TB-106a (24')	Soil/Fill	6/19/2014	24	VOC +TICs, SVOCs+TICs, Metals	763695.6	1186818.6	N1128
TB-107 (24')	Soil/Fill	6/13/2014	24	VOC +TICs, SVOCs+TICs, Metals	763456.3	1186903.3	N1080
TB-108 (24')	Soil/Fill	6/12/2014	24	VOC +TICs, SVOCs+TICs, Metals	763728.2	1187134.2	N1080
TP-01 (2')	Soil/Fill	7/30/2014	2	Full TCL/TAL	763664.5	1187061.5	N1385
TP-02 (2.5')	Soil/Fill	7/30/2014	2.5	Full TCL/TAL	763765.5	1186920.1	N1385
TP-03 (6')	Soil/Fill	7/29/2014	6	Full TCL/TAL	763860.2	1186931.5	N1385
TP-04 (1')	Soil/Fill	7/30/2014	1	Full TCL/TAL	763806.4	1186838.4	N1385
TP-05 (1')	Soil/Fill	7/29/2014	1	Full TCL/TAL	764032.4	1186986.1	N1385
TP-07 (3')	Soil/Fill	7/29/2014	3	Full TCL/TAL	763807.3	1187045.7	N1385
TP-08 (12')	Soil/Fill	7/31/2014	12	Full TCL/TAL	763388.8	1186843.2	N1385
TP-08 (12')	Soil/Fill	7/31/2014	12	Alcohols	763388.8	1186843.2	N1529
TP-08 (3')	Soil/Fill	7/30/2014	3	Full TCL/TAL	763388.8	1186843.2	N1385
TP-11 (2-3')	Soil/Fill	7/30/2014	2 to 3	Full TCL/TAL	763672.5	1186822.9	N1385
TP-12 (2.5')	Soil/Fill	7/30/2014	2.5	Full TCL/TAL	763444.0	1186942.5	N1385
TP-13 (12')	Soil/Fill	7/29/2014	12	Full TCL/TAL	763783.1	1187083.3	N1385
TP-13 (9')	Soil/Fill	7/29/2014	9	Full TCL/TAL	763783.1	1187083.3	N1385
TP-A (3')	Soil/Fill	2/21/2014	3	CP-51 List SVOCs+TICs, Metals	763866.1	1187044.4	140642
TP-B (1.5')	Soil/Fill	2/21/2014	1.5	CP-51 List SVOCs+TICs, Metals, TCL PCBs	763863.2	1186937.0	140642
TP-B (5')	Soil/Fill	2/21/2014	5	CP-51 List SVOCs+TICs, Metals	763863.8	1186937.4	140642
TP-C (4')	Soil/Fill	2/21/2014	4	CP-51 List SVOCs+TICs, Metals, TCL PCBs	763740.2	1186982.7	140642
TP-D (8')	Soil/Fill	2/21/2014	8	CP-51 List SVOCs+TICs, Metals	763775.4	1187084.1	140642
TP-G (2') north	Soil/Fill	2/21/2014	2	CP-51 List SVOCs+TICs, Metals	763930.2	1187026.2	140642
TP-G (2') south	Soil/Fill	2/21/2014	2	CP-51 List SVOCs+TICs, Metals	763879.0	1187064.9	140642
TP-I (5")	Soil/Fill	2/21/2014	0.4	CP-51 List SVOCs+TICs, Metals	763778.0	1187104.0	140642

TABLE 2
202 FRANKLIN STREET
OLEAN, NEW YORK
NYSDEC BCP SITE NO. C905043

ANALYTICAL LABORATORY TESTING PROGRAM

Sample Designation	Sample Type	Sample Date	Depth Interval (ft bgs)	Test Parameters	UTM NAD 83 Coordinates (ft)		Laboratory Report ID
					Northing (Y)	Easting (X)	
TP-J (2')	Soil/Fill	2/21/2014	2	CP-51 List SVOCs+TICs, Metals	763675.3	1186994.9	140642
MW-A	Groundwater	6/27/2014	18.34	Full TCL/TAL	763496.8	1186801.0	N1150
MW-A	Groundwater	11/5/2014	19.59	VOC +TICs, SVOCs+TICs, Metals	763496.8	1186801.0	N2170
MW-B	Groundwater	6/26/2014	19.77	Full TCL/TAL	763736.2	1186986.0	N1150
MW-B	Groundwater	11/5/2014	21.97	VOC +TICs, SVOCs+TICs, Metals	763736.2	1186986.0	N2170
MW-C	Groundwater	6/26/2014	19.35	Full TCL/TAL	763995.0	1186888.3	N1150
MW-C	Groundwater	11/5/2014	17.54	VOC +TICs, SVOCs+TICs, Metals	763995.0	1186888.3	N2170
MW-D	Groundwater	6/26/2014	17.04	Full TCL/TAL	763978.7	1187071.6	N1150
MW-D	Groundwater	11/5/2014	21.23	VOC +TICs, SVOCs+TICs, Metals	763978.7	1187071.6	N2170
MW-E	Groundwater	6/25/2014	18.41	Full TCL/TAL	763824.9	1187192.4	N1150
MW-E	Groundwater	11/5/2014	22.86	VOC +TICs, SVOCs+TICs, Metals	763824.9	1187192.4	N2170
MW-F	Groundwater	6/25/2014	18.39	Full TCL/TAL	763624.6	1187259.2	N1150
MW-F	Groundwater	11/5/2014	22.59	**VOC +TICs, SVOCs+TICs, Metals**	763624.6	1187259.2	N2170
MW-G	Groundwater	6/26/2014	24.4	Full TCL/TAL	763493.8	1187059.7	N1150
MW-G	Groundwater	11/5/2014	22.55	**VOC +TICs, SVOCs+TICs, Metals**	763493.8	1187059.7	N2170
UST Contents	wipe sample	8/4/2014	N/A	VOC +TICs, Alcohols	763388.8	1186843.2	N1382
FB072914	Field Blank	7/29/2014	N/A	Full TCL/TAL	N/A	N/A	N1385
FB110514	Field Blank	11/5/2014	N/A	**VOC +TICs, SVOCs+TICs, Metals**	N/A	N/A	N2170
TB110514	Trip Blank	11/5/2014	N/A	VOC +TICs	N/A	N/A	N2170
TB061814	Trip Blank	6/18/2014	N/A	VOC +TICs	N/A	N/A	N1080
TB062614	Trip Blank	6/26/2014	N/A	VOC +TICs	N/A	N/A	N1128
TB070114	Trip Blank	7/1/2014	N/A	VOC +TICs	N/A	N/A	N1150
TB080114	Trip Blank	8/1/2014	N/A	VOC +TICs	N/A	N/A	N1385
TB080514	Trip Blank	8/5/2014	N/A	VOC +TICs	N/A	N/A	N1382

Notes:

TIC = Tentatively Identified Compound

Full TCL/TAL = TCL VOCs, TCL SVOC, TCL PCBs, TCL Pesticides, TAL Metals and Cyanide (as described below)

TCL VOCs = New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) Target Compound List (TCL) Volatile Organic Compounds by USEPA Method 8260

TCL SVOCs =NYSDEC ASP TCL Semi-Volatile Organic Compounds (SVOCs) by USEPA Method 8270

TCL Pesticides = NYSDEC ASP TCL Pesticides by USEPA Method 8081

TCL PCBs = NYSDEC ASP TCL Polychlorinated Biphenyls USEPA Method 8082

TAL Metals = NYSDEC ASP Target Analyte List Metals by USEPA Methods 6010 and 7470

Cyanide by USEPA Method 9012

CP-51 List SVOCs = NYSDEC Commissioner's Policy 51 List SVOCs by USEPA Method 8270 (PAHs)

Alcohols = Alcohols by Gas Chromatograph Method 8015 (modified)

N/C = Not Collected N/A - Not Applicable

TABLE 3a
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043

SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS (VOCS) IN SURFACE SOIL SAMPLES

Contaminant	CAS Number	**A** Unrestricted Use (SCO)	B Restricted Commercial Use (SCO)	SS-01 6/27/2014	SS-02 6/27/2014	SS-03 6/27/2014	SS-04 6/27/2014	SS-05 6/27/2014	SS-06 6/27/2014	SS-07 6/27/2014	SS-08 6/27/2014	SS-09 6/27/2014	SS-10 6/27/2014	SS-11 6/27/2014
Acetone	67-64-1	0.05	500	0.003 J	0.02 J	0.0061 J	0.0081 J	0.056 J **A**	U J	0.018 J	U J	U J	U J	0.0039 J
Methylene chloride	75-09-2	NA	NA	U	U	U	U	0.0019	U	U	U	U	U	U
Total TICs				0.0199	U	U	U	U	U	U	U	U	U	U
Total VOCs and TICs				**0.0229**	**0.02**	**0.0061**	**0.0081**	**0.0579**	**U**	**0.018**	**U**	**U**	**U**	**0.0039**

Notes:

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

J = Estimated Value

N = Considered To Be Positively Identified

NA = Not Available

U = Not Detected

UJ = The analyte was analyzed for, but was not detected. The associated quantitation limit is approximate.

A = Exceeds Unrestricted Use SCO

TABLE 3b
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043

SUMMARY OF DETECTED SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCS) IN SURFACE SOIL SAMPLES

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Restricted Commercial Use (SCO)	SS-01 6/27/2014	SS-02 6/27/2014	SS-03 6/27/2014	SS-04 6/27/2014	SS-05 6/27/2014	SS-06 6/27/2014	SS-07 6/27/2014	SS-08 6/27/2014	SS-09 6/27/2014	SS-10 6/27/2014	SS-11 6/27/2014
1-Methylnaphthalene[1]	90-12-0	NA	NA	U	0.18 J	0.16 J	U	0.1 J	0.34 J	U	0.18 J	0.086 J	U	U
2-Methylnaphthalene	91-57-6	NA	NA	U	0.2 J	0.17 J	U	0.079 J	0.3 J	U	0.23 J	0.074 J	U	U
Acenaphthene	83-32-9	20	500	0.17 J	0.41	0.11 J	0.33 J	U	0.6	U	0.18 J	0.72	0.48	U
Acenaphthylene	208-96-8	100	500	U	0.2 J	0.29 J	0.081 J	U	0.19 J	U	U	0.083 J	U	U
Anthracene	120-12-7	100	500	0.36 J	0.82	0.56	1.2	U	1.4	0.16 J	0.45	2.1	1.6	0.12 J
Benzo(a)anthracene	56-55-3	1	5.6	1.5 **A**	1.7 **A**	1.7 **A**	3.8 **A**	0.21 J	2.6 **A**	0.58	0.92	8.8 **AB**	4.1 **A**	0.46
Benzo(a)pyrene	50-32-8	1	1	1.6 **AB**	1.4 **AB**	1.5 **AB**	3.7 **AB**	0.23 J	2.4 **AB**	0.59	0.75	U	4 **AB**	0.66
Benzo(b)fluoranthene	205-99-2	1	5.6	2.5 **A**	2 **A**	2 **A**	5.1 **A**	0.31 J	2.9 **A**	0.7	1	13 **AB**	5.8 **AB**	0.49
Benzo(g,h,i)perylene	191-24-2	100	500	1.2	0.74	1.6	2.9	0.25 J	2.3	0.53	0.66	7.6	2.9	1.1
Benzo(k)fluoranthene	207-08-9	0.8	56	0.98 **A**	0.78	0.76	2 **A**	0.13 J	1 **A**	0.29 J	0.35 J	5.2 **A**	2.1 **A**	0.16 J
Benzoic acid	65-85-0	NA	NA	U	0.47 J	0.19 J	U	1.5	0.15 J	U	0.13 J	U	U	0.15 J
Bis(2-ethylhexyl)phthalate	117-81-7	NA	NA	U	U	U	0.26 J	U	U	U	U	U	U	U
Carbazole	86-74-8	NA	NA	0.24 J	0.36 J	0.19 J	0.51	U	0.56	U	0.26 J	1.1	0.57	U
Chrysene	218-01-9	1	56	2 **A**	1.6 **A**	1.8 **A**	4.5 **A**	0.29 J	3 **A**	0.67	1	10 **A**	4.9 **A**	0.62
Dibenzo(a,h)anthracene	53-70-3	0.33	0.56	0.25 J	0.23 J	0.31 J	0.72 **AB**	U	0.44 **A**	0.1 J	0.17 J	1.8 **AB**	0.64 **AB**	U
Dibenzofuran	132-64-9	7	350	U	0.34 J	0.14 J	0.18 J	U	0.39 J	U	0.26 J	0.31 J	0.19 J	U
Di-n-butylphthalate	84-74-2	NA	NA	0.11 J	U	U	U	0.12 J	0.74	U	0.18 J	U	U	U
Fluoranthene	206-44-0	100	500	4.1	3.3	2.7	8.7	0.24 J	5.4	1	2	23	12 D	0.53
Fluorene	86-73-7	30	500	0.16 J	0.44	0.15 J	0.4	U	0.56	U	0.22 J	0.72	0.56	U
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	5.6	1.2 **A**	0.9 **A**	1.1 **A**	3.1 **A**	0.18 J	1.5 **A**	0.4 J	0.47	7.8 **AB**	3.2 **A**	U
Naphthalene	91-20-3	12	500	U	0.27 J	0.14 J	U	U	0.4 J	U	0.21 J	U	U	U
Phenanthrene	85-01-8	100	500	2	3.1	1.7	5.1	0.15 J	6	0.7	2	12	6.6 D	0.44
Pyrene	129-00-0	100	500	3	2.5	2.6	7.8	0.26 J	4.9	0.91	1.3	20	8.4 D	0.57
Total TICs				21.82	12.74	19.99	24.61	9.5	29.52	9.89	9.05	15.68	19.87	12.34
Total SVOCs and TICs				43.19	34.68	39.86	74.991	13.549	67.59	16.52	21.97	130.07	77.91	17.64

Notes:
Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

D = Diluted Sample

J = Estimated Value

NA = Not Available

U = Not Detected

A = Exceeds Unrestricted Use SCO

B (Highlighted Value) = Exceeds Restricted Commercial Use SCO

[1] Analyte was not validated.

TABLE 3c
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043

SUMMARY OF PESTICIDE/HERBICIDE/PCBS IN SURFACE SOIL SAMPLES

Contaminant	CAS Number	**A** Unrestricted Use (SCO)	**B** Restricted Commercial Use (SCO)	SS-01 6/27/2014	SS-02 6/27/2014	SS-03 6/27/2014	SS-04 6/27/2014	SS-05 6/27/2014	SS-06 6/27/2014	SS-07 6/27/2014	SS-08 6/27/2014	SS-09 6/27/2014	SS-10 6/27/2014	SS-11 6/27/2014
4,4´-DDE	72-55-9	0.0033	62	U	U	U	U	0.0054 J **A**	U	U	U	U	U	U
4,4´-DDT	50-29-3	0.0033	47	U	U J	0.03 **A**	U	U J	0.029 **A**	U J	U	U	U	U J
Aldrin	309-00-2	0.005	0.68	U	U	U	U	U	U	0.0036 J	0.0096 J **A**	U	U	0.0039 J
alpha-BHC	319-84-6	0.02	3.4	U	U	U	U	0.0045 P, NJ	U	U J	U	U	U	U
alpha-Chlordane	5103-71-9	0.094	24	0.053	U	0.049 J	0.075 J	U	0.0085	U J	U	U J	0.042 J	0.0082 J
Endosulfan II	33213-65-9	2.4	200	U	0.0051 J	U	U	U J	U	U J	U	U	U	U J
Endosulfan sulfate	1031-07-8	2.4	200	0.034 P	U	U	U	U	U	U	U	U	U	U
Endrin aldehyde	7421-93-4	NA	NA	U	U J	U	U	U J	0.017 P, NJ	U J	U	U	U	U J
Methoxychlor	72-43-5	NA	NA	0.34	U	U	U	U	0.11 P, J	U J	U	U	U	U J
Polychlorinated biphenyls	1336-36-3	0.1	1	U	0.13 P,J **A**	0.093	U	U	0.11 **A**	U	U	U	U	U

Notes:

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

NA = Not Available

P = Lower of Two Values Reported From Primary And Confirmation Analyses When > 25% Difference Detected

U = Not Detected

J = Estimated Value

NJ = The detection is tentative in identification and estimated in value.

UJ = The analyte was analyzed for, but was not detected. The associated quantitation limit is approximate.

A = Exceeds Unrestricted Use SCO

TABLE 3d
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043

SUMMARY OF TAL METALS AND CYANIDE IN SURFACE SOIL SAMPLES

Contaminant	CAS Number	**A** Unrestricted Use (SCO)	**B** Restricted Commercial Use (SCO)	SS-01 6/27/2014		SS-02 6/27/2014		SS-03 6/27/2014		SS-04 6/27/2014		SS-05 6/27/2014		SS-06 6/27/2014		SS-07 6/27/2014		SS-08 6/27/2014		SS-09 6/27/2014		SS-10 6/27/2014		SS-11 6/27/2014	
Aluminum	7429-90-5	NA	NA	8320		9310		10800		2990		3900		6470		12400		2850		6390		6180		7570	
Antimony	7440-36-0	NA	NA	2.2 N		0.83 b,N		1.3 N		U N		0.69 b,N		U N		1.1 N,J		0.58 b,N		0.63 b,N		0.77 b,N		1.9 N	
Arsenic	7440-38-2	13	16	51.6 N	**AB**	12.4 N		24.8 N	**AB**	3.7 N		18.2 N	**AB**	3.4 N		14 N,J	**A**	20.4 N	**AB**	8.6 N		11.6 N		15.4 N	**A**
Barium	7440-39-3	350	400	230 N		131 N		183 N		31 N		97.5 N		143 N		135 N,J		44.7 N		58.5 N		89.9 N		105 N	
Beryllium	7440-41-7	7.2	590	0.91 N		0.46 N		0.88 N		0.14 b,N		0.67 N		0.22 N		0.66 N,J		0.46 N		0.32 N		0.45 N		0.55 N	
Cadmium	7440-43-9	2.5	9.3	2.1 N		0.46 N		0.38 N		0.04 b,N		0.082 b,N		0.16 b,N		0.43 N,J		0.39 N		0.21 b,N		0.44 N		0.49 N	
Calcium	7440-70-2	NA	NA	5160		1840		3380		2140		898		6520		1950		572		8970		6080		2110	
Chromium	7440-47-3	30	1,500	24.8 N		12.1 N		19.8 N		5.2 N		8.6 N		3.6 N		15.9 N,J		6.5 N		15.6 N		12.1 N		13.4 N	
Cobalt	7440-48-4	NA	NA	6.6 N		7.1 N		8.7 N		2.3 N		4.8 N		0.86 b,N		9 N,J		5.5 N		5.8 N		5.7 N		7.9 N	
Copper	7440-50-8	50	270	105 N	**A**	117 N	**A**	84.4 N	**A**	14.2 N		47.7 N		5.3 N		44.1 N,J		28.9 N		27.2 N		31.8 N		74.1 N	**A**
Iron	7439-89-6	NA	NA	25100		18800		35200		7760		33100		3610		22300		20800		16300		17300		25700	
Lead	7439-92-1	63	1000	441	**A**	149	**A**	134	**A**	16.3		25		23.5		100	**A**	37.3		44.3		62.5		213	**A**
Magnesium	7439-95-4	NA	NA	1310		1760		1840		1170		297		756		2140		313		3100		2090		1490	
Manganese	7439-96-5	1600	10,000	397		533		586		258		61.8		94.1		725		96.8		554		625		454	
Mercury	7439-97-6	0.18	2.8	0.081		0.44	**A**	0.12		0.097		0.029 b		0.12		0.072		0.05 b		0.011 b		0.056		0.077	
Nickel	7440-02-0	30	310	35.7 N	**A**	14.2 N		20.8 N		6 N		10.9 N		2.4 N		19.7 N,J		8.5 N		14.5 N		15 N		18.8 N	
Potassium	7440-09-7	NA	NA	1180		696		900		299		430		610		989		223		563		731		678	
Selenium	7782-49-2	3.9	1,500	7.2 N	**A**	1.1 b,N		2.3		U N		U N		U N		0.88 b,N,J		1.1 N		U N		1.5 N		0.88 b,N	
Silver	7440-22-4	2	1,500	0.28 b		0.17 b		0.38 b		U		U N		U		U		0.088 b		U		U		0.079 b	
Sodium	7440-23-5	NA	NA	180		20.1 b		44.9 b		93.3		43.4 b		327		30.3 b		12.3 b		30.3 b		59.8		26.1 b	
Thallium	7440-28-0	NA	NA	0.37 b,N		U N		U N		U N		U N		U N		U N		U N		U N		U N		U N	
Vanadium	7440-62-2	NA	NA	22.2 N		15.7 N		22.9 N		3.9 N		19.1 N		6.6 N		22.5 N,J		10.7 N		11 N		12.6 N		18.8 N	
Zinc	7440-66-6	109	10,000	333 N	**A**	210 N	**A**	139 N	**A**	80.3 N		32.5 N		46.9 N		124 N,J	**A**	77.1 N		91.6 N		114 N	**A**	215 N	**A**
Total Cyanide	NA	27	27	U		U		U		U		U		U		U		U		U		U		U	

Notes:

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

b = Trace Concentration Below Reporting Limit And Equal To Or Above Detection Limit

N = Matrix Spike Recovery Falls Outside Control Limit

NA = Not Available

U = Not Detected

J = Estimated Value

A = Exceeds Unrestricted Use SCO

B (Highlighted Value) = Exceeds Restricted Commercial Use SCO

TABLE 4a
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043

SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS (VOCS) IN SOIL/FILL SAMPLES

Contaminant	CAS Number	**A** Unrestricted Use (SCO)	B Restricted Commercial Use (SCO)	MW-G (3') 6/13/2014	TB-102 (2') 6/11/2014	TB-103 (24') 6/12/2014	TB-104 (24') 6/12/2014	TB-105 (8-10') 6/11/2014	TB-106 (20') 6/11/2014	TB-106a (24') 6/19/2014	TB-107 (24') 6/13/2014	TB-108 (24') 6/12/2014	TP-01 (2') 7/30/2014	TP-02 (2.5') 7/30/2014
2-Butanone	78-93-3	NA	NA	U J	U J	U J	0.0012 J	U J	U J	U J	U J	U J	U J	U J
Acetone	67-64-1	0.05	500	0.035 J	0.0015 J	U J	0.0052 NJ	U J	0.0013 J	0.0074 J	U J	0.0052 J	U J	1.1 J **A**
Carbon disulfide	75-15-0	NA	NA	U J	U	U	U	U	U	U	U	0.001 J	U	U
cis-1,2-Dichloroethene	156-59-2	0.25	500	U J	U	U	U	U	U	U	U	U J	0.0014 J	U
Ethylbenzene	100-41-4	1	390	U J	U	U	U	U	U	U	U	U J	U	U
Isopropylbenzene	98-82-8	NA	NA	U J	U	U	U	U	U	U	U	U J	U	U
4-Isopropyltoluene	99-87-6	NA	NA	U	U	U	U	U	U	U	U	U	U	U
Methylene chloride	75-09-2	500	500	U J	U	U	U	U	U	0.0033 J+	U	U J	U	0.35
Naphthalene	91-20-3	12	500	U	0.0019 J	U	U	U	U	U	U	U	U	0.027 J
n-Butylbenzene	104-51-8	12	500	U J	U	U	U	U	U	U	U	U J	U	U
n-Propylbenzene	103-65-1	3.9	500	U	U	U	U	U	U	U	U	U	U	U
sec-Butylbenzene	135-98-8	11	500	U	U	U	0.0006 J	U	U	U	U	U	U	U
tert-Butylbenzene	98-06-6	5.9	500	0.021	U	U	0.012	U	U	0.0057	0.25	U	U	U
Toluene	108-88-3	0.7	500	U J	U	U	U	U	U	U	U	U J	U	0.011 J
Trichloroethene	79-01-6	0.7	200	U J	U	U	U J	U	U	U	U	U J	U	U
1,2,4-Trimethylbenzene[1]	95-63-6	3.6	190	U	U	U	U	U	U	U	U	U	U	0.021 J
1,3,5-Trimethylbenzene[1]	108-67-8	8.4	190	U	U	U	U	U	U	U	U	U	U	U
Mixed Xylenes	NA	0.26	500	U J	U	U	U	U	U	U	U	U J	U	U
Total TICs				21.7	U	U	2.73	U	U	1.096	66.7	0.143	U	U
VOCs + TICs				21.756	0.0034	U	2.749	U	0.0013	1.1124	66.95	0.1492	0.0014	1.509

Contaminant	CAS Number	**A** Unrestricted Use (SCO)	B Restricted Commercial Use (SCO)	TP-03 (6') 7/29/2014	TP-04 (1') 7/30/2014	TP-05 (1') 7/29/2014	TP-07 (3') 7/29/2014	TP-08 (3') 7/30/2014	TP-08 (12') 7/31/2014	TP-11 (2-3') 7/30/2014	TP-12 (2.5') 7/30/2014	TP-13 (9') 7/29/2014	TP-13 (12') 7/29/2014
2-Butanone	78-93-3	NA	NA	U J	U J	U J	U J	U J	U J	0.033 J	0.02 J	U J	U J
Acetone	67-64-1	0.05	500	0.0048 J	U J	U J	0.0005 J	U J	0.0039 J	0.2 J **A**	0.068 J **A**	0.047 J	0.12 J **A**
Carbon disulfide	75-15-0	NA	NA	U	U	U J	U R	U	U	0.004 J	U J	U	U
cis-1,2-Dichloroethene	156-59-2	0.25	500	0.0017 J	U	0.0032 J	0.0003 J	U	0.0022 J	U	0.0066 J	0.0012 J	0.0049 J
Ethylbenzene	100-41-4	1	390	U	U	U J	U J	U	U	0.0017 J	U J	U	0.0013 J
Isopropylbenzene	98-82-8	NA	NA	U	U	U J	U J	U	U	0.0013 J	U J	U	U
4-Isopropyltoluene	99-87-6	NA	NA	U	U	U J	U	U	U	0.004 J	U J	U	U
Methylene chloride	75-09-2	500	500	0.0031 J	U	U	0.0004 J	U	U	0.032 J	U J	0.05	0.02
Naphthalene	91-20-3	12	500	U	U	U	U	U	U	0.0089 J	0.0013 J	U	U
n-Butylbenzene	104-51-8	12	500	U	U	U	U	U	U	0.0025 J	U	U	U
n-Propylbenzene	103-65-1	3.9	500	U	U	U	U	U	U	0.0038 J	U	U	U
sec-Butylbenzene	135-98-8	11	500	U	U	U	U	U	U	U	U	U	U
tert-Butylbenzene	98-06-6	5.9	500	U	U	U	U	U	U	U	0.0015 J	U	U
Toluene	108-88-3	0.7	500	U	U	U J	U J	U	U	0.0047 J	U J	U	U
Trichloroethene	79-01-6	0.7	200	0.0042 J	U	U J	U J	U	U	U	U J	U	U
1,2,4-Trimethylbenzene[1]	95-63-6	3.6	190	U	U	U	U	U	U	0.036 J	U	U	U
1,3,5-Trimethylbenzene[1]	108-67-8	8.4	190	U	U	U	U	U	U	0.012 J	U	U	U
Mixed Xylenes	NA	0.26	500	U	U	U J	U J	U	U	0.0155 J	U J	U	U
Total TICs				U	U	0.0087	0.0018	U	U	0.165	0.327	U	U
VOCs + TICs				0.0138	U	0.0119	0.003	U	0.0061	0.5244	0.4244	0.0982	0.1462

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

[1] Analyte not validated. J = Estimated Value NA = Not Available U = Not Detected R = The sample results are rejected due to deficiencies in meeting quality control limits

A = Exceeds Unrestricted Use SCO J+ = The analyte was positively identified; the numerical value is an estimated quantity that may be biased high.

TABLE 4b
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043

SUMMARY OF DETECTED SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCS) IN SOIL/FILL SAMPLES

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Restricted Commercial Use (SCO)	MW-G (3') 6/13/2014	TB-102 (2') 6/11/2014	TB-103 (24') 6/12/2014	TB-104 (24') 6/12/2014	TB-105 (8-10') 6/11/2014	TB-106 (20') 6/11/2014	TB-106a (24') 6/19/2014	TB-107 (24') 6/13/2014	TB-108 (24') 6/12/2014	TP-A (3') 2/21/2014	TP-B (1.5') 2/21/2014	TP-B (5') 2/21/2014	TP-C (4') 2/21/2014	TP-D (8') 2/21/2014	TP-G (2') North 2/21/2014
1-Methylnaphthalene[1]	90-12-0	NA	NA	0.17 J	U	U	U	U	U	U	U	U	NT	NT	NT	NT	NT	NT
2-Methylnaphthalene	91-57-6	NA	NA	0.23 J	U	U	U	U	U	U	U	U	NT	NT	NT	NT	NT	NT
2,4-Dimethylphenol	105-67-9	NA	NA	U	U	U	U	U	U	U	U	U	NT	NT	NT	NT	NT	NT
2-Methylphenol	95-48-7	NA	500	U	U	U	U	U	U	U	U	U	NT	NT	NT	NT	NT	NT
4-Methylphenol	106-44-5	NA	500	U	U	U	U	U	U	U	U	U	NT	NT	NT	NT	NT	NT
Acenaphthene	83-32-9	20	500	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Acenaphthylene	208-96-8	100	500	U	U	U	U	U	U	U	U	U	U	U	U	U	U	2.85 J
Anthracene	120-12-7	100	500	0.087 J	U	U	U	U	U	U	U	U	U	U	U	U	U	13.7
Benz(a)anthracene	56-55-3	1	5.6	0.39 J	U	U	U	U	U	U	U	U	2.95 J A	U	U	U	7.8 AB	9.95 AB
Benzo(a)pyrene	50-32-8	1	1	0.45	U	U	U	U	U	U	U	U	2.4 J AB	U	U	U	10.3 AB	9.98 AB
Benzo(b)fluoranthene	205-99-2	1	5.6	0.67	U	U	U	U	U	U	U	U	2.16 J A	U	U	U	9.7 AB	12.9 AB
Benzo(g,h,i)perylene	191-24-2	100	500	0.38 J	U	U	U	U	U	U	U	U	U	1.94	0.29 J	U	9.64	9.53
Benzo(k)fluoranthene	207-08-9	0.8	56	0.21 J	U	U	U	U	U	U	U	U	2.13 J A	U	U	U	9.19 A	8.03 A
Bis(2-ethylhexyl)phthalate	117-81-7	NA	NA	U	0.09 J	0.11 J	U	U	0.078 J	U	U	U	NT	NT	NT	NT	NT	NT
Butylbenzylphthalate	85-68-7	NA	NA	U	U	U	U	U	U	U	U	U	NT	NT	NT	NT	NT	NT
Carbazole	86-74-8	NA	NA	U	U	U	U	U	U	U	U	U	NT	NT	NT	NT	NT	NT
Chrysene	218-01-9	1	56	0.54	U	U	U	U	U	U	U	U	3.08 J A	U	0.253 J	U	12.3 A	13 A
Dibenz(a,h)anthracene	53-70-3	0.33	0.56	0.098 J	U	U	U	U	U	U	U	U	U	U	U	U	U	3.08 J AB
Dibenzofuran	132-64-9	7	350	U	U	U	U	U	U	U	U	U	NT	NT	NT	NT	NT	NT
Di-n-butylphthalate	84-74-2	NA	NA	U	U	U	U	U	U	U	U	U	NT	NT	NT	NT	NT	NT
Fluoranthene	206-44-0	100	500	0.63	U	U	U	U	U	U	U	U	6.38	U	U	U	22	13.9
Fluorene	86-73-7	30	500	U	U	U	U	U	U	U	U	U	U	U	U	U	U	2.01 J
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	5.6	0.3 J	U	U	U	U	U	U	U	U	U	U	U	U	7.13 AB	9.07 AB
Naphthalene	91-20-3	12	500	0.15 J	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Phenanthrene	85-01-8	100	500	0.32 J	U	U	U	U	U	U	U	U	6.41	U	0.258 J	U	9.62	11.9
Phenol	108-95-2	0.33	500	U	U	U	U	U	U	U	U	U	NT	NT	NT	NT	NT	NT
Pyrene	129-00-0	100	500	0.65	U	U	U	U	U	U	U	U	5.94	U	0.283 J	U	18.2	14.9
Total TICs				9.78 NJ	3.2	3.6	8.58	3.53	3.19	9.34	15.47	5.91	43.67	11.402	6.213	381.2	59.02	115.37
SVOCs + TICs				15.055	3.29	3.71	8.58	3.53	3.268	9.34	15.47	5.91	75.12	13.342	7.297	381.2	174.9	250.17

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Restricted Commercial Use (SCO)	TP-G (2') South 2/21/2014	TP-I (5") 2/21/2014	TP-J (2') 2/21/2014	TP-01 (2') 7/30/2014	TP-02 (2.5') 7/30/2014	TP-03 (6') 7/29/2014	TP-04 (1') 7/30/2014	TP-05 (1') 7/29/2014	TP-07 (3') 7/29/2014	TP-08 (3') 7/30/2014	TP-08 (12') 7/31/2014	TP-11 (2-3') 7/30/2014	TP-12 (2.5') 7/30/2014	TP-13 (9') 7/29/2014	TP-13 (12') 7/29/2014
1-Methylnaphthalene[1]	90-12-0	NA	NA	NT	NT	NT	0.3 J	0.13 J	U	0.42	U	U	U	U	0.29 J	0.24 J	0.14 J	U
2-Methylnaphthalene	91-57-6	NA	NA	NT	NT	NT	0.21 J	0.11 J	U	0.34 J	U	U	U	U	0.28 J	0.2 J	0.16 J	U
2,4-Dimethylphenol	105-67-9	NA	NA	NT	NT	NT	U	U	U	U	U	U	0.13 J	U	0	U	U	U
2-Methylphenol	95-48-7	NA	500	NT	NT	NT	U	U	U	U	U	U	0.16 J	U		U	U	U
4-Methylphenol	106-44-5	NA	500	NT	NT	NT	U	U	U	U	U	U	0.27 J	U	0.15 J	U	U	U
Acenaphthene	83-32-9	20	500	6.92 J	U	U	0.77	U	U	0.11 J	U	U	U	U	0.34 J	0.38 J	0.24 J	U
Acenaphthylene	208-96-8	100	500	U	U	U	0.42	U	U	U	U	0.084 J	U	U	U	0.15 J	0.16 J	U
Anthracene	120-12-7	100	500	21.9	U	2.78	2.3	0.16 J	U	0.22 J	U	0.18	0.18 J	U	0.82	0.77	1.1	0.38 J
Benz(a)anthracene	56-55-3	1	5.6	28.6 AB	51.8 J AB	5.45 A	5.2 A	3.1 J A	U	0.39	U	0.51	0.34	U	1.4 A	2 A	1.9 NJ A	0.98
Benzo(a)pyrene	50-32-8	1	1	22.2 AB	88.1 J AB	4.53 AB	3.6 AB	3.3 J AB	U	0.21 J	0.089 J	0.56	0.36	U	2.5 AB	1.7 AB	1.9 AB	1.9 AB
Benzo(b)fluoranthene	205-99-2	1	5.6	19.8 AB	U	4.4 A	4.3 A	2.1 J A	U	0.32 J	U	0.66	0.47	U	2 A	2.3 A	2.3 A	1.3 A
Benzo(g,h,i)perylene	191-24-2	100	500	13.6	124 A	2.83	2.5	3.3 J	0.66	0.15 J	0.18 J	0.72	0.18	U	3	1.1	U	1.9
Benzo(k)fluoranthene	207-08-9	0.8	56	19 A	U	3.44 A	1.9 A	1.6 J A	U	0.11 J	U	0.25 J	0.21	U	0.44 J	0.81 A	0.71	0.38 J
Bis(2-ethylhexyl)phthalate	117-81-7	NA	NA	NT	NT	NT	U	U	U	U	U	U	U	U	U	U	U	U
Butylbenzylphthalate	85-68-7	NA	NA	NT	NT	NT	U	U	U	U	U	U	U	U	U	U	0.48	1.2
Carbazole	86-74-8	NA	NA	NT	NT	NT	0.58	U	U	U	U	0.088 J	U	U	0.34 J	0.34 J	0.53	0.29 J
Chrysene	218-01-9	1	56	28.1 A	79.8 J AB	5.56 A	4.5 A	3.1 J A	U	0.41	U	0.6	0.41	U	2 A	2.1 A	1.7 A	1.6 A
Dibenzo(a,h)anthracene	53-70-3	0.33	0.56	5.47 J AB	U	1.21 J AB	0.75 AB	0.57 J AB	U	U	U	0.13 J	U	U	0.66 AB	0.31 J	0.41 A	U
Dibenzofuran	132-64-9	7	350	NT	NT	NT	0.47	U	U	0.18 J	U	U	U	U	0.33 J	0.26 J	0.34 J	U
Di-n-butylphthalate	84-74-2	NA	NA	NT	NT	NT	U	U	U	U	U	U	0.46 J	U	0.38 J	U	0.53	0.18 J
Fluoranthene	206-44-0	100	500	61.5	U	12.2	10 D	0.34 J	U	0.6	U	0.88	0.75	U	2.9	4.1	3.8	1.6
Fluorene	86-73-7	30	500	11.7	U	1.29 J	0.86	U	U	0.11 J	U	U	U	U	0.42 J	0.34 J	0.42	U
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	5.6	16.3 AB	U	2.6 A	2.6 A	1 A	U	0.15 J	U	0.43	0.22	U	1.4 A	1.2 A	U	0.6 J A
Naphthalene	91-20-3	12	500	8.87	U	0.946 J	0.18 J	U	U	0.16 J	U	U	U	U	0.47 J	0.19 J	0.28 J	U
Phenanthrene	85-01-8	100	500	73.9	U	12.1	8.5 D	0.75 J	U	1.2	U	0.7	0.53 J	U	3.5	3.7	3.7	1.3
Phenol	108-95-2	0.33	500	NT	NT	NT	U	U	U	U	U	U	0.75 A	U	U	U	U	U
Pyrene	129-00-0	100	500	46.1	111 A	9.26	7.4 D	5.7 J	U	0.49	U	0.75	0.49	U	2.1	3	2.2	1.1
Total TICs				183.29	1,708	41.58	26.28	79.9	5.37	18.12	4.97	6.41	4.81	8.7	23.85	9.75	15.79	10.45
SVOCs + TICs				567.25	2163	110.18	83.62	105.16	6.03	23.69	5.239	12.952	10.72	8.7	49.57	34.94	38.79	25.16

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

[1] Analyte not validated.

D = Diluted Sample   NA = Not Available   NT = Not Tested   J = Estimated Value   U = Not Detected   NJ = The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive

A = Exceeds Unrestricted Use SCO   **B (Highlighted Value)** = Exceeds Restricted Commercial Use SCO

TABLE 4c
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043

SUMMARY OF DETECTED PESTICIDE/HERBICIDE/PCBS IN SOIL/FILL SAMPLES

Contaminant	CAS Number	**A** Unrestricted Use (SCO)	B Restricted Commercial Use (SCO)	TB-104 (24') 6/12/2014	TB-105 (8-10') 6/11/2014	TP-B (1.5') 2/21/2014	TP-C (4') 2/21/2014	TP-01 (2') 7/30/2014	TP-02 (2.5') 7/30/2014	TP-03 (6') 7/29/2014	TP-04 (1') 7/30/2014	TP-05 (1') 7/29/2014	TP-07 (3') 7/29/2014	TP-08 (3') 7/30/2014	TP-08 (12') 7/31/2014	TP-11 (2-3') 7/30/2014	TP-12 (2.5') 7/30/2014	TP-13 (9') 7/29/2014	TP-13 (12') 7/29/2014
4,4´-DDD	72-54-8	0.0033	92	U J	U	NT	NT	0.0064 J **A**	U	U J	0.011 P, NJ **A**	U	U	U J	U J	U	U	U	U
4,4´-DDE	72-55-9	0.0033	62	U J	U	NT	NT	U	U	U J	U J	U	U	0.006 P, J **A**	U J	U	U	U J	U
4,4´-DDT	50-29-3	0.0033	47	U J	U	NT	NT	U J	0.014 J **A**	U J	U J	U J	0.012 J **A**	U J	U J	U J	U J	0.024 J **A**	U J
Aldrin	309-00-2	0.005	0.68	U J	U	NT	NT	U	U	U J	U J	U	U	U J	U J	U	U	U J	U
alpha-BHC	319-84-6	0.02	3.4	U J	U	NT	NT	U	0.012 J	U J	U J	U	U	U J	U J	U	U	0.0051 J	U
alpha-Chlordane	5103-71-9	0.094	24	U J	U	NT	NT	U	0.009 P, NJ	U J	U J	U	U J	U J	U J	U	U	U J	U J
Dieldrin	60-57-1	0.005	1.4	U J	U	NT	NT	U	U	U J	U J	U	U J	U J	U J	U	U	U	U
Endosulfan II	33213-65-9	2.4	200	U	U	NT	NT	U	U	U J	U J	U	U	U J	U J	U	U	U J	U
Endosulfan sulfate	1031-07-8	2.4	200	U J	U	NT	NT	U J	0.047 J	U J	U J	U J	0.0037 R	U J	U J	U J	0.018 P, J	U J	U J
Endrin aldehyde	7421-93-4	NA	NA	U J	U	NT	NT	U	U	U J	0.0075 P, NJ	U	U	U J	U J	U	U	U J	0.59 J
Endrin ketone	53494-70-5	NA	NA	U J	U	NT	NT	0.01 J	U	U J	U J	U	U	U J	U J	U	U	U J	U J
gamma-BHC (Lindane)	58-89-9	0.1	9.2	U J	U	NT	NT	U	U	U J	U J	U	U J	U J	U J	U	U	U J	U
gamma-Chlordane	5103-74-2	NA	NA	U J	U	NT	NT	0.0027 P, NJ	U	U J	U J	U	U	U J	U J	U	U	U	U J
Heptachlor epoxide	1024-57-3	NA	NA	U J	U	NT	NT	U	U	U J	U J	U	U	U J	U J	U	U	0.0051 P, J	U
Polychlorinated biphenyls	1336-36-3	0.1	1	U	U	U J	U J	U	U	U	U	U	0.056 P, J	U	U	U	U J	0.12 **A**	0.2 **A**

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

NT = Not Tested

NJ = The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative value.

R = The sample results are rejected due to deficiencies in meeting quality control limits

J = Estimated Value

NA = Not Available

P = Lower of Two Values Reported From Primary And Confirmation Analyses When > 25% Difference Detected

U = Not Detected

A = Exceeds Unrestricted Use SCO

TABLE 4d
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043

SUMMARY OF TAL METALS AND CYANIDE IN SOIL/FILL SAMPLES

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Restricted Commercial Use (SCO)	MW-G (3') 6/13/2014	TB-102 (2') 6/11/2014	TB-103 (24') 6/12/2014	TB-104 (24') 6/12/2014	TB-105 (8-10') 6/11/2014	TB-106 (20') 6/11/2014	TB-106a (24') 6/19/2014	TB-107 (24') 6/13/2014	TB-108 (24') 6/12/2014	TP-A (3') 2/21/2014	TP-B (1.5') 2/21/2014	TP-B (5') 2/21/2014	TP-C (4') 2/21/2014	TP-G (2') North 2/21/2014
Aluminum	7429-90-5	NA	NA	6870 *	19300 *	5300 *	5930 *	6340 *	3940 *	3900	5210 *	2710 *	10,900	3,820	9,510	7,610	5,470
Antimony	7440-36-0	NA	NA	0.82 b,N	U N	0.4 b,N	U N	0.45 b,N	0.5 b,N	U	U N	0.5 b,N	U	U	U	U	U
Arsenic	7440-38-2	13	16	29.4 AB	8.1	7.2	8.7	6.3	4.6	5.7	11.1	7.7	60.2 AB	14.3 A	15.1 A	7.64	26.3 AB
Barium	7440-39-3	350	400	156	55.5	76.5	44.8	32.4	22.7	49 b	38.8	26.9	161	89.9	99.2	193	86.7
Beryllium	7440-41-7	7.2	590	0.65	0.5	0.2 b	0.22 b	0.26	0.19 b	0.17 J	0.18 b	0.14 b	2.82	0.537 J	0.962	U	0.534 J
Cadmium	7440-43-9	2.5	9.3	0.22 b	0.14 b	0.12 b	0.094 b	0.13 b	0.16 b	0.036 J	0.076 b	0.09 b	4.77 A	3.03 A	3.16 A	4.2 A	3.7 A
Calcium	7440-70-2	NA	NA	5490	2020	68000	52700	52000	27800	38000	23900	54500	15,800	2,610	6,150	78,000	5,870
Chromium	7440-47-3	30	1,500	13.1	19.6	7.1	7.6	8.1	4.4	4.8	4.9	3.7	30.7 A	11.7	13.1	18	12
Cobalt	7440-48-4	NA	NA	4.4	11.6	4.1	4.5	4.4	4.6	3.7	4.6	2.5	13.8	6.33	9.92	3.37 J	6.27 J
Copper	7440-50-8	50	270	215 A	18.8	21	20.6	22.7	13.9	18	19.9	15.9	105 A	130 A	59 A	20.7	41.9
Iron	7439-89-6	NA	NA	19100 *	25100 *	13000 *	12700 *	12900 *	11200 *	9400	12300 *	8010 *	31,300	22,400	25,600	9,420	28,300
Lead	7439-92-1	63	1000	388 A	16.7	7.2	7.2	8.1	4.6	7.2	9.1	9.1	119 A	126 A	139 A	280 A	85.7 A
Magnesium	7439-95-4	NA	NA	1000 *	3900 *	6770 *	9820 *	6610 *	2560 *	5600 b	3500 *	6110 *	4,910	865	1,360	3,520	1,140
Manganese	7439-96-5	1600	10,000	78.9	601	713	557	634	394	620	371	854	549	163	896	300	290
Mercury	7439-97-6	0.18	2.8	0.2 A	0.029 b	U	0.0036 b	0.0031 b	U	0.0039 J	U	U	0.159	0.055	0.121	0.362 A	0.299 A
Nickel	7440-02-0	30	310	12 *	17.7 *	10.5 *	10.9 *	11.4 *	9.9 *	9	10.6 *	5.7 *	27.7	16.7	25.1	9.65	15.6
Potassium	7440-09-7	NA	NA	602	1630	578	704	737	387	460	494	320	1,670	317	745	797	595
Selenium	7782-49-2	3.9	1,500	4.1 b A	U	U	U	U	0.82 b	U	U	U	U	U	U	U	U
Silver	7440-22-4	2	1,500	0.35	0.12	U	U	U	U	U	U	U	U	U	U	U	U
Sodium	7440-23-5	NA	NA	357	217	78.8	76	74.9	35.1 b	63 b	45.4 b	99	326 J	U	U	170 J	U
Thallium	7440-28-0	NA	NA	0.9 b	U	0.57 b	0.43 b	U	U	U	U	U	U	U	U	U	U
Vanadium	7440-62-2	NA	NA	16.6 *	30.6 *	8.1 *	8.4 *	10.2 *	5.9 *	6.4	7.9 *	6.1 *	26.6	15.7	17	53.3	17.6
Zinc	7440-66-6	109	10,000	87.1 N*	67.7 N*	63.4 N*	58.1 N*	94.8 N*	158 N* A	46 b	55.4 N*	38.9 N*	1,160 A	274 A	459 A	882 A	220 A
Total Cyanide	NA	27	27	NT	NT	NT	U	U	NT	NT	NT	NT	NT	NT	NT	NT	NT

Contaminant	CAS Number	A Unrestricted Use (SCO)	B Restricted Commercial Use (SCO)	TP-G (2') South 2/21/2014	TP-J (2') 2/21/2014	TP-01 (2') 7/30/2014	TP-02 (2.5') 7/30/2014	TP-03 (6') 7/29/2014	TP-04 (1') 7/30/2014	TP-05 (1') 7/29/2014	TP-07 (3') 7/29/2014	TP-08 (3') 7/30/2014	TP-08 (12') 7/31/2014	TP-11 (2-3') 7/30/2014	TP-12 (2.5') 7/30/2014	TP-13 (9') 7/29/2014	TP-13 (12') 7/29/2014
Aluminum	7429-90-5	NA	NA	5,030	5,430	4310	1910	12900	1170	18400	8710	7110	21700	5380	9260	6550	6760
Antimony	7440-36-0	NA	NA	U	U	0.76 b	1.9	2.2	0.67 bN	6.2	1.4 N, J	U	U N	1.4 b	0.7 bN	1.8 N	2.2 N
Arsenic	7440-38-2	13	16	27.4 AB	14.3 A	9.9	7.6	23.7 AB	39.8 AB	25 AB	10.2	22.3 AB	6.4	6.5	62.2 A	12.3	25.2 AB
Barium	7440-39-3	350	400	59.4	179	207	240	126	78.7 E*	436 AB	872 E* AB	196	74.2 E*	101	160 E*	99.3 E*	606 E* AB
Beryllium	7440-41-7	7.2	590	0.532 J	0.998	0.19 b	0.054 b	0.44	0.28	0.19 b	0.16 b	1.1	0.87	0.18 b	0.57	0.12 b	0.18 b
Cadmium	7440-43-9	2.5	9.3	4.56 A	2.83 A	0.28 b	0.53	0.61	0.21 b*	16.3 AB	0.78 *, J	2.8 A	1.1 *	0.51	0.41 *	1.6 *	7.3 * A
Calcium	7440-70-2	NA	NA	3,220	3,770	22800	451	3490	1670	4260	77300	5380	10400	601	2340	64000	61200
Chromium	7440-47-3	30	1,500	11.5	14.1	9.1	81.8 A	22.5	7.2 E	100 A	12 E	16.8	51.4 E A	103 A	18 E	22.9 E	52.7 E A
Cobalt	7440-48-4	NA	NA	6.33	5.67 J	4.3	0.95 b	5.5	1.7 bE	28.3	3.8 E, J	5.5	4.9 E	2.2 b	6 E	4.9 E	16.4 E
Copper	7440-50-8	50	270	40.6	166 A	40.4	38.2	202 A	21.1	357 AB	53.7 A	111 A	14	41.5	375 A	54.9 A	271 AB
Iron	7439-89-6	NA	NA	37,000	18,700	13000	1700	19000	12400 E*	239000	17800 E*, J	16300	16400 E*	2550	22800	41500 E*	202000 E*
Lead	7439-92-1	63	1000	48.4	100 A	437 A	635 A	327 A	35.9 E	1150 AB	1200 E, J AB	296 A	102 E A	656 A	1470 E A	95.1 E A	347 E A
Magnesium	7439-95-4	NA	NA	1,090	718	1670	87.4	1720	201 E	756	7320 E	949	18700 E	196	1620 E	7260 E	7840 E
Manganese	7439-96-5	1600	10,000	269	120	271	10.6	318	25.9 E	2800 A	455 E	78.2	337 E	22.1	106 E	456 E	1190 E
Mercury	7439-97-6	0.18	2.8	0.0705	0.0408	1.2 A	0.22 A	0.16	0.25 A	0.06	0.069	0.082	0.03 B	0.58 A	0.31 A	0.3 A	0.2 A
Nickel	7440-02-0	30	310	14.5	19.3	8.1	9.8	14.4	5 E	68 A	10.1 E, J	41.1 A	13.3 E	13.8	28.5 E	14.2 E	37.3 E A
Potassium	7440-09-7	NA	NA	529	545	502	45.1 b	545	259	313	747	601	2070	74.1 b	1220	660	1110
Selenium	7782-49-2	3.9	1,500	U	U	0.9 b	U	2.9	2.5	U	U	2.2	3.4	U	8.7 A	U	U
Silver	7440-22-4	2	1,500	U	U	U	0.3 b	U	0.1 b	U	0.14 b	U	U	0.45 b	0.4 b	0.21 b	3.7 A
Sodium	7440-23-5	NA	NA	U	192 J	175	12.3 b	34.8 b	72	75.5	142	181	922	20.1 b	1790	153	174
Thallium	7440-28-0	NA	NA	U	U	U	U	U	1.1	U	0.88 b	1.1 b	U	U	0.68 b	0.46 b	U
Vanadium	7440-62-2	NA	NA	17.7	19.5	10.2	4.2	17.2	15.1 E*	5.2	16.9 E*	21.8	43.6 E*	5.7	27.6 E*	21.3 E*	82.2 E*
Zinc	7440-66-6	109	10,000	280 A	96	180 A	376 A	323 A	22 NE*	8800 A	369 NE*, J A	387 A	71.8 NE*	467 A	172 NE* A	225 NE* A	925 NE* A
Total Cyanide	NA	27	27	NT	NT	U	4.4 J	U	U N	U	1 bN, J	U	0.94 bN, J	3.3 J	U N	0.68 bN, J	1.3 N,J

Values are in milligrams per kilogram (mg/kg) or parts per million (ppm)

SCOs are as referenced in 6 NYCRR Part 375-6, Remedial Program Soil Cleanup Objectives, dated December 14, 2006

b = Trace Concentration Below Reporting Limit And Equal To Or Above Detection Limit J = Estimated Value E = Estimated Concentration N = Matrix Spike Recovery Falls Outside Control Limit NA = Not Available U = Not Detected NT = Not Tested * = RPD Duplicate Analyses Outside Control Limit

A = Exceeds Unrestricted Use SCO **B (Highlighted Value)** = Exceeds Restricted Commercial Use SCO

TABLE 5a
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043

SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS (VOCS) IN GROUNDWATER SAMPLES

Contaminant	CAS Number	X Groundwater Standard or Guidance Value	MW-A		MW-B		MW-C		MW-D		MW-E		MW-F		MW-G	
			6/27/14	11/05/14	6/26/14	11/05/14	6/26/14	11/05/14	6/26/14	11/05/14	6/25/14	11/05/14	6/25/14	11/06/14	6/26/14	11/06/14
tert-Butylbenzene[1]	98-06-6	5	1.4 J	U	U	U	U	U	1.1 J	U	U	U	U	U	U	U
Total VOCs			1.4	U	0	U	0	U	1.1	U	0	U	0	U	0	0
Total TICs			7	U	6.3	U	7.4	U	8.4	U	9.5	U	7.9	U	100.5	201.9
Total VOCs and TICs			8.4	U	6.3	U	7.4	U	9.5	U	9.5	U	7.9	U	100.5	201.9

Notes

μg/L = micrograms per Liter or parts per billion (ppb).

Groundwater Standards or Guidance Values as referenced in New York State Department of Environmental Conservation (NYSDEC) Technical and Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table

TIC = Tentatively Identified Compound

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

NA = Not Available

J = Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than the method detection limit. The concentration given is an approximate value.

(1) Analyte not validated.

TABLE 5b
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043

SUMMARY OF DETECTED SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCS) IN GROUNDWATER SAMPLES

Contaminant	CAS Number	X Groundwater Standard or Guidance Value	MW-A		MW-B		MW-C		MW-D		MW-E		MW-F		MW-G	
			6/27/14	11/05/14	6/26/14	11/05/14	6/26/14	11/05/14	6/26/14	11/05/14	6/25/14	11/05/14	6/25/14	11/06/14	6/26/14	11/06/14
Bis(2-chloroethyl)ether	111-44-4	NA	U	U	U	U	U	U	U	U	U	U	U	U	1 J	U
Total SVOCs			U	U	U	0	U	U	U	U	U	0	U	U	1	0
Total TICs			17.7	90.2	16.4	6.8	18.8	5	12.4	4.6	16.8	19.4	38.4	9.7	105	53.8
Total SVOCs and TICs			17.7	90.2	16.4	6.8	18.8	5	12.4	4.6	16.8	19.4	38.4	9.7	106	53.8

Notes

μg/L = micrograms per Liter or parts per billion (ppb).

Groundwater Standards or Guidance Values as referenced in New York State Department of Environmental Conservation (NYSDEC) Technical and Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table

TIC = Tentatively Identified Compound

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

NA = Not Available

J = Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than the method detection limit. The concentration given is an approximate value.

TABLE 5c
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043

SUMMARY OF PESTICIDES AND PCBS IN GROUNDWATER SAMPLES

Contaminant	X Groundwater Standard or Guidance Value	MW-A 6/27/14	MW-B 6/26/14	MW-C 6/26/14	MW-D 6/26/14	MW-E 6/25/14	MW-F 6/25/14	MW-G 6/26/14
Pesticides	NA	U	U	U	U J	U	U	U
PCBs	0.09	U J	U	U	U J	U	U	U

Notes

μg/L = micrograms per Liter or parts per billion (ppb).

Groundwater Standards or Guidance Values as referenced in New York State Department of Environmental Conservation (NYSDEC) Technical and Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

NA = Not Available

UJ = The analyte was analyzed for, but was not detected. The associated reported quantitation limit is approximate and may be inaccurate or imprecise.

TABLE 5d
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043

SUMMARY OF DETECTED TAL METALS IN GROUNDWATER SAMPLES

Contaminant	X Groundwater Standard or Guidance Value	MW-A		MW-B		MW-C		MW-D		MW-E		MW-F		MW-G	
		6/27/14	11/05/14	6/26/14	11/05/14	6/26/14	11/05/14	6/26/14	11/05/14	6/25/14	11/05/14	6/25/14	11/06/14	6/26/14	11/06/14
Aluminum	NA	U	U	U	U	82.6 b	U	3040	U	U	U	U	U	175 b	U
Antimony	3	U	U	U	U	9.5 b X	U	U	U	U	U	U	U	U	U
Arsenic	25	U	U	4.6 b	U	U	U	31.5 X	63.4 X	U	U	5.0 b	U	9.0 b	U
Barium	1,000	216	204	191 b	290	80.6 b	101.0 b	1530 X	2490 X	103 b	222	282	330	955	786
Calcium	NA	81800	103000	139000	149000	204000	222000	139000	141000	123000	154000	149000	119000	178000	145000
Chromium	50	U	U	U	U	U	U	3.7 b	U	0.77 b	U	U	U	U	U
Cobalt	NA	U	U	U	1.60 b	5.1 b	3.9 b	4.1 b	U	U	U	U	U	U	U
Copper	200	U	U	U	U	4.5 b	4.2 b	16.8 b	U	U	U	U	U	U	U
Iron	300	13200 X	11800 X	64.3 b	2460.0 X	1630 X	3450 X	11700 X	12600 X	179 b	96.3 b	U	44.8 b	6130 X	4850 X
Lead	25	U	U	U	U	5.6	U	8.9 b	U	U	U	U	U	U	U
Magnesium	35,000	4460	5260	21700	23400	18700	23100	26000	26000	15900	24300	21900	17600	19600	15800
Manganese	300	673 X	909 X	1580 X	2330 X	2320 X	2500 X	3650 X	2740 X	23.6 b	444.0 X	183	544 X	2140 X	1850 X
Nickel	100	U	U	5.2 b	3.4 b	10.2	6.4 b	9.5 b	1.1 b	0.85	1.9 b	U	0.87 b	U	U
Potassium	NA	5330	5020 E,J-	3880	4200	6320	6330 E	4490	4260 E	3230	4210 E	4100	4270 E	3290	3560 E
Selenium	10	14.9 b X	U	U	U	35.2 X	U	12.3 b X	U	U	U	U	U	U	U
Sodium	20,000	59800 X	34500 X	74900 X	100000 X	65200 X	105000 X	142000 X	153000 X	74800 X	128000 X	102000 X	75900	70800 X	55000 X
Thallium	0.5	U	U	U	U	U	U	U	U	U	7.6 b X	U	U	U	U
Vanadium	NA	U	U	U	1.2 b	U	U	4.8 b	U	U	U	U	U	U	U
Zinc	2,000	U	U	U	U	22.5 b	U	54.1	U	5.9 b	U	U	U	U	U

Notes

µg/L = micrograms per Liter or parts per billion (ppb).

Groundwater Standards or Guidance Values as referenced in New York State Department of Environmental Conservation (NYSDEC) Technical and Guidance Series (TOGS) 1.1.1 dated June 1998 as amended by the NYSDEC's supplemental table dated April 2000.

U = The analyte was analyzed for, but was not detected above the associated reported quantitation limit. Refer to the analytical laboratory report for the associated reported quantitation limit

J- = The analyte was positively identified; however, the associated numerical value is an estimated quantity that may be biased low.

b = indicates a concentration below thereporting limit and equal to or above the detection limit

E = an estimated concentration due to the presence of interferences

NA = Not Available

31.5 X = Exceeds Groundwater Standard or Guidance Value

Table 6
202 Franklin Street
Olean, New York
NYSDEC BCP Site NO. C905043

Unrestricted Use Remedial Cost Estimate

Capital/Initial Costs	TRACK 1 ESTIMATE
Design	$20,000.00
Environmental Easements	$15,000.00
Site Management Plan	$5,000.00
Contractor Mobilization / Site Prep	$25,000.00
Excavation ($10/yd3) (Track 1 assumes 100%, or approximately 324,000 yd^3, of soil requires removal)	$323,900.00
Dewatering (assumed not needed)	$5,000.00
Excavation/Fieldwork Oversight ($65/hr)	$81,120.00
Soil Management/Disposal [50% used as landfill cover material ($35/ton) and 50% buried ($75/ton), 1.65 ton/yd3]	$2,939,000.00
Backfill ($21/ton)	$1,122,277.57
Decommission 8,000-gallon UST by removal	$20,000.00
Confirmatory Sampling	$25,000.00
Report/Regulatory Coordination	$25,000.00
20% Contingency	$921,300.00
Total Capital/Initial Costs	**$5,527,597.57**
Annual Operations and Maintenance Costs (Year 1)	
Groundwater Monitoring	$14,000.00
Reporting	$5,000.00
20% Contingency	$3,800.00
Total Annual Costs	$22,800.00
Present Worth Cost Year 1 (F=0.9524, i=5%)	**$21,700.00**
Annual Operations and Maintenance Costs (Years 2-5)	
Groundwater Monitoring	$6,125.00
Reporting	$5,000.00
20% Contingency	$2,225.00
Total Annual Costs	$13,350.00
Present Worth Cost Years 2-5 (F=3.3771, i=5%)	**$45,100.00**
TOTAL PRESENT WORTH COST	**$5,594,397.57**

Table 7
202 Franklin Street
Olean, New York
NYSDEC BCP Site NO. C905043

Restricted Commercial Use Remedial Cost Estimate

Capital/Initial Costs	TRACK 2 ESTIMATE	TRACK 4 ESTIMATE
Design	$25,000.00	$8,000.00
Testing Program to Characterize Fill Material	$25,000.00	$1,000.00
Environmental Easements	$10,000.00	$10,000.00
Site Management Plan	$10,000.00	$10,000.00
Contractor Mobilization / Site Prep	$25,000.00	$5,000.00
Excavation ($10/yd3) (Track 2 assumes 70%, or approxmately 226,730 yd^3, of fill requires removal)	$226,722.74	$3,650.00
Dewatering (assumed not needed)	$0.00	$0.00
Excavation/Backfill Fieldwork Oversight ($65/hr) (Track 2 assumes 70% of fill requires removal)	$56,784.00	$12,480.00
Soil Management/Disposal [Track 2 assumes 70% of the fill requires removal, 50% of which would be used as landfill cover material ($35/ton) and 50% would be buried ($75/ton), 1.65 ton/yd3]	$2,057,508.87	$21,100.00
Backfill ($21/ton)	$785,600.00	$186,000.00
Decommissioning of UST by Removal	$20,000.00	$20,000.00
Confirmatory Sampling	$25,000.00	$5,000.00
Report/Regulatory Coordination	$25,000.00	$20,000.00
20% Contingency	$658,323.12	$60,400.00
Total Capital/Initial Costs	**$3,949,938.74**	**$362,630.00**
Annual Operations and Maintenance Costs (Year 1)		
Annual Cover/SSDS Review and Certification	$0.00	$3,000.00
Groundwater Monitoring	$14,000.00	$14,000.00
Reporting	$5,000.00	$5,000.00
20% Contingency	$3,800.00	$4,400.00
Total Annual Costs	$22,800.00	$26,400.00
Present Worth Cost Year 1 (F=0.9524, i=5%)	**$21,700.00**	**$25,100.00**
Annual Operations and Maintenance Costs (Years 2-5)		
Annual Cover Review and Certification	$0.00	$3,000.00
Groundwater Monitoring	$6,125.00	$6,125.00
Reporting	$4,000.00	$4,000.00
20% Contingency	$2,025.00	$2,625.00
Total Annual Costs	$12,150.00	$15,750.00
Present Worth Cost Years 2-5 (F=3.3771, i=5%)	**$41,000.00**	**$53,200.00**
TOTAL PRESENT WORTH COST	**$4,012,638.74**	**$440,930.00**

FIGURES

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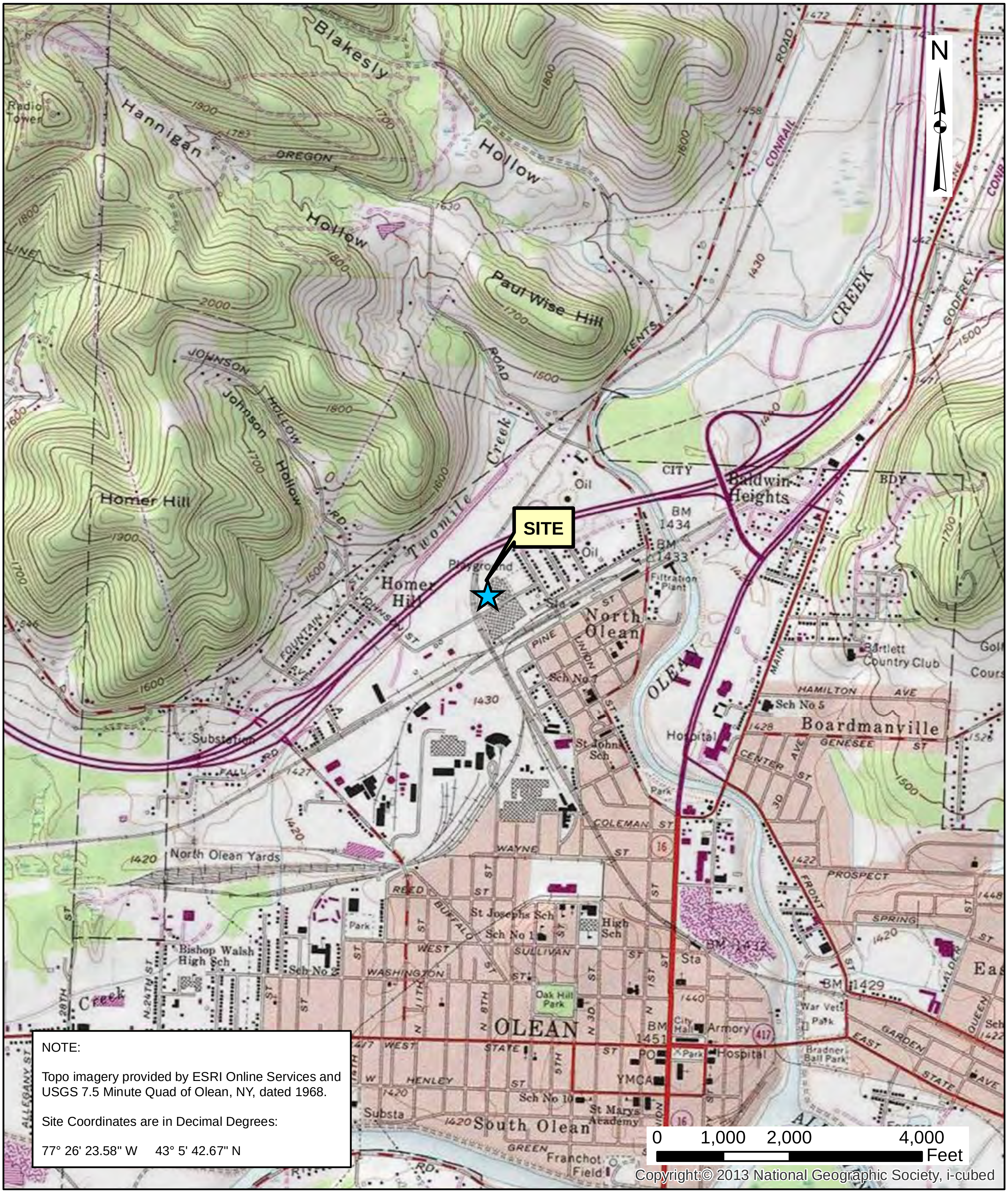
Last Date Saved: 05 Nov 2013



Date 2-9-2015 Drawn By CAH Scale AS NOTED	day **DAY ENVIRONMENTAL, INC.** **Environmental Consultants** **Rochester, New York 14606** **New York, New York 10170**	Project Title 202 FRANKLIN STREET OLEAN, NEW YORK BCP SITE NO. C905043 REMEDIAL INVESTIGATION Drawing Title Project Locus Map	Project No. 4884S-13 FIGURE 1

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	1432.69'	338.04'	337.26'	N 05°34'22" W
C2	1240.79'	266.80'	266.29'	N 13°20'34" E
C3	5544.58'	174.67'	174.66'	N 60°12'59" E

LINE	BEARING	DISTANCE
L1	N 59°28'08" E	68.03'
L2	N 30°28'00" W	51.78'

References

1) Title Search/
Dated: December 20, 2010
File #5005973
Policy #7430732-8296035
Frontier Abstract & Research Services, Inc.

2) Deed/
Henkel Corporation to Goodban Belt LLC
Instrument # 145975-001
Dated: August 31, 2010
Recorded: September 1, 2010

3) Survey/
for Dexter Corporation
Dated: August 2, 1979
by M.C. Ackerman, LS 23028

Environmental Easement description
202 Franklin Street

Beginning at the intersection of the north bounds of Franklin Street with the east bounds of lands of Southern Tier Rail Authority LLC, thence along the east bounds of lands of Southern Tier Rail Authority:
1) along a curve to the right, with a radius of 1432.69', a arc length of 338.04' which is subtended by a chord of N 5-34-22 W, a distance of 337.26' to a point
2) N 59-28-08 E, a distance of 68.03' to a point
3) N 30-28-00 W, a distance of 51.78' to a point
4) along a curve to the right, with a radius of 1240.79', a arc length of 266.80' which is subtended by a chord of N 13-20-34 E, a distance of 266.29' to a point, thence along the south bounds of Interstate Route 86: along a curve to the right, with a radius of 5544.58', a arc length of 174.67' which is subtended by a chord of N 60-12-59 E, a distance of 174.66' to a point
thence S 30-06-22 E, through the lands of Goodban Belt LLC, a distance of 547.88' to a point,
thence S 59-32-00 W along the north bounds of Franklin Street, a distance of 565.54' to the point of beginning

Contains 5.159 acres+/-

300 200 100 0
1IN=100FT
91.44 60.96 30.48 0
1IN=30.48METERS

Typical Symbols
-hydrant
-utility pole
-light pole
-monitor well
d. -deed distance
m. measured distance

This survey is certified to the following/

1) New York State Department of Environmental Conservation

Map and Survey for:
Goodban Belt LLC
of lands at
202 Franklin Street

Copies Invalid Unless Embossed

Alteration of This Document is Illegal Under Sec. 7209 Subdivision 2 of The New York State Education Law.

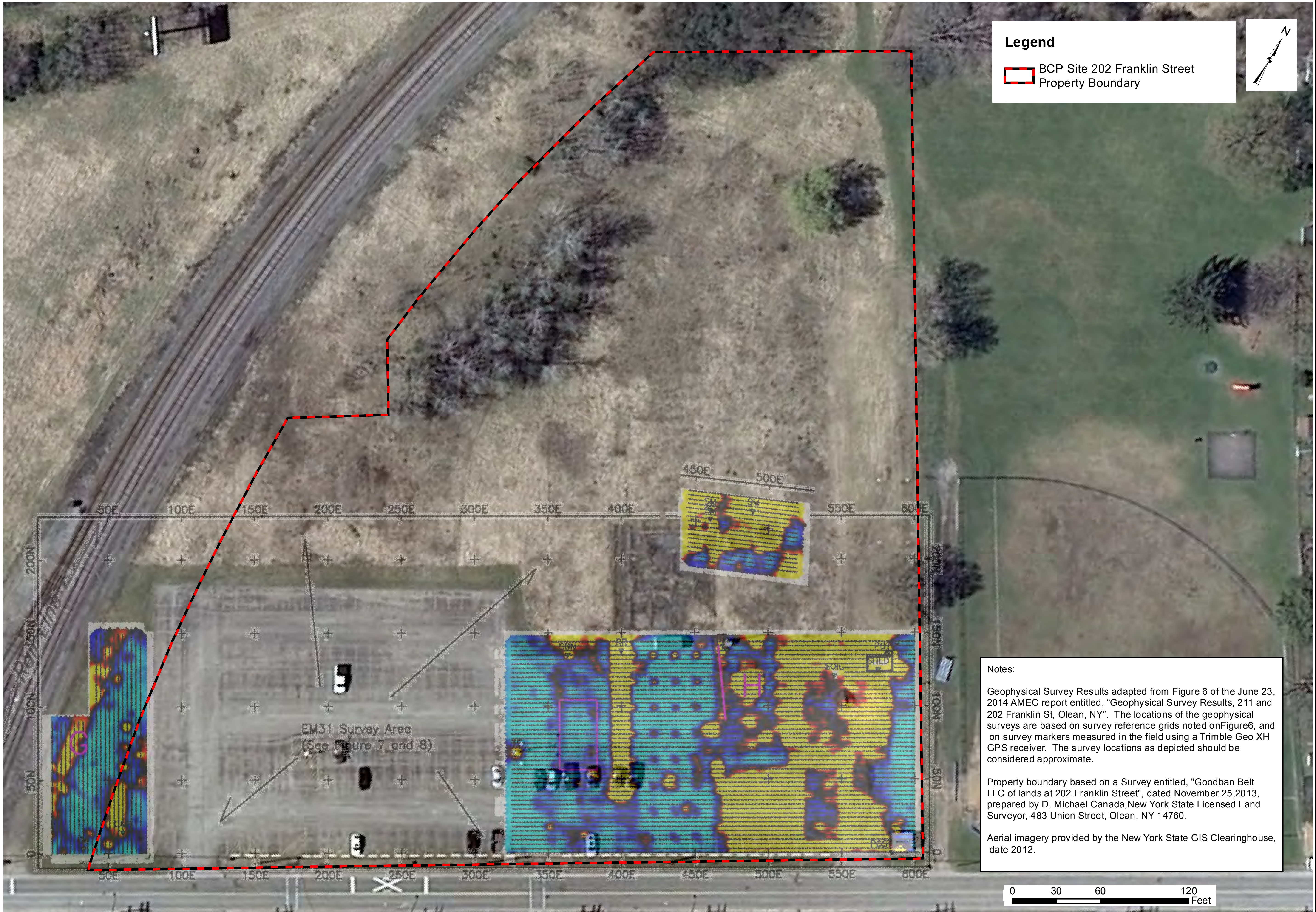
Part of Lots 4 & 6, Section 5, Twp.# 2, Range # 4 of the Holland Land Co.'s Survey
Blocks 64 and 74 and part of Blocks 63, 65, 73, 75, 80, 81, and 82
Part of Franklin, Washington, Vine, and Spruce streets, and other lands according to the "Mann Map of Olean Depot"
City of Olean
Cattaraugus County, New York
Date: November 25, 2013
Scale: 1IN = 100FT

Prepared By:
D. Michael Canada
New York State
Licensed Land Surveyor
483 North Union Street
Olean, NY 14760
N.Y.S. Lic. No.49215
716-379-7918

Job Number: 7526

D. Michael Canada

FIGURE 2



Notes:

Geophysical Survey Results adapted from Figure 6 of the June 23, 2014 AMEC report entitled, “Geophysical Survey Results, 211 and 202 Franklin St, Olean, NY”. The locations of the geophysical surveys are based on survey reference grids noted onFigure6, and on survey markers measured in the field using a Trimble Geo XH GPS receiver. The survey locations as depicted should be considered approximate.

Property boundary based on a Survey entitled, "Goodban Belt LLC of lands at 202 Franklin Street", dated November 25,2013, prepared by D. Michael Canada,New York State Licensed Land Surveyor, 483 Union Street, Olean, NY 14760.

Aerial imagery provided by the New York State GIS Clearinghouse, date 2012.

DESIGNED BY	RLK
DATE	01-2015
DRAWN BY	CAH
DATE DRAWN	01-2015
SCALE	AS NOTED
DATE ISSUED	01-19-2015

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK

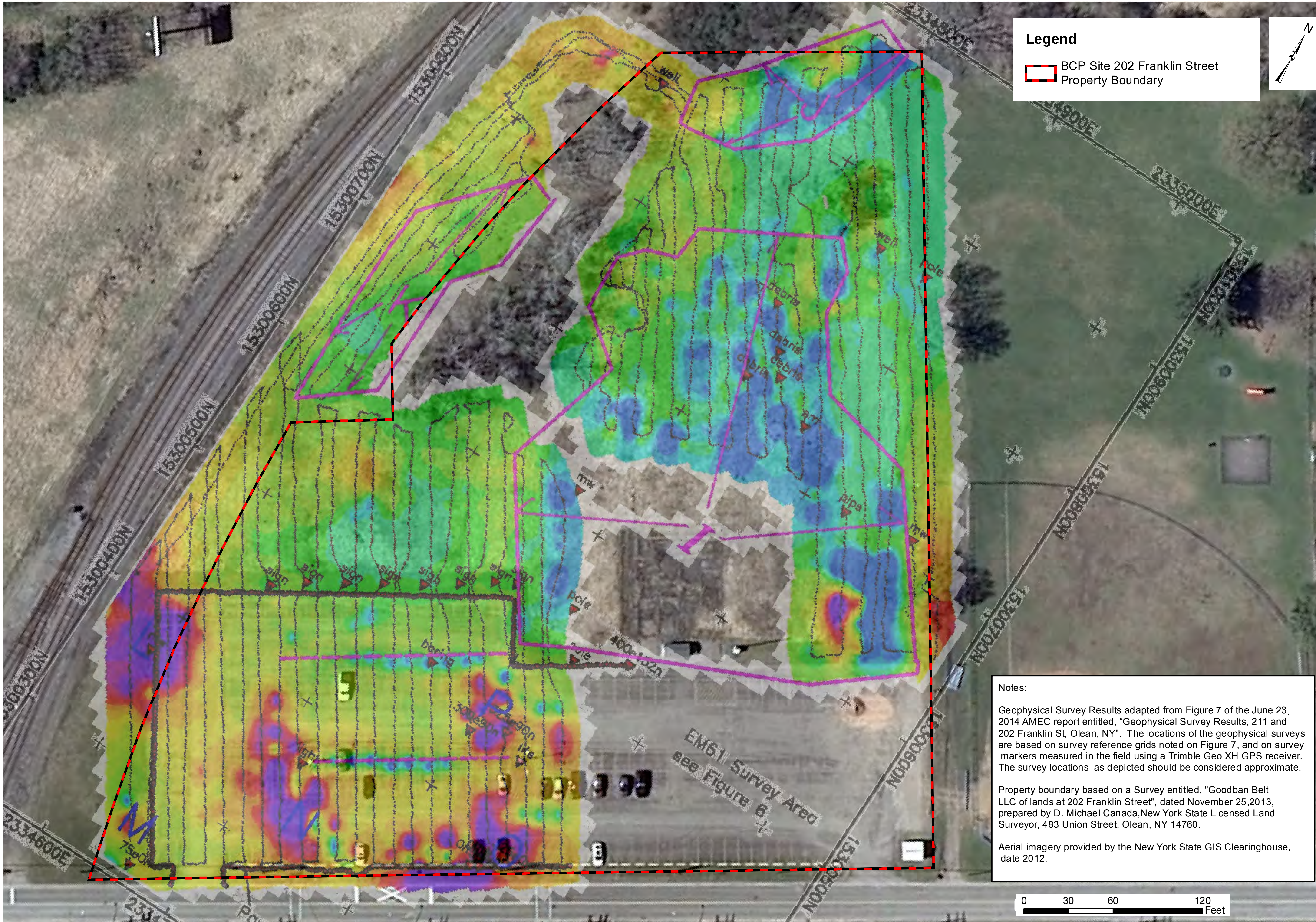
BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Geophysical Survey Results - EM-61 Survey

Project No.
4884S-13

FIGURE 3a

Last Date Saved: 26 Apr 2016 Document Path: E:\GIS Mapping\4884S-13\Olean\202Franklin\4884S - 31 - EM61_Survey 202 Franklin RI_Rpt.mxd



Notes:

Geophysical Survey Results adapted from Figure 7 of the June 23, 2014 AMEC report entitled, "Geophysical Survey Results, 211 and 202 Franklin St, Olean, NY". The locations of the geophysical surveys are based on survey reference grids noted on Figure 7, and on survey markers measured in the field using a Trimble Geo XH GPS receiver. The survey locations as depicted should be considered approximate.

Property boundary based on a Survey entitled, "Goodban Belt LLC of lands at 202 Franklin Street", dated November 25,2013, prepared by D. Michael Canada,New York State Licensed Land Surveyor, 483 Union Street, Olean, NY 14760.

Aerial imagery provided by the New York State GIS Clearinghouse, date 2012.

DESIGNED BY	DATE
RLK	01-2015
DRAWN BY	DATE DRAWN
CAH	01-2015
SCALE	DATE ISSUED
AS NOTED	01-19-2015

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK

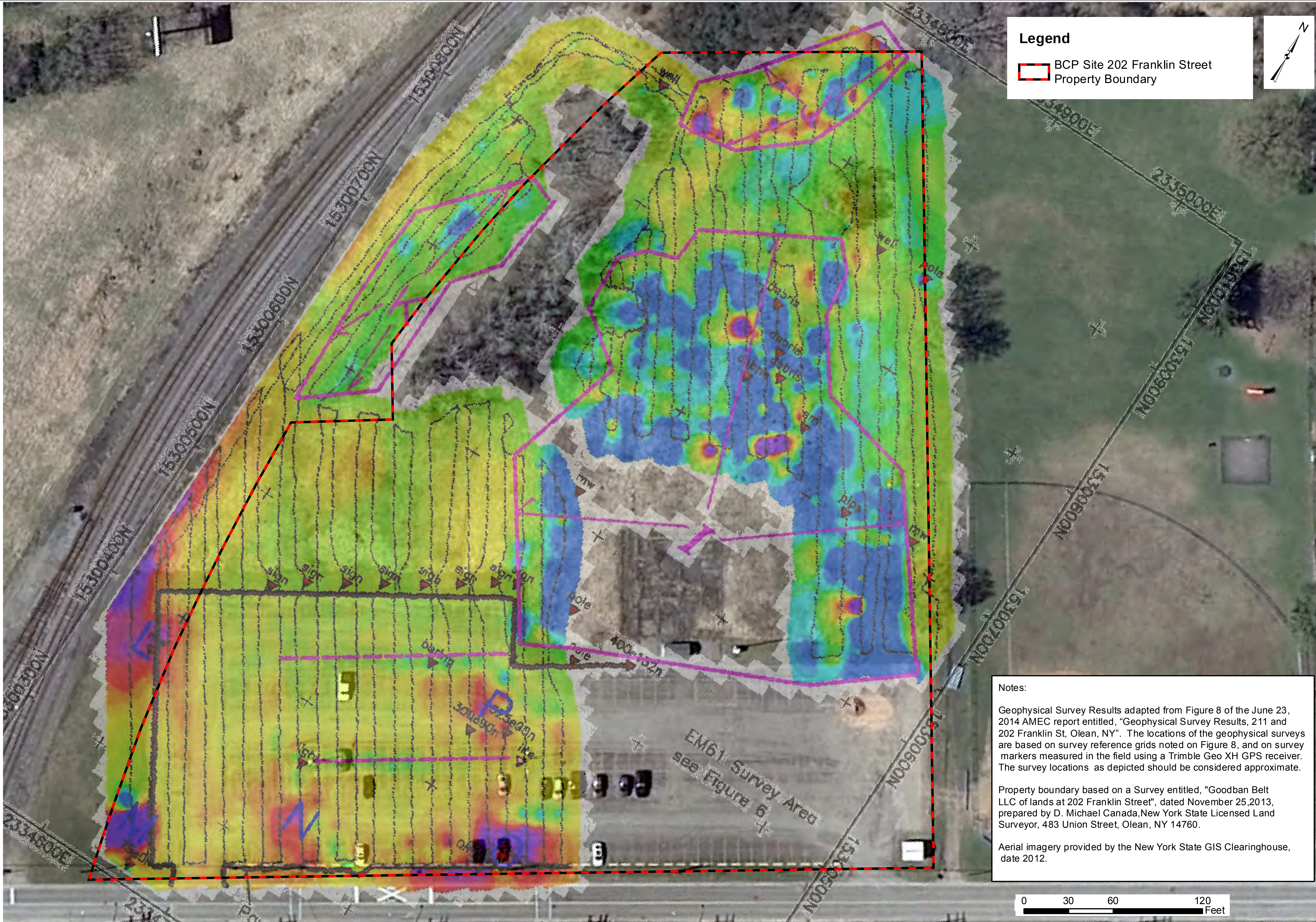
BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Geophysical Survey Results - EM-31 Survey (Terrain Conductivity)

Project No.
4884S-13

FIGURE 3b

Last Date Saved: 26 Apr 2016 Document Path: \\DAYGIS\GIS_Data\GIS Mapping\4884S-13Solepo\202Franklin\4884S - 30 - EM_Survey 202 Franklin RI_Rpt.mxd



Legend

BCP Site 202 Franklin Street Property Boundary

N

Notes:

Geophysical Survey Results adapted from Figure 8 of the June 23, 2014 AMEC report entitled, "Geophysical Survey Results, 211 and 202 Franklin St, Olean, NY". The locations of the geophysical surveys are based on survey reference grids noted on Figure 8, and on survey markers measured in the field using a Trimble Geo XH GPS receiver. The survey locations as depicted should be considered approximate.

Property boundary based on a Survey entitled, "Goodban Belt LLC of lands at 202 Franklin Street", dated November 25,2013, prepared by D. Michael Canada,New York State Licensed Land Surveyor, 483 Union Street, Olean, NY 14760.

Aerial imagery provided by the New York State GIS Clearinghouse, date 2012.

0 30 60 120 Feet

DATE	01-2015
DATE DRAWN	01-2015
DATE ISSUED	01-19-2015
DESIGNED BY	RLK
DRAWN BY	CAH
SCALE	AS NOTED

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK

BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Geophysical Survey Results - EM-31 Survey (inphase response)

Project No.
4884S-13

FIGURE 3c

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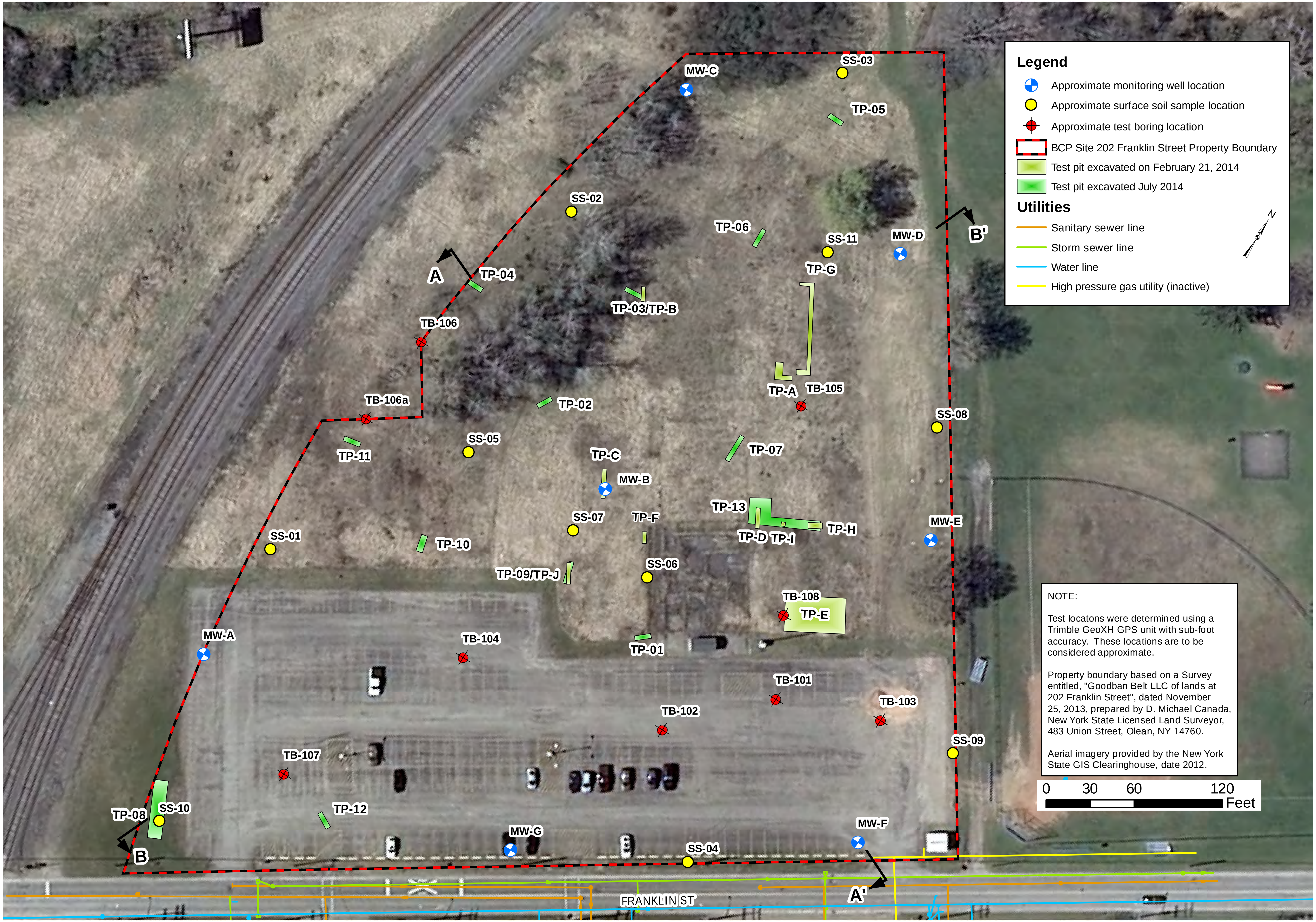

DATE	01-2015
DATE DRAWN	01-2015
DATE ISSUED	01-19-2015
DESIGNED BY	RLK
DRAWN BY	CAH
SCALE	AS NOTED

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Site Plan Depicting Remedial Investigation Test Locations

Project No.
4884S-13

FIGURE 4

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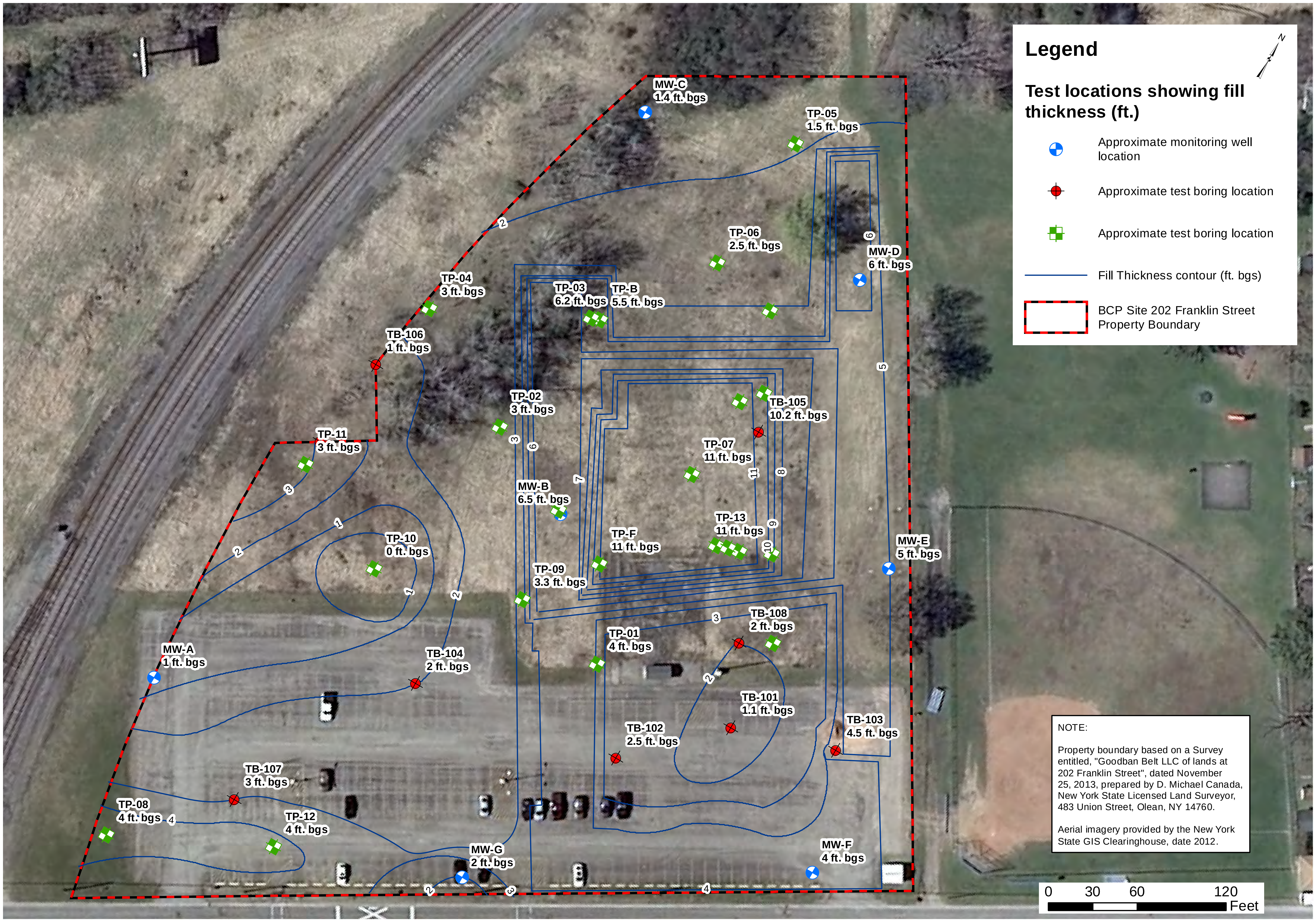
Last Date Saved: 26 Apr 2016



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Last Date Saved: 26 Apr 2016

DESIGNED BY	RLK	DATE	02-2015
DRAWN BY	CAH	DATE DRAWN	02-2015
SCALE	AS NOTED	DATE ISSUED	02-19-2015

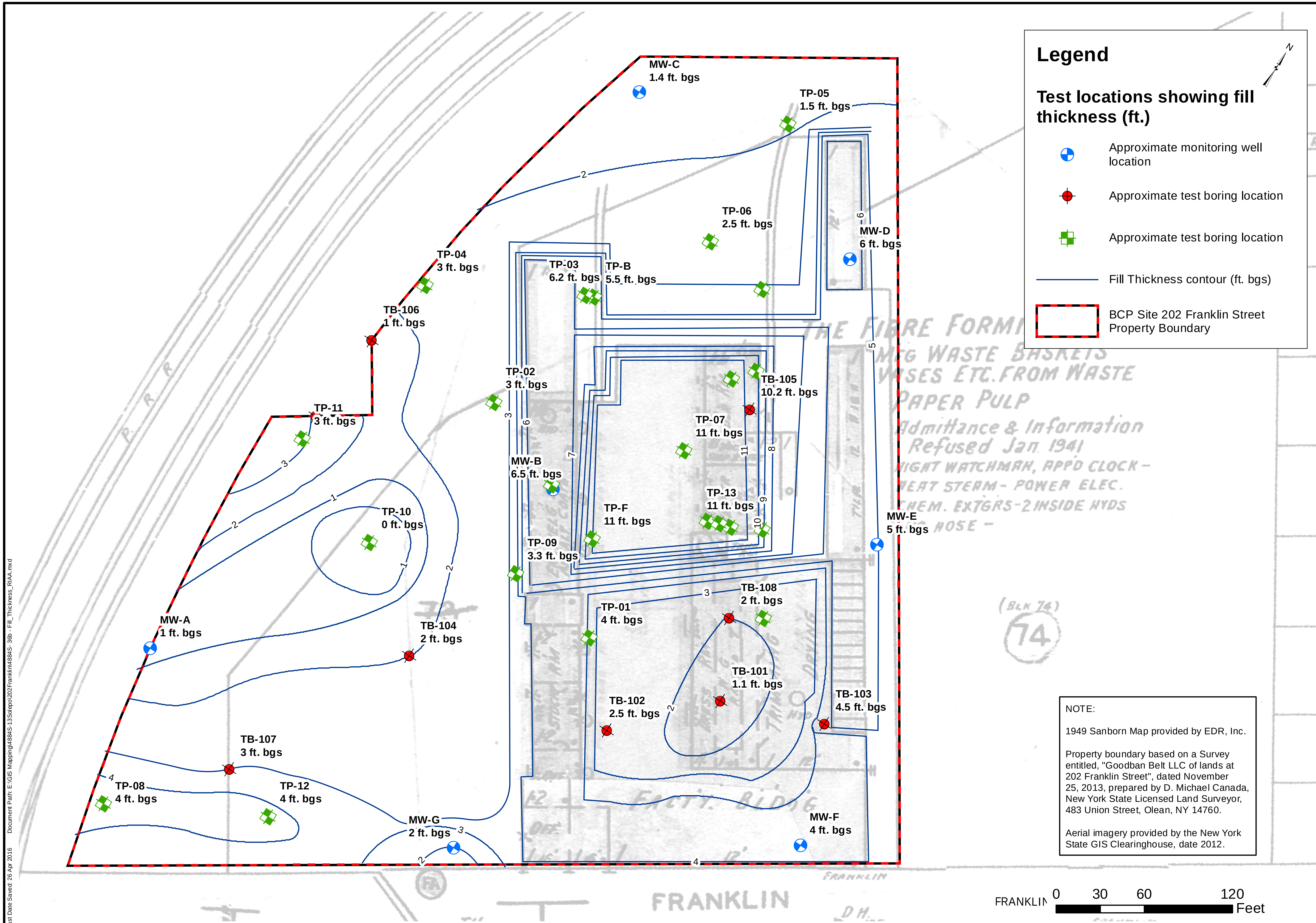
day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Fill Thickness Contour Map

Project No.
4884S-13

FIGURE 5a



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DESIGNED BY	DATE	DRAWN BY	DATE DRAWN	SCALE	DATE ISSUED
RLK	02-2015	CAH	02-2015	AS NOTED	02-19-2015

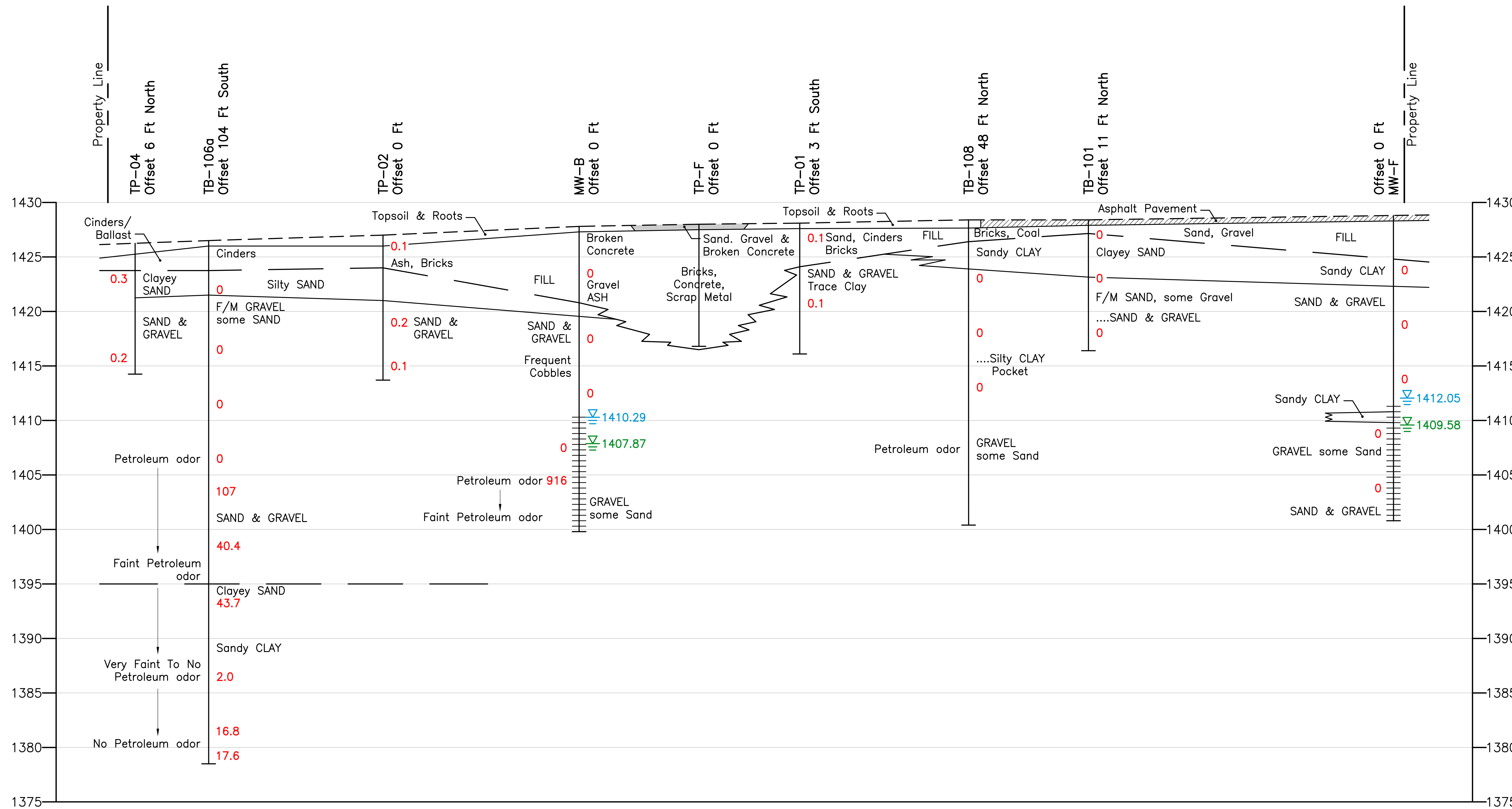
day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Fill Thickness Contour Map with 1949 Sanborn Map Overlay

Project No.
4884S-13

FIGURE 5b



GEOLOGIC CROSS SECTION A–A'

Horizontal 1" = 40'
Vertical 1" = 10'

LEGEND

0 PID Reading Recorded In Parts Per Million (ppm)

1410.29 Groundwater Elevation Obtained On July 10, 2014

1407.87 Groundwater Elevation Obtained On November 5, 2014

FIELD VERIFIED RLK
DATE 1-2015
DRAWN BY RJM
DATE DRAWN 2-6-2015
SCALE As Noted
DATE ISSUED 2-11-2015

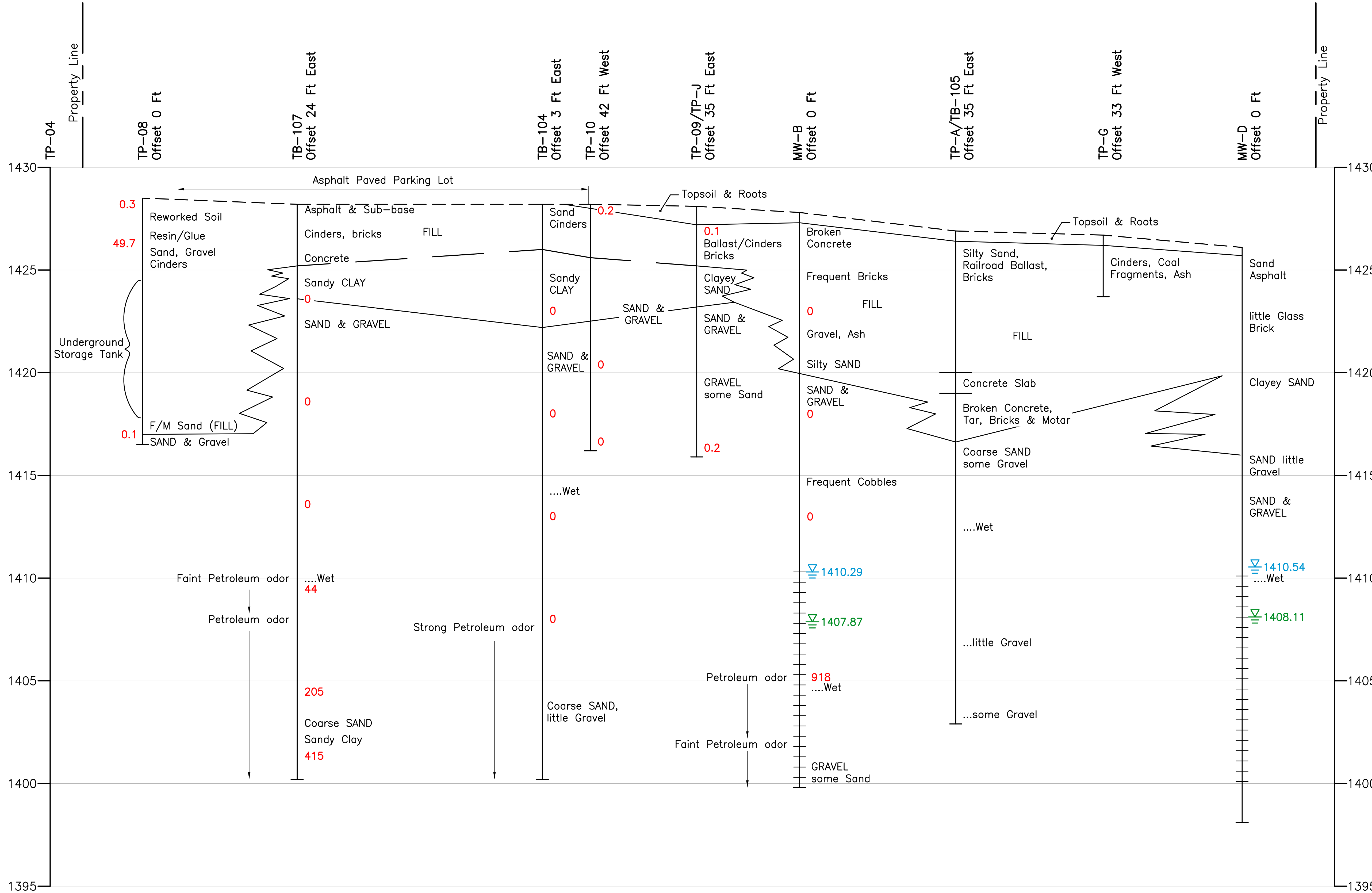
DAY ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTANTS
ROCHESTER, NEW YORK 14606
NEW YORK, NEW YORK 10170

PROJECT TITLE
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043 REMEDIAL INVESTIGATION

DRAWING TITLE
Geologic Cross Section A-A'

PROJECT NO. 4884S-13

FIGURE 6



LEGEND

0	PID Reading Recorded In Parts Per Million (ppm)
1410.54	Groundwater Elevation Obtained On July 10, 2014
1408.11	Groundwater Elevation Obtained On November 5, 2014

GEOLOGIC CROSS SECTION B-B'

Horizontal 1" = 60'
Vertical 1" = 5'

DATE	1-2015
DATE DRAWN	2-6-2015
DATE ISSUED	2-10-2015
FIELD VERIFIED	RLK
DRAWN BY	RJM
SCALE	As Noted

DAY ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTANTS
ROCHESTER, NEW YORK 14606
NEW YORK, NEW YORK 10170

PROJECT TITLE
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C90543 REMEDIAL INVESTIGATION

DRAWING TITLE
Geologic Cross Section B-B'

PROJECT NO.
4884S-13

FIGURE 7

DATE	DATE DRAWN	DATE ISSUED
02-2015	02-2015	02-19-2015
DESIGNED BY	DRAWN BY	SCALE
RLK	CAH/CPS	AS NOTED

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

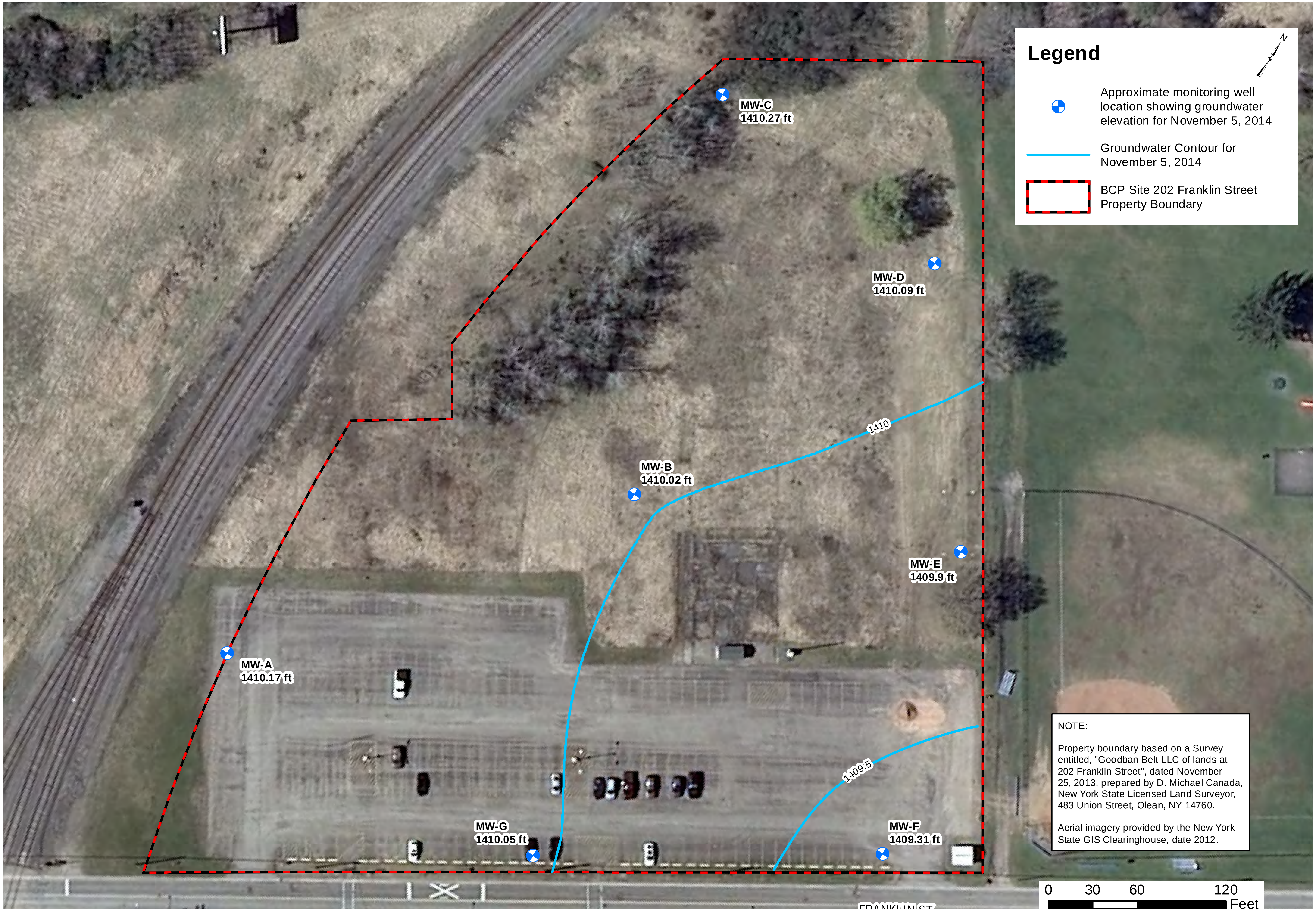
Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Groundwater Contour Map: July 10, 2014

Project No.
4884S-13

FIGURE 8

Last Date Saved: 26 Apr 2016 Document Path: E:\GIS Mapping\4884S-13\Solepo\202Franklin\4884S - 33- 07-10-2014 GW Contour 202.mxd



NOTE:

Property boundary based on a Survey entitled, "Goodban Belt LLC of lands at 202 Franklin Street", dated November 25, 2013, prepared by D. Michael Canada, New York State Licensed Land Surveyor, 483 Union Street, Olean, NY 14760.

Aerial imagery provided by the New York State GIS Clearinghouse, date 2012.

DESIGNED BY	DATE	DRAWN BY	DATE DRAWN	SCALE	DATE ISSUED
RLK	02-2015	CAH/CPS	02-2015	AS NOTED	02-19-2015

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

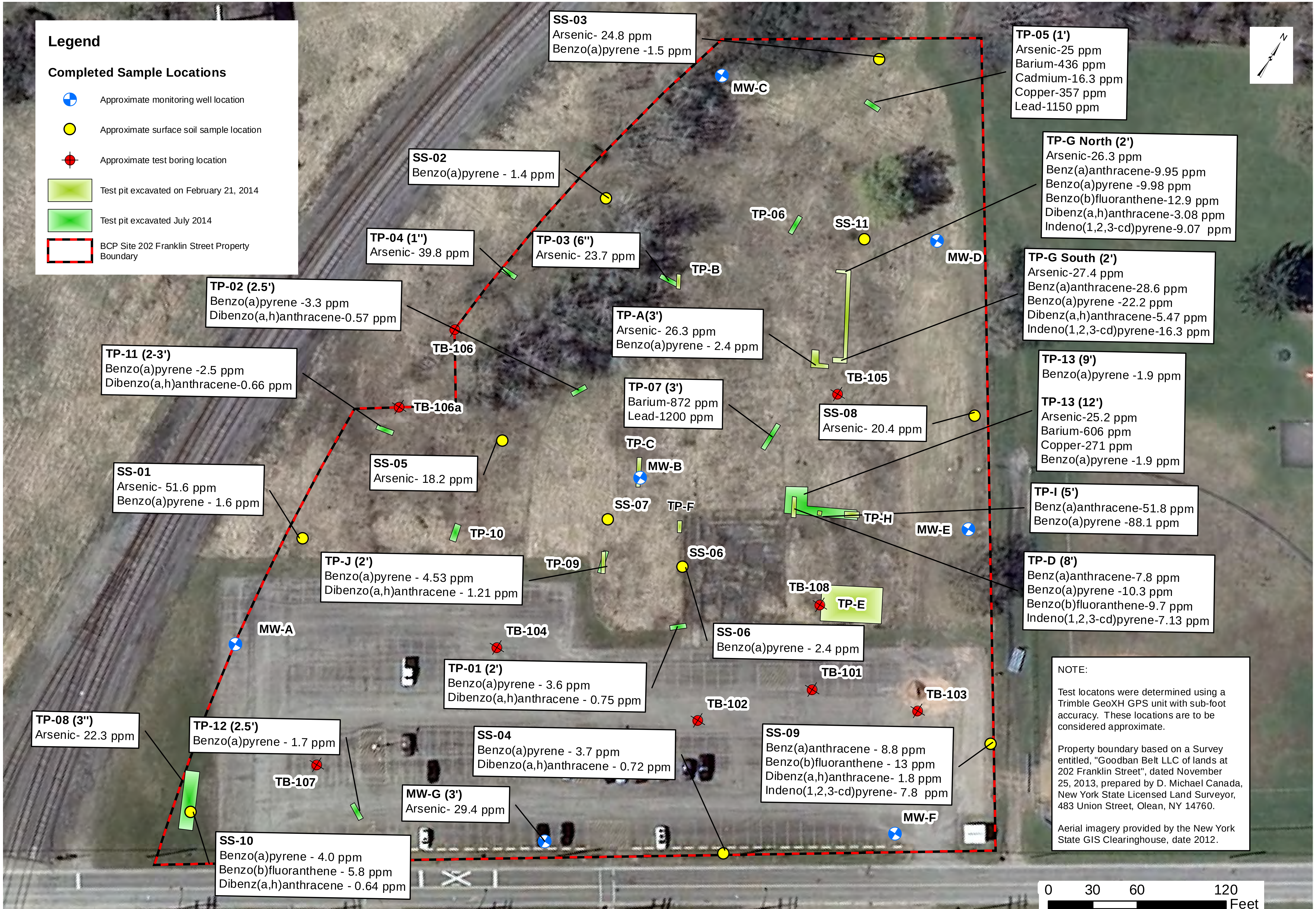
Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Groundwater Contour Map: November 5, 2014

Project No.
4884S-13

FIGURE 9

Last Date Saved: 26 Apr 2016 Document Path: E:\GIS Mapping\4884S-13\Geopro\202Franklin\4884S - 34 - 11-05-2014 GW Contour 202.mxd



NOTE:

Test locatons were determined using a Trimble GeoXH GPS unit with sub-foot accuracy. These locations are to be considered approximate.

Property boundary based on a Survey entitled, "Goodban Belt LLC of lands at 202 Franklin Street", dated November 25, 2013, prepared by D. Michael Canada, New York State Licensed Land Surveyor, 483 Union Street, Olean, NY 14760.

Aerial imagery provided by the New York State GIS Clearinghouse, date 2012.

DATE	02-2015
DATE DRAWN	02-2015
DATE ISSUED	02-19-2015
DESIGNED BY	RLK
DRAWN BY	CAH
SCALE	AS NOTED

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK

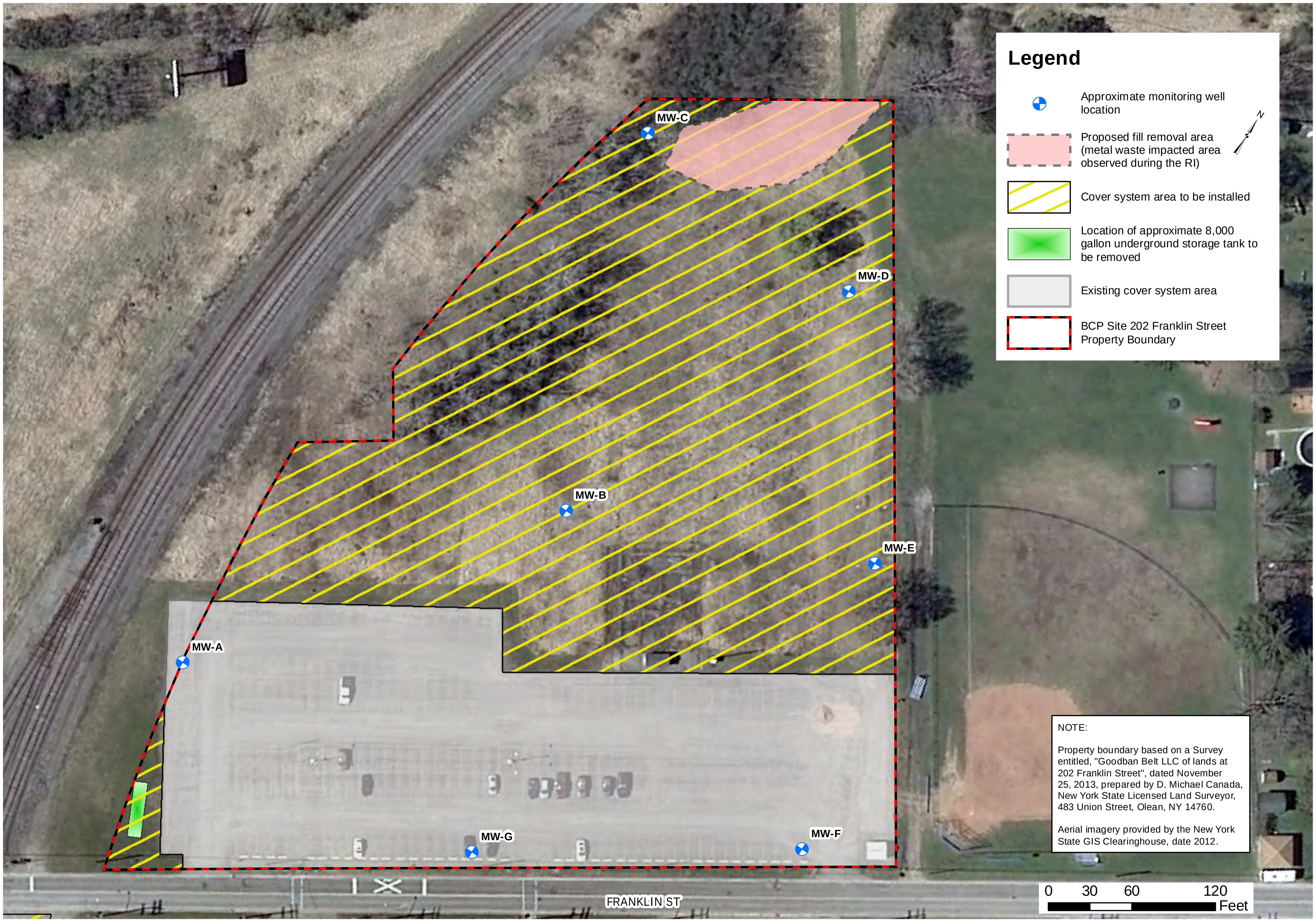
BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Site Plan Showing Surface and Subsurface Soil Samples Containing Concentrations Exceeding Commercial Use SCO

Project No.
4884S-13

FIGURE 10

Last Date Saved: 26 Apr 2016



DATE	DATE DRAWN	DATE ISSUED
02-2015	02-2015	04-21-2016

DESIGNED BY	DRAWN BY	SCALE
RLK	CPS	AS NOTED

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK

BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Site Plan Depicting Proposed Remedial Measures

Project No.
4884S-13

FIGURE 11

APPENDIX A

HISTORIC SITE MAPS AND PHOTO

Legend

BCP Site 202 Franklin Street Property Boundary

N

NOTE:

1915 Sanborn provided by EDR Environmental Data Resources, Inc.

Property boundary based on a Survey entitled, "Goodban Belt LLC of lands at 202 Franklin Street", dated November 25, 2013, prepared by D. Michael Canada, New York State Licensed Land Surveyor, 483 Union Street, Olean, NY 14760.

Aerial imagery provided by the New York State GIS Clearinghouse, date 2012.

0 35 70 140 Feet

DATE	DATE DRAWN	DATE ISSUED
01-2015	01-2015	01-23-2015

DESIGNED BY	DRAWN BY	SCALE
RLK	CAH	AS NOTED

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

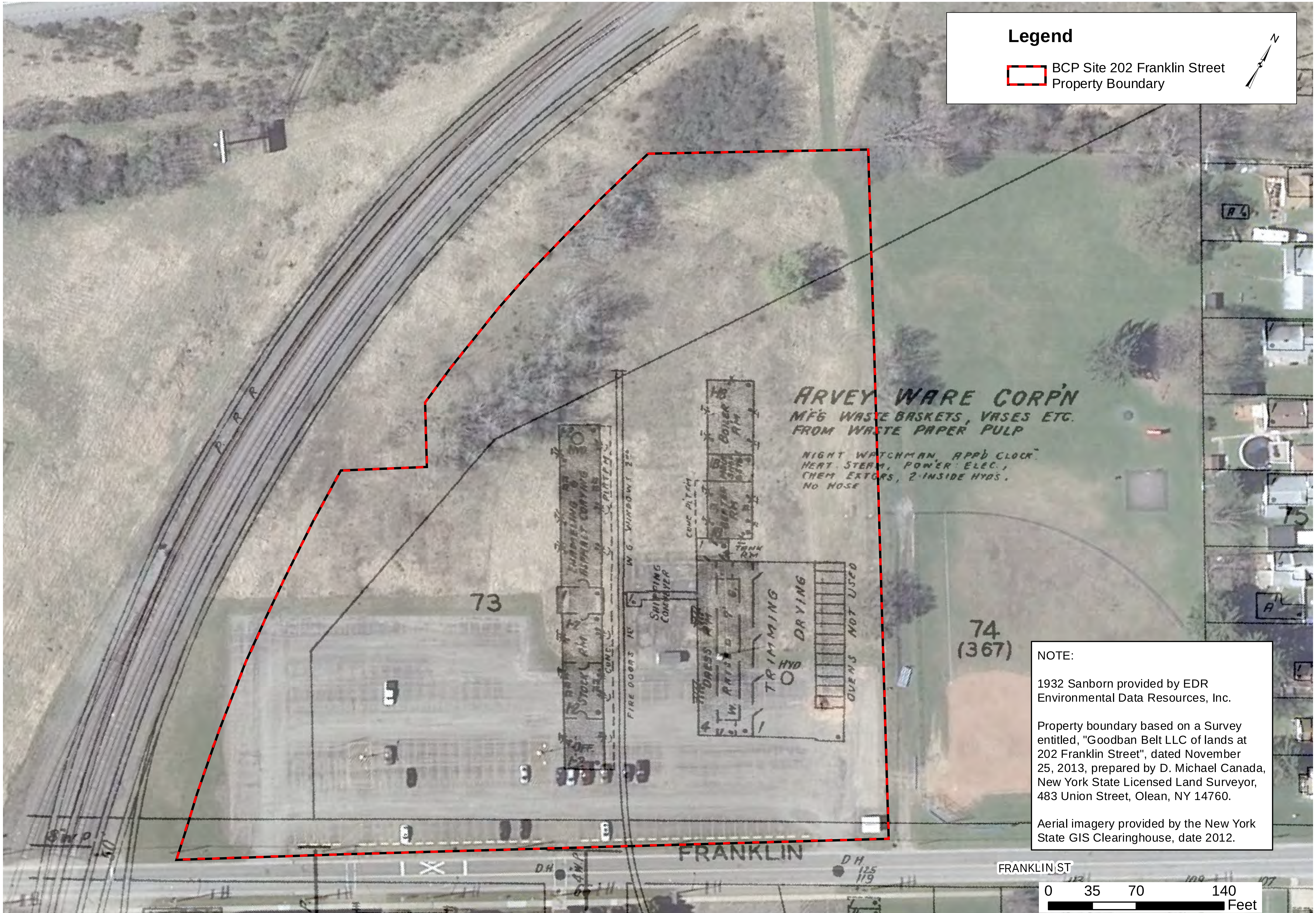
Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK

RI/RAA WORK PLAN

Drawing Title
Site Plan with 1915 Sanborn Map overlay

Project No.
4884S-13

Last Date Saved: 27 Apr 2016 Document Path: \\DAYGIS\GIS_Data\GIS Mapping\4884S-13Solepo\202Franklin\4884S- 35a - 1915Sanborn_RIAA_appenA.mxd



NOTE:

1932 Sanborn provided by EDR Environmental Data Resources, Inc.

Property boundary based on a Survey entitled, "Goodban Belt LLC of lands at 202 Franklin Street", dated November 25, 2013, prepared by D. Michael Canada, New York State Licensed Land Surveyor, 483 Union Street, Olean, NY 14760.

Aerial imagery provided by the New York State GIS Clearinghouse, date 2012.

DATE 01-2015	DATE DRAWN 01-2015	DATE ISSUED 01-23-2015
DESIGNED BY RLK	DRAWN BY CAH	SCALE AS NOTED

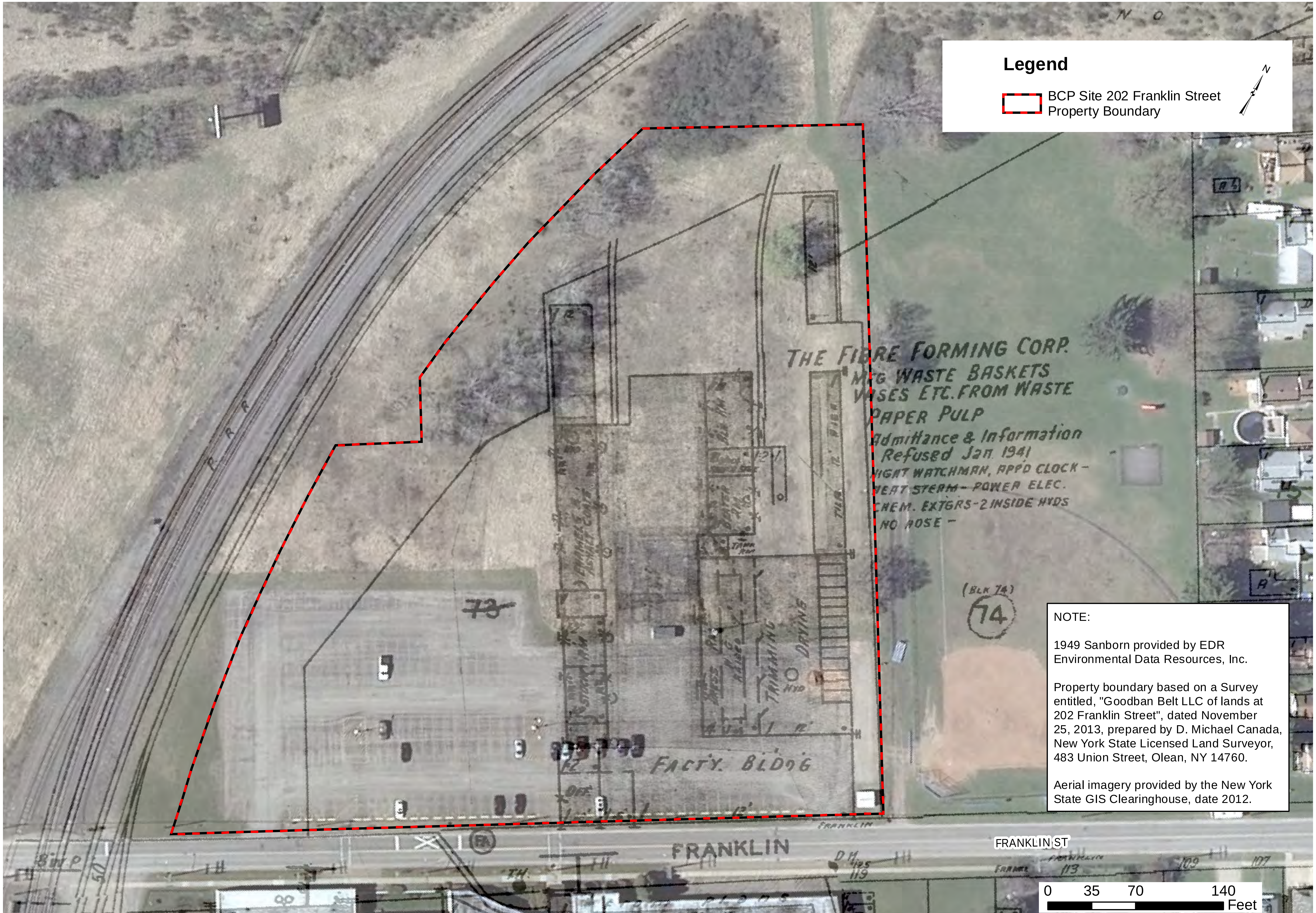
day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Site Plan with1932 Sanborn Map Overlay

Project No.
4884S-13

Last Date Saved: 27 Apr 2016 Document Path: \\DAYGIS\GIS_Data\GIS Mapping\4884S-13Solepo\202Franklin\4884S- 35b - 1932Sanborn_RIAA_appenA.mxd



DATE	11-2013
DATE DRAWN	11-2013
DATE ISSUED	11-26-2013
DESIGNED BY	RLK
DRAWN BY	CAH
SCALE	AS NOTED

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

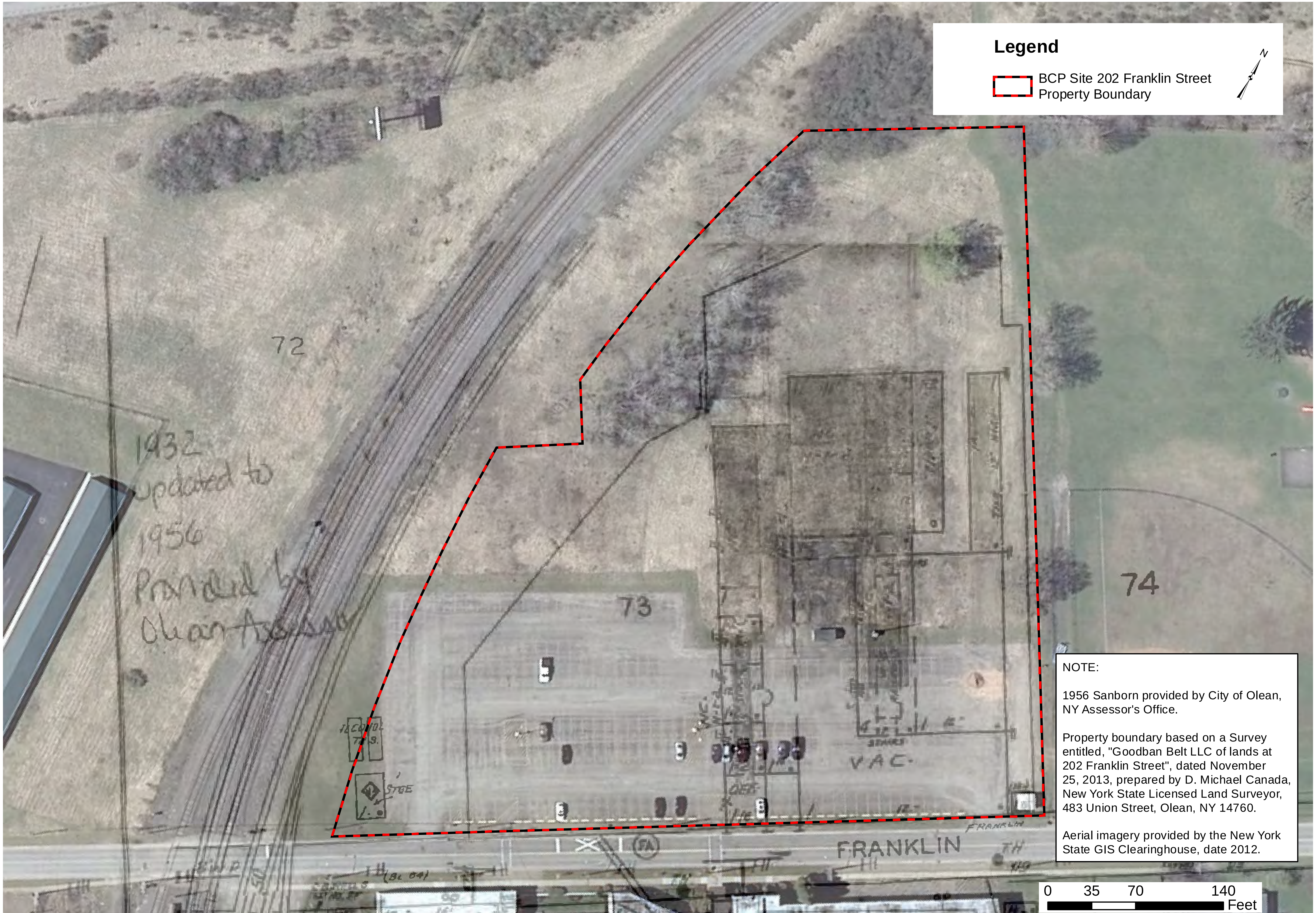
Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK

BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Site Plan with 1949 Sanborn Map Overlay

Project No.
4884S-13

Last Date Saved: 27 Apr 2016 Document Path: \\DAYGIS\GIS_Data\GIS Mapping\4884S-13Solepo\202Franklin\4884S- 35c - 1949Sanborn_RIAA_appenA.mxd



Legend

BCP Site 202 Franklin Street Property Boundary

N

NOTE:

1956 Sanborn provided by City of Olean, NY Assessor's Office.

Property boundary based on a Survey entitled, "Goodban Belt LLC of lands at 202 Franklin Street", dated November 25, 2013, prepared by D. Michael Canada, New York State Licensed Land Surveyor, 483 Union Street, Olean, NY 14760.

Aerial imagery provided by the New York State GIS Clearinghouse, date 2012.

0 35 70 140 Feet

DATE	DATE DRAWN	DATE ISSUED
11-2013	11-2013	11-26-2013
DESIGNED BY	DRAWN BY	SCALE
RLK	CAH	AS NOTED

day

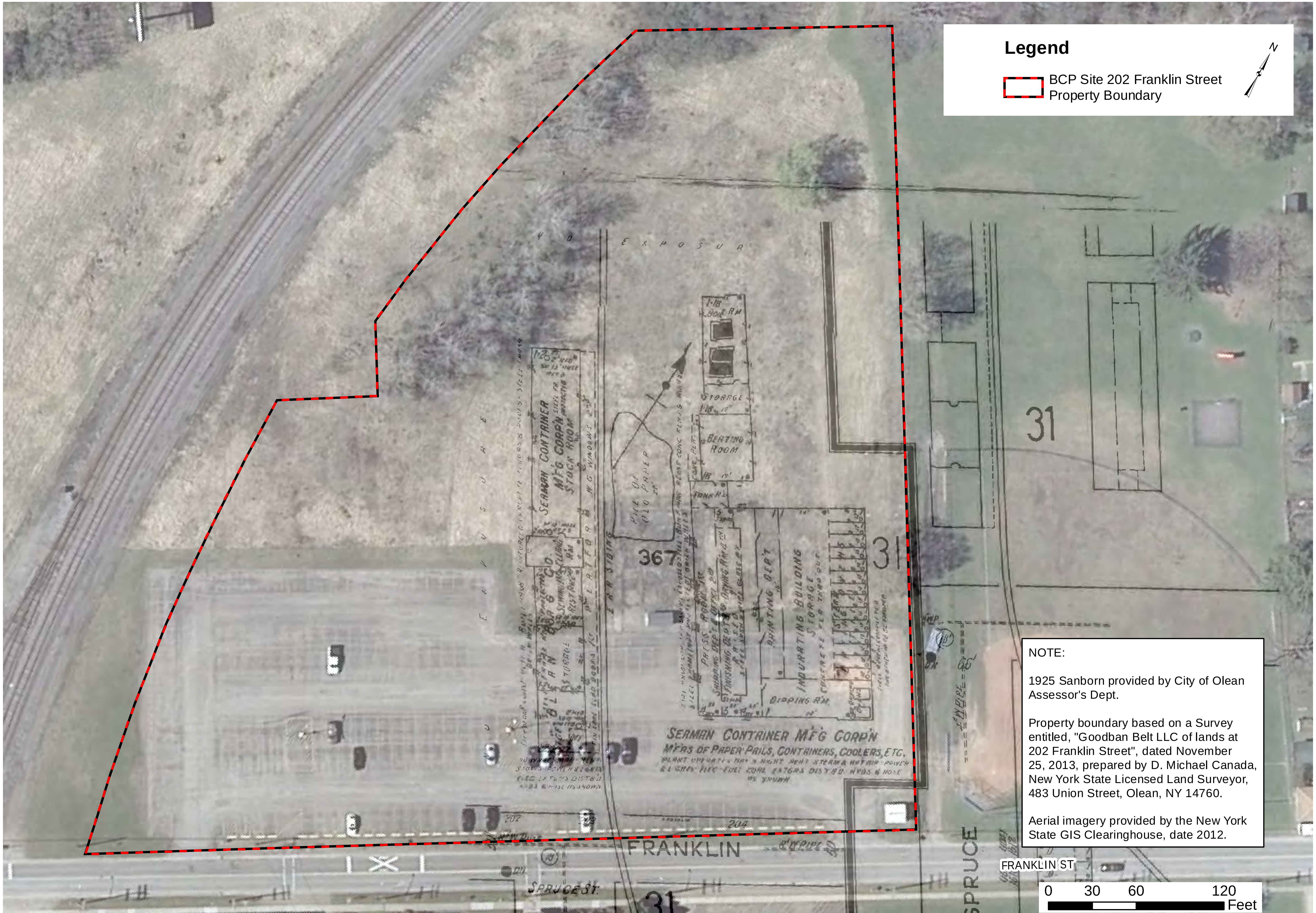
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK
BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Site Plan with 1956 Sanborn Map Overlay

Project No.
4884S-13

Last Date Saved: 02 May 2016 Document Path: E:\GIS Mapping\4884S-13Solepo\202Franklin\4884S- 35d - 1956Sanborn_RIAA_appenA.mxd



DESIGNED BY	DATE	DRAWN BY	DATE DRAWN	SCALE	DATE ISSUED
RLK	01-2015	CAH	01-2015	AS NOTED	01-23-2015

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

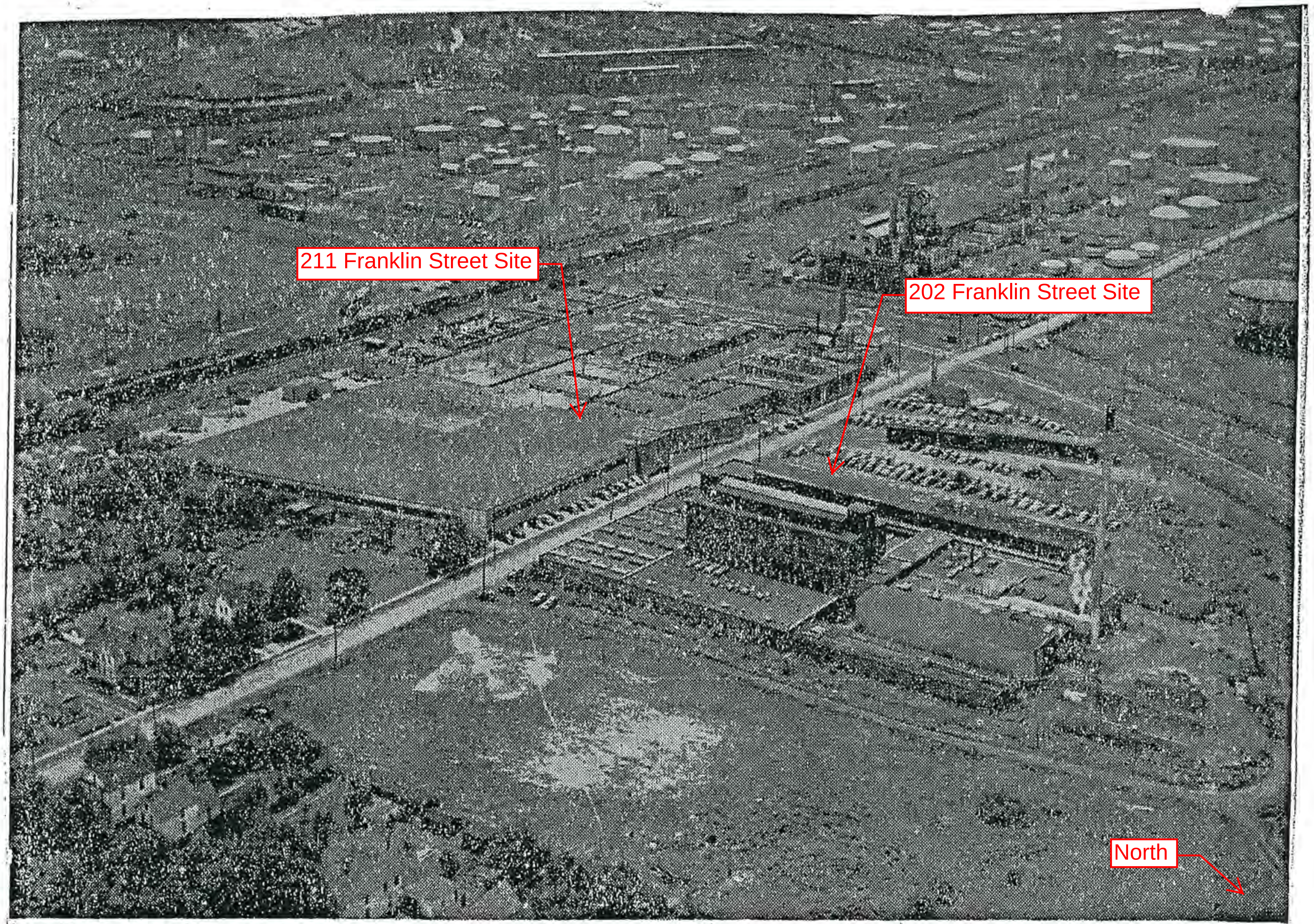
Project Title
202 FRANKLIN STREET
OLEAN, NEW YORK

BCP SITE NO. C905043 REMEDIAL INVESTIGATION

Drawing Title
Site Plan with 1925 Sanborn Map Overlay

Project No.
4884S-13

Document Path: \\DAYGIS\GIS_Data\GIS Mapping\4884S-13\Sdepot\202Franklin\4884S-35e - 1925Sanborn_RIAA_appenA.mxd
Last Date Saved: 27 Apr 2016



ONE SECTION OF OLEAN'S VAST industrial area is shown in the accompanying picture, taken from the air from the vicinity of North Union and Franklin Streets in North Olean. Franklin Street cuts across the photo from the lower left, from Johnson to North Union, near the tracks of the Erie Railroad. The plant of the Fibre Forming Corporation is at the right. The expansive plant of Daystrom Furniture, Inc., is shown at the left, across Franklin Street. A part of the works of the Olean refinery of the Socony-Vacuum Oil Company may be seen at the upper right. Upper left and cen-er shows an h part of the refinery, extending from Buffalo Street to the Erie Railroad right of way. The roundhouse and back shop, once occu-ied for repairs eam loc otives by the Pennsylvania Railroad Company, are at the top left and center.

APPENDIX B

AMEC GEOPHYSICAL SURVEY REPORT

90 B John Muir Drive
Amherst, New York 14228
(716) 565-0624 • Fax (716) 565-0625

June 23, 2014

Charles Hampton
Day Environmental, Inc.
1563 Lyell Avenue
Rochester, New York 14606

Transmitted via email to: Charles Hampton [champton@daymail.net]

Dear Mr. Hampton:

Subject: Geophysical Survey Results,
211 and 202 Franklin St
Olean NY

1.0 INTRODUCTION

This letter report presents the results of the geophysical investigation performed for Day Environmental, Inc. (Day) in support of their environmental investigation of a property located at 211 and 202 Franklin Street in Olean, NY (the Site). The Site is bisected by Franklin Street. The portion south of Franklin Street is a large industrial building and the portion north of Franklin St is comprised of a parking lot and vegetated areas.

A total of five areas were surveyed as shown in Figure 1. Survey Areas 1 through 4 are located around the perimeter of the main site building. Area 5 is comprised of the area to the north of Franklin Street. The geophysical investigation was designed to geophysically characterize the subsurface and focus a follow-up intrusive investigation, if warranted.

The information provided herein is intended to assist Day with their assessment of potential environmental concerns at the Site. AMEC Environment and Infrastructure, Inc. (Amec) performed data acquisition on June 7, 8 and 14, 2014 using time (EM61) and frequency (EM31) domain electromagnetic techniques.

2.0 METHODOLOGY

The following sections present the geophysical methodology utilized for this investigation.

2.1 Reference Grid

Separate and distinct reference grids were installed for the 5 areas surveyed with the EM61. Building corners or other site features where utilized to anchor the EM61 grids. “Grid North” for the EM61 surveys was established such that the survey could be conducted parallel or at right angles to prominent site features. Red and white spray paint was utilized to mark the grids to allow EM61 data to be collected along lines spaced 3 ft apart. Select grid locations were labeled to aid in the reoccupation of anomalous locations if subsequent intrusive work is conducted.

The EM31 survey utilized a differential GPS system for positioning. The equipment was the Trimble AG114 interfaced to an Allegro data logger. Positioning was displayed in real time. EM31 geophysical data were collected along lines spaced approximately 12.5 ft apart.

2.2 Electromagnetic EM61 Survey Methodology

Areas 1 through 4 and portions of Area 5 were geophysically surveyed using the Geonics EM61. The EM61 unit is a high sensitivity, high resolution time domain electromagnetic (TDEM) metal detector that can detect both ferrous and nonferrous metallic objects. It has an approximate investigation depth of 10 feet. The processing console is contained in a backpack worn by the operator which is interfaced to a digital data logger. The transmitter and two receiver coils are located on a two-wheeled cart that is pulled by the operator.

EM61 in use (photo not from this site)

The device’s transmitter coil generates a pulsed primary EM field at a rate of 150 pulses per second, inducing eddy currents into the subsurface. The decay rates of these eddy currents are measured by two, 3.28 foot by 1.64 foot (1 meter by ½ meter) rectangular receiver coils. By taking the measurements at a relatively long time frame after termination of the primary pulse, the response is practically independent of the survey area's terrain conductivity. Specifically, the decay rates of the eddy currents are much longer for metals than for normal soils allowing the discrimination of the two.

Data are collected from the EM61's two receiver coils. One of the receiver coils is located coincident to the transmitter coil. The other receiver coil is located 1.31 feet (0.4 meters) above the transmitter coil. Data from the top receiver coil are stored on Channel 1 of a digital data logger. Data from the bottom receiver coil are stored on Channel 2 of the data logger. Channel 1 and Channel 2 data are simultaneously recorded at each station location. The instrument responses are recorded in units of milliVolts (mV). Data were recorded digitally by a data logger at a rate of approximately 2 measurements per foot along the survey lines which were spaced 3 feet apart.

2.3 Electromagnetic EM31 Survey Methodology

EM31 with GPS in use (photo not from this site)

Portions of Area 5 were surveyed with the Geonics EM31 Terrain Conductivity meter. The EM31 was used to measure and record the quadrature component (ground conductivity) and the inphase component of the EM field along the survey lines. The quadrature component of the EM field is a measurement of the apparent ground conductivity. The inphase component of the EM field is sensitive to metallic objects. Comparison of the quadrature component of the EM field data (expressed in units of milliSiemens per meter (mS/m)) and the inphase component data (expressed in units of parts per thousand (ppt)) results in increased anomaly definition. The character of the EM response, low or high, is partially dependent on the orientation of the buried target relative to the orientation of the EM31 device during data acquisition, and the survey direction. A buried metal pipe, for example, will exhibit a high valued response when the trend of the pipe is parallel to the survey direction. Alternatively, when a survey line crosses a buried metal pipe whose trend is perpendicular to the survey direction, it is characterized by a low response. Similarly, other complex buried metal anomalies are indicated by a coupling of a high and low response.

All readings were taken with the instrument oriented parallel to the direction of travel, in the vertical dipole mode and with the instrument at waist height. The depth of penetration with the instrument in this configuration is approximately 12 to 15 feet below ground surface. Data were collected and stored in a solid state memory data logger during the survey. The data logger was interfaced to a portable computer and the data were transferred to a disk for subsequent processing and interpretation. A survey base station was established on-site and was revisited throughout the survey to check for instrument drift and malfunction. No significant drift or malfunction was observed.

The terrain conductivity and inphase data were initially edited and then plotted as profile lines for interpretation. Contour maps of the data were then constructed and utilized for final interpretation. The geophysical data are presented in final form as a series of color contour maps. The color maps allow for an illustration of detected anomalies that are associated with conductive materials such as buried metals, wastes, fill, utilities, and changes in soil texture and/or moisture content.

3.0 Results

Geophysical data collected at the Site are shown in Figures 2 through 8. The color bar on each figure indicates the colors associated with the respective measured values. Surface features encountered, such as monitoring wells and light posts, are shown on the figures. Anomalies interpreted to be potentially significant from an environmental perspective are labeled A through F on the figures and discussed below. It is important to note that the labeled anomalies are not an exhaustive listing of detected anomalies. Any anomalous response, labeled or unlabelled may be of environmental significance. In addition, any labeled anomaly may simply be related to miscellaneous fill material of little or no environmental relevance.

Area 1 (Figure 2)

Area 1 is the survey area northwest and west of the main site building. Loading docks line the west end of the building and a prominent response associated with the associated protective steel bollards is observed. Anomalies A and B are interpreted as buried metal anomalies that may be environmental significance.

Area 2 (Figure 3)

Area 2 is the survey area southwest of the main site building. **Anomalies C and D** are interpreted as buried metal anomalies that may be environmental significance.

Area 3 (Figure 4)

Area 3 is the survey area in the south-central portion of the main site building. A concrete ramp and numerous exterior building features are present in this area. A linear anomaly is interpreted to trend east-west approximately 20 ft south of the building. This anomaly is denoted with a dashed red line on Figure 4. Anomaly E is a large buried metal anomaly located in the southeast portion of this survey area. Surface metallic debris (denoted "SM" on the figure) was observed in this area. **Anomaly E** may be related to additional metallic debris in the subsurface or other buried metals of environmental significance.

Area 4 (Figure 5)

Area 4 is the survey area southeast of the main site building. A rail line is observed to trend east-west terminating at the building. A feature that appeared to be a vent was observed adjacent to the southeast corner of the building. **Anomaly F** is a buried metal anomaly south of the building. This response was observed over the entire 25 ft east-west portion of the survey. A portion of this anomaly is likely associated with the building itself however this anomaly was observed to extend 9 ft from the building. Anomaly F may represent a UST immediately adjacent to the building or other miscellaneous buried metals.

Area 5

Area 5 is the portion of the Site that was surveyed north of Franklin Street. Area 5 is bounded on the west by railroad property and to the east by a baseball diamond. The southern portion of Area 5 is an asphalt paved parking area and the northern portion is vegetated. Portions of the northern area are thickly vegetated or wooded precluding geophysical data acquisition.

- Area 5 EM61 Data (Figure 6)

Numerous buried metal anomalies are observed in the EM61 data set of Figure 6. The large rectilinear nature of many of these suggest remnants of buildings or re-enforced concrete pads. Any of these anomalies, or the edges of these anomalies may be of environmental significance. Though many anomalies are observed, two are called out for special consideration. These are labeled **Anomalies G and H**. Anomaly G is a linear anomaly that trends parallel to the rail line on the western boundary of the site. Linear anomalies are typically related to buried utilities however their response is usually consistent (when compared across adjacent profile lines). Anomaly G is unique in that the response in not consistently observed at the same magnitude across adjacent profile lines. It should be noted that Anomaly G may lie outside the originally scoped geophysical survey area. (In order to collect the EM61 data the grid needs to be installed in a rectilinear fashion; angled boundaries are addressed by "squaring off" the survey grid). Anomaly H is a buried metal anomaly located in the paved parking area. An interpreted linear anomaly is observed to trend north-south immediately adjacent to Anomaly H.

- Area 5 EM31 Data (Figures 7 and 8)

EM31 conductivity and inphase data for the site is shown in Figures 7 and 8, respectively. Surface features that were observed during the data acquisition are noted on the figures. Positioning was accomplished using an integrated GPS system.

Actual measurement points are shown on the figures as a series of closely spaced tick marks. Data were primarily acquired along parallel lines. Deviations from parallel lines occurred where obstructions were present. This is observed primarily around areas where vegetation precluded data acquisition along parallel lines. Areas with no data (white areas on Figures 7 and 8) are related to heavily vegetated areas where data could not be collected.

Responses from various surface metallic features are evident in the geophysical data. Most notable are debris piles and surface metals. The locations of these surface features are noted on the figures so they are distinguishable from the interpreted subsurface anomalies.

Terrain Conductivity (Figure 7) values at the site were observed to range from below 5 mS/m to over 90 mS/m. The variation in terrain conductivity may be related to any one or combination of the following conditions:

- A change in soil/fill type. For example, an increase in relative clay content may increase the measured conductivity and variations in fill type will cause associated anomalies;

- A change in soil moisture. Moisture content would be expected to increase in areas of low topographic elevation as more saturated sediments lie within the depth of investigation of the EM instrument;

- A change in pore fluid specific conductance. For example, the presence of salt-impacted water within the pore space of the shallow soil will increase the measured conductivity primarily due to the presence of chloride ions; or

- Interference from surface metallic anthropogenic features such as powerlines, fences, pipes, reinforced concrete and other metallic structures.

- Subsurface objects with varying electrical properties

The inphase data set that is shown in Figure 8 exhibits a response that is similar to the conductivity data. The inphase response data is often referred to as the “metal detection” mode however buried metallic objects are expressed as anomalies in both inphase and conductivity data sets.

Eight anomalies or anomalous areas were identified as potentially being related to features of environmental significance and are labeled **Anomaly I through P** on Figures 7 and 8. These anomalies are expressed in both conductivity and inphase data sets. Subsurface material with uniform (or gradually varying) electrical properties would be expected to exhibit a uniform of slowly varying response. Buried objects are interpreted by recognizing an abrupt lateral change in measured response. Buried metallic drums, for example, would typically be expressed as a low (or negative) response (shades of dark blue on Figures 7 and 8). While such a low response is “typical” it is not uniquely the case. The shape and orientation of buried metallic objects sometimes cause a high amplitude positive response (shown in shades of red on Figures 7 and 8). The identified anomalies do not represent an exhaustive list of anomalous responses; rather the largest and most compelling are identified as areas where further intrusive investigation may be warranted.

4.0 LIMITATIONS

The geophysical methods used during this survey are established, indirect techniques for non-destructive subsurface reconnaissance exploration. As these instruments utilize indirect methods, they are subject to inherent limitations and ambiguities. Metallic surface features (electrical wires, scrap metal, railroad lines, etc.) preclude reliable non-invasive data/results beneath, and in the immediate vicinity of, the surface features. Targets such as buried drums, buried tanks, conduits, etc. are detectable only if they produce recognizable anomalies or patterns against the background geophysical data collected. As with any remote sensing technique, the anomalies identified during a geophysical survey should be further investigated by other techniques such as historical aerial photography, test pit excavation and/or test boring, if warranted.

Please do not hesitate to contact us if you have any questions or require additional information.

Sincerely yours,
AMEC

John Luttinger

John Luttinger
Senior Geophysicist

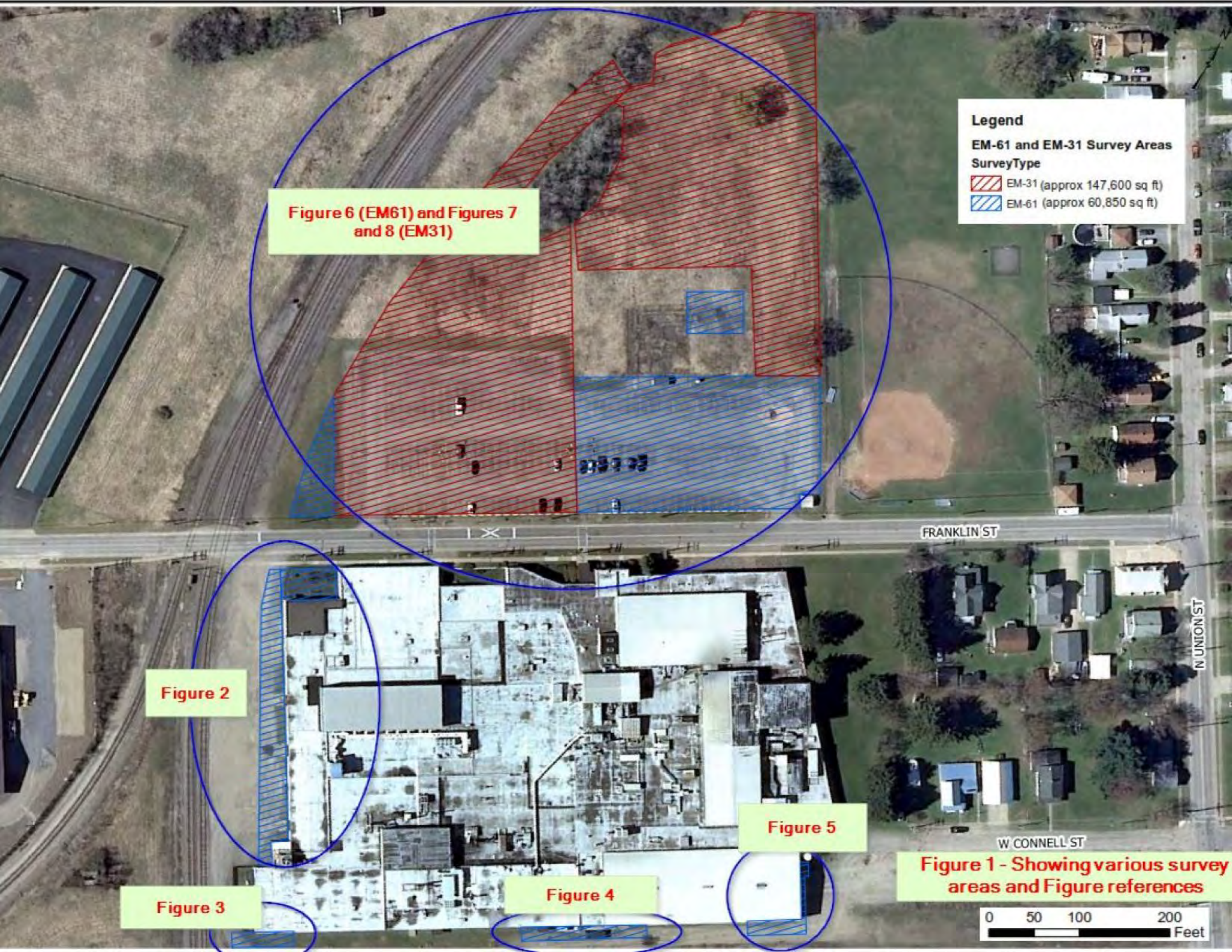
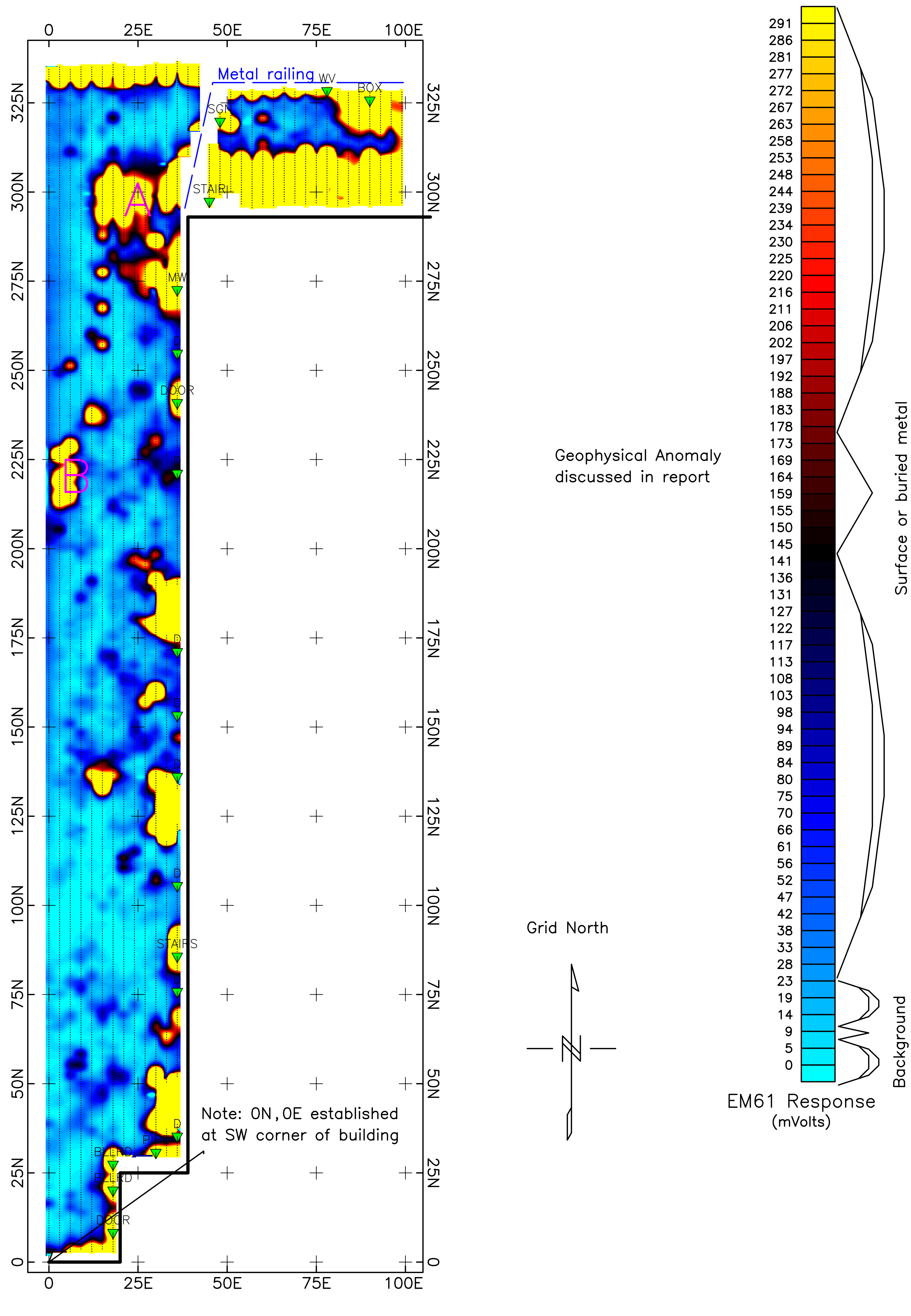


Figure 1 - Showing various survey areas and Figure references



Scale 1:360

25 0 25

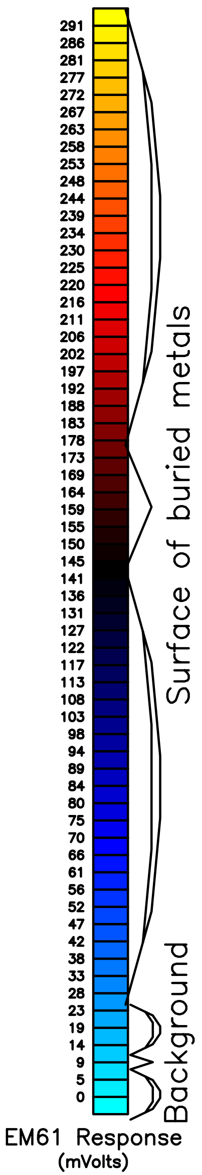
(feet)

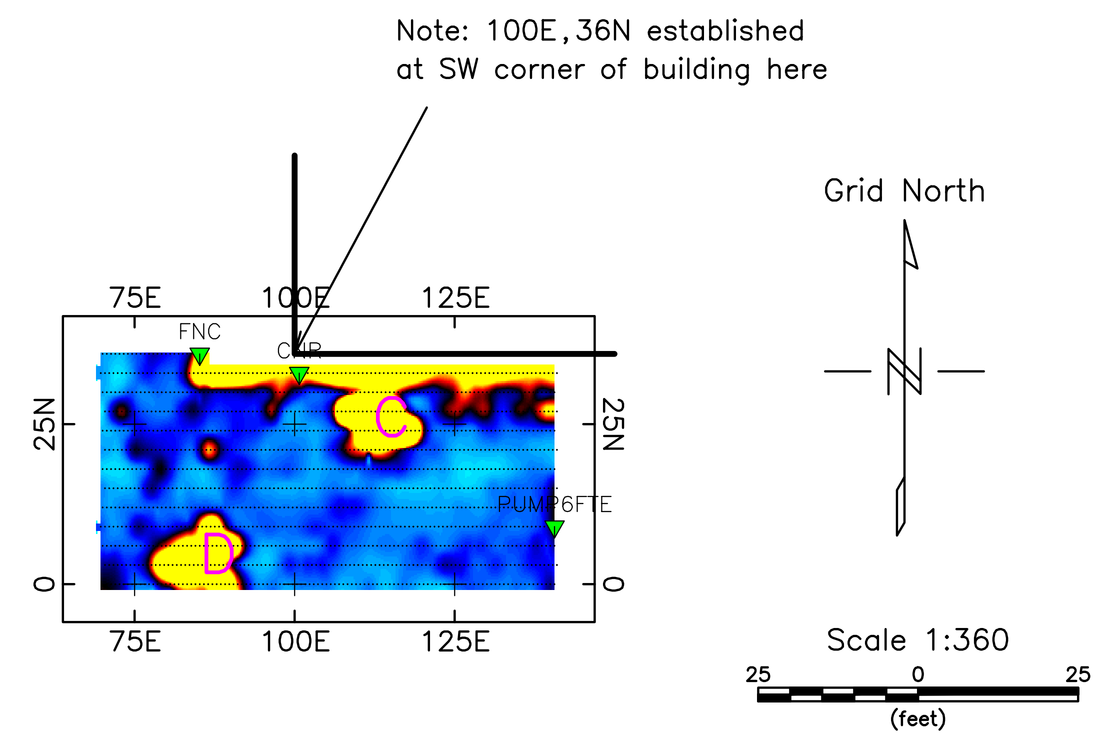
Figure 2

Geophysical Survey Results
Color Contours of EM61 Data
(mVolts)

Area 1 (NW Corner Site Building)
211 and 202 Franklin St
Olean, NY
Day Environmental

Amec (716) 998-6973





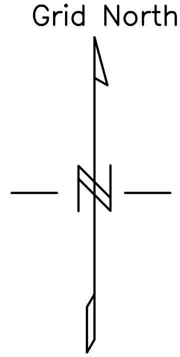
A Geophysical Anomaly discussed in report

Figure 3

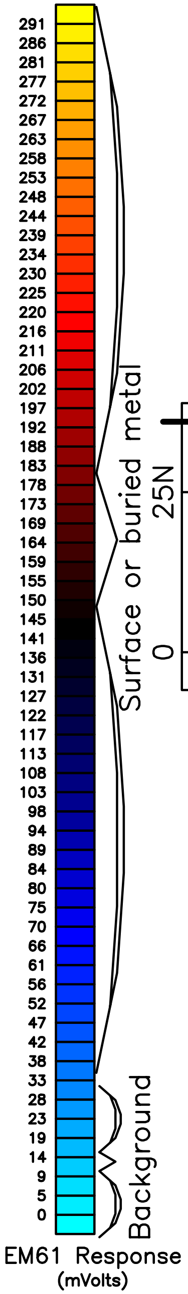
Geophysical Survey Results
Color Contours of EM61 Data
(mVolts)

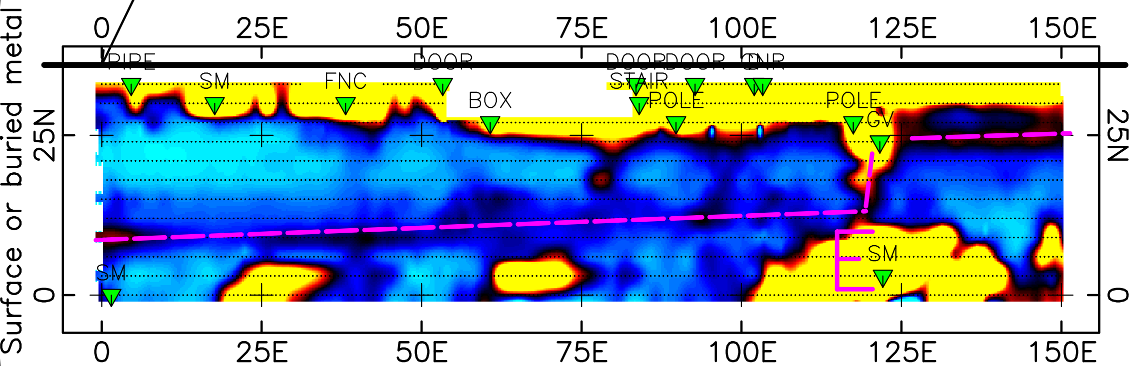
Area 2 (SW Corner Site Building)
211 and 202 Franklin St
Olean, NY
Day Environmental

Amec (716) 998-6973



Note: 0E,36N established at base of building below east edge of first window





A Geophysical Anomaly discussed in report

Interpreted linear anomaly

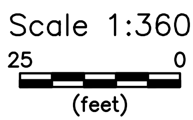
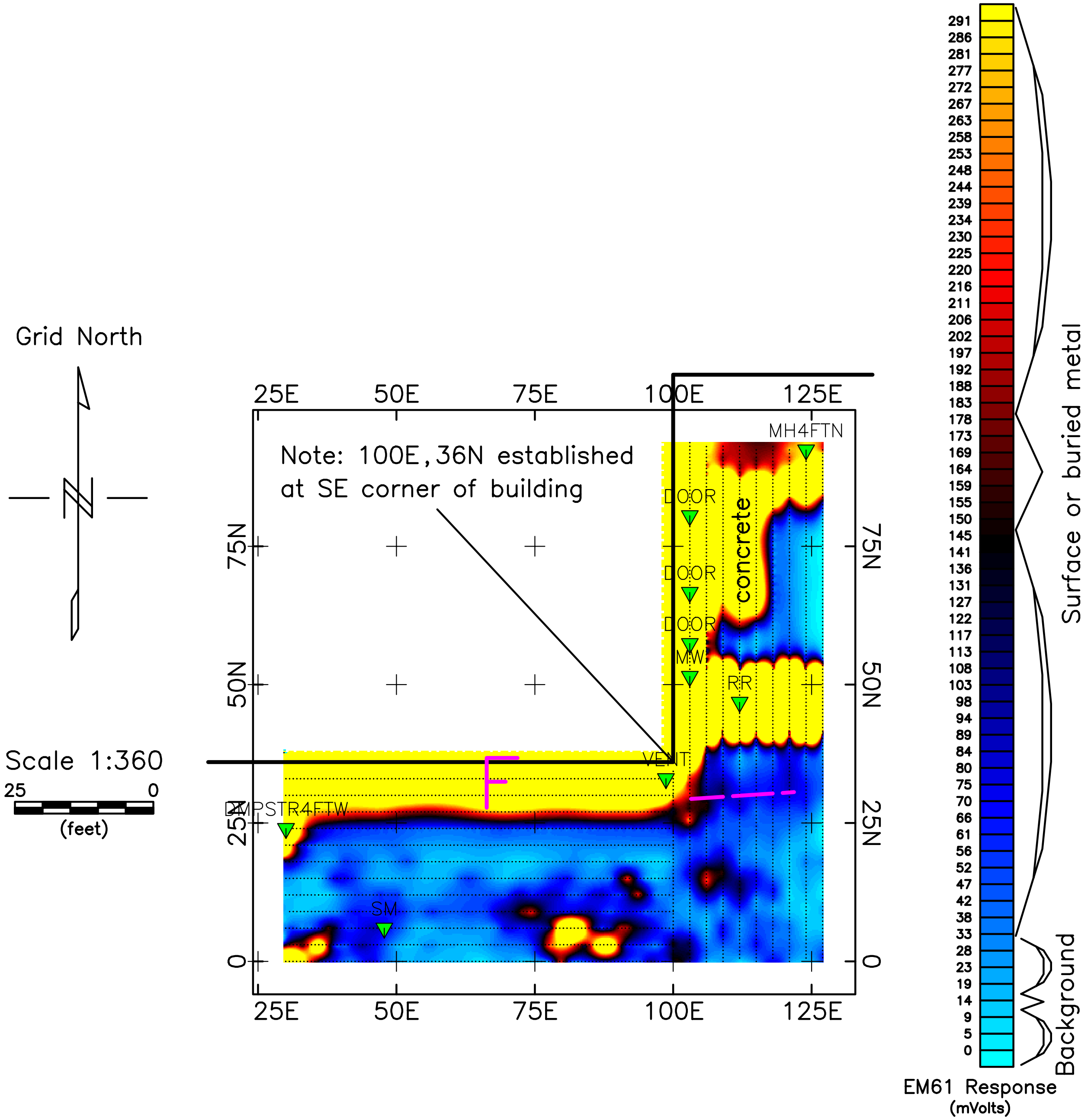


Figure 4

Geophysical Survey Results
Color Contours of EM61 Data
(mVolts)

Area 3 (South Central Site Building)
211 and 202 Franklin St
Olean, NY
Day Environmental

Amec (716) 998-6973



A Geophysical Anomaly discussed in report

Interpreted linear anomaly

Figure 5

Geophysical Survey Results
Color Contours of EM61 Data
(mVolts)

Area 4 (SE Corner Site Building)
211 and 202 Franklin St
Olean, NY
Day Environmental

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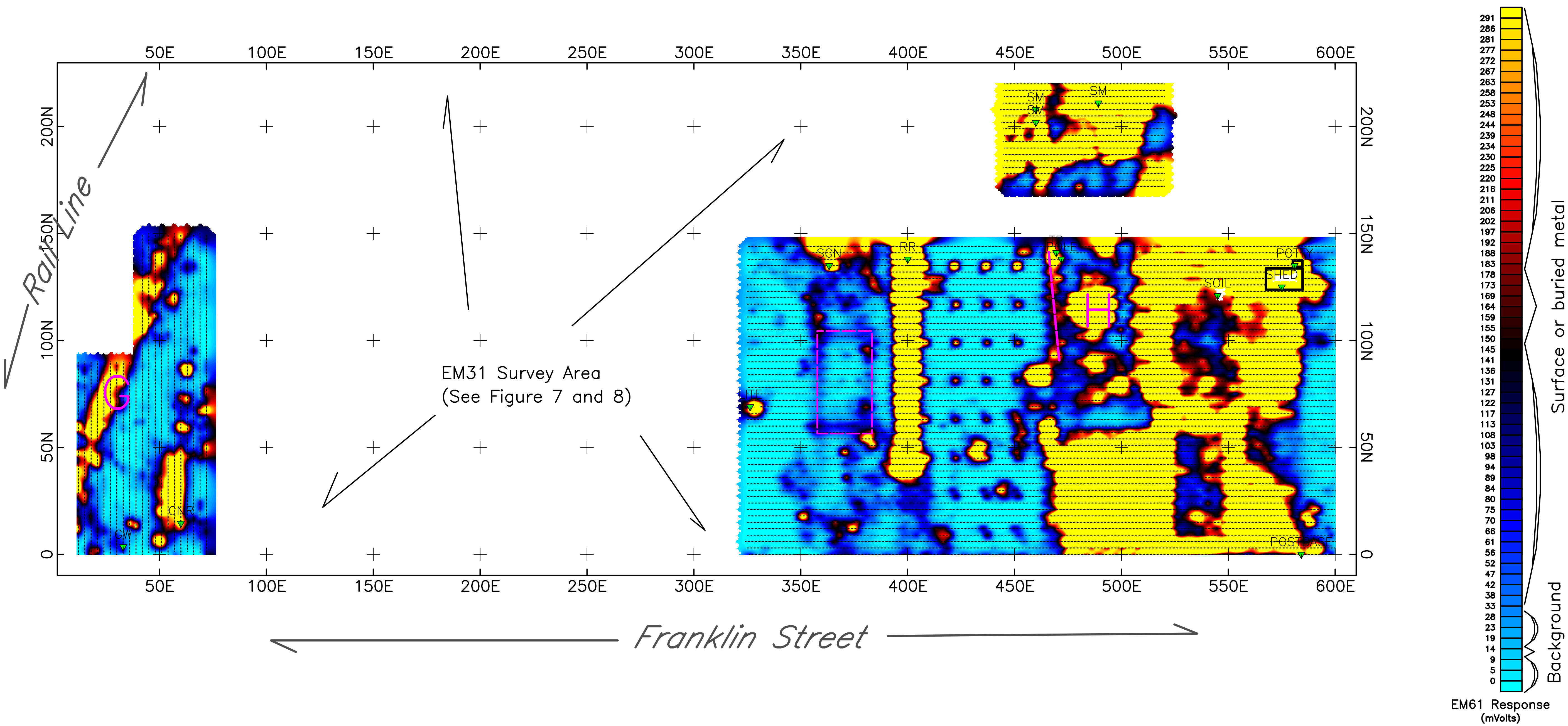

A Geophysical Anomaly discussed in report

Interpreted linear anomaly

GRID NORTH

Scale 1:600

25 0 25 50 75 100 125

(feet)

Figure 6

Geophysical Survey Results
Color Contours of EM61 Data
(mVolts)

Area 5 (Parking Area)
211 and 202 Franklin St
Olean, NY
Day Environmental

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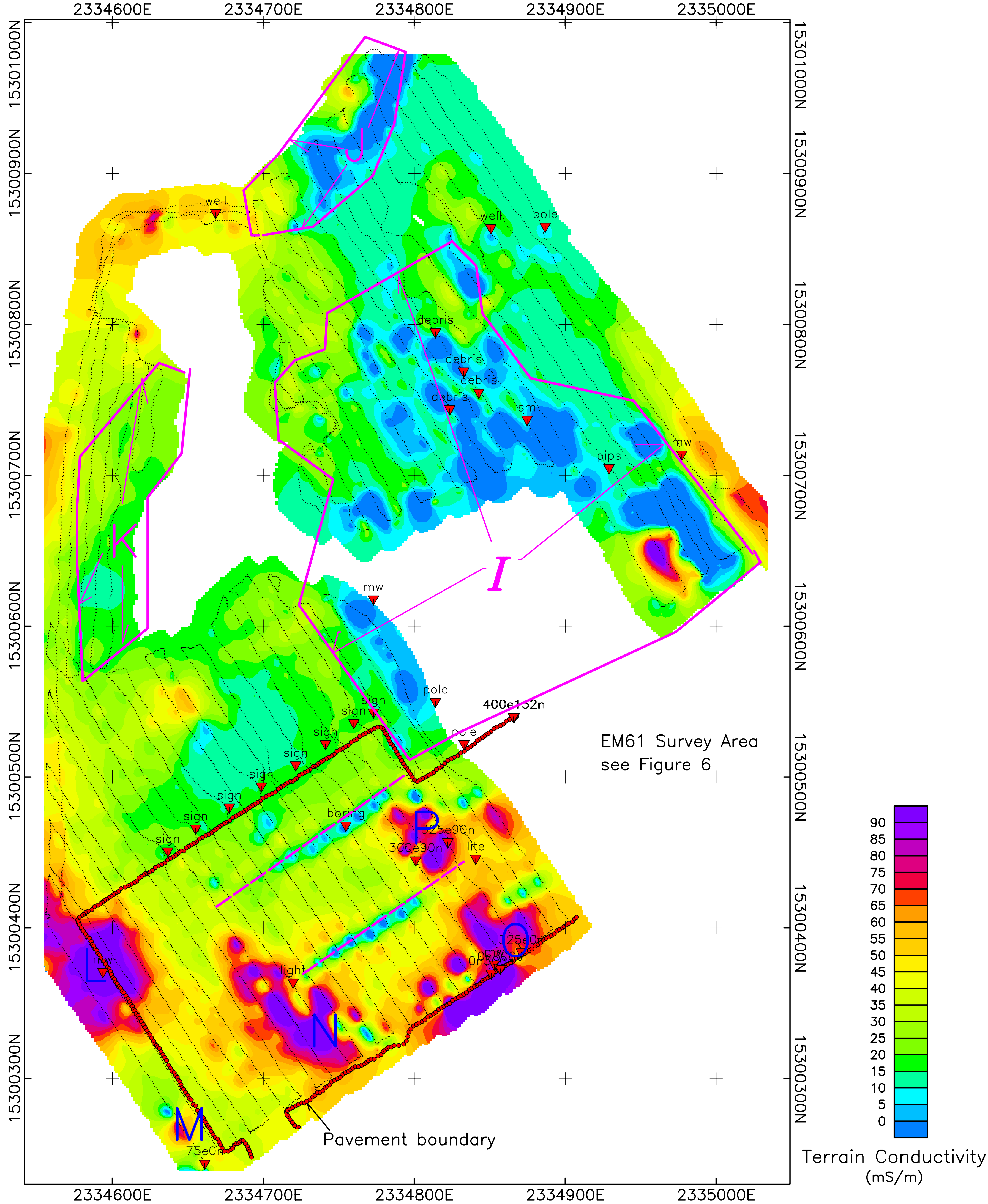

Scale 1:840

50 0 50

(feet)

A or A Geophysical Anomaly discussed in report

Interpreted linear anomaly

Figure 7

Geophysical Survey Results
Color Contours of EM31 Data
Terrain Conductivity (mS/m)

Area 5 (Parking Area)
211 and 202 Franklin St
Olean, NY
Day Environmental

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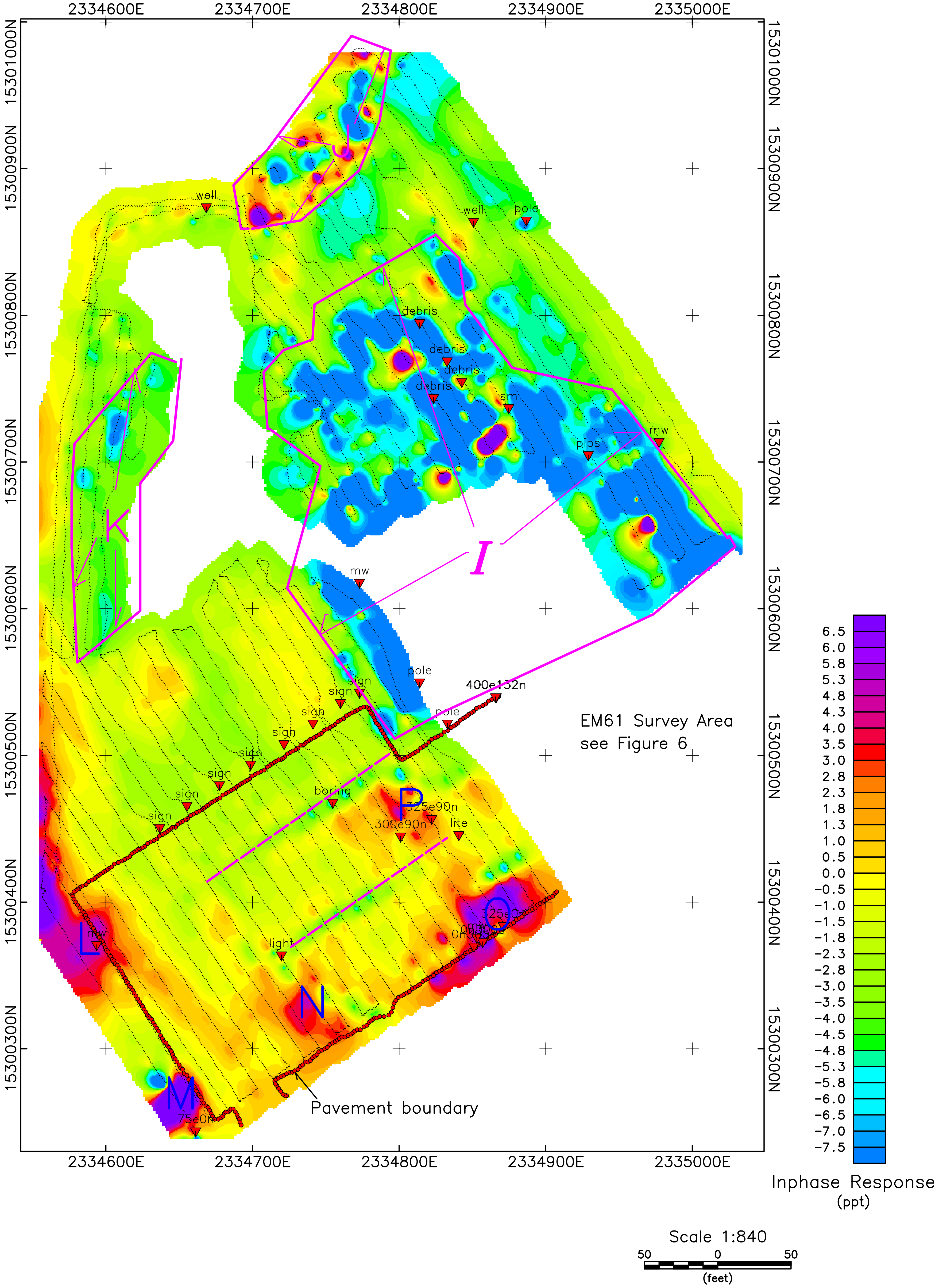

A or A Geophysical Anomaly discussed in report

Interpreted linear anomaly

Figure 8

Geophysical Survey Results
Color Contours of EM31 Data
Inphase Response (ppt)

Area 5 (Parking Area)
211 and 202 Franklin St
Olean, NY
Day Environmental

Amec (716) 998-6973

APPENDIX C

TEST PIT LOGS,
TEST BORING LOGS,
AND
MONITORING WELL INSTALLATION DIAGRAMS

TEST BORING LOGS:

TB-101 THROUGH TB-108

Test Boring TB-101

Page 1 of 1

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA
Datum: NA
Date Started: 6/12/2014
Date Ended: 6/12/2014
Borehole Depth: 12.0'
Borehole Diameter: 2 1/4 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	Sample Description	Notes
						0.0	Asphalt pavement above broken Asphalt and Gravel	
1							Black, fine to coarse Sand intermixed with Coal fragments, Brick, Concrete, moist (FILL)	
						0.0	Mottled, orange/brown, Clayey SAND, some Silt, little Gravel, moist	
2	NA	S-1	0-4	85	NA	0.0		
3						0.0		
4						0.0		
5						0.0		
6	NA	S-2	4-8	80	NA	0.0	Brown, fine to medium SAND, some Gravel, little Silt, moist	
7						0.0		
8						0.0		
9						0.0	...SAND and GRAVEL	
10	NA	S-3	8-12	75	NA	0.0		
11						0.0		
12							Bottom of Test Boring @ 12.0'	
13								
14								
15								
16								

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring TB-101

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Test Boring TB-102

Page 1 of 1

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA
Datum: NA
Date Started: 6/12/2014
Date Ended: 6/12/2014
Borehole Depth: 12.0'
Borehole Diameter: 2 1/4 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)		Sample Description	Notes
								Asphalt Pavement	
1				33				Concrete Slab	**0.2' - 2.0' Auger through concrete slab**
2	NA	S-1	2-4	90	NA		0.0	Broken Concrete, Cinders and Pieces of Asphalt (FILL)	
3							0.0	Brown, Sandy CLAY, little medium to coarse Gravel, moist	
4	NA	S-2	4-8	65	NA		0.0		
5							0.0		
6							0.0		
7							0.0	Yellow/Brown, Silty SAND, moist	
								Fine to medium SAND, trace Silt, moist	
8	NA	S-3	8-12	33	NA		0.0		
9							0.0	Brown, SAND and GRAVEL, trace Silt, moist	
10							0.0		
11							0.0		
12								Bottom of Test Boring @ 12.0'	
13									
14									
15									
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

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Test Boring TB-103

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA   Datum: NA
Date Started: 6/12/2014   Date Ended: 6/12/2014
Borehole Depth: 28.0'   Borehole Diameter: 8 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0	Asphalt and Sub-Base	
1	NA	S-1	0-2	40	NA		0.0	Brown/Black Sand and Gravel, little Silt, trace Bricks, trace broken Asphalt (FILL)	
2								Concrete Slab	
3									**No Sample 2-4 feet; auger through concrete to 4'**
4							0.0	Gray/Black, Sand, some Gravel, little Silt, trace Concrete (FILL)	
5							0.0	Brown, medium SAND, little Gravel, trace Silt, moist	
6	NA	S-2	4-8	38	NA		0.0		
7							0.0		
8							0.0	Dark Brown, coarse SAND and GRAVEL, little Silt, moist	
9	NA	S-3	8-10	25	NA		0.0		
10							0.0	...Gray/Brown	
11							0.0		
12	NA	S-4	10-14	12	NA		0.0		
13							0.0		
14							0.0		
15	NA	S-5	14-18	38	NA		0.0		
16							0.0		

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

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Test Boring TB-103

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA Datum: NA
Date Started: 6/12/2014 Date Ended: 6/12/2014
Borehole Depth: 28.0' Borehole Diameter: 4"
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0		
17							0.0		
18	NA	S-6	18-20	70	NA		0.0	...medium to coarse SAND, little Gravel	
19							0.0		
20	NA	S-7	20-24	45	NA		0.0	...medium to coarse SAND and sub-rounded GRAVEL, little Silt	
21							0.0		
22							0.0	...wet	
23							0.0		
24	NA	S-8	24-28	70	NA		0.0		
25							0.0		
26							0.0	Gray, GRAVEL, some coarse Sand, little Silt	
27							0.0		
28								Bottom of Test Boring @ 28.0'	
29									
30									
31									
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

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Test Boring TB-104

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA
Datum: NA
Date Started: 6/12/2014
Date Ended: 6/12/2014
Borehole Depth: 28.0'
Borehole Diameter: 8 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): ~ 13.0' (6/12/14)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
0-4	NA	S-1	0-4	70	NA		0.0, 0.0, 0.0, 0.0	Asphalt and Sub-base; Brown/Black, Sand and Gravel, little Silt, trace crushed Brick, trace Cinders (FILL); Black, mottled Brown, Sandy CLAY, moist; ...Brown	
4-8	NA	S-2	4-8	58	NA		0.0, 0.0, 0.0, 0.0	...some Gravel; Brown, SAND and GRAVEL, some Silt, moist; ...little Silt	
8-10	NA	S-3	8-10	70	NA		0.0, 0.0		
10-14	NA	S-4	10-14	38	NA		0.0, 0.0, 0.0, 0.0	...SAND and sub-rounded GRAVEL	
14-16	NA	S-5	14-18	52	NA		0.0, 0.0, 0.0	...Gray/Brown, wet	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

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Test Boring TB-104

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA Datum: NA
Date Started: 6/12/2014 Date Ended: 6/12/2014
Borehole Depth: 28.0' Borehole Diameter: 8 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): ~ 13.0' (6/12/14)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0		
17							0.0		
18	NA	S-6	18-20	20	NA		0.0	Gray/Brown, coarse SAND, little Gravel, trace Silt, wet	
19							0.0	Gray/Brown, coarse SAND and sub-rounded GRAVEL, little Silt, wet	
20	NA	S-7	20-24	50	NA		NA	...Gray, trace Silt	Strong Petroleum Odor; PID malfunction (20–28)
21									
22									
23									
24	NA	S-8	24-28	88	NA		NA	Gray, coarse SAND, little sub-rounded Gravel, wet	
25								...medium to coarse SAND	
26									
27									
28								Bottom of Test Boring @ 28.0'	
29									
30									
31									
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring TB-104

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Test Boring TB-105

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Split Spoon

Ground Elevation: NA
Datum: NA
Date Started: 6/11/2014
Date Ended: 6/12/2014
Borehole Depth: 24.0'
Borehole Diameter: 8 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 14.9' (6/12/14) through augers

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	2						0.0	TOPSOIL with organics	
1	2	S-1	0-2	10	4			Black/Brown, Silty Sand intermixed with railroad Ballast, broken red Bricks (FILL)	
	2						0.0		
2	4								
	3						0.0		
3	4	S-2	2-4	10	8				
	4						0.0		
4	4								
	6						0.0	...little Ash, little Tar (Roofing material?)	
5	8	S-3	4-6	55	18				
	10						0.0		
6	3							frequent Red Bricks	
	18						0.0	Gray, Silty Sand intermixed with broken red Bricks, Ash, Cinders, pieces of	
7	13	S-4	6-7.5	40	31			Concrete (FILL)	
	50/3						0.0	Concrete Slab	Augered to 8'
8	No sample 7.5' - 8.0'								
	6						0.0	Gray, coarse Sand, broken Concrete, red Brick and Mortar, trace Tar (FILL)	
9	7	S-5	8-10	48	18				
	11						0.0		
10	12								
	11						0.0	Gray/Brown, medium dense, coarse SAND, some Gravel, trace Silt, moist	
11	11	S-6	10-12	70	24				
	13						0.0		
12	14								
	10						0.0		
13	10	S-7	12-14	60	25				
	15						0.0		
14	16								
	9						0.0	…Brown, litle Silt, wet	
15	9	S-8	14-16	52	18				
	9						0.0		
16	10								

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

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Test Boring TB-105

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA
Datum: NA
Date Started: 6/11/2014
Date Ended: 6/12/2014
Borehole Depth: 24.0'
Borehole Diameter: 8 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 14.9' (6/12/14)

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	11						0.0	Brown, coarse SAND, some Gravel, little Silt, wet	
17	12	S-9	16-18	63	25	NA			
	13						0.0		
18	13								
	5						0.0		
19	5	S-10	18-20	10	15	NA			
	10						0.0		
20	11								
	5						0.0	...little Gravel	
21	5	S-11	20-22	48	14	NA			
	9						0.0		
22	9								
	10						0.0	...coarse to medium SAND	
23	11	S-12	22-24	70	26	NA			
	15						0.0	...some sub-angular Gravel	
24	16								
								Bottoom of Test Boring @ 24.0'	
25									
26									
27									
28									
29									
30									
31									
32									

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring TB-105

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Test Boring TB-106

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Split Spoon

Ground Elevation: NA
Datum: NA
Date Started: 6/11/2014
Date Ended: 6/12/2014
Borehole Depth: 20.0'
Borehole Diameter: 8 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 13.8 (6/11/14) through augers

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0	TOPSOIL and Roots	
1								Black, Cinders, Coal fragments, fine to medium Sand, moist (FILL)	
							0.0	Silty SAND, trace Gravel, trace Clay, moist	
2	NA	S-1	0-4	NA	NA		0.0		
3							0.0		
4							0.0	Brown, fine to medium GRAVEL, some Sand, little Silt, moist	
5							0.0		
6	NA	S-2	4-8	NA	NA		0.0		
7							0.0		
8							0.0		
9							0.0		
10	NA	S-3	8-12	NA	NA		0.0		
11							0.0		
12							0.0		
13							0.0		
14	NA	S-4	12-14	NA	NA		0.0	...wet	
15							0.0		
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring TB-106

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Test Boring TB-106

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA   Datum: NA
Date Started: 6/11/2014   Date Ended: 6/12/2014
Borehole Depth: 20.'   Borehole Diameter: 8 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 13.8 (6/11/14) through augers

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0	Brown, fine to medium GRAVEL, some Sand, little Silt, wet	
17							0.0		
18	NA	S-5	16-20	NA	NA		0.0		
19							0.0		
20								Gray/Brown, fine to medium SAND, little Gravel, trace Silt, wet	
								Bottom of Test Boring @ 20.0'	
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring TB-106

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Test Boring TB-106A

Page 1 of 2

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA   Datum: NA
Date Started: 6/19/2014   Date Ended: 6/19/2014
Borehole Depth: 48.0'   Borehole Diameter: 8 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 20.0' (6/19/14) through augers

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
								Auger 0 - 20.0 ft. and begin sampling	
20							49.1	Gray, angular GRAVEL, some Sand, wet	Petroleum Odor
21	NA	S-1	20-24	21	NA	80.9			
22									
23							107		
24							98.2		
25								...little coarse Sand	
26	NA	S-2	24-28	38	NA	807	44.5	...SAND and angular GRAVEL, frequent Cobbles noted during augering	
27									
28							40.4		
							31.2		
29							18.7		
30	NA	S-3	28-32	41	NA	287	56.1		Faint Petroleum Odor
31							40.2		
32								Gray/Brown, Clayey SAND, trace Gravel, wet	
							17.9		
33							43.7	...Sandy CLAY	
34	NA	S-4	32-36	21	NA	159			
35							24.5		

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring TB-106A

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Project #: 4884S-13
Project Address: 202 Franklin Street
Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Test Boring TB-106A

Ground Elevation: NA   Datum: NA
Date Started: 6/19/2014   Date Ended: 6/19/2014
Borehole Depth: 48.0'   Borehole Diameter: 8 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 20.0' (6/19/14) through augers

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
								Gray/Brown, Sandy CLAY, trace Gravel, wet	Faint Petroleum Odor
36	No Sample 36' - 40'								
37									
38									
39									
40							2.0	Gray-Brown, Sandy CLAY, trace Silt, wet	Very Faint to no Petroleum Odor
41						6.7			↓
42	NA	S-6	40-44	100	NA		4.9		
43						4.9	0.1		
44							15.7		
45							16.8		No Petroleum Odor
46	NA	S-7	44-48	74	NA	20.5	14.3		
47							17.6		
48								Bottom of Test Boring @ 48.0'	
49									
50									
51									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring TB-106A

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Project #: 4884S-13
Project Address: 202 Franklin Street
Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Test Boring TB-107

Ground Elevation: NA   Datum: NA
Date Started: 6/13/2014   Date Ended: 6/13/2014
Borehole Depth: 28.0'   Borehole Diameter: 8 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 18.8' (6/13/14) through augers

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0	Asphalt and Sub-base	
1								Brown, Sand, some Gravel, little Silt, moist (FILL)	
							0.0	Black, Sand and Gravel, some Cinders, little crushed red Brick, moist (FILL)	
2	NA	S-1	0-4	62	NA				
							0.0	...Gray-Black	
3								Concrete	
							0.0	Brown-Gray, Sandy CLAY, little Gravel, moist	
4							0.0		
5								Brown/Gray, SAND and sub-angular GRAVEL, trace Silt, moist	
							0.0		
6	NA	S-2	4-8	28	NA				
							0.0		
7							0.0		
8							0.0		
9	NA	S-3	8-10	92	NA		0.0		
10							0.0		
11							0.0		
12	NA	S-4	10-14	44	NA		0.0	...Tan to Brown	
13							0.0		
14							0.0		
15	NA	S-5	14-18	30	NA		0.0	...Brown, SAND and medium to coarse angular GRAVEL	
16							0.0		

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring TB-107

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Test Boring TB-107

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA
Datum: NA
Date Started: 6/13/2014
Date Ended: 6/13/2014
Borehole Depth: 28.0'
Borehole Diameter: 8 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 18.8' (6/13/14) through augers

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17								Gray, SAND and medium to coarse GRAVEL, trace Silt, moist	
18								Gray, SAND, little Gravel, wet	Faint Petroleum Odor
19	NA	S-6	18-20	82	NA	44		Gray, SAND and sub-angular GRAVEL, trace Silt, wet	
20						53.6			
						70.1		...GRAVEL, some coarse Sand	
21									
22	NA	S-7	20-24	54	NA			...SAND and GRAVEL, some Silt	
23						53.2			
24						52.4			
						205			
25								Gray, coarse SAND, some Gravel, wet	
26	NA	S-8	24-28	75	NA	415		Gray, Sandy CLAY, trace Gravel, wet	
27									
28								Bottom of Test Boring @ 28.0'	
29									
30									
31									
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring TB-107

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Test Boring TB-108

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Split Spoon

Ground Elevation: NA   Datum: NA
Date Started: 6/11/2014   Date Ended: 6/12/2014
Borehole Depth: 28.0'   Borehole Diameter: 8 inches
Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 15.7 (6/12/14) through augers

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0	Topsoil and Roots	
1							0.0	Bricks intermixed with Black fine to medium Sand, Coal fragments, moist (FILL)	
2	NA	S-1	0-4	38	NA		0.0	Brown, Sandy CLAY, little Gravel interbedded with layers of tan/brown Silty Clay, moist	
3							0.0		
4							0.0		
5							0.0	Brown, Sandy GRAVEL, little Silt, moist	
6	NA	S-2	4-8	5	NA		0.0		
7							0.0		
8							0.0		
9							0.0		
10	NA	S-3	8-12	33	NA		0.0		
11							0.0		
12							0.0		
13							0.0	Brown, fine to coarse SAND with pockets of Clayey Silt, moist	
14	NA	S-4	12-16	38	NA		0.0	Brown, Sandy GRAVEL, little Silt, moist ...wet	
15							0.0	...tan/brown	
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring TB-108

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Test Boring TB-108

Project #:	4884S-13	Ground Elevation: NA	Datum: NA
Project Address:	202 Franklin Street, Olean, New York	Date Started: 6/11/2014	Date Ended: 6/12/2014
DAY Representative:	Z. Tennies	Borehole Depth: 28.0'	Borehole Diameter: 8 inches
Drilling Contractor:	Nothnagle Drilling	Completion Method: ☐ Well Installed ■ Backfilled with Grout ☐ Backfilled with Cuttings	
Sampling Method:	Auger & Macrocore	Water Level (Date): 15.7 (6/12/14) through augers	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17–20	NA	S-5	16-20	34	NA			Brown, SAND and sub-angular to rounded GRAVEL, little Silt, wet	
20–24	NA	S-6	20-24	55	NA			Gray, sub-rounded to angular GRAVEL, some Sand, wet (from ~21)	Petroleum Odor
24–28	NA	S-7	24-28	52	NA			...faint sheet on water	
28–32								Bottom of Test Boring @ 28.0'	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring TB-108

TEST BORING LOGS:

MW-A THROUGH MW-G

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Test Boring MW-A

Project #: 4884S-13
Project Address: 211 Franklin Street, Olean, NY
DAY Representative: Z. Tennies
Drilling Contractor: Applus
Sampling Method: Direct Push & Split Spoon

Ground Elevation: NA
Datum: NA
Date Started: 9/10/2013
Date Ended: 9/10/2013
Borehole Depth: 27.0'
Borehole Diameter: 8 inches
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 18.8' (9/10/13) through augers

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0	Brown, fine to medium Sand, some Roots, little Red Brick (FILL)	
1							0.0	Brown-Red, fine to medium SAND, little coase Gravel, damp	
2	NA	S-1	0-4	69	NA		0.0		
3							0.0	...Gray-Black, trace fine Gravel	
4							0.0	Gray-Brown, SAND, trace fine Gravel, damp	
5							0.0		
6	NA	S-2	4-8	38	NA		0.0		
7							0.0		
8							0.0	...fine to medium SAND	
9	NA	S-3	8-10	10	NA		0.0	Gray-Brown, medium to coarse GRAVEL, some Sand, damp	**Test boring advanced to 10 feet via direct-push methods and completed to 27 feet with H S A with split spoon samples collected at 5-foot intervals.**
10							0.2	Gray-Brown, Silty fine to coarse SAND, little medium coarse Gravel, damp	
11	NA	S-4	10-12	78	NA		0.0		
12									
13									
14							3.1		
15	NA	S-5	14-16	75	54				
16							14.7		

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-A

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Project #: 4884S-13
Project Address: 211 Franklin Street
Olean, NY
DAY Representative: Z. Tennies
Drilling Contractor: Applus
Sampling Method: Direct Push & Split Spoon

Test Boring MW-A

Ground Elevation: NA
Datum: NA
Date Started: 9/10/2013
Date Ended: 9/10/2013
Borehole Depth: 27.0'
Borehole Diameter: 8 inches
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): 18.8' (9/10/13) through augers

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17									
18									
19									
20		S-6	20-22	67	57	-	101 25.7 81.1	Very dense, Gray, Silty fine to coarse SAND and medium to coarse GRAVEL, moist petroleum/chemical odor	
21									
22									
23									
24									
25		S-7	25-27	65	44	-	13 42.2 121	...wet ...Dense	
26									
27								End of Boring @ 27.0'	
28									
29									
30									
31									
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-A

day

DAY ENVIRONMENTAL, INC.

ENVIRONMENTAL CONSULTANTS

AN AFFILIATE OF DAY ENGINEERING, P.C.

Project #: 4884S-13
Project Address: 202 Franklin Street
Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Split Spoon

Test Boring MW-B

Ground Elevation: NA
Datum: NA
Date Started: 6/11/2014
Date Ended: 6/12/2014
Borehole Depth: 27.5'
Borehole Diameter: 8 inches
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0	TOPSOIL, ROOTS	
1								Broken Concrete	
							0.0		
2	NA	S-1	0-4	32	NA			Frequent Bricks	
							0.0		
3							0.0		
4							0.0		
5							0.0		
6	NA	S-2	4-8	38	NA			Gray, Gravel, some Ash, moist (FILL)	
							0.0		
7								Brown, Silty fine to coarse SAND, trace rounded Gravel, moist	
							0.0		
8							0.0	Brown, SAND and fine to medium GRAVEL, trace Silt, moist	
9							0.0		
10	NA	S-3	8-12	50	NA		0.0		
11							0.0		
12							0.0		
13								...frequent Cobbles during augering	
							0.0		
14	NA	S-4	12-16	40	NA			...trace Clay	
							0.0		
15							0.0	...wet	
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-B

Test Boring MW-B

Project #:	4884S-13
Project Address:	202 Franklin Street, Olean, New York
DAY Representative:	Z. Tennies
Drilling Contractor:	Nothnagle Drilling
Sampling Method:	Auger & Macrocore
Ground Elevation:	NA
Datum:	NA
Date Started:	6/11/2014
Date Ended:	6/12/2014
Borehole Depth:	28.0'
Borehole Diameter:	8 inches
Completion Method:	■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date):	NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0		
17							0.0		
	NA	S-5	16-20	52	NA				
18							0.0		
19							0.0	...fine to coarse SAND and fine to medium GRAVEL	
20							0.0		
21							0.0		
	NA	S-6	20-24	45	NA				
22									
23							916	...Gray, wet	Petroleum Odor
24									
25									
26	NA	S-7	24-28	50	NA			Gray, sub-angular GRAVEL, some Sand, wet	Faint Petroleum Odor
27									
28								Bottom of Test Boring @ 27.5'	
29									
30									
31									
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-B

Test Boring MW-C

Project #:	4884S-13	Ground Elevation: NA	Datum: NA
Project Address:	202 Franklin Street, Olean, New York	Date Started: 6/11/2014	Date Ended: 6/12/2014
DAY Representative:	Z. Tennies	Borehole Depth: 24.0'	Borehole Diameter: 8 inches
Drilling Contractor:	Nothnagle Drilling	Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings	
Sampling Method:	Auger & Split Spoon	Water Level (Date): NA	

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0	Topsoil, Roots	
1								Black, fine to medium Sand, intermixed with Brick, Wood fragments (railroad ties?), moist (FILL)	
							0.0	Black Cinders and fine to coarse Sand, moist (FILL)	
2	NA	S-1	0-4	75	NA		0.0	Brown Silty fine to medium SAND, wet	
3							0.0		
4							0.0		
5							0.0		
6	NA	S-2	4-8	40	NA		0.0		
7							0.0		
8							0.0		
9							0.0		
10	NA	S-3	8-12	35	NA		0.0	Tan, Light Brown, Sandy CLAY, trace Gravel, trace Silt, wet	
11							0.0		
12							0.0		
13							0.0	Brown, SAND and GRAVEL, trace Silt, wet	
14	NA	S-4	12-16	40	NA		0.0		
15							0.0		
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-C

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Test Boring MW-C

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA Datum: NA
Date Started: 6/11/2014 Date Ended: 6/12/2014
Borehole Depth: 24.0' Borehole Diameter: 8 inches
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
16	NA	S-5	16-20	38	NA		0.0		
17							0.0		
18							0.0		
19							0.0	...rust staining	
20	NA	S-6	20-24	40	NA		0.0		
21							0.0	Brown, fine to medium SAND, trace rounded Gravel, wet	
22							0.0	Gray/Brown, SAND and angular GRAVEL, trace Silt, wet	
23							0.0		
24								Bottom of Test Boring @ 24.0'	
25									
26									
27									
28									
29									
30									
31									
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-C

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Test Boring MW-D

Project #:	4884S-13	Ground Elevation: NA	Datum: NA
Project Address:	202 Franklin Street, Olean, New York	Date Started: 6/11/2014	Date Ended: 6/11/2014
DAY Representative:	Z. Tennies	Borehole Depth: 26.0'	Borehole Diameter: 8 inches
Drilling Contractor:	Nothnagle Drilling	Completion Method:	■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Sampling Method:	Auger & Macrocore	Water Level (Date):	NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	2						0.0	Topsoil and Roots	
1	3	S-1	0-2	58	7			Gray/Brown, Sand, little Gravel, Asphalt (FILL)	
	4						0.0		
2	3								
	2						0.0		
3	1	S-2	2-4	25	3				
	2						0.0		
4	1								
	1						0.0	...little Glass, crushed red Brick	
5	1	S-3	4-6	10	2				
	1						0.0		
6	1								
	W.O.H						0.0	Very soft, Brown, Clayey SAND, trace Gravel, little Organic material, moist	
7	W.O.H	S-4	6-8	25	0				
	W.O.H						0.0		
8	1								
	W.O.H						0.0		
9	W.O.H	S-5	8-10	43	1			...little fine to medium Gravel	
	1						0.0		
10	9								
	4						0.0	Loose, Brown, SAND, little fine to medium Gravel, trace Silt, moist	
11	4	S-6	10-12	40	8				
	4						0.0		
12	4								
	7						0.0	Medium Dense, Gray/Brown, SAND and fine to coarse GRAVEL, trace Silt, moist	
13	9	S-7	12-14	53	21				
	12						0.0		
14	12								
	5						0.0	...Gray/Black	
15	7	S-8	14-16	55	14				
	7						0.0		
16	7							...Brown	

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-D

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Test Boring MW-D

Page 2 of 2

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA Datum: NA
Date Started: 6/11/2014 Date Ended: 6/11/2014
Borehole Depth: 26.0' Borehole Diameter: 8 inches
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
	12						0.0	Medium Dense, Brown, medium to coarse SAND, little Gravel, trace Silt, wet	
17	13	S-9	16-18	33	25			Medium Dense, Brown, medium to coarse SAND and GRAVEL, trace Silt, wet	
	12						0.0		
18	12								
	12						0.0		
19	14	S-10	18-20	70	30				
	16						0.0		
20	13							...medium to coarse SAND and medium to coarse GRAVEL, trace Clay	
	6						0.0		
21	6	S-11	20-22	20	16				
	10						0.0	...no Clay, wet	
22	13								
	8						0.0		
23	13	S-12	22-24	30	30				
	17						0.0		
24	20								
	16						0.0		
25	21	S-13	24-26	95	34			...dense	
	14						0.0		
26	10								
								Bottom of Test Boring @ 26.0'	
27									
28									
29									
30									
31									
32									

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-D

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ENVIRONMENTAL CONSULTANTS

AN AFFILIATE OF DAY ENGINEERING, P.C.

Test Boring MW-E

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA
Datum: NA
Date Started: 6/12/2014
Date Ended: 6/12/2014
Borehole Depth: 28.0'
Borehole Diameter: 8 inches
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0	Topsoil, Organic Material	
1							0.0	Broken Asphalt and Concrete, little Sand, little Gravel (FILL)	
2	NA	S-1	0-4	42	NA		0.0	Black, medium to coarse Sand, little Gravel, broken Asphalt, trace red Bricks and Concrete, moist (FILL)	
3							0.0	...frequent broken red Bricks	
4							0.0	Brown, Clayey Sand intermixed with Ash, broken Bricks, moist (FILL)	
5							0.0	Brown, Clayey SAND, trace Gravel, moist	
6	NA	S-2	4-8	59	NA		0.0	Brown, SAND, some Gravel, trace Silt, moist	
7							0.0	...fine to medium SAND, little Gravel	
8							0.0		
9	NA	S-3	8-10	60	NA		0.0	...some Gravel	
10							0.0	Brown, coarse SAND and angular GRAVEL, trace Silt, moist	
11							0.0		
12	NA	S-4	10-14	55	NA		0.0		
13							0.0		
14							0.0		
15	NA	S-5	14-18	42	NA		0.0		
16							0.0		

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-E

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Test Boring MW-E

Project #:	4884S-13
Project Address:	202 Franklin Street, Olean, New York
DAY Representative:	Z. Tennies
Drilling Contractor:	Nothnagle Drilling
Sampling Method:	Auger & Macrocore
Ground Elevation:	NA
Datum:	NA
Date Started:	6/12/2014
Date Ended:	6/12/2014
Borehole Depth:	28.0'
Borehole Diameter:	8 inches
Completion Method:	■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date):	NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
17	NA	S-6	14-18				0.0 / 0.0	Brown, coarse SAND and angular GRAVEL, trace Silt, moist	
18									
19	NA	S-7	18-20	25	NA		0.0	Brown, fine to medium SAND, some Gravel, little Silt, wet	
							0.0	Brown, fine to medium SAND and angular GRAVEL, trace Silt, wet	
20							0.0		
21							0.0	...fine to medium SAND, some Gravel	
22	NA	S-8	20-24	78	NA		0.0	...medium to coarse SAND and sub-rounded GRAVEL	
23							0.0		
24							0.0	Brown-Gray, coarse SAND, little Gravel, trace Silt, wet	
25							0.0	Gray, SAND and angular GRAVEL, wet	
26	NA	S-9	24-28	52	NA		0.0		
27							0.0		
28								Bottom of Test Boring @ 28.0'	
29									
30									
31									
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-E

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Test Boring MW-F

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA | Datum: NA
Date Started: 6/12/2014 | Date Ended: 6/12/2014
Borehole Depth: 28' | Borehole Diameter: 8 inches
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
								Asphalt	
1							0.0	Black, fine to coarse Sand with Brick, Concrete, Slag/Coal, moist (FILL)	
2	NA	S-1	0-4	24	NA		0.0		No Sample - Brick fragments in drill spoil
3							0.0		
4							0.0	Sandy CLAY, little Gravel, moist	
5							0.0		
6	NA	S-2	4-8	40	NA		0.0	Brown, SAND and GRAVEL, little Clay, little Silt, moist	
7							0.0		
8							0.0	...no Clay	
9							0.0		
10	NA	S-3	8-12	40	NA		0.0		
11							0.0	Yellow/Brown, fine to medium SAND, some angular Gravel, trace Silt, moist	
12							0.0	Brown, SAND and GRAVEL, trace Silt, moist	
13							0.0		
14	NA	S-4	12-16	45	NA		0.0	...Yellow/Brown, SAND and angular Gravel	
15							0.0		
16									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-F

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Test Boring MW-F

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA   Datum: NA
Date Started: 6/12/2014   Date Ended: 6/12/2014
Borehole Depth: 28'   Borehole Diameter: 8 inches
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0	Yellow/Brown, SAND and GRAVEL, trace Silt, moist	
17							0.0		
18	NA	S-5	16-20	2.4	NA		0.0	Sandy CLAY	
19							0.0	Brown, fine to medium GRAVEL, some fine to coarse Sand, moist ...wet	
20							0.0	...medium subrounded GRAVEL, some fine to coarse Sand	
21							0.0		
22	NA	S-6	20-24	2.6	NA		0.0		
23							0.0		
24							0.0	...fine to medium angular GRAVEL	
25							0.0		
26	NA	S-8	24-28	NA	NA		0.0		
27							0.0	Gray/Brown, SAND and fine to coarse GRAVEL, trace Silt, wet	
28								Bottom of Test Boring @ 28.0'	
29									
30									
31									
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-F

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Test Boring MW-G

Ground Elevation: NA
Datum: NA
Date Started: 6/13/2014
Date Ended: 6/13/2014
Borehole Depth: 28.0'
Borehole Diameter: 8 inches
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0	Asphalt and Sub-base	
1								Brown, Sand and Gravel, moist (FILL)	
							0.0		
2	NA	S-1	0-4	55	NA			Black, Sand, some Gravel, Cinders, moist (FILL)	
							0.0	Brown, Sandy CLAY, little Gravel, moist	
3									
							0.0		
4							0.0	Brown, fine to medium SAND, little Gravel, moist	
5							0.0	Dark Brown, SAND and GRAVEL, trace Silt, moist	
6	NA	S-2	4-8	22	NA		0.0		
7							0.0		
8							0.0		
9							0.0		
10	NA	S-3	8-12	49	NA		0.0	...some fractured Cobbles	
11							0.0		
12							0.0	...Tan-Brown	
13							0.0		
14	NA	S-4	12-16	62	NA		0.0		
15							0.0		
16									

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-G

Test Boring MW-G

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle Drilling
Sampling Method: Auger & Macrocore

Ground Elevation: NA | Datum: NA
Date Started: 6/13/2014 | Date Ended: 6/13/2014
Borehole Depth: 28.0' | Borehole Diameter: 8 inches
Completion Method: ■ Well Installed ☐ Backfilled with Grout ☐ Backfilled with Cuttings
Water Level (Date): NA

Depth (ft)	Blows per 0.5 ft.	Sample Number	Sample Depth (ft)	% Recovery	N-Value or RQD%	Headspace PID (ppm)	PID Reading (ppm)	Sample Description	Notes
							0.0	Gray/Brown, SAND and Gravel, little Silt, moist	
17							0.0		
18	NA	S-5	16-20	46	NA		0.0		
19							0.0	...wet	
20							139	Gray, SAND and GRAVEL, trace Silt, wet	Strong Petroleum Odor
21									
22	NA	S-6	20-24	55	NA		305		
23							222		
24						313	419		
25							1385	...medium to coarse SAND, some Gravel	
26	NA	S-7	24-28	44	NA		538	...coarse SAND and GRAVEL	
27							618		
28								Bottom of Test Boring @ 28.0'	
29									
30									
31									
32									

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable
5) Headspace PID readings may be influenced by moisture

Test Boring MW-G

MONITORING WELL INSTALLATION DIAGRAMS

day
DAY ENVIRONMENTAL, INC.
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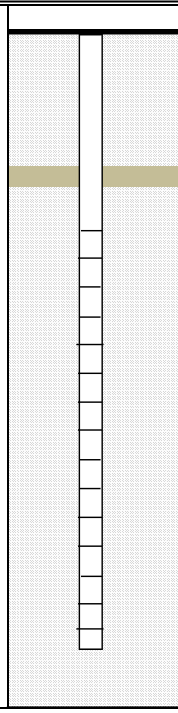
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-A

Project #:	4884S-13				
Project Address:	211 Franklin Street				
	Olean, New York	Ground Elevation:	1428.04'	Datum:	NAVD83
DAY Representative:	Z. Tennies	Date Started:	9/10/2013	Date Ended:	9/10/2013
Drilling Contractor:	Applus				

Refer to Test Boring Log TB-01 for Soil Description



Flush Mount
Top of Casing 0.34 ft. below ground surface

4.0 Depth to Bottom of Bentonite Surface Patch (ft)
Backfill Type Soil
13.9 Depth to Top of Bentonite Seal (ft)
14.9 Depth to Bottom of Bentonite Seal (ft)

15.9 Depth to Top of Well Screen (ft)

4.0 Diameter of Borehole (in)

Backfill Type Sand

1.0 Inside Diameter of Well (in)

Type of Pipe PVC
Screen slot size 10 Slot

25.9 Depth to Bottom of Well Screen (ft)

27.0 Depth to Bottom of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-A

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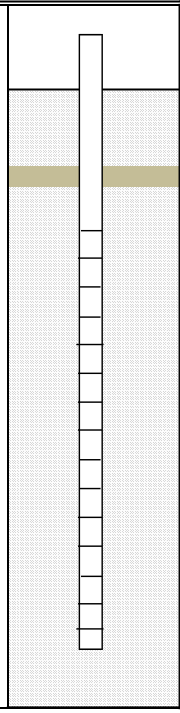
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-B

Project #:	4884S-13				
Project Address:	202 Franklin Street				
	Olean, NY	Ground Elevation:	1427.72'	Datum:	NAVD83
DAY Representative:	Z. Tennies	Date Started:	6/12/2014	Date Ended:	6/12/2014
Drilling Contractor:	Nothnagle				

Refer to Test Boring Log MW-B for Soil Description



2.23 Height of Stickup (ft)

Ground Surface
1.5 Depth to Bottom of Cement Surface Patch (ft)
Backfill Type
12.5 Depth to Top of Bentonite Seal (ft)
15.5 Depth to Bottom of Bentonite Seal (ft)

17.5 Depth to Top of Well Screen (ft)

2.0 Diameter of Borehole (in)

Backfill Type Sand - Silicone Quartz

8.0 Inside Diameter of Well (in)

Type of Pipe PVC
Screen slot size 10 Slot

27.5 Depth to Bottom of Well Screen (ft)

28.0 Depth to Bottom of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-B

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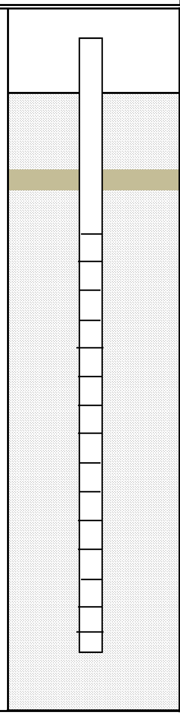
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-C

Project #: 4884S-13
Project Address: 202 Franklin Street
Olean, NY
DAY Representative: Z. Tennies
Drilling Contractor: Nothnagle

Ground Elevation: 1426.69'
Datum: NAVD83
Date Started: 6/11/2014
Date Ended: 6/12/2014

Refer to Test Boring Log MW-C for Soil Description



2.65 Height of Stickup (ft)

Ground Surface
1.5 Depth to Bottom of Cement Surface Patch (ft)
Backfill Type Bentonite
9.0 Depth to Top of Bentonite Seal (ft)
11.0 Depth to Bottom of Bentonite Seal (ft)

12.0 Depth to Top of Well Screen (ft)

8.0 Diameter of Borehole (in)

Backfill Type Sand - Silicone Quartz

2.0 Inside Diameter of Well (in)

Type of Pipe PVC
Screen slot size 10 Slot

22.0 Depth to Bottom of Well Screen (ft)

24.0 Depth to Bottom of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-C

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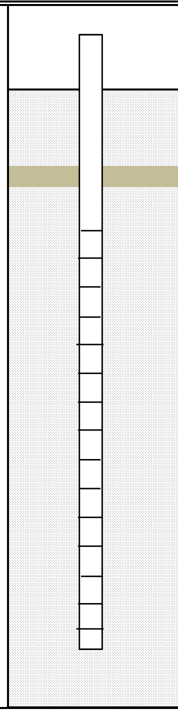
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-D

Project #:	4884S-13				
Project Address:	202 Franklin Street				
	Olean, NY	Ground Elevation:	1426.12'	Datum:	NAVD83
DAY Representative:	Z. Tennies	Date Started:	6/11/2014	Date Ended:	6/11/2014
Drilling Contractor:	Nothnagle				

Refer to Test Boring Log MW-D for Soil Description



1.96 Height of Stickup (ft)

Ground Surface

1.0 Depth to Bottom of Cement Surface Patch (ft)

Backfill Type Bentonite

11.0 Depth to Top of Bentonite Seal (ft)

14.0 Depth to Bottom of Bentonite Seal (ft)

16.0 Depth to Top of Well Screen (ft)

8.0 Diameter of Borehole (in)

Backfill Type Sand - Silicone Quartz

2.0 Inside Diameter of Well (in)

Type of Pipe PVC

Screen slot size 10 Slot

26.0 Depth to Bottom of Well Screen (ft)

26.0 Depth to Bottom of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.

2) NA = Not Available or Not Applicable

MONITORING WELL MW-D

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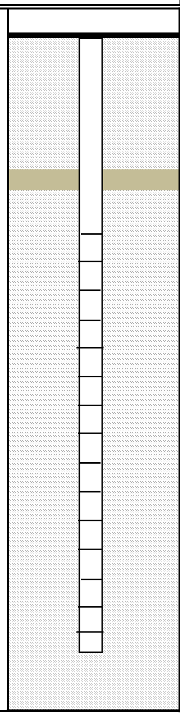
MONITORING WELL CONSTRUCTION DIAGRAM

Project #: 4884S-13				**MONITORING WELL MW-E**
Project Address: 202 Franklin Street, Olean, NY	Ground Elevation:	1427.81'	Datum:	NAVD83
DAY Representative: Z. Tennies	Date Started:	6/12/2014	Date Ended:	6/12/2014
Drilling Contractor: Nothnagle				

Refer to Test Boring Log MW-E for Soil Description



Flush Mount

Top of Casing 0.41 ft. below ground surface

1.0 Depth to Bottom of Cement Surface Patch (ft)

Backfill Type Bentonite

12.0 Depth to Top of Bentonite Seal (ft)

16.0 Depth to Bottom of Bentonite Seal (ft)

18.0 Depth to Top of Well Screen (ft)

8.0 Diameter of Borehole (in)

Backfill Type Sand - Silicone Quartz

2.0 Inside Diameter of Well (in)

Type of Pipe PVC

Screen slot size 10 Slot

28.0 Depth to Bottom of Well Screen (ft)

28.0 Depth to Bottom of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.

2) NA = Not Available or Not Applicable

MONITORING WELL MW-E

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
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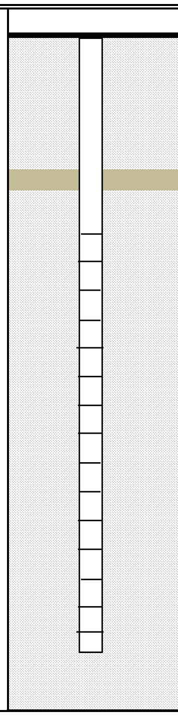
ENVIRONMENTAL CONSULTANTS
AN AFFILIATE OF DAY ENGINEERING, P.C.

MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-F

Project #:	4884S-13				
Project Address:	202 Franklin Street				
	Olean, NY	Ground Elevation:	1428.92'	Datum:	NAVD83
DAY Representative:	Z. Tennies	Date Started:	6/12/2014	Date Ended:	6/12/2014
Drilling Contractor:	Nothnagle				

Refer to Test Boring Log MW-F for Soil Description



Flush Mount

Top of Casing 0.39 ft. below ground surface

1.0 Depth to Bottom of Cement Surface Patch (ft)
Backfill Type Bentonite
13.5 Depth to Top of Bentonite Seal (ft)
15.5 Depth to Bottom of Bentonite Seal (ft)

17.5 Depth to Top of Well Screen (ft)

8.0 Diameter of Borehole (in)

Backfill Type Sand - Silicone Quartz

2.0 Inside Diameter of Well (in)

Type of Pipe PVC
Screen slot size 10 Slot

27.5 Depth to Bottom of Well Screen (ft)

28.0 Depth to Bottom of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-F

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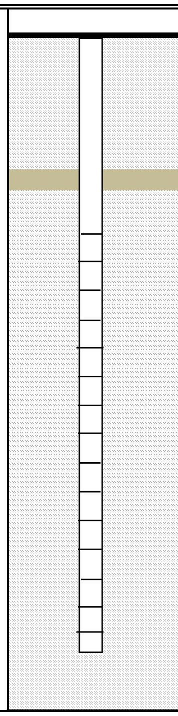
MONITORING WELL CONSTRUCTION DIAGRAM

MONITORING WELL MW-G

Project #:	4884S-13				
Project Address:	202 Franklin Street				
	Olean, NY	Ground Elevation:	1429.66'	Datum:	NAVD83
DAY Representative:	Z. Tennies	Date Started:	6/13/2014	Date Ended:	6/13/2014
Drilling Contractor:	Nothnagle				

Refer to Test Boring Log MW-G for Soil Description



Flush Mount

Top of Casing 0.40 ft. below ground surface

1.0 Depth to Bottom of Cement Surface Patch (ft)

Backfill Type Bentonite

15.5 Depth to Top of Bentonite Seal (ft)

16.5 Depth to Bottom of Bentonite Seal (ft)

17.5 Depth to Top of Well Screen (ft)

8.0 Diameter of Borehole (in)

Backfill Type Sand - Silicone Quartz

2.0 Inside Diameter of Well (in)

Type of Pipe PVC

Screen slot size 10 Slot

27.5 Depth to Bottom of Well Screen (ft)

28.0 Depth to Bottom of Borehole (ft)

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) NA = Not Available or Not Applicable

MONITORING WELL MW-G

SURFACE SOIL SAMPLE COLLECTION LOGS

202 FRANKLIN STREET
OLEAN, NEW YORK
NYSDEC BCP SITE NO C905043

Sample Collection Log - Surface Soil Samples
June 27, 2014

Sample Designation	Sample Time	PID Headspace (ppm)	Sample Description
SS-01	8:00	0.0	Dark brown, silty Sand and fine to medium Gravel, trace Brick Fragments, Roots, damp
SS-02	8:20	0.0	Dark brown, silty Sand, little Gravel, Roots, damp
SS-03	8:40	0.0	Dark brown/black, silty Sand, some Gravel, Roots, damp
SS-04	9:05	0.0	Brown, Sand and medium-rounded Gravel, little Silt, Roots, damp
SS-05	9:25	0.0	Black, loamy Sand, some Cinders, some Coal Fragments, Roots, damp
SS-06	9:55	0.0	Brown, silty Sand, little Gravel, little Brick Fragments, Roots, damp
SS-07	10:10	0.0	Brown, clayey Sand, some Gravel, Roots, damp
SS-08	10:30	0.0	Black, Sand, some Cinders, some Slag, some Brick Fragments, little Silt, Roots, damp
SS-09	10:40	0.0	Pea Gravel, some fine to coarse Sand, trace Silt, damp
SS-10	10:55	0.0	Brown, silty Sand, some fine to medium Gravel, Roots, damp
SS-11	11:10	0.0	Black, Sand, little Silt, little Gravel, little Coal Fragments, Roots, damp

Notes:
ppm = parts per million

TEST PIT LOGS

202 Franklin Street,
Olean, New York
NYSDEC BCP Site No. 905043

Subsurface Conditions- Test Pits TP-A through TP-J

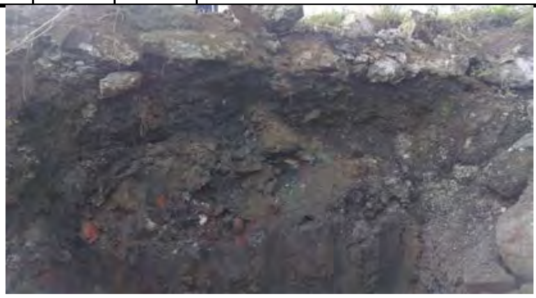
Test Pit ID	Approximate Depth of Test Pit (ft.)	Materials Encountered	Remarks
TP-A	6.0	0-0.3': silty Sand and Gravel [FILL] 0.3'-Bottom of Hole (BOH): Gray/Brown, silty Sand and Gravel intermixed with frequent Bricks and Concrete, occasional Scrap metal, Piping, Cinders and Ash, moist [Fill]	Sample collected @ 3 ft. [TP-A(3')] and tested for TAL metals, SVOCs (PAHs) plus TICs
TP-B	6.0	0-0.4': silty Sand, some f/m Gravel, moist [Fill] 0.4'-5.5': Dark Brown/Black, Sand, some fine to medium (f/m) Gravel intermixed with Cinders and Ash, moist [Fill] 5.5'-BOH: Brown, silty SAND, some fine Gravel, moist	Sample collected @ 1.5 ft. [TP-B (1.5')] and tested for TAL metals, PCBs, SVOCs (PAHs) plus TICs Decaying railroad ties @ 2.0 ft. Sample collected @ 5 ft. [TP-B (5')] and tested for TAL metals, SVOCs (PAHs) plus TICs
TP-C	6.0	0-0.3': silty Sand and Gravel [FILL] 0.3'-BOH (concrete floor): Gray/Brown, silty Sand and Gravel intermixed with frequent Bricks, and lesser amounts of Cinders, Concrete, Scrap Metal, Pipe, Electrical Conduit, occasional black tar-like material, moist [FILL}	Sample collected @ 4 ft. [TP-C (4')] and tested for TAL metals, PCBs, SVOCs (PAHs) plus TICs
TP-D	8.0	0-BOH: Dark Brown/Gray, silty Sand, little f/m Gravel, intermixed with frequent Brick and Concrete, occasional Scrap Metal, trace amounts of Wood/Paper, moist [FILL] …wet at 8 ft.	Sample collected @ 8 ft. [TP-D(8')] and tested for SVOCs (PAHs) plus TICs
TP-E	0.5	0-0.5': silty Sand and Gravel [FILL]	Equipment refusal on concrete pad no samples collected
TP-F	11.0	0-0.3': silty Sand and Gravel [FILL] 0.3'-BOH: Gray/Brown, silty Sand, some f/m Gravel intermixed with frequent Bricks and Concrete, occasional Scrap metal and Pipe, moist [FILL]	No samples submitted for testing
TP-G	3.0	0-0.3': silty Sand and Gravel [FILL] 0.3'-3': Dark Brown/Black, silty fine Sand, intermixed with Cinders, Coal fragments, and Ash, moist	Samples collected at 2 ft. [TP-G(2') south and TP-G(2') north] and tested for TAL metals, PCBs, SVOCs (PAHs) plus TICs
TP-H	9.0	0-0.4': silty Sand, some f/m Gravel, moist [Fill] 0.4'-BOH: Dark Brown, silty Sand, little fine to coarse (f/c) Gravel, some Brick, occasional Scrap Metal and Concrete, moist	No samples submitted for testing
TP-I	2.5	0-0.3': silty Sand and Gravel [FILL] 0.3'-1.0: Black, Cinders, Ash and Coal fragments 1.0'-BOH: Tan/Brown, fine Sand, trace Silt, moist [FILL]	Sample collected @ 0.4 ft. [TP-I(5")] and tested for SVOCs (PAHs) plus TICs
TP-J	6.0	0-0.4': silty Sand, some f/m Gravel, moist [Fill] 0.4'-2.5': Gray/Green, fine Sand, some Silt, little Ash, Cinders and Slag, moist [FILL] 2.5'-BOH (concrete floor): Light Brown, medium to coarse (m/c) SAND, trace Silt, moist	Sample collected @ 2 ft. [TP-I (2')] and tested for TAL metals, and SVOCs (PAHs) plus TICs

TEST PIT TP-01

Page 1 of 1

Project #:	4884S-13		
Project Address:	202 Franklin Street		
	Olean, New York	Date:	7/30/2014
DAY Representative:	Z. Tennies	Test Pit Depth:	12.0'
Contractor:	Richard Peck Construction	Depth to Water:	Not encountered
Equipment:	Hitachi 160 LC Excavator w/40"		

Depth (ft)	PID Reading (ppm)		PID Headspace (ppm)	Sample Description	Notes
				TOPSOIL and Organic Material	
				Concrete Slab	
	0		0	Black, Sand and Cinders intermixed with red bricks, metal, broken concrete, glass (FILL)	
1-					1-
2-				...gray/black	2-
3-				...light brown, trace clayey Silt	3-
4-				Brown, SAND and GRAVEL, trace Silty Clay, wet	4-
5-					5-
6-					6-
7-					7-
8-	0.1		0.1	...Gravel, some Sand, little Cobbles	8-
9-					9-
10-					10-
11-					11-
12-					12-
				Bottom of Test Pit @ 12.0'	



View of TP-01 excavation sidewall, facing northwest

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable

TEST PIT TP-01

TEST PIT TP-02

Project #:	4884S-13		
Project Address:	202 Franklin Street		
	Olean, New York	Date:	7/30/2014
DAY Representative:	Z. Tennies	Test Pit Depth:	13.3'
Contractor:	Richard Peck Construction	Depth to Water:	Not encountered
Equipment:	Hitachi 160 LC Excavator w/40"		

Depth (ft)	PID Reading (ppm)		PID Headspace (ppm)	Sample Description	Notes
	0.1			TOPSOIL and Organic Material	
	0.1			Gray/Black, Sand, some Gravel, intermixed with Ash, Shingles, broken/crushed red Bricks (FILL)	
1-	0.2				1-
	0.2		0.3		
2-				...frequent layered Gray/Black Paper material with tar-like binder	2-
3-					3-
				Light Brown, SAND, some Gravel, little Clay, moist	
	0.1				
4-					4-
				Brown, medium to coarse SAND and GRAVEL, trace Silt, moist	
5-					5-
6-					6-
7-					7-
	0.2		0.2		
8-				...some Cobbles	8-
9-					9-
	0.1		0.1		
10-					10-
11-					11-
	0.1		0.1		
12-					12-
13-					13-
				Bottom of Test Pit @ 13.3'	

View of TP-02, facing east

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable

TEST PIT TP-02

TEST PIT TP-03

Project #:	4884S-13		
Project Address:	202 Franklin Street		
	Olean, New York	Date:	7/29/2014
DAY Representative:	Z. Tennies	Test Pit Depth:	13.1'
Contractor:	Richard Peck Construction	Depth to Water:	Not encountered
Equipment:	Hitachi 160 LC Excavator w/40"		

Depth (ft)	PID Reading (ppm)		PID Headspace (ppm)	Sample Description	Notes
				TOPSOIL	
	0.3		0.3	Black, Cinders/Ballast, some red Brick, Concrete, trace Metal, Ash (FILL)	
1-					1-
	0.1		0.3		
2-					2-
	0.3		0.3	Tan/Brown, Sand, some Gravel, little Clay, little cobbles(FILL)	
3-					3-
4-					4-
5-					5-
	0.1				
	0.2		0.1	Black, Cinders/Ballast, intermixed with pieces of Metal, Concrete and trace Crushed Brick (FILL)	
6-					6-
				Brown, SAND, some Gravel, Cobbles trace Silt, moist	
7-					7-
8-					8-
9-					9-
10-					10-
11-					11-
	0.1		0.1		
12-					12-
13-					13-
				Bottom of Test Pit @ 13.1'	

No Photo Available

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable

TEST PIT TP-03

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TEST PIT TP-04

Project #:	4884S-13		
Project Address:	202 Franklin Street		
	Olean, New York	Date:	7/30/2014
DAY Representative:	Z. Tennies	Test Pit Depth:	12.0'
Contractor:	Richard Peck Construction	Depth to Water:	Not encountered
Equipment:	Hitachi 160 LC Excavator w/40"		

Depth (ft)	PID Reading (ppm)		PID Headspace (ppm)	Sample Description	Depth (ft)	Notes
	0.3			TOPSOIL and Organic Material		
	0.3		0.3	Black, Cinders/Ballast, little Gravel, Organic Material (FILL)		
1-				Tan, Clayey Sand, some Gravel, little Cinders/Ballast (FILL)	1-	
	0.3					
2-					2-	
	0.3		0.3	Tan, Clayey SAND, some Gravel, little Cobbles, moist		
3-					3-	
4-					4-	
5-				Brown, coarse SAND and GRAVEL, some Cobbles, trace Clay, moist	5-	
6-					6-	
7-					7-	
8-					8-	
9-					9-	
	0.2		0.2			
10-				...medium to coarse SAND, some fine to coarse Gravel, some Cobbles	10-	
11-					11-	Caved In
				...coarse SAND and GRAVEL		
12-					12-	
				Bottom of Test Pit @ 12.0'		

View of TP-04, facing east

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable

TEST PIT TP-04

TEST PIT TP-05

Page 1 of 1

Project #:	4884S-13		
Project Address:	202 Franklin Street		
	Olean, New York	Date:	7/29/2014
DAY Representative:	Z. Tennies	Test Pit Depth:	12.0'
Contractor:	Richard Peck Construction	Depth to Water:	Not encountered
Equipment:	Hitachi 160 LC Excavator w/40"		

Depth (ft)	PID Reading (ppm)		PID Headspace (ppm)	Sample Description	Notes
	0.1		0.1	Black, Ballast/Cinders, large chunks of Metal, some rusted Wire, little Charcoal, little crushed red Brick, Paper (FILL)	
1-					1-
				Brown, SAND, some Gravel, little Clay, moist	
2-					2-
3-					3-
4-					4-
				Brown-Gray, SAND and GRAVEL, trace Silt, moist	
5-					5-
6-					6-
7-					7-
8-					8-
	0.1				
9-				...GRAVEL, some Sand	9-
10-					10-
11-					11-
	0.1		0.2		
12-					12-
				Bottom of Test Pit @ 12.0'	

View of TP-05, facing south

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable

TEST PIT TP-05

Project #:	4884S-13			TEST PIT TP-06
Project Address:	202 Franklin Street			
	Olean, New York	Date:	7/29/2014	Page 1 of 1
DAY Representative:	Z. Tennies	Test Pit Depth:	12.2'	
Contractor:	Richard Peck Construction	Depth to Water:	Not encountered	
Equipment:	Hitachi 160 LC Excavator w/40"			

Depth (ft)	PID Reading (ppm)		PID Headspace (ppm)	Sample Description	Notes
				Black, Cinders/Ballast, chunks of Concrete, red Brick, trace red Brick, crushed, little Metal Wires, trace Plastic, Paper material (FILL)	
			0.1		
1-					1-
	0.2				
2-					2-
				Brown, SAND, some Gravel, little Clay, moist	
	0.1				
3-					3-
4-					4-
				...SAND and GRAVEL, trace Silt	
5-					5-
6-					6-
7-					7-
				...some Cobbles	
8-					8-
	0.1		0.2		
9-					9-
10-					10-
11-					11-
	0.2		0.2		
12-					12-
				Bottom of Test Pit @ 12.2'	

View of TP-06, partially excavated, facing east

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable

TEST PIT TP-06

TEST PIT TP-07

Page 1 of 1

Project #:	4884S-13		
Project Address:	202 Franklin Street		
	Olean, New York	Date:	7/29/2014
DAY Representative:	Z. Tennies	Test Pit Depth:	10.4'
Contractor:	Richard Peck Construction	Depth to Water:	Not encountered
Equipment:	Hitachi 160 LC Excavator w/40"		

Depth (ft)	PID Reading (ppm)		PID Headspace (ppm)	Sample Description	Notes
				Topsoil, with Organic Material, trace Gravel	
	0.1		0.1		
1-				Red/Black Sand, broken Concrete slabs and red Bricks, large Metal pieces (guard rail?), some crushed red Brick, little Gravel, trace Glass, Paper, Rebar (FILL)	1-
2-					2-
	0.1		0.2		
3-					3-
4-					4-
5-					5-
6-					6-
7-					7-
	12.1		0.1		
8-					8-
9-					9-
10-					10-
	0.3		0.2	Concrete Floor Slab	
				Equipment Refusal @ 10.4'	
11-					11-
12-					12-

View of TP-07 excavation spoils, facing north

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable

TEST PIT TP-07

TEST PIT TP-8

Project #: 4884S-13
Project Address: 202 Franklin Street, Olean, New York
DAY Representative: Z. Tennies
Contractor: Richard Peck Construction
Equipment: Hitachi 160 LC Excavator w/40"
Date: 7/31/2014
Test Pit Depth: 12.0'
Depth to Water: Not encountered

Depth (ft)	PID Reading (ppm)		PID Headspace (ppm)	Sample Description	Notes
				Topsoil and Organic Material	
1-	0.3		0.3	Reworked Soil (FILL)	
2-	0.3		0.3	Layer of Resin/Glue above layer of Paper-like material (FILL)	Concrete foundation wall along east side of test pit
3-	0.9		49.7	Gray/Black, medium to coarse Sand, some medium gravel intermixed with Cinders/Ballast,trace Clay, moist (FILL)	
4-				Tan, Clayey coarse SAND and GRAVEL, some Cobbles, moist	Top of Tank encountered
5-					Soil description for western side of tank, see attached photo
6-					
7-				...Gray	
8-					
9-					
10-					Bottom of Tank
11-	0.1		0.1	Black, fine to medium Sand (FILL)	
12-	0.1		0.1	Tan, Clayey coarse SAND and GRAVEL, some Cobbles, moist	
				Bottom of Hole @ 12.0'	

View of west sidewall and south endwall of tank in TP-08, facing north

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable

TEST PIT TP-8

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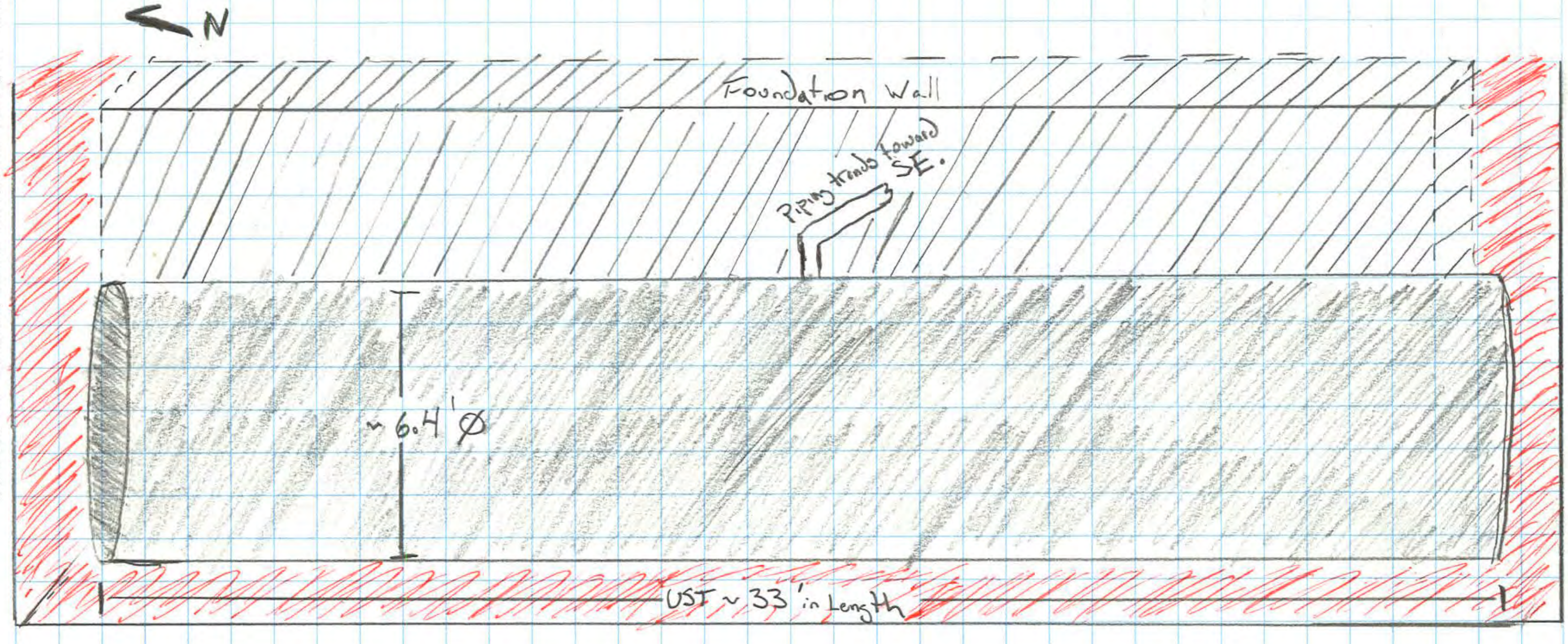
40 COMMERCIAL STREET, ROCHESTER, NY 14614
60 EAST 42nd STREET, SUITE 1641, NEW YORK, NY 10165

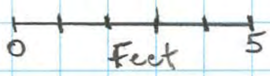
PROJECT NO.: 4864s13 - 202 Franklin St Olean NY

DESCRIPTION: Test pit TP-08

CALC BY: CAH DATE: August 1, 2014

CH'KD BY: DATE:





TP-08-
Excavated ~ 12.0' bgs on west/North/south edges of UST

TEST PIT TP-09

Page 1 of 1

Project #:	4884S-13		
Project Address:	202 Franklin Street		
	Olean, New York	Date:	7/30/2014
DAY Representative:	Z. Tennies	Test Pit Depth:	12.3'
Contractor:	Richard Peck Construction	Depth to Water:	Not encountered
Equipment:	Hitachi 160 LC Excavator w/40"		

Depth (ft)	PID Reading (ppm)		PID Headspace (ppm)	Sample Description	Notes
	0		0.1	TOPSOIL with Organics, some Gravel	
1-				Black/Gray, Sand, Ballast/Cinders, some red Brick, broken Concrete, little Shingles, Glass, crushed red Brick (FILL)	1-
	0.1		0.1		
2-					2-
3-				Tan, Clayey SAND, some Gravel, moist	3-
	0.1				
4-					4-
5-				Brown, coarse SAND and GRAVEL, trace Silt, moist	5-
6-					6-
7-					7-
8-					8-
9-				...GRAVEL, some Sand	9-
10-					10-
11-					11-
	0.2		0.2		
12-					12-
				Bottom of Test Pit @ 12.3'	

View of TP-09, facing north

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable

TEST PIT TP-09

Project #: 4884S-13
Project Address: 202 Franklin Street
Olean, New York
DAY Representative: Z. Tennies
Contractor: Richard Peck Construction
Equipment: Hitachi 160 LC Excavator w/40"
Date: 7/30/2014
Test Pit Depth: 12.0'
Depth to Water: Not encountered

TEST PIT TP-10

Page 1 of 1

Depth (ft)	PID Reading (ppm)		PID Headspace (ppm)	Sample Description	Notes
	0.2			TOPSOIL and Organics	
				Tan, SAND, little Clay, trace Gravel, moist	
1-					1-
	0.2				
2-					2-
				Medium to coarse SAND, little Gravel, trace Silt, moist	
3-					3-
4-					4-
	0.2		0.2		
				Brown, coarse SAND and GRAVEL, trace Silt, moist	
5-					5-
6-					6-
7-					7-
8-					8-
			0.0		
9-					9-
10-					10-
11-					11-
			0.0		
12-					12-
				Bottom of Test Pit @ 12.0'	

View of TP-10, facing north

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable

TEST PIT TP-10

1563 LYELL AVENUE
ROCHESTER, NEW YORK 14606
(585) 454-0210
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www.dayenvironmental.com
420 LEXINGTON AVENUE, SUITE 300
NEW YORK, NEW YORK 10170
(212) 986-8645
FAX (212) 986-8657

TEST PIT TP-11

Page 1 of 1

Project #:	4884S-13		
Project Address:	202 Franklin Street		
	Olean, New York	Date:	7/30/2014
DAY Representative:	Z. Tennies	Test Pit Depth:	13.5'
Contractor:	Richard Peck Construction	Depth to Water:	Not encountered
Equipment:	Hitachi 160 LC Excavator w/40"		

Depth (ft)	PID Reading (ppm)		PID Headspace (ppm)	Sample Description	Notes
				TOPSOIL	
	0.0		0.1	Brown, Silty Sand and Gravel/Cobbles, moist (FILL)	
1-					1-
				...Black	
	0.0		0.0	...Brown	
2-					2-
				...little Clay, Black, fibrous material (paper) in layers	
	0.0		0.0		
3-				Tan/Brown, Sandy CLAY, some Gravel, some Cobbles, moist	3-
4-					4-
5-					5-
6-					6-
				Brown, coarse SAND and GRAVEL, some Cobbles, moist	
7-					7-
	0.0		0.0		
8-					8-
9-					9-
10-					10-
11-					11-
	0.2		0.2	...wet	
12-					12-
				Bottom of Test Pit @ 13.5'	

View of TP-11, facing east

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable

TEST PIT TP-11

1563 LYELL AVENUE
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Project #:	4884S-13		
Project Address:	202 Franklin Street		
	Olean, New York	Date:	7/30/2014
DAY Representative:	Z. Tennies	Test Pit Depth:	8.5'
Contractor:	Richard Peck Construction	Depth to Water:	Not encountered
Equipment:	Hitachi 160 LC Excavator w/40"		

TEST PIT TP-12

Depth (ft)	PID Reading (ppm)		PID Headspace (ppm)	Sample Description		Notes
				ASPHALT		
	2.1			Asphalt and Sub-base Material (FILL)		
1-				Gray/Black, Sand and fine to coarse Gravel intermixed with Cobbles, Brick, Wood, moist (FILL)	1-	
	17.5		6.1			
2-			8.0		2-	
3-					3-	
4-				Gray, Clayey SAND and fine to coarse GRAVEL some Cobbles, wet	4-	
5-					5-	
6-					6-	
7-					7-	
8-	0.6		0.5		8-	
9-				Bottom of Test Pit @ 8.5'	9-	
10-					10-	
11-					11-	
12-					12-	

View of TP-12, facing north

Notes: 1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable

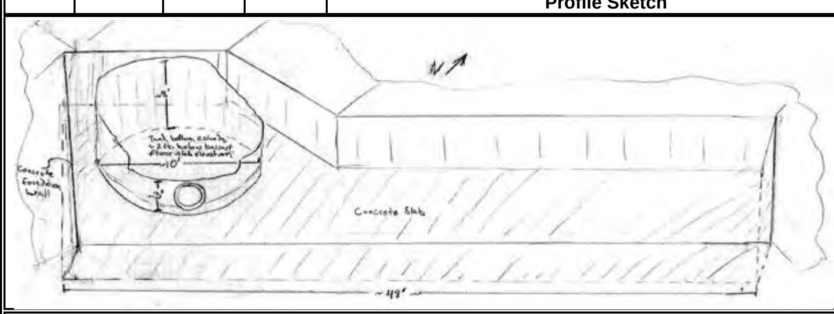
TEST PIT TP-12

TEST PIT TP-13

Project #:	4884S-13		
Project Address:	202 Franklin Street		
	Olean, New York	Date:	7/29/2014
DAY Representative:	Z. Tennies	Test Pit Depth:	12.0'
Contractor:	Richard Peck Construction	Depth to Water:	Not encountered
Equipment:	Hitachi 160 LC Excavator w/40"		

Depth (ft)	PID Reading (ppm)		PID Headspace (ppm)	Sample Description	Depth (ft)	Notes
	0.3			Brown, Topsoil (Sandy), some Organic Material, little Gravel, trace Silt		Concrete foundation wall along west end of test pit
1-				Red/Black, Sand intermixed with Red Brick, some broken Concrete, Metal*, little Rebar, Ballast, trace Glass, trace Paper (FILL)	1-	*Metal includes: apparent highway guard rail, sheet metal, structural steel beam drain pipe, etc.
2-					2-	
3-					3-	
	0.3		0.3			
4-					4-	Encountered top of tank in north wall of excavation.
5-					5-	
6-					6-	Vertical steel tank, cut open with top removed (see attached sketch)- filled with demolition debris. Excavated demolition debris from tank and attempeted to penetrate tank floor.
7-					7-	
8-					8-	
	0.3		0.3			
9-	0.2		0.3	Concrete Floor Slab	9-	
10-				Equipment Refusal @ 9.5'	10-	
11-					11-	
12-	0.2		1.2		12-	Bottom of tank extends to 12 ft bgs. Equipment refusal in tank @ 12' bgs.

Profile Sketch



View of Tank in TP-13, facing north

Notes:
1) Water levels were made at the times and under conditions stated. Fluctuations of groundwater levels may occur due to seasonal factors and other conditions.
2) Stratification lines represent approximate boundaries. Transitions may be gradual.
3) PID readings are referenced to a benzene standard measured in the headspace above the sample using a MiniRae 2000 equipped with a 10.6 eV lamp.
4) NA = Not Available or Not Applicable

TEST PIT TP-13

APPENDIX D:

WELL DEVELOPMENT AND SAMPLING LOGS

WELL DEVELOPMENT LOGS

WELL DEVELOPMENT DATA
MW-A

SITE LOCATION: 202 Franklin Street, Olean, New York JOB#: 4884S-13

DATE/ TIME	6/24/14 11:57	6/24/14 12:08	6/24/14 12:16	6/24/14 12:20	6/24/14 12:25	6/24/14 12:30	6/24/14 12:36	
EVACUATION METHOD	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	
PID/FID (PPM)	151	NC	NC	NC	NC	NC	NC	
DEPTH OF WELL (FT)	24.15	24.15	24.15	24.15	24.15	24.15	24.15	
STATIC WATER LEVEL (SWL) FT	14.89	14.95	14.95	14.95	14.98	14.96	14.96	
VOLUME EVACUATED (GAL)	0.0	0.75	0.75	0.75	0.75	0.75	0.75	
TOTAL VOLUME EVACUATED (GAL)	0.0	0.75	1.5	2.25	3.00	3.75	4.0	
TEMPERATURE (^{O}C)	15.2	12.9	13.0	13.1	13.4	13.2	13.2	
pH	5.89	6.01	6.04	6.11	6.13	6.15	6.15	
ORP (mV)	-122	-128	-135	-139	-140	-141	-141	
CONDUCTIVITY (ms/cm)	0.690	0.719	0.699	0.683	0.718	0.701	0.702	
TURBIDITY (NTU)	*	>800	>800	>800	>800	>800	>800	
VISUAL OBSERVATION	Clear, Slight Odor	NC	NC	NC	NC	NC	NC	

LEGEND: NC = Not Collected
ND = Not Detected
*= Not Measurable

Day Environmental, Inc.
1563 Lyell Avenue
Rochester, New York 14606

WELL DEVELOPMENT DATA
MW-B

SITE LOCATION: 202 Franklin Street, Olean, New York JOB#: 4884S-13

DATE/ TIME	6/18/14 12:40	6/18/14 1:10	6/18/14 1:20	6/18/14 1:25	6/18/14 1:34	6/18/14 1:40	6/18/14 1:50	
EVACUATION METHOD	Gas Pump	Gas Pump	Gas Pump	Gas Pump	Gas Pump	Gas Pump	Gas Pump	
PID/FID (PPM)	33.8	NC	NC	NC	NC	NC	NC	
DEPTH OF WELL (FT)	29.2	29.2	29.2	29.2	29.2	29.2	29.2	
STATIC WATER LEVEL (SWL) FT	17.15	17.20	17.20	17.20	17.20	17.20	17.20	
VOLUME EVACUATED (GAL)	0.0	2.5	2.5	2.5	2.5	2.5	2.5	
TOTAL VOLUME EVACUATED (GAL)	0.0	2.5	5.0	7.5	10.0	12.5	15.0	
TEMPERATURE (^{O}C)	12.3	14.8	12.5	13.5	13.9	12.5	12.9	
pH	6.66	6.69	6.69	6.70	6.67	6.70	6.70	
ORP (mV)	-55	-59	-60	-60	-53	-46	-45	
CONDUCTIVITY (ms/cm)	1.42	1.31	1.29	1.30	1.22	1.21	1.17	
TURBIDITY (NTU)	>800	>800	>800	>800	>800	>800	>800	
VISUAL OBSERVATION	Clear, Oil Sheen, Strong Odor	Gray, Oil Sheen	NC	NC	NC	NC	Running Clear	

LEGEND: NC = Not Collected
ND = Not Detected
*= Not Measurable

Day Environmental, Inc.
1563 Lyell Avenue
Rochester, New York 14606

WELL DEVELOPMENT DATA
MW-C

SITE LOCATION: 202 Franklin Street, Olean, New York JOB#: 4884S-13

DATE/ TIME	6/19/14 10:00	6/19/14 10:22	6/19/14 10:35	6/19/14 10:44	6/19/14 10:50	6/19/14 10:58	6/19/14 11:05	6/19/14 11:09
EVACUATION METHOD	Gas Pump	Gas Pump	Gas Pump	Gas Pump	Gas Pump	Gas Pump	Gas Pump	Gas Pump
PID/FID (PPM)	18.5	NC	NC	NC	NC	NC	NC	NC
DEPTH OF WELL (FT)	25.18	25.18	25.18	25.18	25.18	25.18	25.18	25.18
STATIC WATER LEVEL (SWL) FT	16.22	16.94	16.85	16.27	16.25	16.25	16.25	16.25
VOLUME EVACUATED (GAL)	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
TOTAL VOLUME EVACUATED (GAL)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0
TEMPERATURE (^{O}C)	12.9	11.7	12.0	11.9	11.7	11.6	11.2	11.0
pH	5.69	5.77	5.83	5.85	5.86	5.90	5.86	5.85
ORP (mV)	61	48	46	44	45	44	46	45
CONDUCTIVITY (ms/cm)	0.758	0.806	0.815	0.826	0.818	0.834	0.801	0.799
TURBIDITY (NTU)	426	>800	>800	>800	>800	>800	>800	>800
VISUAL OBSERVATION	Clear, Yellow Tint	Yellow Tint	NC	NC	NC	NC	NC	NC

LEGEND: NC = Not Collected
ND = Not Detected
*= Not Measurable

Day Environmental, Inc.
1563 Lyell Avenue
Rochester, New York 14606

WELL DEVELOPMENT DATA
MW-D

SITE LOCATION: 202 Franklin Street, Olean, New York JOB#: 4884S-13

DATE/ TIME	6/18/14 11:21	6/18/14 11:50	6/18/14 11:55	6/18/14 12:04	6/18/14 12:09	6/18/14 12:16	6/18/14 12:22	6/18/14 12:25
EVACUATION METHOD	Gas Pump	Gas Pump	Gas Pump	Gas Pump	Gas Pump	Gas Pump	Gas Pump	Gas Pump
PID/FID (PPM)	50	NC	NC	NC	NC	NC	NC	NC
DEPTH OF WELL (FT)	28.19	28.19	28.19	28.19	28.19	28.19	28.19	28.19
STATIC WATER LEVEL (SWL) FT	15.18	15.99	15.25	15.24	15.24	15.24	15.29	15.20
VOLUME EVACUATED (GAL)	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
TOTAL VOLUME EVACUATED (GAL)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0
TEMPERATURE (^{O}C)	12.5	13.8	12.1	11.1	13.1	12.0	11.8	10.8
pH	6.62	6.65	6.68	6.64	6.67	6.67	6.67	6.68
ORP (mV)	54	55	54	58	58	61	63	64
CONDUCTIVITY (ms/cm)	1.20	1.32	1.23	1.18	1.14	1.14	1.12	1.14
TURBIDITY (NTU)	>800	>800	>800	>800	>800	>800	>800	>800
VISUAL OBSERVATION	Brown, No Odor	NC	NC	NC	NC	NC	NC	NC

LEGEND: NC = Not Collected
ND = Not Detected
*= Not Measurable

Day Environmental, Inc.
1563 Lyell Avenue
Rochester, New York 14606

WELL DEVELOPMENT DATA
MW-E

SITE LOCATION: 202 Franklin Street, Olean, New York JOB#: 4884S-13

DATE/ TIME	6/19/14 14:18	6/19/14 14:30	6/19/14 14:36	6/19/14 14:44	6/19/14 14:47	6/19/14 14:50		
EVACUATION METHOD	Gas Pump	Gas Pump	Gas Pump	Gas Pump	Gas Pump	Gas Pump		
PID/FID (PPM)	NC	NC	NC	NC	NC	NC		
DEPTH OF WELL (FT)	27.45	27.45	27.45	27.45	27.45	27.45		
STATIC WATER LEVEL (SWL) FT	14.74	14.74	14.74	14.76	14.75	14.75		
VOLUME EVACUATED (GAL)	0.0	2.0	2.0	2.0	2.0	2.0		
TOTAL VOLUME EVACUATED (GAL)	0.0	2.0	4.0	6.0	8.0	10.0		
TEMPERATURE (^{O}C)	15.7	12.8	12.2	11.5	11.7	11.9		
pH	6.88	6.89	6.83	6.78	6.78	6.77		
ORP (mV)	43	55	57	57	56	58		
CONDUCTIVITY (ms/cm)	0.955	0.909	0.925	0.945	0.959	0.972		
TURBIDITY (NTU)	778	>800	>800	>800	>800	>800		
VISUAL OBSERVATION	Clear	NC	NC	NC	NC	NC		

LEGEND: NC = Not Collected
ND = Not Detected
*= Not Measurable

Day Environmental, Inc.
1563 Lyell Avenue
Rochester, New York 14606

WELL DEVELOPMENT DATA
MW-F

SITE LOCATION: 202 Franklin Street, Olean, New York JOB#: 4884S-13

DATE/ TIME	6-18-14 7:59	6-18-14 8:13	6-18-14 8:20	6-18-14 8:30	6-18-14 8:40	6-18-14 8:45	6-18-14 8:50	6-18-14 9:00	6-18-14 9:08
EVACUATION METHOD	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer
PID/FID (PPM)	4.9	NC	NC	NC	NC	NC	NC	NC	NC
DEPTH OF WELL (FT)	27.20	27.20	27.20	27.20	27.20	27.20	27.20	27.20	27.20
STATIC WATER LEVEL (SWL) FT	16.53	20.8	20.3	21.75	21.65	20.25	21.20	20.75	17.85
VOLUME EVACUATED (GAL)	0.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
TOTAL VOLUME EVACUATED (GAL)	0.0	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0
TEMPERATURE (^{O}C)	10.8	10.7	10.8	10.9	10.8	10.6	10.6	11.6	11.6
pH	5.91	6.07	6.14	6.21	6.23	6.26	6.31	6.30	6.37
ORP (mV)	-45	-90	-73	-46	-49	-46	-33	-34	-21
CONDUCTIVITY (ms/cm)	1.12	1.08	1.08	1.08	1.08	1.09	1.07	1.05	1.06
TURBIDITY (NTU)	965	>800	>800	>800	>800	>800	>800	>800	>800
VISUAL OBSERVATION	Brown, Murky	NC	NC	NC	NC	NC	NC	NC	NC

LEGEND: NC = Not Collected
ND = Not Detected
*= Not Measurable

Day Environmental, Inc.
1563 Lyell Avenue
Rochester, New York 14606

WELL DEVELOPMENT DATA
MW-G

SITE LOCATION: 202 Franklin Street, Olean, New York JOB#: 4884S-13

DATE/ TIME	6-19-14 11:20	6-19-14 11:29	6-19-14 11:35	6-19-14 11:40	6-19-14 11:47	6-19-14 11:53			
EVACUATION METHOD	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer			
PID/FID (PPM)	430	NC	NC	NC	NC	NC			
DEPTH OF WELL (FT)	27.35	27.35	27.35	27.35	27.35	27.35			
STATIC WATER LEVEL (SWL) FT	16.54	16.60	16.60	16.60	16.60	16.60			
VOLUME EVACUATED (GAL)	0.0	2.00	2.00	2.00	2.00	2.00			
TOTAL VOLUME EVACUATED (GAL)	0.0	2.00	4.00	6.00	8.00	10.00			
TEMPERATURE (^{O}C)	13.1	12.7	12.7	12.7	12.7	12.7			
pH	6.47	6.29	6.29	6.29	6.29	6.28			
ORP (mV)	-119	-111	-94	-101	-98	-102			
CONDUCTIVITY (ms/cm)	1.19	1.09	1.06	1.08	1.06	1.08			
TURBIDITY (NTU)	>800	>800	>800	>800	>800	>800			
VISUAL OBSERVATION	Brown, Oil Sheen, Strong Odor	NC	NC	NC	NC	NC			

LEGEND: NC = Not Collected
ND = Not Detected
*= Not Measurable

Day Environmental, Inc.
1563 Lyell Avenue
Rochester, New York 14606

JUNE 2014 WELL SAMPLING LOGS

DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-A

SECTION 1 - SITE AND WELL INFORMATION

SITE LOCATION 202 Franklin Street, Olean, New York

JOB # 4884S-13

DATE: 6/27/14

SAMPLE COLLECTOR(S): T. Dufault

WEATHER: 80°F, Sunny

PID READING IN WELL HEADSPACE (PPM): N/C

MEASURING POINT (for water levels): Top of Casing

CASING TYPE: PVC

WELL DIAMETER (INCHES): 1”

SCREENED INTERVAL [FT BGS]: 14.49 – 24.49

INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured: 4.85 / 6-27-14

WELL DEPTH [FT BGS]: 24.49
(Do NOT Measure Well depth Prior To Purging And Sampling)

DEPTH OF PUMP INTAKE [FT BGS]: 18.34’

LNAPL: N/D **DNAPL:** N/D

OTHER OBSERVATIONS: None

SECTION 2 – SAMPLING EQUIPMENT

CONTROL BOX: QED MP-10

TUBING TYPE: 1/4” Water , 1/8” Air

WATER QUALITY METER: Horiba U-22

WATER LEVEL METER: Heron HO1L

PUMP TYPE: ¾” Bladder

PURGE GAS: Air

CONTROL BOX DISCHARGE RATE: 1.5

CONTROL BOX REFILL RATE: 3.0

STABILIZED PUMP RATE (ml/min): 150

STABILIZED DRAWDOWN WATER LEVEL [FT]: 14.85

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
11:20	--	14.85	0.0	-162	787	0.689	6.71	13.2	0
11:25	200	14.85	0.0	-164	541	0.694	6.49	11.9	1000
11:30	150	14.85	0.0	-165	358	0.696	6.41	12.0	1750
11:35	150	14.85	0.0	-165	336	0.695	6.40	12.1	2500
11:40	150	14.85	0.0	-165	295	0.696	6.39	12.1	3250
11:45	150	14.85	0.0	-165	247	0.697	6.38	12.1	4000
11:50	150	14.85	0.0	-165	236	0.697	6.37	12.1	4750
11:55	150	14.85	0.0	-165	233	0.701	6.36	12.0	5500
12:00	150	14.85	0.0	-165	232	0.700	6.36	11.9	6250

SAMPLE OBSERVATIONS: None

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-A	6-27-14 / 12:00	Bladder Pump	Full TCL/TAL

N/C = Not Collected **N/D = Not detected**

DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-B

SECTION 1 - SITE AND WELL INFORMATION	
SITE LOCATION 202 Franklin Street	JOB # 4884S-13
Olean, New York	DATE: 6/26/14
SAMPLE COLLECTOR(S): T. Dufault	WEATHER: 80°F, Partly Cloudy
PID READING IN WELL HEADSPACE (PPM): N/C	MEASURING POINT (for water levels): Top of Casing
CASING TYPE: PVC	WELL DIAMETER (INCHES): 2”
SCREENED INTERVAL [FT BGS]: 16.97 – 26.97	INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured 17.31 / 6-26-14
WELL DEPTH [FT BGS]: 26.97 (Do NOT Measure Well depth Prior To Purging And Sampling)	DEPTH OF PUMP INTAKE [FT BGS]: 19.77’
LNAPL: N/D DNAPL: N/D	OTHER OBSERVATIONS: None

SECTION 2 – SAMPLING EQUIPMENT	
CONTROL BOX: QED MP-10	TUBING TYPE: 1/4” Water , 1/8” Air
WATER QUALITY METER: Horiba U-22	WATER LEVEL METER: Heron HO1L
PUMP TYPE: ¾” Bladder	PURGE GAS: Air
CONTROL BOX DISCHARGE RATE: 1.5	CONTROL BOX REFILL RATE: 3.0
STABILIZED PUMP RATE (ml/min): 150	STABILIZED DRAWDOWN WATER LEVEL [FT]: 17.33

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
12:05	--	17.31	8.59	44	493	0.84	6.82	17.0	0
12:10	150	17.33	0.0	44	460	0.97	6.52	12.7	500
12:15	150	17.33	0.83	40	390	0.90	6.49	12.5	1250
12:20	150	17.33	0.0	16	314	0.92	6.39	12.4	2000
12:25	150	17.33	0.0	-4	291	0.95	6.38	12.1	2750
12:30	150	17.33	0.0	-13	286	0.95	6.37	12.3	3500
12:35	150	17.33	0.0	-20	288	0.95	6.39	12.2	4250
12:40	150	17.33	0.0	-22	288	0.95	6.38	12.1	5000
12:45	150	17.33	0.0	-27	289	0.96	6.36	11.8	5750
12:50	150	17.33	0.0	-27	283	0.96	6.37	11.8	6500
12:55	150	17.33	0.0	-29	281	0.96	6.36	11.8	7250
	SAMPLE OBSERVATIONS: None								

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-B	6-26-14 / 12:55	Bladder Pump	Full TCL/TAL

N/C = Not Collected **N/D = Not detected**

DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-C

SECTION 1 - SITE AND WELL INFORMATION

SITE LOCATION 202 Franklin Street, Olean, New York

JOB # 4884S-13

DATE: 6/26/14

SAMPLE COLLECTOR(S): T. Dufault

WEATHER: 75°F, Partly Cloudy

PID READING IN WELL HEADSPACE (PPM): 18.9

MEASURING POINT (for water levels): Top of Casing

CASING TYPE: PVC

WELL DIAMETER (INCHES): 2"

SCREENED INTERVAL [FT BGS]: 12.53 – 22.53

INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured: 16.46 / 6-26-14

WELL DEPTH [FT BGS]: 22.53
(Do NOT Measure Well depth Prior To Purging And Sampling)

DEPTH OF PUMP INTAKE [FT BGS]: 19.35'

LNAPL: N/D **DNAPL:** N/D **OTHER OBSERVATIONS:** None

SECTION 2 – SAMPLING EQUIPMENT

CONTROL BOX: QED MP-10

TUBING TYPE: 1/4" Water , 1/8" Air

WATER QUALITY METER: Horiba U-22

WATER LEVEL METER: Heron HO1L

PUMP TYPE: ¾" Bladder

PURGE GAS: Air

CONTROL BOX DISCHARGE RATE: 1.5

CONTROL BOX REFILL RATE: 3.0

STABILIZED PUMP RATE (ml/min): 150

STABILIZED DRAWDOWN WATER LEVEL [FT]: 16.47

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
9:55	--	16.46	0.0	44	540	0.88	6.01	12.0	0.0
10:00	150	16.47	0.0	38	524	0.89	5.93	11.6	1000
10:05	150	16.47	0.0	7	386	0.95	5.93	11.6	1750
10:10	150	16:47	0.0	-8	378	0.98	5.96	11.5	2500
10:15	150	16.47	0.0	-20	375	1.03	5.99	11.2	3250
10:20	150	16.47	0.0	-28	359	1.05	6.01	11.3	4000
10:25	150	16.47	0.0	-31	358	1.08	6.02	11.2	4750
10:30	150	16.47	0.0	-33	353	1.07	6.04	11.2	5500
10:35	150	16.47	0.0	-33	350	1.08	6.04	11.2	6250

SAMPLE OBSERVATIONS: None

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-C	6-26-14/10:35	Bladder Pump	Full TCL/TAL

N/C = Not Collected **N/D = Not detected**

DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-D

SECTION 1 - SITE AND WELL INFORMATION

SITE LOCATION 202 Franklin Street, Olean, New York

JOB # 4884S-13

DATE: 6/26/14

SAMPLE COLLECTOR(S): T. Dufault

WEATHER: 70°F, Partly Cloudy

PID READING IN WELL HEADSPACE (PPM): 34

MEASURING POINT (for water levels): Top of Casing

CASING TYPE: PVC

WELL DIAMETER (INCHES): 2”

SCREENED INTERVAL [FT BGS]: 16.23 – 26.23

INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured: 15.40 / 6-26-14

WELL DEPTH [FT BGS]: 26.23
(Do NOT Measure Well depth Prior To Purging And Sampling)

DEPTH OF PUMP INTAKE [FT BGS]: 17.04’

LNAPL: N/D **DNAPL:** N/D **OTHER OBSERVATIONS:** None

SECTION 2 – SAMPLING EQUIPMENT

CONTROL BOX: QED MP-10

TUBING TYPE: 1/4” Water , 1/8” Air

WATER QUALITY METER: Horiba U-22

WATER LEVEL METER: Heron HO1L

PUMP TYPE: ¾” Bladder

PURGE GAS: Air

CONTROL BOX DISCHARGE RATE: 1.5

CONTROL BOX REFILL RATE: 3.0

STABILIZED PUMP RATE (ml/min): 120

STABILIZED DRAWDOWN WATER LEVEL [FT]: 15.40

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
7:45	--	15.40	5.54	-112	432	1.27	6.55	14.3	0
8:00	100	15.40	0.33	-125	324	1.22	6.28	13.2	500
8:05	140	15.40	0.0	-129	353	1.24	6.29	11.5	1200
8:10	120	15.42	0.0	-131	353	1.24	6.29	11.0	1800
8:15	120	15.42	0.0	-134	364	1.24	6.29	10.8	2400
8:20	120	15.40	0.0	-134	382	1.24	6.30	10.8	3000
8:25	120	15.40	0.0	-133	418	1.24	6.30	10.7	3600
8:30	120	15.40	0.0	-132	427	1.24	6.30	10.7	4200
8:35	120	15.40	0.0	-131	535	1.24	6.31	10.9	4800

SAMPLE OBSERVATIONS: None

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-D	6-26-14 / 8:35	Bladder Pump	Full TCL/TAL

N/C = Not Collected **N/D = Not detected**

DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-E

SECTION 1 - SITE AND WELL INFORMATION

SITE LOCATION 202 Franklin Street, Olean, New York

JOB # 4884S-13

DATE: 6/25/14

SAMPLE COLLECTOR(S): T. Dufault

WEATHER: 75°F, Rainy

PID READING IN WELL HEADSPACE (PPM): N/C

MEASURING POINT (for water levels): Top of Casing

CASING TYPE: PVC

WELL DIAMETER (INCHES): 2”

SCREENED INTERVAL [FT BGS]: 17.86 – 27.86

INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured: 15.01 / 6-25-14

WELL DEPTH [FT BGS]: 27.86
(Do NOT Measure Well depth Prior To Purging And Sampling)

DEPTH OF PUMP INTAKE [FT BGS]: 18.41’

LNAPL: N/D **DNAPL:** N/D

OTHER OBSERVATIONS: None

SECTION 2 – SAMPLING EQUIPMENT

CONTROL BOX: QED MP-10

TUBING TYPE: 1/4” Water , 1/8” Air

WATER QUALITY METER: Horiba U-22

WATER LEVEL METER: Heron HO1L

PUMP TYPE: ¾” Bladder

PURGE GAS: Air

CONTROL BOX DISCHARGE RATE: 4.0

CONTROL BOX REFILL RATE: 4.0

STABILIZED PUMP RATE (ml/min): 100

STABILIZED DRAWDOWN WATER LEVEL [FT]: 15.01

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
14:28		15.01	6.52	60	535	0.96	6.71	17.8	0
14:33	90	15.01	2.94	64	492	0.98	6.59	12.0	450
14:38	90	15.01	3.18	62	469	0.99	6.50	12.7	900
14:43	100	15.01	3.41	61	418	0.99	6.52	11.3	1400
14:48	100	15.01	2.19	64	382	0.90	6.43	11.2	1900
14:53	100	15.01	0.47	63	364	0.90	6.46	11.0	2400
14:58	100	15.01	0.38	63	351	0.90	6.45	11.1	2900
15:03	100	15.01	0.27	62	351	0.90	6.44	11.1	3400
15:08	100	15.01	0.26	62	349	0.90	6.44	11.1	3900

SAMPLE OBSERVATIONS: Clear, No Oil Residue

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-E	6-25-14 / 15:08	Bladder Pump	Full TCL/TAL

N/C = Not Collected **N/D = Not detected**

DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-F

SECTION 1 - SITE AND WELL INFORMATION

SITE LOCATION 202 Franklin Street, Olean, New York

JOB # 4884S-13

DATE: 6/25/14

SAMPLE COLLECTOR(S): T. Dufault

WEATHER: 75°F, Rainy

PID READING IN WELL HEADSPACE (PPM): N/C

MEASURING POINT (for water levels): Top of Casing

CASING TYPE: PVC

WELL DIAMETER (INCHES): 2”

SCREENED INTERVAL [FT BGS]: 17.59 – 27.59

INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured: 16.79 / 6-25-14

WELL DEPTH [FT BGS]: 27.59
(Do NOT Measure Well depth Prior To Purging And Sampling)

DEPTH OF PUMP INTAKE [FT BGS]: 18.39’

LNAPL: N/D **DNAPL:** N/D

OTHER OBSERVATIONS: None

SECTION 2 – SAMPLING EQUIPMENT

CONTROL BOX: QED MP-10

TUBING TYPE: 1/4” Water , 1/8” Air

WATER QUALITY METER: Horiba U-22

WATER LEVEL METER: Heron HO1L

PUMP TYPE: ¾” Bladder

PURGE GAS: Air

CONTROL BOX DISCHARGE RATE: 4.0

CONTROL BOX REFILL RATE: 4.0

STABILIZED PUMP RATE (ml/min): 100

STABILIZED DRAWDOWN WATER LEVEL [FT]: 16.75

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
11:22		16.79	0.59	53	699	1.11	6.39	14.7	0.0
11:27	80	16.75	0.23	51	528	1.11	6.42	13.6	400
11:32	100	16.75	0.38	48	638	1.10	6.44	13.7	900
11:37	100	16.75	0.79	47	649	1.10	6.45	13.8	1400
11:42	100	16.75	0.54	46	650	1.10	6.47	13.6	1900
11:47	100	16.75	0.13	46	593	1.10	6.47	13.6	2400
11:52	100	16.75	0.13	45	594	1.08	6.46	15.1	2900
11:57	100	16.75	0.13	45	736	1.09	6.47	13.8	3400
12:04	100	16.75	0.17	45	557	1.10	6.47	13.7	4100

SAMPLE OBSERVATIONS: Clear, No Oil Sheen

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-F	6-25-14/12:05	Bladder Pump	Full TCL/TAL

N/C = Not Collected **N/D = Not detected**

DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-G

SECTION 1 - SITE AND WELL INFORMATION

SITE LOCATION 202 Franklin Street, Olean, New York

JOB # 4884S-13

DATE: 6/26/14

SAMPLE COLLECTOR(S): T. Dufault

WEATHER: 80°F, Partly Cloudy

PID READING IN WELL HEADSPACE (PPM): 45.1

MEASURING POINT (for water levels): Top of Casing

CASING TYPE: PVC

WELL DIAMETER (INCHES): 2”

SCREENED INTERVAL [FT BGS]: 17.75 – 27.75

INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured: 16.69 / 6-26-14

WELL DEPTH [FT BGS]: 27.75
(Do NOT Measure Well depth Prior To Purging And Sampling)

DEPTH OF PUMP INTAKE [FT BGS]: 24.4’

LNAPL: N/D **DNAPL:** N/D **OTHER OBSERVATIONS:** None

SECTION 2 – SAMPLING EQUIPMENT

CONTROL BOX: QED MP-10

TUBING TYPE: 1/4” Water , 1/8” Air

WATER QUALITY METER: Horiba U-22

WATER LEVEL METER: Heron HO1L

PUMP TYPE: ¾” Bladder

PURGE GAS: Air

CONTROL BOX DISCHARGE RATE: 1.0

CONTROL BOX REFILL RATE: 2.0

STABILIZED PUMP RATE (ml/min): 150

STABILIZED DRAWDOWN WATER LEVEL [FT]: 16.69

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
15:05	--	16.69	13.44	-127	369	0.999	6.69	16.0	0
15:10	150	16.69	0.0	-140	451	1.12	6.39	13.3	750
15:15	150	16.69	0.0	-143	415	1.09	6.34	13.1	1500
15:20	150	16.69	0.0	-144	354	1.08	6.33	13.0	2250
15:25	150	16.69	0.0	-145	301	1.08	6.32	12.9	3000
15:30	150	16.69	0.0	-145	269	1.08	6.32	12.9	3750
15:35	150	16.69	0.0	-145	250	1.08	6.31	12.9	4500
15:40	150	16.69	0.0	-144	247	1.08	6.34	12.9	5250
15:45	150	16.69	0.0	-144	249	1.08	6.31	12.9	6000
	SAMPLE OBSERVATIONS: Oil Sheen								

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-G	6-26-14 / 15:45	Bladder Pump	Full TCL/TAL

N/C = Not Collected N/D = Not detected

NOVEMBER 2014 WELL SAMPLING LOGS

DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-A

SECTION 1 - SITE AND WELL INFORMATION

SITE LOCATION 202 Franklin Street

Olean, New York

JOB # 4884S-13

DATE: November 5, 2014

SAMPLE COLLECTOR(S): W. Batiste

WEATHER: ~ 50°F, Cloudy

PID READING IN WELL HEADSPACE (PPM): 5.9

MEASURING POINT (for water levels): Top of Casing

CASING TYPE: PVC

WELL DIAMETER (INCHES): 1”

SCREENED INTERVAL [FT BGS]: 14.49-24.49

INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured 17.53 / 11-5-14

WELL DEPTH [FT BGS]: 24.49

(Do NOT Measure Well depth Prior To Purging And Sampling)

DEPTH OF PUMP INTAKE [FT BGS]: 19.59

LNAPL: N/D **DNAPL:** N/D

OTHER OBSERVATIONS: None

SECTION 2 – SAMPLING EQUIPMENT

CONTROL BOX: QED MP-10

TUBING TYPE: 1/4” Water , 1/8” Air

WATER QUALITY METER: Horiba U-22

WATER LEVEL METER: SWL Solinst

PUMP TYPE: ¾” Bladder

PURGE GAS: Air

CONTROL BOX DISCHARGE RATE: 1.5

CONTROL BOX REFILL RATE: 3.0

STABILIZED PUMP RATE (ml/min): 180

STABILIZED DRAWDOWN WATER LEVEL [FT]: 17.60

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
08:53	180	17.60	2.21	-67	121.0	0.725	5.98	8.7	680
08:58	180	17.60	1.97	-88	76.2	0.802	6.19	6.2	1580
09:03	180	17.60	1.87	-107	62.4	0.821	6.28	5.3	2480
09:08	180	17.60	2.04	-116	32.1	0.842	6.39	4.5	3380
09:13	180	17.60	2.08	-120	16.9	0.842	6.43	4.4	4280
09:18	180	17.60	2.08	-121	16.3	0.842	6.45	4.3	5180
09:23	180	17.60	2.09	-121	15.5	0.842	6.47	4.3	6080

SAMPLE OBSERVATIONS: Very subtle sheen, slight odor

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-A	11-5-14 / 9:30	Bladder Pump	VOC/SVOC/METAL MS / MSD

N/D – Not Detected

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DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-B

SECTION 1 - SITE AND WELL INFORMATION

SITE LOCATION 202 Franklin Street, Olean, New York

JOB # 4884S-13

DATE: November 5, 2014

SAMPLE COLLECTOR(S): W. Batiste

WEATHER: ~ 50°F, Partly Cloudy

PID READING IN WELL HEADSPACE (PPM): 7.4

MEASURING POINT (for water levels): Top of Casing

CASING TYPE: PVC

WELL DIAMETER (INCHES): 2”

SCREENED INTERVAL [FT BGS]: 16.97 – 26.97

INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured: 19.93 / 11-5-14

WELL DEPTH [FT BGS]: 26.97
(Do NOT Measure Well depth Prior To Purging And Sampling)

DEPTH OF PUMP INTAKE [FT BGS]: 21.97

LNAPL: N/D **DNAPL:** N/D **OTHER OBSERVATIONS:** None

SECTION 2 – SAMPLING EQUIPMENT

CONTROL BOX: QED MP-10

TUBING TYPE: 1/4” Water , 1/8” Air

WATER QUALITY METER: Horiba U-22

WATER LEVEL METER: SWL Solinst

PUMP TYPE: ¾” Bladder

PURGE GAS: Air

CONTROL BOX DISCHARGE RATE: 1.5

CONTROL BOX REFILL RATE: 3.0

STABILIZED PUMP RATE (ml/min): 150

STABILIZED DRAWDOWN WATER LEVEL [FT]: 20.00

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
10:40	150	20.00	1.12	-41	25.7	1.10	6.33	4.6	750
10:45	150	20.00	0.14	-65	21.2	1.24	6.47	4.7	1500
10:50	150	20.00	0.02	-87	21.3	1.26	6.62	4.2	2250
10:55	150	20.00	0.00	-92	21.8	1.27	6.65	4.1	3000
11:00	150	20.00	0.00	-98	22.0	1.29	6.73	3.7	3750
11:05	150	20.00	0.00	-103	22.3	1.29	6.75	3.6	4500
11:10	150	20.00	0.00	-105	22.8	1.30	6.78	3.3	5250
11:15	150	20.00	0.00	-107	22.9	1.30	6.78	3.3	6000
11:20	150	20.00	0.00	-108	23.8	1.31	6.79	3.2	6750

SAMPLE OBSERVATIONS: slight odor

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-B	11-5-14 / 11:30	Bladder Pump	VOC/SVOC/METAL

N/D = Not Detected

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DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-C

SECTION 1 - SITE AND WELL INFORMATION

SITE LOCATION 202 Franklin Street
Olean, New York

JOB # 4884S-13

DATE: November 5, 2014

SAMPLE COLLECTOR(S): W. Batiste

WEATHER: ~ 50°F, Sunny

PID READING IN WELL HEADSPACE (PPM): 0.0

MEASURING POINT (for water levels): Top of Casing

CASING TYPE: PVC

WELL DIAMETER (INCHES): 2”

SCREENED INTERVAL [FT BGS]: 12.53 – 22.53

INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured: 19.07 / 11-5-14

WELL DEPTH [FT BGS]: 22.53
(Do NOT Measure Well depth Prior To Purging And Sampling)

DEPTH OF PUMP INTAKE [FT BGS]: 17.54

LNAPL: N/D **DNAPL:** N/D

OTHER OBSERVATIONS: None

SECTION 2 – SAMPLING EQUIPMENT

CONTROL BOX: QED MP-10

TUBING TYPE: 1/4” Water , 1/8” Air

WATER QUALITY METER: Horiba U-22

WATER LEVEL METER: SWL Solinst

PUMP TYPE: ¾” Bladder

PURGE GAS: Air

CONTROL BOX DISCHARGE RATE: 1.5

CONTROL BOX REFILL RATE: 3.0

STABILIZED PUMP RATE (ml/min): 160

STABILIZED DRAWDOWN WATER LEVEL [FT]: 19.18

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
12:10	160	19.18	0.15	172	12.6	0.922	6.08	5.0	660
12:15	160	19.18	0.05	100	10.4	0.956	6.13	4.9	1460
12:20	160	19.18	0.00	38	9.9	1.06	6.25	4.1	2260
12:25	160	19.18	0.00	-27	8.7	1.47	6.40	3.5	3060
12:30	160	19.18	0.00	-51	8.2	1.50	6.46	3.4	3860
12:35	160	19.18	0.00	-69	8.1	1.60	6.52	2.8	4660
12:45	160	19.18	0.00	-73	8.0	1.61	6.57	2.8	5460
12:50	160	19.18	0.00	-75	7.9	1.62	6.58	2.7	6260

SAMPLE OBSERVATIONS: Slight odor (chemical)

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-C	11-5-14 / 13:00	Bladder Pump	VOC/SVOC/METAL

N//D = Not Detected

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DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-D

SECTION 1 - SITE AND WELL INFORMATION

SITE LOCATION 202 Franklin Street
Olean, New York

JOB # 4884S-13

DATE: November 5, 2014

SAMPLE COLLECTOR(S): W. Batiste

WEATHER: ~ 50°F, Sunny

PID READING IN WELL HEADSPACE (PPM): 0.0

MEASURING POINT (for water levels): Top of Casing

CASING TYPE: PVC

WELL DIAMETER (INCHES): 2”

SCREENED INTERVAL [FT BGS]: 16.23 – 26.23

INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured: 17.99 / 11-5-14

WELL DEPTH [FT BGS]: 26.23
(Do NOT Measure Well depth Prior To Purging And Sampling)

DEPTH OF PUMP INTAKE [FT BGS]: 21.23

LNAPL: N/D **DNAPL:** N/D

OTHER OBSERVATIONS: None

SECTION 2 – SAMPLING EQUIPMENT

CONTROL BOX: QED MP-10

TUBING TYPE: 1/4” Water , 1/8” Air

WATER QUALITY METER: Horiba U-22

WATER LEVEL METER: SWL Solinst

PUMP TYPE: ¾” Bladder

PURGE GAS: Air

CONTROL BOX DISCHARGE RATE: 1.5

CONTROL BOX REFILL RATE: 3.0

STABILIZED PUMP RATE (ml/min): 160

STABILIZED DRAWDOWN WATER LEVEL [FT]: 18.05

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
13:35	160	18.05	0.92	-98	10.2	1.32	6.20	6.9	660
13:40	160	18.05	0.28	-113	10.4	1.47	6.40	6.5	1460
13:45	160	18.05	0.00	-137	11.6	1.61	6.63	3.3	2260
13:50	160	18.05	0.00	-143	10.3	1.63	6.73	2.9	3060
13:55	160	18.05	0.00	-147	10.2	1.64	6.75	2.6	3860
14:00	160	18.05	0.00	-149	10.0	1.65	6.78	2.5	4660
14:05	160	18.05	0.00	-151	9.8	1.66	6.79	2.5	5460
14:10	160	18.05	0.00	-152	9.2	1.66	6.80	2.4	6260

SAMPLE OBSERVATIONS: None

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-D	11-5-14 / 14.20	Bladder Pump	VOC/SVOC/METAL

N/D = Not Detected

U:\Batiste\My Documents\WDB0125.4884s-13 Low-Flow Sampling Log.doc

DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-E

SECTION 1 - SITE AND WELL INFORMATION

SITE LOCATION 202 Franklin Street
Olean, New York

JOB # 4884S-13

DATE: November 5, 2014

SAMPLE COLLECTOR(S): W. Batiste

WEATHER: ~ 50°F, Sunny

PID READING IN WELL HEADSPACE (PPM): 0.0

MEASURING POINT (for water levels): Top of Casing

CASING TYPE: PVC

WELL DIAMETER (INCHES): 2”

SCREENED INTERVAL [FT BGS]: 17.86 – 27.86

INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured: 17.50 / 11-5-14

WELL DEPTH [FT BGS]: 27.86
(Do NOT Measure Well depth Prior To Purging And Sampling)

DEPTH OF PUMP INTAKE [FT BGS]: 22.86

LNAPL: N/D **DNAPL:** N/D

OTHER OBSERVATIONS: None

SECTION 2 – SAMPLING EQUIPMENT

CONTROL BOX: QED MP-10

TUBING TYPE: 1/4” Water , 1/8” Air

WATER QUALITY METER: Horiba U-22

WATER LEVEL METER: Heron

PUMP TYPE: ¾” Bladder

PURGE GAS: Air

CONTROL BOX DISCHARGE RATE: 4.0

CONTROL BOX REFILL RATE: 4.0

STABILIZED PUMP RATE (ml/min): 80

STABILIZED DRAWDOWN WATER LEVEL [FT]: 17.50

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
15:00	80	17.50	0.56	31	19.4	1.33	6.45	7.0	580
15:05	80	17.50	0.00	13	13.0	1.49	6.61	3.0	980
15:10	80	17.50	0.00	9	9.8	1.52	6.67	2.4	1380
15:15	80	17.50	0.00	6	8.0	1.53	6.70	2.2	1780
15:20	80	14.50	0.00	4	7.9	1.54	6.74	2.0	2180
15:25	80	17.50	0.00	3	7.3	1.54	6.75	2.0	2580
15:30	80	17.50	0.00	3	7.0	1.54	6.75	2.0	2980

SAMPLE OBSERVATIONS: Clear, no odor

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-E	11-5-14 / 15:45	Bladder Pump	VOC/SVOC/METAL

N/D = Not Detected

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DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-F

SECTION 1 - SITE AND WELL INFORMATION

SITE LOCATION 202 Franklin Street

Olean, New York

JOB # 4884S-13

DATE: November 6, 2014

SAMPLE COLLECTOR(S): W. Batiste

WEATHER: ~ 50°F, Rainy

PID READING IN WELL HEADSPACE (PPM): 0.0

MEASURING POINT (for water levels): Top of Casing

CASING TYPE: PVC

WELL DIAMETER (INCHES): 2”

SCREENED INTERVAL [FT BGS]: 17.59 – 27.59

INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured 19.22 / 11-6-14

WELL DEPTH [FT BGS]: 27.59
(Do NOT Measure Well depth Prior To Purging And Sampling)

DEPTH OF PUMP INTAKE [FT BGS]: 22.59

LNAPL: N/D **DNAPL:** N/D

OTHER OBSERVATIONS: Bailer in well w/cap off

SECTION 2 – SAMPLING EQUIPMENT

CONTROL BOX: QED MP-10

TUBING TYPE: 1/4” Water , 1/8” Air

WATER QUALITY METER: Horiba U-22

WATER LEVEL METER: Heron

PUMP TYPE: ¾” Bladder

PURGE GAS: Air

CONTROL BOX DISCHARGE RATE: 2.0

CONTROL BOX REFILL RATE: 6.0

STABILIZED PUMP RATE (ml/min): 60

STABILIZED DRAWDOWN WATER LEVEL [FT]: 19.22

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
8:15	60	19.22	0.60	42	17.1	0.97	6.39	7.4	560
8:20	60	19.22	0.33	32	11.1	1.02	6.48	6.1	860
8:25	60	19.22	0.22	24	9.5	1.03	6.53	5.3	1160
8:30	60	19.22	0.07	15	6.4	1.03	6.59	4.9	1460
8:35	60	19.22	0.00	13	5.7	1.02	6.65	4.9	1760
8:40	60	19.22	0.00	10	5.5	1.02	6.67	4.8	2060
8:45	60	19.22	0.00	8	5.5	1.02	6.69	4.7	2360
8:50	60	19.22	0.00	8	5.4	1.02	6.70	4.8	2660

SAMPLE OBSERVATIONS: Clear, no odor

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-F	11-6-14 / 9:00	Bladder Pump	VOC/SVOC/METAL

N/D = Not Detected

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DAY ENVIRONMENTAL, INC.

LOW-FLOW GROUNDWATER PURGING AND SAMPLING LOG

WELL MW-G

SECTION 1 - SITE AND WELL INFORMATION

SITE LOCATION 202 Franklin Street

JOB # 4884S-13

PROJECT NAME: Olean, New York

DATE: November 5, 2014

SAMPLE COLLECTOR(S): W. Batiste

WEATHER: ~ 40°F, Rainy

PID READING IN WELL HEADSPACE (PPM): 27.8

MEASURING POINT (for water levels): Top of Casing

CASING TYPE: PVC

WELL DIAMETER (INCHES): 2”

SCREENED INTERVAL [FT BGS]: 17.75 – 27.75

INITIAL WATER LEVEL (SWL) [FT]: SWL / Date Measured: 19.21 / 11-6-14

WELL DEPTH [FT BGS]: 27.75
(Do NOT Measure Well depth Prior To Purging And Sampling)

DEPTH OF PUMP INTAKE [FT BGS]: 22.55

LNAPL: N/D

DNAPL: N/D

OTHER OBSERVATIONS: Odor coming from well

SECTION 2 – SAMPLING EQUIPMENT

CONTROL BOX: QED MP-10

TUBING TYPE: 1/4” Water , 1/8” Air

WATER QUALITY METER: Horiba U-22

WATER LEVEL METER: Heron

PUMP TYPE: ¾” Bladder

PURGE GAS: Air

CONTROL BOX DISCHARGE RATE: 1.0

CONTROL BOX REFILL RATE: 2.0

STABILIZED PUMP RATE (ml/min): 240

STABILIZED DRAWDOWN WATER LEVEL [FT]: 19.23

SECTION 3 – WATER QUALITY DATA MONITORING

Time	Pumping Rate (ml/min)	Water Level (ft)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Conductivity (mS/cm)	pH	Temp. (C^0)	Total Vol. Pumped (ml)
10:15	240	19.23	0.33	-86	9.0	0.908	6.34	12.1	740
10:20	240	19.23	0.09	-105	7.2	0.998	6.39	7.4	1940
10:25	240	19.23	0.00	-113	4.8	1.02	6.56	4.9	3140
10:30	240	19.23	0.00	-116	4.8	1.05	6.60	3.9	4340
10:35	240	19.23	0.00	-118	4.8	1.06	6.61	3.6	5540
10:40	240	19.23	0.00	-121	4.9	1.07	6.63	3.5	6740
10:45	240	19.23	0.00	-122	5.4	1.07	6.67	3.5	7940
10:50	240	19.23	0.00	-123	5.1	1.07	6.68	3.4	9140

SAMPLE OBSERVATIONS: Clear w/petroleum odor

SECTION 4 - SAMPLE IDENTIFICATION AND ANALYTICAL LABORATORY PARAMETERS

SAMPLE ID #	DATE / TIME	SAMPLING METHOD	ANALYTICAL SCAN(S)
MW-G	11-6-14 / 11:00	Bladder Pump	VOC/SVOC/METAL

N/D = Not Detected

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APPENDIX E

HYDRAULIC CONDUCTIVITY TEST RESULTS

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

DATE: February 10, 2015

DAY REPRESENTATIVES: W.Batiste

WELL: MW-B

WELL DIAMETER: 2"

SWL: 19.18

SLUG DIMENSIONS: Length = 3.28'; Diameter =1.9"

TIME SLUG IN: 09:47

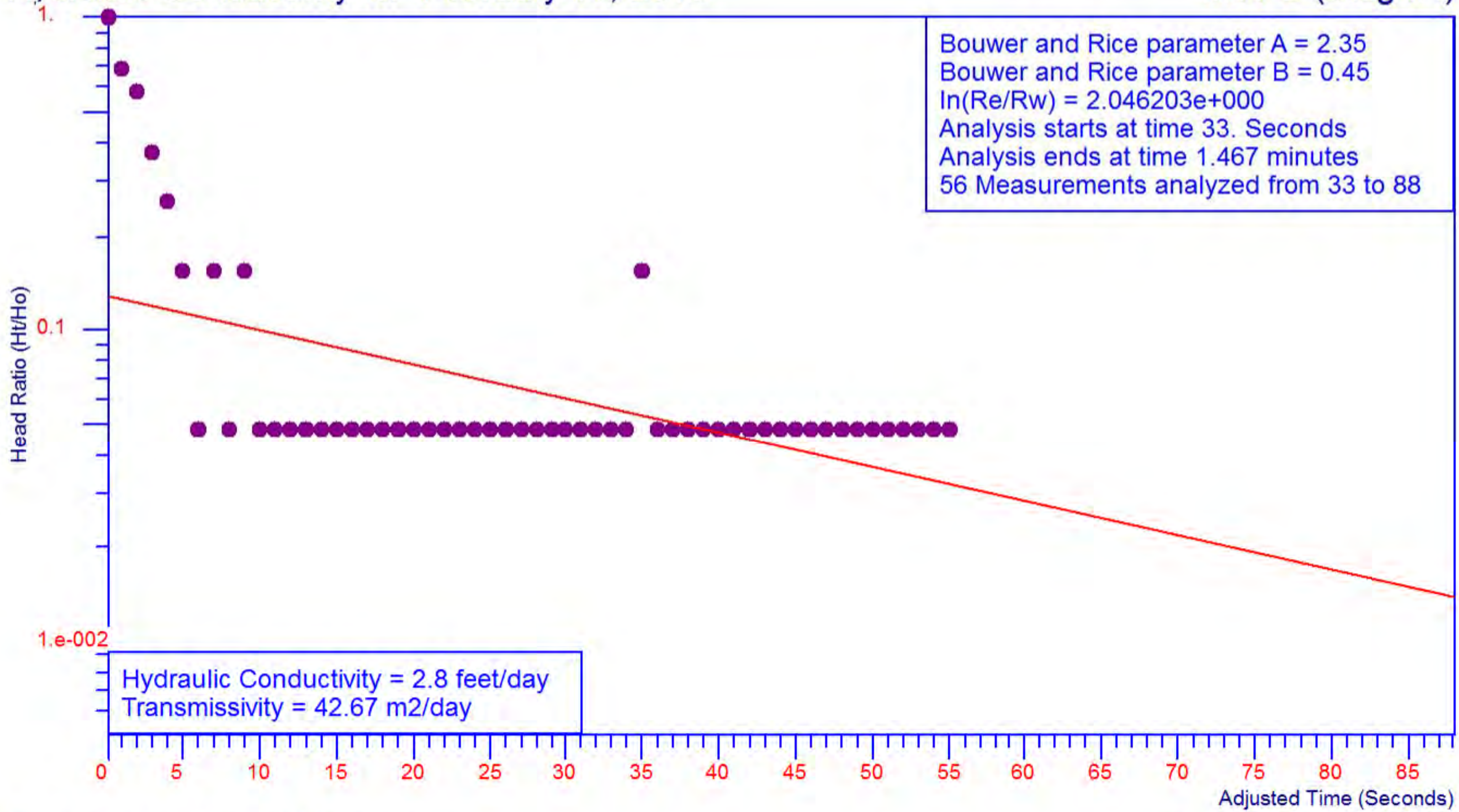
TIME SLUG OUT: 09:50

TIME	WATER LEVEL	TIME	WATER LEVEL	TIME	WATER LEVEL	TIME	WATER LEVEL
SLUG IN	19.18			***SLUG OUT***	19.28		
N/C				09:52	19.24		
				09:54	19.22		
				09:56	19.20		

202 Franklin Street, Olean, NY **Bouwer and Rice Graph**

Hydraulic Conductivity for February 10, 2015

MW-B (Slug-IN)



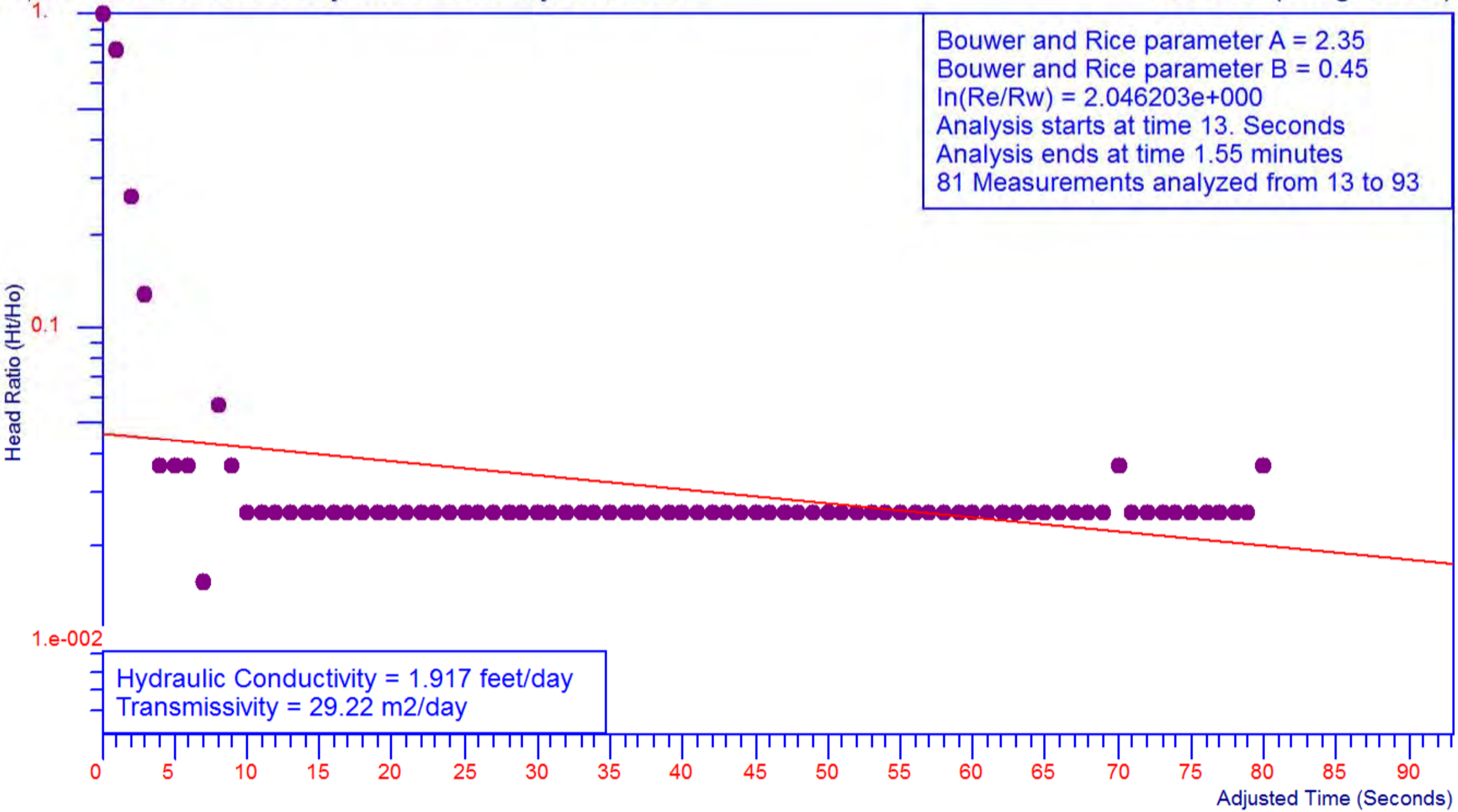
Ho is 0.1596 feet at 33. Seconds

Project Number: 4884S-13

Analysis by Starpoint Software

202 Franklin Street, Olean, NY **Bouwer and Rice Graph**

Hydraulic Conductivity for February 10, 2015 MW-B (Slug-OUT)



Ho is 1.645 feet at 13. Seconds

Project Number: 4884S-13

Analysis by Starpoint Software

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

DATE: February 10, 2015

DAY REPRESENTATIVES: W.Batiste

WELL: MW-C

WELL DIAMETER: 2"

SWL: 18.32

SLUG DIMENSIONS: Length = 3.28'; Diameter =1.9"

TIME SLUG IN: 10:39

TIME SLUG OUT: 10:42

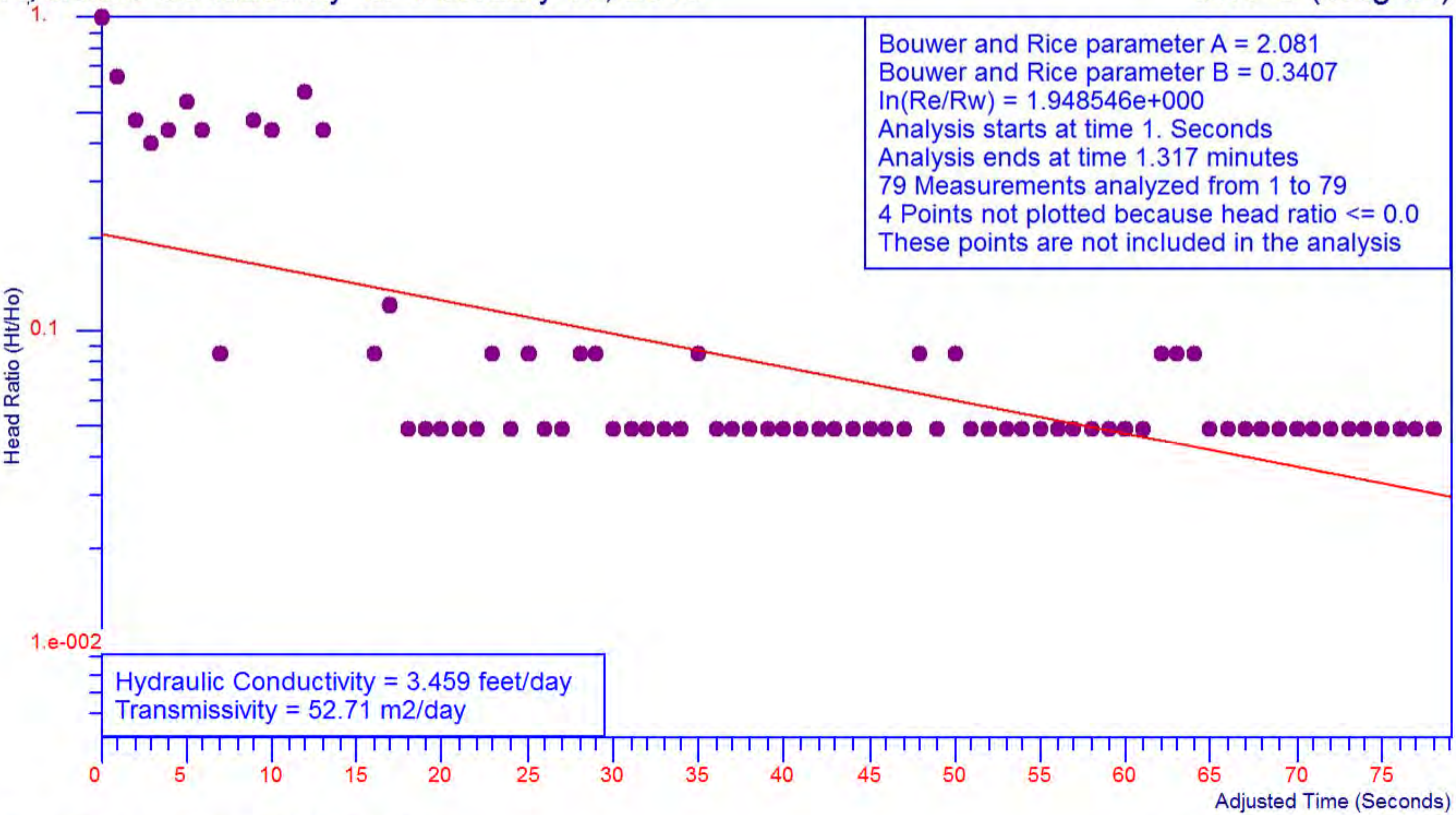
TIME	WATER LEVEL	TIME	WATER LEVEL	TIME	WATER LEVEL	TIME	WATER LEVEL
SLUG IN	18.33			***SLUG OUT***	18.33		

202 Franklin Street, Olean, NY

Bouwer and Rice Graph

Hydraulic Conductivity for February 10, 2015

MW-C (Slug-IN)



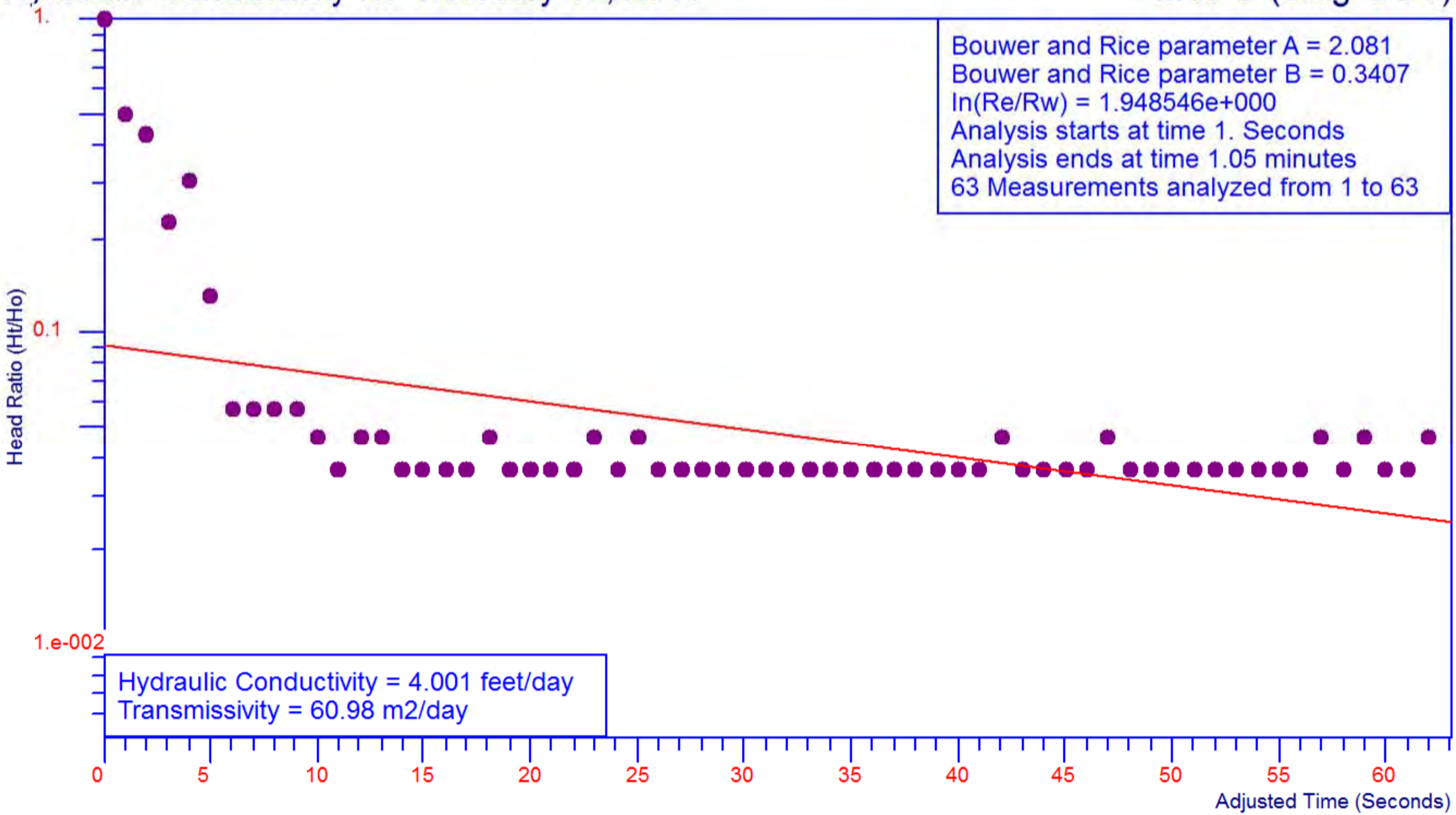
Ho is 0.4786 feet at 1. Seconds

Project Number: 4884S-13

Analysis by Starpoint Software

202 Franklin Street, Olean, NY **Bouwer and Rice Graph**

Hydraulic Conductivity for February 10, 2015 MW-C (Slug-OUT)



Ho is 1.61 feet at 1. Seconds

Project Number: 4884S-13
Analysis by Starpoint Software

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

SITE: 211 Franklin Street, Olean NY

JOB NUMBER: 4884s-13

DATE: 11-5-14

DAY REPRESENTATIVES: W. Batiste

WELL: MW-K

WELL DIAMETER: 2"

STATIC WATER LEVEL: 20.8

SLUG DIMENSIONS: Length = 3.3'; Diameter = 0.15'

WELL DEPTH: 29.60'

TIME SLUG IN: 1615

TIME SLUG OUT: 1625

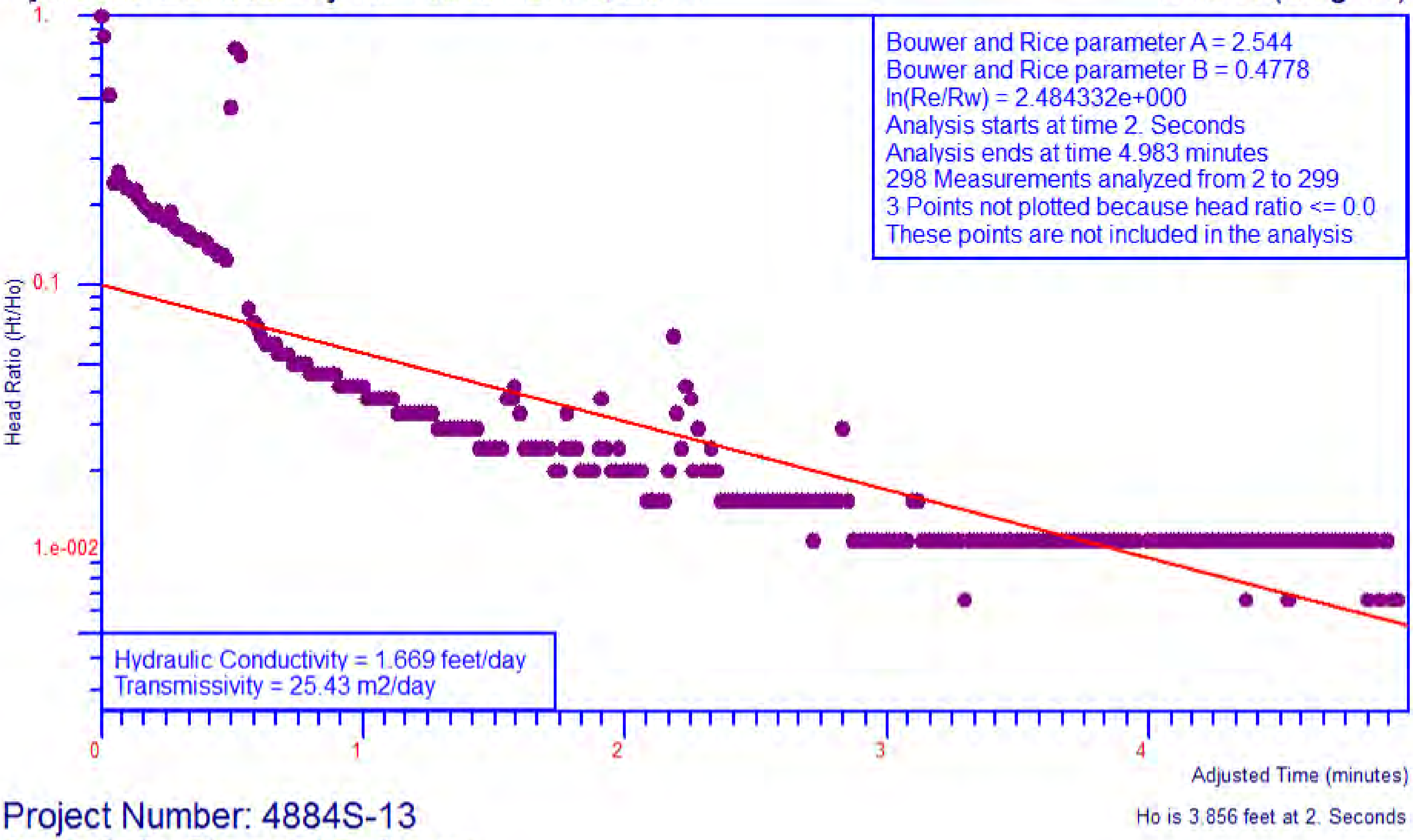
TIME	WATER LEVEL	TIME	WATER LEVEL	TIME	WATER LEVEL	TIME	WATER LEVEL
SLUG IN	20.8			***SLUG OUT***	-		
1617	20.74			1625	-		
1618	20.75			1627	21.70		
1619	20.76			16.28	21.18		
1620	20.77			1629	20.95		
1623	20.77			1630	20.88		
1624	20.77			1631	20.85		
				1632	20.83		
				1633	20.83		

211 Franklin Street, Olean, NY

Hydraulic Conductivity for November 5, 2014

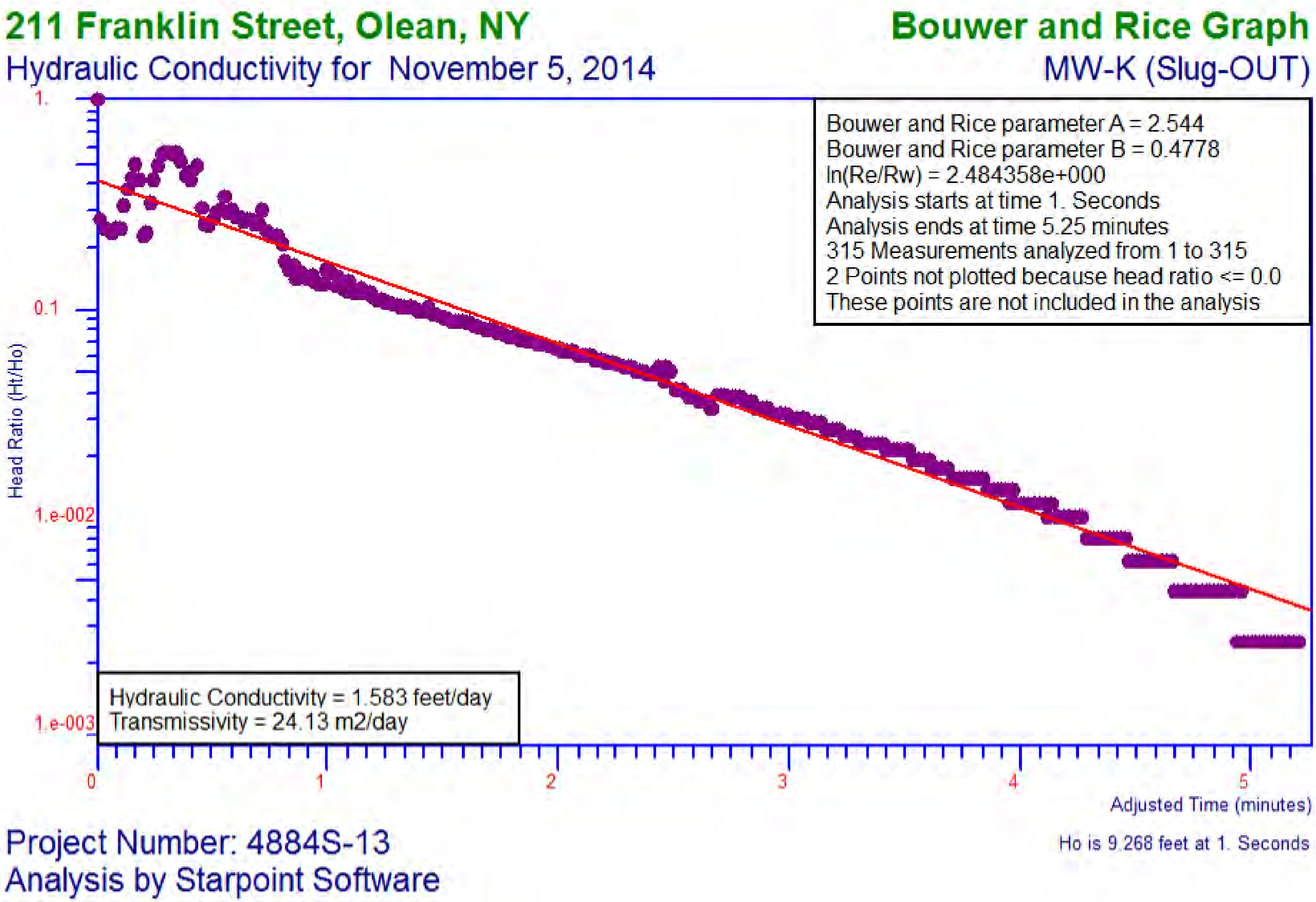
Bouwer and Rice Graph

MW-K (Slug-IN)



Project Number: 4884S-13

Analysis by Starpoint Software


211 Franklin Street, Olean, NY
Hydraulic Conductivity for November 5, 2014
Bouwer and Rice Graph
MW-K (Slug-OUT)
Bouwer and Rice parameter A = 2.544
Bouwer and Rice parameter B = 0.4778
ln(Re/Rw) = 2.484358e+000
Analysis starts at time 1. Seconds
Analysis ends at time 5.25 minutes
315 Measurements analyzed from 1 to 315
2 Points not plotted because head ratio <= 0.0
These points are not included in the analysis
Hydraulic Conductivity = 1.583 feet/day
Transmissivity = 24.13 m2/day
Head Ratio (Ht/Ho)
1.
0.1
1.e-002
1.e-003
0
1
2
3
4
5
Adjusted Time (minutes)
Ho is 9.268 feet at 1. Seconds
Project Number: 4884S-13
Analysis by Starpoint Software

APPENDIX F

ANALYTICAL LABORATORY REPORTS/CHAIN-OF-CUSTODY DOCUMENTATION
AND
DATA USABILITY SUMMARY REPORTS

(INCLUDED ON A COMPACT DISC)

APPENDIX G

FISH AND WILDLIFE RESOURCES ANALYSIS (FWRIA) DECISION KEY

Appendix 3C Fish and Wildlife Resources Impact Analysis Decision Key	If YES Go to:	If NO Go to:
1. Is the site or area of concern a discharge or spill event?	13	2
2. Is the site or area of concern a point source of contamination to the groundwater which will be prevented from discharging to surface water? Soil contamination is not widespread, or if widespread, is confined under buildings and paved areas.	13	3
3. Is the site and all adjacent property a developed area with buildings, paved surfaces and little or no vegetation?	4	9
4. Does the site contain habitat of an endangered, threatened or special concern species?	Section 3.10.1	5
5. Has the contamination gone off-site?	6	14
6. Is there any discharge or erosion of contamination to surface water or the potential for discharge or erosion of contamination?	7	14
7. Are the site contaminants PCBs, pesticides or other persistent, bioaccumulable substances?	Section 3.10.1	8
8. Does contamination exist at concentrations that could exceed ecological impact SCGs or be toxic to aquatic life if discharged to surface water?	Section 3.10.1	14
9. Does the site or any adjacent or downgradient property contain any of the following resources? i. Any endangered, threatened or special concern species or rare plants or their habitat ii. Any DEC designated significant habitats or rare NYS Ecological Communities iii. Tidal or freshwater wetlands iv. Stream, creek or river v. Pond, lake, lagoon vi. Drainage ditch or channel vii. Other surface water feature viii. Other marine or freshwater habitat ix. Forest x. Grassland or grassy field xi. Parkland or woodland xii. Shrubby area xiii. Urban wildlife habitat xiv. Other terrestrial habitat	11	10
10. Is the lack of resources due to the contamination?	3.10.1	14
11. Is the contamination a localized source which has not migrated and will not migrate from the source to impact any on-site or off-site resources?	14	12
12. Does the site have widespread surface soil contamination that is not confined under and around buildings or paved areas?	Section 3.10.1	12
13. Does the contamination at the site or area of concern have the potential to migrate to, erode into or otherwise impact any on-site or off-site habitat of endangered, threatened or special concern species or other fish and wildlife resource? (See #9 for list of potential resources. Contact DEC for information regarding endangered species.)	Section 3.10.1	14
14. No Fish and Wildlife Resources Impact Analysis needed.		